



# **Information Technology Solution Contract**

between

**The Virginia Information Technologies Agency**

on behalf of

**The Commonwealth of Virginia**

and

**Carahsoft Technology Corporation**

**INFORMATION TECHNOLOGY SOLUTION CONTRACT  
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## INFORMATION TECHNOLOGY SOLUTION CONTRACT

THIS INFORMATION TECHNOLOGY Solution CONTRACT (“Contract”) is entered into by and between the Virginia Information Technologies Agency (VITA) pursuant to §2.2-2012 of the Code of Virginia and on behalf of the Commonwealth of Virginia (hereinafter referred to as “VITA”), and Carahsoft Technology Corporation (“Supplier”), a corporation headquartered at 1860 Michael Faraday Drive, Suite 100, Reston, VA 20190, to be effective as of September 15, 2015 (“Effective Date”).

### 1. PURPOSE AND SCOPE

This Contract sets forth the terms and conditions under which Supplier shall provide Next generation software analytics to the Authorized Users. This includes next-generation analytics, supporting tools, the services needed to deploy and tune these tools, and training services. These tool sets include Business Intelligence (BI), predictive, prescriptive, statistical analytics, simulation, data visualization, data quality, data governance, unstructured data, Hadoop, MapReduce, and Splunk operational intelligence.

### 2. DEFINITIONS

#### A. Acceptance

Successful delivery and performance by the Supplier of its contractual commitments at the location(s) designated in the applicable Statement of Work or order, including completed and successful Acceptance testing in conformance with the Requirements as determined by the Authorized User in the applicable Statement of Work or order.

#### B. Agent

Any third party independent agent of any Authorized User.

#### C. Authorized Users

**D. Except for telecommunications contracts, means all public bodies, including VITA, as defined by §2.2-4301 and referenced by §2.2-4304 of the Code of Virginia. Authorized Users shall include private institutions of higher education that are listed at:**

**<http://www.cicv.org/Our-Colleges/Profiles.aspx>. Business Day/Hour**

Normal operating hours for the Commonwealth of Virginia: Monday-Friday, 8 a.m.-5 p.m. Eastern Standard/Daylight Time, unless otherwise specified on the applicable order or Statement of Work, excluding Commonwealth-designated holidays.

#### E. Component

Software or Deliverable delivered by Supplier under this Contract, including under all orders or Statements of Work.

#### F. Computer Virus

Any malicious code, program, or other internal component (e.g., computer virus, computer worm, computer time bomb, or similar component), which could damage, destroy, alter or disrupt any computer program, firmware, or hardware or which could, in any manner, reveal, damage, destroy, alter or disrupt any data or other information accessed through or processed by such software in any manner.

#### G. Confidential Information

Any confidential or proprietary information of a Party that is disclosed in any manner, including oral or written, graphic, machine readable or other tangible form, to any other Party in connection with or as a result of discussions related to this Contract or any order or SOW issued hereunder, and which at the time of disclosure either (i) is marked as being “Confidential” or “Proprietary”, (ii) is otherwise reasonably identifiable as the confidential or proprietary information of the disclosing Party, or (iii) under the circumstances of disclosure should reasonably be considered as confidential or proprietary information of the disclosing Party or (iv) is identifiable or should be reasonably considered as protected health information; (v) any personally identifiable information, including information about VITA’s employees, contractors, and customers, that is protected by statute or other applicable law.

**H. Deliverable**

The tangible embodiment of the work performed or Services, Maintenance Services, Licensed Services, Solution, Component, Software, plans, reports, data, Product, Supplier Product and Updates provided by the Supplier in fulfilling its obligations under the Contract or as identified in the applicable Statement of Work or order, including the development or creation of Work Product, if Work Product is authorized under the Contract.

**I. (reserved)****J. Documentation**

Those materials (including user manuals, training materials, guides, product descriptions, technical manuals, product specifications, supporting materials and Updates) detailing the information and instructions needed in order to allow any Authorized User and its Agents or Application Users to make productive use of the Application, Software, Solution, Component, Product, Service, Licensed Services or Deliverable, and to implement and develop self-sufficiency with regard to the Application, Software, Solution, Component, Product, Service, Licensed Services or Deliverable, provided by Supplier in fulfilling its obligations under the Contract or as may be specified in any Statement of Work or order issued hereunder.

**K. Electronic Self-Help**

Any use of electronic means to exercise Supplier's license termination rights, if allowable pursuant to the Contract, upon breach or cancellation, termination or expiration of this Contract or any Statement of Work or order placed hereunder.

**L. Health Record**

"Health record" means any written, printed or electronically recorded material maintained by a health care entity in the course of providing health services to an individual concerning the individual and the services provided. "Health record" also includes the substance of any communication made by an individual to a health care entity in confidence during or in connection with the provision of health services or information otherwise acquired by the health care entity about an individual in confidence and in connection with the provision of health services to the individual. (§ 32.1-127.1:03, Code of Virginia)

**M. (reserved)****N. Maintenance Level**

The defined parameters of Maintenance Services, including the times during which and time-frames in which Supplier shall respond to a request for Maintenance Services. The available Maintenance Levels shall be as defined in this Contract or as defined in any Statement of Work or order issued hereunder. The actual Maintenance Level for a unit of Software or Product shall be set forth in the executed order or Statement of Work for Maintenance of that Software or Product referencing this Contract.

**O. Maintenance Services (or "Maintenance" or "Software Maintenance")**

If authorized by the Contract, means those services, preventive and remedial, provided or performed by Supplier under the Contract or for an Authorized User in order to ensure continued operation of the Software or Product, including Software Updates. Maintenance Services shall include support services. Software Maintenance Services may include the development of Work Product, if so authorized in the Contract.

**P. Party**

Supplier, VITA or any Authorized User.

**Q. Protected Health Information**

Protected health information means individually identifiable health information that is (i) transmitted in electronic media, (ii) maintained in electronic media, or (iii) transmitted or maintained in any other form or medium. Protected health information excludes individually identifiable health information in (a) education records covered by the Family Educational Rights

and Privacy Act (20 U.S.C. § 1232g); (b) records of any student who is 18 years of age or older, or is attending a postsecondary school, that are made or maintained by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional acting in his professional or paraprofessional capacity, or assisting in that capacity, and that are made, maintained, or used only in connection with the provision of treatment to the student and are not available to anyone other than persons providing such treatment, except that such records may be personally reviewed by a physician or other appropriate professional of the student's choice; and (c) employment records held, in its role as employer, by a health plan, health care clearinghouse, or health care provider that transmits health information in electronic form. (§ 37.2-1032, Code of Virginia)

**R. Receipt**

An Authorized User or its Agent has physically received or has unfettered access to any Deliverable at the correct "ship-to" location.

**S. Requirements**

The functional, performance, operational, compatibility, Acceptance testing criteria and other parameters and characteristics of the Product, Software, Solution, Component, Service(s), Application and Licensed Services and Deliverables, as authorized by the Contract and/or as set forth in Exhibit A and/or the applicable Statement of Work or order and such other parameters, characteristics, or performance standards that may be agreed upon in writing by the Parties.

**T. Services**

Any work performed or service provided by Supplier in fulfilling its obligations under the Contract or, as applicable, any Statement of Work or order issued under the Contract, including design, and development of software and modifications, software updates, solution, products, implementation, installation, maintenance, support, testing, training, or other provision to the Authorized User of any Deliverable described in the applicable Statement of Work or order, as authorized by the Contract scope. As permitted by the scope of the Contract, may include the discovery, creation, or development of Work Product, if any. If Work Product is authorized, refer to definition for Work Product. This definition does not include Licensed Services.

**U. Software**

If Software is authorized under the Contract, means the programs and code provided by Supplier under the Contract or any order or SOW issued hereunder as a component(s) of any Deliverable or Component of any Solution, and any subsequent modification of such programs and code, excluding Work Product. For COTS (boxed) software, means the programs and code, and any subsequent releases, provided by Supplier under this Contract as set forth in Exhibit B or as described on Supplier's US and International price lists in effect at time of Authorized User's placement of order or Statement of Work. For Software Maintenance contracts Software also includes the programs and code provided by Supplier under the Contract or any order or SOW issued hereunder in the form of Software Updates.

**V. Software Publisher**

If Software is authorized under the Contract, means the licensor of the Software, other than Supplier, provided by Supplier under this Contract.

**W. Solution**

The Supplier's contractually committed technical approach for solving a technology business objective and associated Requirements as defined and authorized by the scope of the Contract or any order or Statement of Work issued under the Contract. Solution means all Supplier and Supplier's third-party providers' Components making up the Solution, including but not limited to Software, Product, configuration design, implementation, Supplier-developed interfaces, Services and Work Product.

**X. Statement of Work (SOW)**

The document template attached as Exhibit D (describing the deliverables, due dates, assignment duration and payment obligations for a specific project, engagement, or assignment

that Supplier commits to provide to an Authorized User), which, upon signing by both Parties, shall be deemed a part of the Contract.

**Y. Supplier**

Means the Supplier and any of its Affiliates (i.e., an entity that controls, is controlled by, or is under common control with Supplier).

**Z. Update**

As applicable, any update, modification or new release of the Software, System Software, Application, Documentation or Supplier Product that Supplier makes generally available to its customers at no additional cost. Software Updates include patches, fixes, upgrades, enhancements, improvements, or access mode, including without limitation additional capabilities to or otherwise improve the functionality, increase the speed, efficiency, or base operation of the Software.

**AA. Work Product**

Inventions, combinations, machines, methods, formulae, techniques, processes, improvements, software designs, computer programs, strategies, specific computer-related know-how, data and original works of authorship (collectively, the "Work Product") discovered, created, or developed by Supplier, or jointly by Supplier and an Authorized User(s) in the performance of this Contract. Work Product shall not include configuration of software.

**3. TERM AND TERMINATION**

**A. Contract Term**

This Contract is effective and legally binding as of the Effective Date and, unless terminated as provided for in this section, shall continue to be effective and legally binding for a period of three (3) years. VITA, in its sole discretion, may extend this Contract for up to two (2) additional one (1) year periods after the expiration of the initial three (3) year period. VITA will issue a written notification to the Supplier stating the extension period thirty (30) days prior to the expiration of any current term. In addition, performance of an order or SOW issued during the term of this Contract may survive the expiration of the term of this Contract, in which case all contractual terms and conditions required for the operation of such order or SOW shall remain in full force and effect until all of Supplier's obligations pursuant to such order or SOW have met the final Acceptance criteria of the applicable Authorized User.

**B. Termination for Convenience**

VITA may terminate this Contract, in whole or in part, or any order or SOW issued hereunder, in whole or in part, or an Authorized User may terminate an order or SOW, in whole or in part, upon not less than thirty (30) days prior written notice at any time for any reason.

**C. Termination for Breach or Default**

VITA shall have the right to terminate this Contract, in whole or in part, or any order or SOW issued hereunder, in whole or in part, or an Authorized User may terminate an order or SOW, in whole or in part, for breach and/or default of Supplier. Supplier shall be deemed in breach and/or default in the event that Supplier fails to meet any material obligation set forth in this Contract or in any order or SOW issued hereunder.

If VITA deems the Supplier to be in breach and/or default, VITA shall provide Supplier with notice of breach and/or default and allow Supplier fifteen (15) days to cure the breach and/or default. If Supplier fails to cure the breach as noted, VITA may immediately terminate this Contract or any order or SOW issued hereunder, in whole or in part. If an Authorized User deems the Supplier to be in breach and/or default of an order or SOW, such Authorized User shall provide Supplier with notice of breach and/or default and allow Supplier fifteen (15) days to cure the breach and/or default. If Supplier fails to cure the breach and/or default as noted, such Authorized User may immediately terminate its order or SOW, in whole or in part. Any such termination shall be deemed a Termination for Breach or Termination for Default. In addition, if Supplier is found by a court of competent jurisdiction to be in violation of or to have violated 31 USC 1352 or if Supplier becomes a party excluded from Federal Procurement and Nonprocurement Programs, VITA may

immediately terminate this Contract, in whole or in part, for breach, and VITA shall provide written notice to Supplier of such termination. Supplier shall provide prompt written notice to VITA if Supplier is charged with violation of 31 USC 1352 or if federal debarment proceedings are instituted against Supplier.

**D. Termination for Non-Appropriation of Funds**

All payment obligations from public bodies under this Contract are subject to the availability of legislative appropriations at the federal, state, or local level, for this purpose. In the event of non-appropriation of funds, irrespective of the source of funds, for the items under this Contract, VITA may terminate this Contract, in whole or in part, or any order or SOW, in whole or in part, or an Authorized User may terminate an order or SOW, in whole or in part, for those goods or services for which funds have not been appropriated. Written notice will be provided to the Supplier as soon as possible after legislative action is completed.

**E. Effect of Termination**

Upon termination, neither the Commonwealth, nor VITA, nor any Authorized User shall have any future liability except for Deliverables accepted by the Authorized User or Services, including as applicable, Licensed Services and Maintenance Services, rendered by Supplier and accepted by the Authorized User prior to the termination date.

In the event of a Termination for Breach or Termination for Default, Supplier shall accept return of any Deliverable that was not accepted by the Authorized User(s), and Supplier shall refund any monies paid by any Authorized User for such Deliverable, and all costs of de-installation and return of Deliverables shall be borne by Supplier.

**F. Termination by Supplier**

Termination by Supplier will not be considered.

**G. Transition of Services**

Prior to or upon expiration or termination of this Contract and at the request of VITA, Supplier shall provide all assistance as VITA or an Authorized User may reasonably require to transition the Supplier's contractual obligations, or any portion thereof, as requested by VITA or the Authorized User, to any other supplier with whom VITA or such Authorized User contracts for provision of same. This obligation may extend beyond expiration or termination of the Contract for a period not to exceed six (6) months. In the event of a termination for breach and/or default of Supplier, Supplier shall provide such assistance at no charge or fee to VITA or any Authorized User; otherwise, Supplier shall provide such assistance at the hourly rate or a charge agreed upon by Supplier and VITA or an Authorized User.

**H. Contract Kick-Off Meeting**

Within 30 days of Contract award, Supplier may be required to attend a contract orientation meeting, along with the VITA contract manager/administrator, the VITA and/or other agency project manager(s) or authorized representative(s), technical leads, VITA representatives for SWaM and Sales/IFA reporting, as applicable, and any other significant stakeholders who have a part in the successful performance of this Contract. The purpose of this meeting will be to review all contractual obligations for both parties, all administrative and reporting requirements, and to discuss any other relationship, responsibility, communication and performance criteria set forth in the Contract. The Supplier may be required to have its assigned account manager as specified in Section 6.0 and a representative from its contracts department in attendance. The time and location of this meeting will be coordinated with Supplier and other meeting participants by the VITA contract manager.

**I. Contract Closeout**

Prior to the contract's expiration date, Supplier may be provided contract close out documentation and shall complete, sign and return to VITA Supply Chain Management within 30 days of receipt. This documentation may include, but not be limited to: Patent/Royalty Certificate, Tangible Property/Asset Certificate, Escrow Certificate, SWaM Reports Completion Certificate, other required Small Business (SWaM) Procurement Plan compliance/variance and non-SWaM spend documentation as described in the Reporting section of this Contract, Sales Reports/IFA

Payments Completion Certificate, and Final Payment Certificate. Supplier is required to process these as requested to ensure completion of close-out administration and to maintain a positive performance reputation with the Commonwealth of Virginia. Any closeout documentation not received within 30 days of Supplier's receipt of the Commonwealth's request will be documented in the contract file as Supplier non-compliance. Supplier's non-compliance may affect any pending payments due the Supplier, including final payment, until the documentation is returned.

#### **4. SUPPLIER PERSONNEL**

##### **A. Selection and Management of Supplier Personnel**

Supplier shall take such steps as may be necessary to ensure that all Supplier personnel performing under this Contract are competent and knowledgeable of the contractual arrangements and the applicable order or SOW between Authorized User and Supplier. Supplier shall be solely responsible for the conduct of its employees, agents, and subcontractors, including all acts and omissions of such employees, agents, and subcontractors, and shall ensure that such employees and subcontractors comply with the appropriate Authorized User's site security, information security and personnel conduct rules, as well as applicable federal, state and local laws, including export regulations. Authorized User reserves the right to require the immediate removal from such Authorized User's premises of any employee, subcontractor or agent of Supplier whom such Authorized User believes has failed to comply with the above or whose conduct or behavior is unacceptable or unprofessional or results in a security or safety breach.

##### **B. Supplier Personnel Supervision**

Supplier acknowledges that Supplier or any of its agents, contractors, or subcontractors, is and shall be the employer of Supplier personnel, and shall have sole responsibility to supervise, counsel, discipline, review, evaluate, set the pay rates of, provide (to the extent required by law) health care and other benefits for, and terminate the employment of Supplier personnel. Neither VITA nor an Authorized User shall have any such responsibilities for Supplier or subcontractor personnel.

##### **C. Key Personnel**

An order or SOW may designate certain of Supplier's personnel as Key Personnel or Project Managers. Supplier's obligations with respect to Key Personnel and Project Managers shall be described in the applicable order or SOW. Failure of Supplier to perform in accordance with such obligations may be deemed a default of this Contract or of the applicable order or SOW.

##### **D. Subcontractors**

Supplier shall not use subcontractors to perform its contractual obligations under the Contract or any order or SOW issued thereunder unless specifically authorized in writing to do so by the Authorized User. If an order or SOW issued pursuant to this Contract is supported in whole or in part with federal funds, Supplier shall not subcontract to any subcontractor that is a party excluded from Federal Procurement and Nonprocurement Programs. In no event shall Supplier subcontract to any subcontractor which is debarred by the Commonwealth of Virginia or which owes back taxes to the Commonwealth and has not made arrangements with the Commonwealth for payment of such back taxes.

If Supplier subcontracts the provision of any performance obligation under this Contract to any other party, Supplier will (i) act as prime contractor and shall be the sole point of contact with regard to all obligations under this Contract, and (ii) hereby represents and warrants that any authorized subcontractors shall perform in accordance with the warranties set forth in this Contract.

#### **5. NEW TECHNOLOGY**

##### **A. Access to New Technology**

Supplier will bring to VITA's attention any new products or services within the scope of the Contract that it believes will be of interest to VITA and will work to develop proposals for the provision of any such products or services as VITA requests.

**B. New Service Offerings Not Available from Supplier**

If new or replacement product or service offerings become available to VITA under the scope of the Contract, and cannot be competitively provided by the Supplier, VITA may purchase such new or replacement products or services from a third party, and Supplier will reasonably assist VITA to migrate to such products or services, if VITA elects to use such new or replacement product or service offerings.

If VITA elects to acquire new products or services as described in the above paragraph and such services replace existing Supplier-provided services, discount tiers and any commitments (as applicable per the Contract) will be reduced to reflect reductions in purchases of the replaced products or services.

**6. SOFTWARE LICENSE**

If Authorized User is a state agency, board, commission, or other quasi-political entity of the Commonwealth of Virginia or other body referenced in Title 2.2 of the Code of Virginia, the license shall be held by the Commonwealth. If Authorized User is a locality, municipality, school, school system, college, university, local board, local commission, or local quasi-political entity, the license shall be held by that public body. If Authorized User is a private institution of higher education which is listed at: <http://www.cicv.org/Our-Colleges/Profiles.aspx>, the license shall be held by that private institution.

**A. License Grant**

Supplier grants to the Commonwealth and all Authorized Users a fully paid, perpetual, worldwide, nonexclusive, transferable, irrevocable object code license to use, copy, modify, transmit and distribute the Software and Documentation including any subsequent revisions, in accordance with the terms and conditions set forth herein and subject only to the limitations and/or restrictions explicitly set forth in this Contract. It is expressly understood that "perpetual" license rights shall commence upon delivery of the Software to the Authorized User and shall exist in perpetuity unless otherwise terminated in accordance with the applicable provisions of the Contract. The Software is the property of Supplier, and no title or ownership of the Software or any of its parts, including Documentation, shall transfer to the Commonwealth or any Authorized User.

The Commonwealth and all Authorized Users shall have the right to use, copy, modify, transmit and distribute the Software for their benefit, for government use and purposes, and for the benefit of their Agents, including internal and third-party information processing.

The Commonwealth and any Authorized User may allow access to the Software by third party vendors who are under contract with an Authorized User to provide services to or on behalf of such Authorized User, or by other entities as required for conducting the business of government. Access includes loading or executing the Software on behalf of such Authorized Users or their Agents.

The license fee includes a test system copy, which consists of the right to use the Software for non-production test purposes, including but not limited to, problem/defect identification, remediation, and resolution, debugging, new version evaluation, Software interface testing, and disaster recovery technique analysis and implementation.

In the event that all of an Authorized User's copies of the Software, including all backup copies, are destroyed, irreparably damaged or otherwise lost due to fire, explosion, sabotage, flood or other disaster, Supplier shall provide to such Authorized User, at no additional cost, replacement copies of the Software and Documentation. Nothing contained in this Section shall obligate Supplier to replace or assist in the recovery of data lost concurrent with the loss of the Software.

An Authorized User may make a reasonable number of copies of the Software and Documentation for use in training, support, demonstrations, backup, archiving, disaster recovery and development, and may run the Software concurrently at a back-up site, for no additional license fees or costs. Such Authorized User agrees that any copies of the Software or Documentation that it makes under this Contract shall bear all copyright, trademark and other

proprietary notices included therein by Supplier. An Authorized User may add its own copyright or other proprietary notice, or copyright or other proprietary notice of the Commonwealth, to any copy of the Software or Documentation, which contains modifications to which the Commonwealth or such Authorized User has ownership rights pursuant to this Contract.

Except as expressly authorized, an Authorized User shall not distribute the Software to any third party without Supplier's prior written consent.

Except as provided or allowed by law, no Party shall reverse engineer, decompile, disassemble, or otherwise attempt to derive source code or other trade secrets from any software or other intellectual property of any other Party.

For additional terms related to Software as a Service (SaaS), refer to Exhibit H.

Nothing contained herein shall be construed to restrict or limit the rights of the Commonwealth or any Authorized User to use any technical data, which the Commonwealth or such Authorized User may already possess or acquire under proper authorization from other sources.

Compliance with the terms and conditions of any license granted pursuant to this Contract is solely the responsibility of the Authorized User which purchased such license or for which such license was purchased and not the responsibility of VITA, unless VITA purchased such license on its own behalf.

## **B. License Type**

All licenses granted, regardless of the type, include all uses set forth above. License type may vary by Software product and shall be set forth in Exhibit B and identified on any order or SOW issued pursuant to this Contract.

### **[option C1 - Designated CPU License]**

The license(s) granted under this Section authorizes use of the Software only on the number of CPU(s) listed in the applicable order or SOW. An Authorized User may transfer the Software to a different machine to the extent that the license price for such new CPU(s) is equivalent to the CPU(s) initially licensed. If the licensed CPU is inoperative because of (i) malfunction, (ii) performance of maintenance, or (iii) modification to the licensed CPU, or (iv) because the Software is being transferred to another CPU, such Authorized User may use the Software on a replacement CPU as long as required by the mentioned conditions.

### **[option C2 - Concurrent User License]**

The license(s) granted under this Section authorizes use of the Software on any system based on the total number of Concurrent Users. The number of "Concurrent Users" is defined as the maximum number of concurrent Sessions connected at a given point in time. A "Session" is defined as an active user executing the Software. The Authorized User shall specify an initial number of Concurrent User licenses in its initial order or SOW pursuant to this Contract. An Authorized User may increase the number of Concurrent User licenses upon issuing an order or SOW for additional Concurrent User licenses. The license fee for additional Concurrent User licenses and payment of the license fee is set forth on Exhibit B.

### **[option C3 – Site License: Cloudera, Splunk, Tableau, Digital Reasoning, Informatica]**

The license(s) granted under this Section authorizes use of the Software on any system located at the "Site" as such term is defined in the applicable order or SOW.

### **[option C4 – Project Specific License: Cloudera, Splunk, Tableau, Digital Reasoning, Informatica]**

The Project Specific License authorizes use of the Software on any CPU; system owned or opted by the Commonwealth or an Authorized User, and by any user, without limitation as to quantity or location for Project \_\_\_\_\_.

### **[option C5 – Enterprise Wide License: Cloudera, Splunk, Tableau, Digital Reasoning, Informatica]**

The Enterprise Wide License authorizes use of the Software on any CPU, on any system, and by any user within the “Enterprise”, as such term is defined in the applicable order or SOW, without limitation as to the quantity or location or project.

**[option C6 – Capacity Under Management License: Cloudera, Splunk]**

“Capacity Under Management”, means the total raw hard disk capacity allocated to a Storage Volume that is intended to store data used by the Products. Capacity Under Management is measured in Terabytes (TB) or Gigabytes (GB). “Storage Volume” means a single accessible storage area with a single file system.

**[option C7 – Per Node License: Cloudera, Informatica]**

Per Node Licenses provides support based upon the number of nodes. “Node” means any computer apparatus running no more than one each of an Apache Hadoop (HDFS, MapReduce), Apache Hive, Apache HCatalog, Cloudera Hue, Apache Mahout, Apache Oozie, Apache Pig, Apache Sentry, Apache Sqoop / Sqoop2, Apache Whirr, Apache Zookeeper, Apache Spark, Apache Crunch, Apache HBase, Apache Kafka, Apache Accumulo, Cloudera Impala, Cloudera Search, or Apache YARN services, and addressable by a unique network identifier such as a Fully Qualified Domain Name or Internet Protocol (IP) address

**C. No Subsequent, Unilateral Modification of Terms by Supplier (“Shrink Wrap”)**

Notwithstanding any other provision or other unilateral license terms which may be issued by Supplier after the Effective Date of this Contract, and irrespective of whether any such provisions have been proposed prior to or after the issuance of an order for a Solution, the components of which are licensed under this Contract, or the fact that such other agreement may be affixed to or accompany Software upon delivery (“shrink wrap”), the terms and conditions set forth herein shall supersede and govern licensing and delivery of all products and services hereunder.

**7. RIGHTS TO WORK PRODUCT**

If Authorized User is a state agency, board, commission, or other quasi-political entity of the Commonwealth of Virginia or other body referenced in Title 2.2 of the Code of Virginia, any license to pre-existing work shall be held by, and all rights in, title to, and ownership of Work Product shall vest with the Commonwealth. If Authorized User is a locality, municipality, school, school system, college, university, local board, local commission, or local quasi-political entity, any license to pre-existing work shall be held by, and all rights in, title to, and ownership of Work Product shall vest with that public body. If Authorized User is a private institution of higher education which is listed at: <http://www.cicv.org/Our-Colleges/Profiles.aspx>, any license to pre-existing work shall be held by, and all rights in, title to, and ownership of Work Product shall vest with that private institution.

**A. Work Product**

VITA and Supplier each acknowledge that performance of this Contract may result in Work Product. The Parties shall document all Work Product specifications and such specifications shall be made an incorporated exhibit to this Contract. Supplier agrees that it shall promptly and fully disclose to the Commonwealth or the Authorized User any and all Work Product generated, conceived, reduced to practice or learned by Supplier or any of its employees, either solely or jointly with others, during the term or performance of this Contract, which in any way relates to the business of the Commonwealth, VITA or any Authorized User. Supplier further agrees that neither Supplier nor Supplier’s employees, contractors, agents or subcontractors, nor any party claiming through Supplier or Supplier’s employees, shall, other than in the performance of this Contract, make use of or disclose to others any proprietary information relating to the Work Product. All Services performed hereunder shall include delivery of all source and object code and all executables and documentation for all Work Product. Supplier shall at no time deny access to the Work Product, regardless of form, by the Commonwealth or the Authorized User.

**B. Ownership**

Supplier agrees that, whether or not the Services are considered “works made for hire” or an employment to invent, all Work Product discovered, created or developed under this Contract shall be and remain the sole property of the Commonwealth and its assigns or the Authorized

User and its assigns. Except as specifically set forth in writing and signed by both VITA and Supplier, or Authorized User and Supplier, Supplier agrees that the Commonwealth or the Authorized User shall have all rights with respect to any Work Product discovered, created or developed under this Contract without regard to the origin of the Work Product.

If and to the extent that Supplier may, under applicable law, be entitled to claim any ownership interest in the Work Product, Supplier hereby irrevocably transfers, grants, conveys, assigns and relinquishes exclusively to the Commonwealth or the Authorized User any and all right, title and interest it now has or may hereafter acquire in and to the Work Product under patent, copyright, trade secret and trademark law in perpetuity or for the longest period otherwise permitted by law. If any moral rights are created, Supplier waives such rights in the Work Product. Supplier further agrees as to the Work Product to assist the Commonwealth or the Authorized User in every reasonable way to obtain and, from time to time, enforce patents, copyrights, trade secrets and other rights and protection relating to the Work Product, and to that end, Supplier and its employees shall execute all documents for use in applying for and obtaining such patents, copyrights, and other rights and protection, and in protecting trade secrets, with respect to such Work Product, as the Commonwealth or the Authorized User may reasonably request, together with any assignments thereof to the Commonwealth or the Authorized User or entities designated by the Commonwealth or the Authorized User.

**C. Pre-existing Work**

If and to the extent that any pre-existing rights are embodied or reflected in the Work Product, Supplier hereby grants to the Commonwealth or the Authorized User the irrevocable, perpetual, non-exclusive, worldwide, royalty-free right and license to (i) use, execute, reproduce, display, perform, distribute copies of and prepare derivative works based upon such pre-existing rights and any derivative works thereof and (ii) authorize others to do any or all of the foregoing.

**D. Return of Materials**

Upon termination of this Contract or in the event Authorized User terminates any order or SOW issued hereunder, Supplier shall immediately return to VITA or the appropriate Authorized User all copies, in whatever form, of any and all Confidential Information, Work Product and other properties provided by VITA or such Authorized User, which are in Supplier's possession, custody or control.

**8. GENERAL WARRANTY**

Supplier warrants and represents to VITA that Supplier will fulfill its contractual obligations and meet all needed requirements as described in Exhibit A as follows:

**A. Ownership**

Supplier has the right to perform and provide all contractual obligations and provide all needed services and products without violating or infringing any law, rule, regulation, copyright, patent, trade secret or other proprietary right of any third party.

**B. Limited Warranty**

During the warranty period of ninety (90) days, or as specified in the applicable order or SOW, Supplier warrants that the Services, Solution, Solution Components, Deliverables, Product, Software, Updates, as authorized and provided by Supplier under this Contract, shall meet or exceed the Requirements. Supplier shall correct, at no additional cost to any Authorized User, all errors identified during the warranty period that result in supplier's failure to meet the Requirement or its contractual obligations.

**C. Component Warranty**

For any Software or Deliverable ("Component"), the applicable warranty period shall be the period from written acceptance of the Component until final acceptance of the Solution, or as specified in the applicable order or SOW.

**D. Interoperability Warranty**

Supplier warrants that each Component, regardless of the origin of the Component, delivered under this Contract or pursuant to an order or SOW shall be interoperable with other Components

so as to meet or exceed the performance specified in the Requirements and the applicable order or SOW.

**E. Performance Warranty**

Supplier warrants and represents the following with respect to Performance:

- i. All contractual obligations shall be performed with care, skill and diligence, consistent with or above applicable professional standards currently recognized in Supplier's profession, and Supplier shall be responsible for the professional quality, technical accuracy, completeness and coordination of all plans, information, specifications, Deliverables and Services furnished under this Contract;
- ii. All contractual obligations pursuant to a particular Request for Proposal ("RFP") or Invitation for Bid ("IFB"), quote, or Request for Quote (RFQ), and any associated Deliverables shall be fit for the particular purposes specified by VITA in the RFP/IFB and in this Contract and, if applicable, by the Authorized User requesting such quote or issuing such RFQ, and Supplier is possessed of superior knowledge with respect to its contractual obligations and is aware that all Authorized Users are relying on Supplier's skill and judgment in providing its contractual obligations;

**F. Documentation and Deliverables**

Supplier warrants the following as applicable to the Contract:

- i. The Solution or Software is pursuant to a particular Request for Proposal ("RFP") or Invitation for Bid ("IFB"), quote, or Request for Quote (RFQ), and therefore such Solution or Software shall be fit for the particular purposes specified by VITA in the RFP/IFB and in this Contract, and if applicable, by the Authorized User requesting such quote or issuing such RFQ. Further, Supplier is possessed of superior knowledge with respect to the Solution of Software and is aware that all Authorized Users are relying on Supplier's skill and judgment in providing the Solution or Software;
- ii. If the RFP/IFB or RFQ specified or if Exhibit A or Supplier's quote specifies the hardware equipment an Authorized User shall use to run the Solution, then Supplier warrants the Solution, and any subsequent Solution Component Software release, is compatible with and shall perform well with such hardware equipment;
- iii. The Solution provided hereunder includes Component Software at the current release level unless an Authorized User specifies an older version in its order or SOW;
- iv. No corrections, work arounds or future Software or Solution Component Software releases provided by Supplier under the warranty provisions or under maintenance shall degrade the Solution, cause any other warranty to be breached, or require an Authorized User to acquire additional hardware equipment or software;
- v. Supplier warrants that the Documentation and all modifications or amendments thereto which Supplier is required to provide under this Contract shall be sufficient in detail and content to allow a user/programmer to understand fully the Solution or Solution Component or to load/use/operate the Software without reference to any other materials or information.

**G. Malicious Code**

Supplier has used its best efforts through quality assurance procedures to ensure that there are no Computer Viruses or undocumented features in any Solution, Solution Component, Deliverables, Product, Software, System Software, Update, Application and/or Licensed Service, as obligated and provided by Supplier under the order or SOW, at the time of delivery to the Authorized User. Supplier warrants that the Solution, Solution Components, Deliverables, Product, Software, System Software, Update, Application and/or Licensed Services, as obligated and provided by Supplier under the order or SOW does not contain any embedded device or code (e.g., time bomb) that is intended to obstruct or prevent any Authorized User's use of the Solution, Solution Components, Deliverables, Product, Software, System Software, Application and/or Licensed Service.

Notwithstanding any rights granted under this Contract or at law, Supplier hereby waives under any and all circumstances any right it may have or may hereafter have to exercise Electronic Self-

Help. Supplier agrees that an Authorized User may pursue all remedies provided under law in the event of a breach or threatened breach of this Section, including injunctive or other equitable relief.

**H. Open Source**

Supplier will notify all Authorized Users if the Solution, Solution Components, Deliverables, Product, Software, Updates, Application and/or Licensed Services, as obligated and provided by Supplier, contains any Open Source code and identify the specific Open Source License that applies to any embedded code dependent on Open Source code, provided by Supplier under this Contract.

**I. Supplier's Viability**

Supplier warrants that it has the financial capacity to perform and continue to perform its obligations under this Contract; that Supplier has no constructive or actual knowledge of a potential legal proceeding being brought against Supplier that could materially adversely affect performance of this Contract; and that entering into this Contract is not prohibited by any contract, or order by any court of competent jurisdiction.

**J. Supplier's Past Experience**

Supplier warrants that it has met similar contractual obligations and fulfilled the Requirements as set forth in Exhibit A and in this Contract, in similar or greater complexity, to other customers without significant problems due to Supplier's performance and without causing a contractual breach or default claim by any customer.

THE OBLIGATIONS OF SUPPLIER UNDER THIS GENERAL WARRANTY SECTION ARE MATERIAL. SUPPLIER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY CONCERNING MERCHANTABILITY OR FITNESS FOR ANY OTHER PARTICULAR PURPOSE.

**9. DELIVERY AND INSTALLATION**

**A. Scheduling**

Supplier shall deliver the Solution, including any Component parts, and complete performance of Services according to the delivery dates set forth on the appropriate order or SOW.

Supplier shall make available all appropriate and/or related Documentation at the time of delivery of the relevant Component of the Solution. Any Solution Component delivered without the appropriate and required Documentation shall be considered "shipped short" until the applicable documentation has been received.

**B. Deployment of Solution**

**1. Supplier Deployment of Solution**

The Solution fee includes initial deployment of the complete Solution. Supplier is required to deploy the Solution in accordance with the deployment schedule set forth on the order or SOW. Deployment shall include the installation of any Software Component and, if agreed, any hardware Component, of the Solution. Supplier shall conduct its standard appropriate diagnostic evaluation at the Authorized User's user site to determine that the Solution is properly deployed and fully ready for productive use, and shall supply such Authorized User with a copy of the results of the diagnostic evaluation promptly after completion of deployment.

Supplier agrees that failure to deploy the Solution in accordance with the delivery schedule in the applicable order or SOW shall constitute a material breach of this Contract resulting in damages to such Authorized User. As an estimate of the damages such Authorized User shall suffer, Supplier agrees to credit such Authorized User an amount equal to one percent (1%) of the total Solution fee, for each day after the scheduled deployment date that the Solution has not been deployed for a period of thirty (30) days following the agreed upon delivery date. If the delay lasts longer than thirty (30) days, such Authorized User may immediately cancel the order or SOW and collect damages for each day of that period of late delivery. Such Authorized User reserves any

and all other remedies available at law or in equity for delays lasting longer than thirty (30) days or for non-deployment.

## 2. Authorized User Installation of Software

If the Solution includes Software which may be installed by an Authorized User and such Authorized User elects to install the Software itself, the Software shall be deemed to be installed when all programs, program libraries and user interfaces are copied to and initialized on the appropriate equipment as executable by having the ordering Authorized User invoke the primary function of each major Component of the Software or when Acceptance criteria as specified in the Authorized User's order or SOW have been met. Authorized User shall provide to Supplier written notice of Acceptance upon completion of installation and successful Acceptance testing. Supplier shall proceed with full deployment of the Solution concurrently with or after Authorized User's installation of the Software, as agreed between the Authorized User and Supplier in the order or SOW.

### C. Documentation of Software Configuration

If the Solution includes configuration of Software by Supplier, Supplier shall provide to the appropriate Authorized User documentation containing a description of the configuration. Such documentation shall be sufficiently detailed such that any appropriately trained employee or Agent of any Authorized User may reconstruct the configuration of the Software.

## 10. ACCEPTANCE

### A. Software and Deliverable Acceptance Criteria

Software and Deliverables shall be deemed accepted when the Authorized User determines that such Software and Deliverables successfully operate in accordance with the Requirements and applicable order or SOW. At a minimum, Acceptance Criteria for Software and Deliverables, and for the Solution as a whole, shall ensure that all of the functionality described in the Requirements set forth in Exhibit A and required by the Authorized User in the applicable order or SOW has been delivered to the Authorized User. Acceptance of any one Deliverable shall not imply Authorized User's concurrence that the Deliverable will function properly with or within the Solution. Supplier shall be responsible for ensuring that all Deliverables function properly within the Solution. Should a previously Accepted Deliverable require further modification in order to work properly with or within the Solution, Supplier shall be responsible for all costs associated with such modification. Such Authorized User agrees to commence Acceptance testing within five (5) days, or within such other period as set forth in the applicable order or SOW, after receipt of the Software or Deliverable. Acceptance testing will be no longer than fifteen (15) days, or such other period as may be agreed in writing between Authorized User and Supplier, for the first instance of each product type set forth in Exhibit B. Supplier agrees to provide to such Authorized User such assistance and advice as such Authorized User may reasonably require, at no additional cost, during such Acceptance testing, other than pre-approved travel expenses for time and materials type orders or SOWs or for fixed price type orders or SOWs in which travel expenses were expressly excluded from the total price of the order or SOW. Any such travel expenses must be pre-approved by the Authorized User and shall be reimbursable by such Authorized User at the then-current per diem amounts as published by the Virginia Department of Accounts (<http://www.doa.virginia.gov>), or a successor URL(s). If the Authorized User is a private institution chartered in Virginia and granted tax-exempt status under §501(c)(3) of the Internal Revenue Code, such private institution may have its own per diem amounts applicable to Supplier's pre-approved travel expenses. Authorized User shall provide to Supplier written notice of Acceptance upon completion of successful Acceptance testing. Should Authorized User fail to provide Supplier written notice of successful or unsuccessful Acceptance testing within five (5) days following the Acceptance testing period, the Service shall be deemed Accepted.

### B. Software and Deliverable Cure Period

Supplier shall correct any non-conformities identified during Acceptance testing and re-submit such non-conforming Software or Deliverable for re-testing within fifteen (15) days of receipt of the appropriate Authorized User's written notice of non-conformance, or as otherwise agreed

between such Authorized User and Supplier in the applicable order or SOW. Should Supplier fail to cure the non-conformity or deliver Software or a Deliverable which meets the Requirements, such Authorized User may, in its sole discretion: (i) reject the Software or Deliverable in its entirety and recover amounts previously paid hereunder; (ii) issue a "partial Acceptance" of the Software or Deliverable with an equitable adjustment in the price to account for such deficiency; or (iii) conditionally accept the applicable Software or Deliverable while reserving its right to revoke Acceptance if timely correction is not forthcoming. Failure of the Software or a Deliverable to meet, in all material respects, the Requirements after the second set of acceptance tests shall constitute a default by Supplier. In the event of such default, the Authorized User may, at its sole discretion, terminate its order or SOW, in whole or in part, for the Solution to be provided thereunder by Supplier.

**C. Solution Acceptance Criteria**

Solution shall be deemed accepted when the Authorized User determines that such Solution successfully operates in accordance with the Requirements. Such Authorized User agrees to commence Acceptance testing within five (5) days after deployment of the Solution. Acceptance testing will be completed within fifteen (15) days, or such other period as may be agreed in writing between Authorized User and Supplier, after deployment of the Solution. Supplier agrees to provide to such Authorized User such assistance and advice as such Authorized User may reasonably require, at no additional cost, during such Acceptance testing, other than pre-approved travel expenses for time and materials type orders or SOWs or for fixed price type orders or SOWs in which travel expenses were expressly excluded from the total price of the order or SOW. Any such travel expenses must be pre-approved by the Authorized User and shall be reimbursable by such Authorized User at the then-current per diem amounts as published by the Virginia Department of Accounts <http://www.doa.virginia.gov>, or a successor URL(s)). If the Authorized User is a private institution chartered in Virginia and and granted tax-exempt status under &sect;501(c)(3) of the Internal Revenue Code, such private institution may have its own per diem amounts applicable to Supplier's pre-approved travel expenses. Authorized User shall provide to Supplier written notice of Acceptance upon completion of successful Acceptance testing. Should Authorized User fail to provide Supplier written notice of successful or unsuccessful Acceptance testing within five (5) days following the Acceptance testing period, the Service shall be deemed Accepted.

**D. Solution Cure Period**

Supplier shall correct any non-conformities identified hereunder and shall thereafter re-submit such previously non-conforming Solution or Component products or Services for re-testing within fifteen (15) business days of receipt of written notice of non-conformance to Supplier, or as otherwise agreed between the Authorized User and Supplier. Should Supplier fail to deliver a Solution which meets the Requirements, such Authorized User may, in its sole discretion: (i) reject the Solution in its entirety and recover amounts previously paid hereunder; (ii) issue a "partial Acceptance" of the Solution with an equitable adjustment in the price to account for such deficiency; or (iii) conditionally accept the applicable Solution while reserving its right to revoke Acceptance if timely correction is not forthcoming. Failure of the Solution to meet, in all material respects, the specifications and performance standards after the second set of acceptance tests shall constitute a default by Supplier. In the event of such default, the Authorized User may, at its sole discretion, terminate its order or SOW, in whole or in part, for the Solution to be provided hereunder by Supplier.

**11. WARRANTY AND MAINTENANCE SERVICES**

At any time during the Warranty or Maintenance Period, as applicable, Supplier shall provide the following warranty or maintenance services (including unlimited telephonic support and all necessary travel and labor) to maintain the Solution in accordance with the Requirements. During the Warranty Period, such services shall be performed without additional charge to any Authorized User. During the Maintenance Period, charges shall be in accordance with this Section and Exhibit B.

**A. Known Defects**

Promptly notify all Authorized Users in writing of any defects or malfunctions in the Solution or Documentation of which it learns from any source, correct any such defects or malfunctions or provide a work around until corrected, within five (5) days of Supplier's knowledge of such defect or malfunction and provide all Authorized Users with corrected copies of same.

**B. New Releases**

Provide to all Authorized Users no later than the first day of general release, copies of the Software and Documentation revised to reflect any enhancements, including all new releases, upgrades, and access modes, to the Software made by Supplier, including, without limitation, modifications to the Software which can increase the speed, efficiency or base of operation of the Software or add additional capabilities to or otherwise improve the functionality of the Software.

**C. Coverage**

Twenty-four (24) hours per day, seven (7) days a week, provide to any Authorized Users all reasonably necessary telephone or written consultation requested by such Authorized Users in connection with use, problems and operation of the Solution.

**D. Service Levels**

Respond to problems with the Solution identified by an Authorized User in no more than one (1) hour after notification. Resolve all problems according to the following:

- i) Priority 1 (system down) within six (6) hours;
- ii) Priority 2 (certain processing interrupted or malfunctioning but system able to process) within twenty four (24) hours;
- iii) Priority 3 (minor intermittent malfunctioning, system able to process data) within three (3) days.

The level of severity (e.g., 1, 2, 3), shall be defined by the Authorized User.

Service Level	Definition of Business Impact	Resolution Time
Critical	<i>Impacts production environments only.</i> The application is mission critical and the situation is an emergency for the Customer. The loss of service must be complete.	6 hours

High	Impacts the production environment or initial deployment in which the application is mission critical to the business.	24 hours
Medium	Impacts non-mission critical applications, the development environment, or a secondary, non-mission critical production environment.	24 hours
Low	The problem is an inconvenience that results in a minor loss of service, if any, and requires a minor workaround to restore functionality.	3 days

#### **E. Software Evolution**

Should Supplier or Software Publisher merge or splinter the Software previously provided to any Authorized User, such action on the part of Supplier or Software Publisher shall not in any way result in any Authorized User being charged additional license or support fees in order to receive enhancements, releases, upgrade or support for the Software.

If Supplier or Software Publisher reduces or replaces functionality contained in a licensed Software product and provides the same or substantially similar functionality as or within a separate or renamed Software product, then the Commonwealth or the Authorized User shall be entitled to license such Software product at no additional license or maintenance fee, and subject to the terms and conditions herein.

If Supplier or Software Publisher releases an option, future Software product or other release that has substantially the same functionality as the Software products provided under this Contract, and Software Publisher and/or Supplier ceases to provide maintenance for the older Software product, then Supplier shall offer the Commonwealth or the Authorized User the option to exchange licenses for such replacement Software product or function at no additional charge.

#### **F. Escalation Procedures**

The purpose of a case escalation is to:

- Facilitate a rapid resolution to a critical customer issue.
- Gain access to additional resources outside of the support department to assist in resolving the issue.
- Ensure that a critical customer situation is communicated to all relevant parties within the company.
- Take proper steps to ensure that the customer's satisfaction level is repaired.

Escalation may be of two types. Business hours escalation causes this process to be executed during business hours, 24 hour escalation causes this process to be executed continuously until remediation is achieved. In general, unless the manufacturer deems it necessary only customers purchasing 24x7 support are entitled to 24x7 escalation response.

Action planning is central to the successful resolution of serious customer situations. Developing an Escalation Action Plan to resolve the issue at hand is the Escalation Team’s primary objective. The plan includes the following actions:

- Actions required to mitigate and solve the problem
- Named individual responsible for each action
- Deadline and expected outcome for each action
- Contingency plan if the desired results are not achieved
- Defined communication plan, including frequency and method of communication
- Criteria for success describing when escalated issue will be regarded as solved

**G. Remedies**

If Supplier is unable to make the Solution or any Component thereof conform, in all material respects to the order or SOW issued by the Authorized User, within thirty (30) days following notification by an Authorized User, Supplier shall, at such Authorized User’s request, accept return of the tangible Solution Components, and (a) during the Warranty Period, return all monies paid by such Authorized User for the returned Solution Components and Documentation or (b) during any subsequent Maintenance Period, return all monies paid by such Authorized User for the returned Solution Components and Documentation, pro-rated using the straight-line method for an estimated Solution life cycle of seven (7) years. Authorized User shall discontinue use of any Solution Component Software or product.

Severity Level	Definition of Business Impact	Customer Action Required
Critical	<i>Impacts production environments only.</i> The application is mission critical and the situation is an emergency for the Customer. The loss of service must be complete.	Provide a contact either on-site, via telephone, or by pager during the entire time the problem is being resolved. The customer must be able to act immediately on any request to gather data, test, and apply all fixes to their environment.
High	Impacts the production environment or initial deployment in which the application is mission critical to the business.	Provide a contact during the entire period the problem is being handled. The customer must respond to requests within one business day and agree to do whatever is required to gather data, test, and apply all fixes to their environment

Medium	Impacts non-mission critical applications, the development environment, or a secondary, non-mission critical production environment.	Provide a contact that can answer questions, if needed.
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Low	The problem is an inconvenience that results in a minor loss of service, if any, and requires a minor workaround to restore functionality.	Provide a contact that can answer questions, if needed.
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**H. Solution Support Services (Maintenance) and Renewal Options**

Sixty (60) days prior to the expiration of the Warranty Period, Supplier shall notify the Authorized User in writing of such expiration, and the Authorized User, at its sole discretion, may order from Supplier Solution support Services ("Maintenance Services"), including new Software releases, updates and upgrades, for a period of one (1) year ("Maintenance Period") and for an annual fee of ten percent (10%) of the Software license fee paid by any Authorized User for its then current installed base. Supplier shall notify the Authorized User sixty (60) days prior to the expiration of the Maintenance Period, and the Authorized User, at its sole discretion, may renew Maintenance Services for an additional one (1) year period. The annual fee for Maintenance Services shall not exceed the fee charged for the preceding year's Maintenance Services by more than three percent (3%), or the annual change in CPI, as defined in the Fees and Charges section, in effect at the time, whichever is less. Supplier warrants that it shall make Support Services available for all the Solution components listed in Exhibit B for a period of at least five (5) years from the expiration of the initial Warranty Period of any Solution provided to an Authorized User pursuant to this Contract. Cancellation of Maintenance Services by an Authorized User shall not affect this Contract or the grant of any license by Supplier.

**12. FEES, ORDERING AND PAYMENT PROCEDURE**

**A. Fees and Charges**

As consideration for the Supplier's performance obligations and any additional products and services provided hereunder to an Authorized User in accordance with the scope of this Contract and the Requirements, as authorized by Exhibit A, and per the Authorized User's order or SOW, an Authorized User shall pay Supplier the fee(s) set forth on Exhibit B, which lists any and all fees and charges. The fees and any associated discounts shall be applicable throughout the term of this Contract; provided, however, that in the event the fees or discounts apply for any period less than the entire term, Supplier agrees that it shall not increase the fees more than once during any twelve (12) month period, commencing at the end of year one (1). No such increase shall exceed the lesser of three percent (3%) or the annual increase in the Consumer Price Index for All Urban Consumers (CPI-U), U.S. City Average, All Items, Not Seasonally Adjusted, as published by the Bureau of Labor Statistics of the Department of Labor (<http://www.bls.gov/cpi/home.htm>), for the effective date of the increase compared with the same index one (1) year prior. Any such change

in price shall be submitted in writing to VITA and to the Authorized User if such change impacts any SOW or order and in accordance with the above and shall not become effective for sixty (60) days thereafter. Supplier agrees to offer price reductions to ensure compliance with the Competitive Pricing Section.

## **B. Ordering**

Notwithstanding all Authorized User's rights to license or purchase Supplier's products or services under this Contract, an Authorized User is under no obligation to purchase or license from Supplier any of Supplier's products or services. This Contract is optional use and non-exclusive, and all Authorized Users may, at their sole discretion, purchase, license or otherwise receive benefits from third party suppliers of products and services similar to, or in competition with, the products and services provided by Supplier.

Supplier is required to accept any order or placed by an Authorized User through the eVA electronic procurement website portal (<http://www.eva.virginia.gov/>). eVA is the Commonwealth of Virginia's e-procurement system. State agencies, as defined in §2.2-2006 of the Code of Virginia, shall order through eVA. All other Authorized Users are encouraged to order through eVA, but may order through the following means:

- i. Purchase Order (PO): An official PO form issued by an Authorized User.
- ii. Any other order/payment charge or credit card process, such as AMEX, MASTERCARD, or VISA under contract for use by an Authorized User.

This ordering authority is limited to issuing orders or SOWs for the contractual offerings and Requirements available under the scope of this Contract. Under no circumstances shall any Authorized User have the authority to modify this Contract. An order or SOW from an Authorized User may contain additional terms and conditions; however, to the extent that the terms and conditions of the Authorized User's order or SOW are inconsistent with the terms and conditions of this Contract, the terms of this Contract shall supersede.

Notwithstanding the foregoing, Supplier shall not accept any order or SOW from an Authorized User if such order or SOW is to be funded, in whole or in part, by federal funds and if, at the time the order or SOW is placed, Supplier is not eligible to be the recipient of federal funds as may be noted on any of the Lists of Parties Excluded from Federal Procurement and Nonprocurement Programs.

ALL CONTRACTUAL OBLIGATIONS UNDER THIS CONTRACT IN CONNECTION WITH AN ORDER OR SOW PLACED BY ANY AUTHORIZED USER ARE THE SOLE OBLIGATION OF SUCH AUTHORIZED USER AND NOT THE RESPONSIBILITY OF VITA UNLESS SUCH AUTHORIZED USER IS VITA.

## **C. Reproduction Rights for Supplier-Provided Software**

At an Authorized User's request, Supplier shall provide the Authorized User with a reproducible diskette or CD of Software and Updates. Such Authorized User shall be responsible for making copies and distributing the Software and Updates as required. Within thirty (30) days of the end of each calendar quarter, such Authorized User shall provide to Supplier a report of the net number of additional copies of the Software and/or Updates deployed during the quarter. Supplier shall invoice such Authorized User for the net number of new licenses reported as deployed.

## **D. Reimbursement of Expenses**

If allowable pursuant to an Authorized User's Statement of Work, such Authorized User shall pay, or reimburse Supplier, for all reasonable and actual travel-related expenses for greater than thirty (30) miles from portal to portal incurred by Supplier during the relevant period; provided, however, that such Authorized User shall only be liable to pay for Supplier's travel-related expenses, including transportation, meals, lodging and incidental expenses, that have been authorized by such Authorized User in advance in the Statement of Work and which will be reimbursable by such Authorized User at the then-current per diem amounts as published by the Virginia Department of Accounts (<http://www.doa.virginia.gov/>, or a successor URL(s)). Authorized Users

who are not public bodies may have their own per diem amounts applicable to Supplier's pre-approved travel expenses.

All reimbursed expenses will be billed to the Authorized User on a pass-through basis without any markup by Supplier. At Authorized User's request, Supplier shall provide copies of receipts for all travel expenses over US\$30.00.

**E. Demonstration and/or Evaluation**

If the Supplier's contractual obligations include the provision of a Solution, an Application and Licensed Services, or Software-as-a-Service, at the request of any Authorized User, Supplier shall perform a demonstration of its Solution, or its Application and Licensed Services or Software-as-a Service at such Authorized User's location and at no charge.

If the Supplier's contractual obligations include the provision of Software, the Supplier shall make available to any Authorized User the Software for evaluation purposes at no charge. The evaluation period will be determined by the complexity of testing but will be a period not less than thirty (30) days. Each new project is entitled to an evaluation copy regardless of whether an Authorized User has previously purchased the Software.

**F. Statement of Work**

An SOW, the template provided in Exhibit D, shall be required for any orders placed by an Authorized User pursuant to this Contract. Supplier shall perform any and all contractual obligations at the times and locations set forth in the applicable SOW and at the rates set forth in Exhibit B herein. Unless VITA issues a written authorization for a time and materials type SOW, any SOW shall be of a fixed price type but may, with the written approval of VITA, contain a cost-reimbursable line item(s) for pre-approved travel expenses. In furtherance of compliance, invoicing, and auditing requirements, for time and materials type SOWs, Supplier personnel shall maintain daily time records of hours and tasks performed, which shall be submitted or made available for inspection by the Authorized User upon forty-eight (48) hours advance written notice.

Any change to an SOW must be described in a written change request (template provided as Exhibit E). Either Party to an SOW may issue a change request that will be subject to written approval of the other Party before it becomes part of this Contract. In no event shall any SOW or any modification thereto require the Supplier to provide any products or services that are beyond the scope of this Contract as such scope is defined in Exhibit A hereto.

**G. Supplier Quote and Request for Quote**

Should an Authorized User determine that a competitive process is required to ensure it receives the best value for its needed solution, product and/or services under this contract, such Authorized User may, at its sole discretion, on a case-by-case basis and upon approval by VITA, use a Request for Quote (RFQ) process to obtain identical or similar solutions, products and/or services to those provided by Supplier pursuant to this Contract. The RFQ process is typically used when an Authorized User requires a complete solution that may be fulfilled by Products and Services herein, but whose complexity or size may result in economies that could not be passed on to the Authorized User within the confines of the established contract catalog discount pricing. When an RFQ is used, the project timing and requirements will be clearly outlined in the RFQ document. In some situations, the Authorized User may not identify the exact specifications required. If that is the case, the RFQ respondents will be given the opportunity to identify and propose their recommended specifications.

Supplier shall respond to the RFQ by providing a quote, which shall include (a) a detailed description of each product or service proposed, including such product and services components, at the Exhibit B line item level, (b) the quantity of each such component, (c) the contract price, (d) any additional percentage discount offered, and (e) an extended price. If requested by the Authorized User, Supplier's quote shall also include a proposal describing the approach Supplier plans to take in developing, implementing, and maintaining its offering for the Authorized User. Should Supplier be unable to respond to the RFQ due, for example, to resource constraints, Supplier shall notify Authorized User in writing of its inability to perform the work

requested by such Authorized User, and provide the reasons for such inability to perform, prior to the due date for the submission of quotes in response to the RFQ.

#### **H. Invoice Procedures**

Supplier shall remit each invoice to the "bill-to" address provided with the order promptly after all Supplier's performance obligations have been accepted and in accordance with the milestone payment schedule, if any, in the applicable order or SOW. Payment for any support services, as authorized in the Contract and the Authorized User's applicable order or SOW, shall be annually in arrears unless otherwise stated herein, or in any order or SOW referencing this Contract. No invoice shall include any costs other than those identified in the executed order or SOW, which costs shall be in accordance with Exhibit B. Without limiting the foregoing, all shipping costs are the Supplier's responsibility except to the extent such charges are identified in Exhibit B, or as noted in any executed order or SOW referencing this Contract. Invoices issued by the Supplier shall identify at a minimum:

- i. Dates/periods that invoice covers, including any service or subscription periods, as applicable.
- ii. Line item description of the Deliverable(s), Product(s), Software, Hardware, Services, Solution and Solution Components, Maintenance Services, and/or Licensed Services, as applicable to this Contract, including components thereof or service type, and, if applicable, the project milestone.
- iii. Quantity, charge and extended pricing for each line item
- iv. Applicable order and/or SOW date
- v. This Contract number and the applicable order number and/or SOW number
- vi. Supplier's Federal Employer Identification Number (FEIN)

Any terms included on Supplier's invoice shall have no force or effect and will in no way bind VITA or any Authorized User.

#### **I. Purchase Payment Terms**

Supplier is responsible for the accuracy of its billing information. Supplier agrees not to issue invoices hereunder until all Supplier's performance obligations have been accepted and in accordance with the milestone payment schedule, if any, in the applicable order or SOW, or until after services have been rendered. Charges for Deliverables, components or services accepted more than ninety (90) days prior to receipt of a valid invoice may not be paid. Should Supplier repeatedly over bill Authorized User, Authorized User may assess a one percent (1%) charge for the amount over-billed for each month that such over-billing continues.

### **13. REPORTING**

Supplier is required to submit to VITA the following monthly reports:

- i. Report of Sales; and
- ii. Small Business Procurement and Subcontracting Report

These reports must be submitted using the instructions and further detailed requirements and templates found at the following URL: <http://www.vita.virginia.gov/scm/default.aspx?id=97>

Suppliers are encouraged to review the site periodically for updates on Supplier reporting requirements and methods.

In conjunction with the requirements in the Invoice Procedures section of this Contract, Supplier shall provide to VITA within 30 days of the date of expiration of the contract an accompanying statement certifying that Supplier has fully complied with the Contract's Small Business (SWaM) Procurement Plan, and if Supplier has not fully complied, provide a written explanation of any variances between such Plan and the actual participation. The Supplier's compliance confirmation and/or written explanation of variance shall be maintained by VITA, in the contract file.

Failure by Supplier to comply with its contractually obligated Small Business (SWaM) Procurement Plan may prohibit or delay any renewals of the Contract. Also, Supplier's failure to comply with its

Small Business (SWaM) Procurement Plan or to explain any variance between the proposed Plan and actual SWaM subcontracting spend may result in the withholding of any final payment due Supplier.

Failure to comply with all reporting requirements may result in default of the Contract.

#### **14. STATUS MEETINGS**

The account team will be prepared to conduct monthly stewardship meetings with VITA to provide a broad review of all services, projects and ongoing operations. Supplier should also be prepared to conduct semi-annual meetings/presentations to discuss new products and services and their potential benefit to VITA.

#### **15. STEERING COMMITTEE**

In order to facilitate mutually beneficial contractual relationships with suppliers, VITA has procedures for establishing a steering committee ("Steering Committee"), consisting of senior management personnel, including personnel involved in the contractual relationship, from VITA and Supplier.

Roles of the Steering Committee include but are not be limited to a) identifying potential issues which may arise during the performance of a contract, b) discussing and assigning roles and responsibilities, c) establishing methods for quickly resolving potential disputes, d) setting rules for communication and decision making, e) monitoring and measuring the business relationship between the parties, and f) acting as a final decision board for escalated problems.

A meeting of the Steering Committee is intended to be a forum for brainstorming and sharing ideas, emphasizing respect, cooperation, and access, with the end goal of developing relationships to avoid conflict. A facilitator may, but is not required to, conduct a meeting of the Steering Committee.

A Steering Committee for this Contract will be formed at VITA's option. Meetings may be held at any time during the Contract term, should VITA, at its sole discretion, determine that a meeting(s) would be beneficial to the contractual relationship, and Supplier agrees to participate in such meeting(s). In addition, Supplier may at any time submit a written request to VITA for a meeting of the Steering Committee, which VITA will not unreasonably deny.

Supplier shall ensure the availability of the appropriate personnel to meet with the VITA contract management team. Additional Steering Committee meetings involving representatives from VITA, the Supplier, and an Authorized User may be required prior to or during performance on any specific SOW issued pursuant to this Contract.

#### **16. RESERVED**

#### **17. TRAINING AND DOCUMENTATION**

##### **A. Training**

In addition to any online tutorial training Supplier may make available, Supplier's fee, unless expressly excluded, includes all costs for any and all training as agreed upon for the training of one (1) Authorized User trainer per order or SOW on the use and operation of the Deliverable provided to Authorized User, to allow full benefit of the applicable Deliverable to Authorized User, including instruction in any necessary conversion, manipulation or movement of such Authorized User's data. Supplier shall provide personnel sufficiently experienced and qualified to conduct such training at a time and location mutually agreeable to Supplier and Authorized User. Available additional and optional training, and applicable pricing and discounts, are described in Exhibit B.

##### **B. Documentation**

Supplier shall deliver to Authorized User three (3), or such number as agreed upon between the parties under an order or SOW, complete hard copies or electronic media of Documentation applicable to Supplier's Deliverable provided to Authorized User, as requested by such Authorized User. Should Supplier revise or replace the Documentation, or should Documentation

be modified to reflect Updates, Supplier shall deliver to the Authorized User such updated or replacement Documentation, in the same quantity and media format as originally requested by such Authorized User, or as agreed upon between the parties. Any Authorized User shall have the right, as part of any license grant, to make as many additional copies of the Documentation, in whole or in part, for its own use as required. This Documentation shall include, but not be limited to, overview descriptions of all major functions, detailed step-by-step installation and operating procedures for each screen and activity, and technical reference manuals. Such Documentation shall be revised to reflect any modifications, fixes or updates made by Supplier. Any Authorized User shall have the right, as part of the license granted by Supplier, at its own discretion, to take all or portions of the Documentation, modify or completely customize it in support of the authorized use of the licensed application or software and may duplicate such Documentation and include it in such Authorized User's document or platform. All Authorized Users shall continue to include Supplier's copyright notice.

#### **18. AUTHORIZED USER SELF-SUFFICIENCY**

Prior to or at any time during Supplier's performance of an order or SOW issued pursuant to this Contract, an Authorized User may require that Supplier provide to Authorized User a detailed plan to develop Authorized User self-sufficiency and to transition operation and management to Authorized User or its Agent, which Agent may be VITA, or an agent of VITA, or a third party provider under contract with Authorized User. At Authorized User's request and pursuant to an order or SOW for Supplier's Services issued hereunder, Supplier shall provide all assistance reasonably required by Authorized User to develop Authorized User's self-sufficiency in operating and managing the Solution, Software, Products and/or Services that Supplier provided to Authorized User under the applicable order or SOW. During and/or after the transition period, Authorized User may, at its sole discretion, elect to order or continue Maintenance Services from Supplier, if authorized under the scope of the Contract, for any of the Software or hardware Product, components or Solution Components delivered to Authorized User by Supplier.

#### **19. COMPETITIVE PRICING**

Supplier warrants and agrees that each of the charges, economic or product terms or warranties granted pursuant to this Contract are comparable to or better than the equivalent charge, economic or product term or warranty being offered to any commercial or government customer of Supplier. If Supplier enters into any arrangements with another customer of Supplier or with an Authorized User to provide the products and services, available under this Contract, under more favorable prices, as the prices may be indicated on Supplier's current U.S. and International price list or comparable document, then this Contract shall be deemed amended as of the date of such other arrangements to incorporate those more favorable prices, and Supplier shall immediately notify VITA of such change.

#### **20. ESCROW AGREEMENT**

Supplier shall maintain copies of all Software source code and related technical and user Documentation, in English, in an escrow account, and shall maintain with escrow agent the executed agreement attached hereto as Exhibit C (Escrow Agreement). VITA acknowledges that, prior to the Effective Date of this Contract, Supplier delivered to VITA and VITA received a copy of the executed Escrow Agreement naming the Commonwealth of Virginia as a third party beneficiary. VITA has reviewed Escrow Agreement to ensure that such Escrow Agreement does not impose upon the Commonwealth any requirements other than administrative responsibilities necessary for the operation of the Escrow Agreement. If events give rise to a need for the escrow agent to release escrowed materials to the Commonwealth, the Commonwealth's sole responsibility shall be to request the release of such materials from the escrow agent. Supplier agrees to notify VITA in writing not less than thirty (30) calendar days prior to termination or any modification of Escrow Agreement. Supplier warrants that the information and materials to be kept in escrow in a media safe environment for the benefit of the Commonwealth are specifically identified and listed in Attachment A to the Escrow Agreement and include the most current version used by all Authorized Users of:

- i. the source code for the Software and all future release versions,

- ii. identification of the development/support technology stack, including but not limited to, every software tool, driver, script, app, etc. with versions and details needed to develop, test, support all phases of the SDLC for all tiers of the Software as used in the Authorized User's solution or operating environment,
- iii. all Documentation related thereto as well as all necessary and available information, proprietary information must be in English,
- iv. technical Documentation must be in English and shall enable VITA, any Authorized User, or an Agent of VITA or any Authorized User to create, maintain and/or enhance the Software without the aid of Supplier or any other person or reference to any other materials, maintenance tools (test programs and program specifications), or proprietary or third party system utilities (compiler and assembler descriptions); descriptions of the system/program generation; and descriptions of any Supplier tools required to enable VITA and all Authorized Users to continue to use the Software, and
- v. all Documentation must be provided in unprotected MS Word and other commonly used formats that can be updated.

Supplier warrants that all items, including future versions, deposited in escrow for VITA or an Authorized User shall be verified by the Escrow Agent within 30 days after deposit to validate the completeness, accuracy and functionality of the Supplier's escrow deposits. The verification process to be performed by the Escrow Agent for the original deposit and subsequent deposits shall be detailed in the Escrow Agreement and a detailed report of all tests of such verification shall be submitted in writing to VITA or the Authorized User within 10 business days of completion. To perform such verification, Escrow Agent shall conduct a verification process that includes but is not be limited to:

- i. File List Test - To ensure the deposited items are catalogued and confirm they are readable and virus free, and if encrypted, that the Escrow Agent has the decryption keys on deposit.
- ii. Inventory and Analysis Test – To provide a complete audit and inventory of the deposit including analysis of deposited media to verify the presence of build instructions, to identify all of materials necessary to recreate the original development environment and to confirm the presence of all build instructions, file classification tables, database schema and listings.
- iii. Compile Test – To validate whether the development environment can be recreated from the deposited documentation and files; to identify third-party libraries, to recreate the Supplier's development environment; to compile source files and modules, to recreate executable code and to prepare a complete list of any hardware or software configurations.
- iv. Binary Comparison Test – To test the functionality of the compiled deposit materials by comparing the files built in compile testing to the licensed, executable file running at VITA's or Authorized User's site.
- v. Full Usability Test – To confirm the source code placed in escrow will be fully functional in the event of a release and to perform a relevant series of tests to ensure that replicated software runs properly in the required VITA or Authorized User environment.
- vi. Final Operability Test – To perform a final demonstration of the functioning software.
- vii. Fault Remedy – To collaborate with Supplier on fixing any faults discovered during the testing, to obtain corrected escrow items and to re-perform any verification tests as necessary until all tests are successful, with written detailed reports to VITA or the Authorized User.

Supplier warrants that the Escrow Agreement provides for, among other items, the release of the list of items on Attachment A of the Escrow Agreement upon the happening of certain events, including, but not limited to, Supplier's failure to carry out its support and maintenance obligations imposed by this Contract for a period of sixty (60) days, Supplier's breach or default under this Contract, Supplier's bankruptcy, Supplier's failure to continue to do business in the ordinary course. Supplier agrees to pay all expenses associated with establishing and maintaining the escrow account and the contents mentioned above.

Subject to the information and materials listed on Attachment A of the Escrow Agreement being released to the Commonwealth pursuant to the terms of the Escrow Agreement, Supplier hereby grants to the Commonwealth a royalty-free, perpetual, irrevocable license, that permits disclosure to a third party support-vendor of a complete and accurate copy of then-current source code for the Software licensed hereunder, along with all related documentation.

Any Authorized User which is not a state agency, board, commission, or other quasi-political entity of the Commonwealth of Virginia or other body referenced in Title 2.2 of the Code of Virginia may require Supplier to execute an additional escrow agreement subject to the same requirements and binding Supplier to the same obligations as described above but naming such Authorized User as the beneficiary of the escrow agreement. Subject to the information and materials listed in such escrow agreement being released to such Authorized User, Supplier hereby grants to such Authorized User a royalty-free, perpetual, irrevocable license, that permits disclosure to a third party support-vendor of a complete and accurate copy of then-current source code for the Software licensed to such Authorized User, along with all related documentation.

## 21. CONFIDENTIALITY

### A. Treatment and Protection

Each Party shall (i) hold in strict confidence all Confidential Information of any other Party, (ii) use the Confidential Information solely to perform or to exercise its rights under this Contract, and (iii) not transfer, display, convey or otherwise disclose or make available all or any part of such Confidential Information to any third-party. However, an Authorized User may disclose the Confidential Information as delivered by Supplier to subcontractors, contractors or agents of such Authorized User that are bound by non-disclosure contracts with such Authorized User. Each Party shall take the same measures to protect against the disclosure or use of the Confidential Information as it takes to protect its own proprietary or confidential information (but in no event shall such measures be less than reasonable care).

### B. Exclusions

The term "Confidential Information" shall not include information that is:

- i. in the public domain through no fault of the receiving Party or of any other person or entity that is similarly contractually or otherwise obligated;
- ii. obtained independently from a third-party without an obligation of confidentiality to the disclosing Party and without breach of this Contract;
- iii. developed independently by the receiving Party without reference to the Confidential Information of the other Party; or
- iv. required to be disclosed under The Virginia Freedom of Information Act (§§2.2-3700 et seq. of the Code of Virginia) or similar laws or pursuant to a court order.

### C. Return or Destruction

Upon the termination or expiration of this Contract or upon the earlier request of the disclosing Authorized User, Supplier shall (i) at its own expense, (a) promptly return to the disclosing Authorized User all tangible Confidential Information (and all copies thereof except the record required by law) of the disclosing Authorized User, or (b) upon written request from the disclosing Authorized User, destroy such Confidential Information and provide the disclosing Authorized User with written certification of such destruction, and (ii) cease all further use of the Authorized User's Confidential Information, whether in tangible or intangible form.

VITA or the Authorized User shall retain and dispose of Supplier's Confidential Information in accordance with the Commonwealth of Virginia's records retention policies or, if Authorized User is not subject to such policies, in accordance with such Authorized User's own records retention policies.

### D. Confidentiality Statement

All Supplier personnel, contractors, agents, and subcontractors performing Services pursuant to this Contract shall be required to sign a confidentiality statement or non-disclosure agreement.

Any violation of such statement or agreement shall be deemed a breach of this Contract and may result in termination of the Contract or any order or SOW issued hereunder.

**E. Health Insurance Portability and Accountability Act**

Supplier agrees to comply with all applicable provisions of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and, as applicable to the performance of this Contract or to any SOW or order issued hereunder. Supplier shall:

- i. Not use or further disclose protected health information (PHI) other than as permitted or required by the terms of this Contract or any SOW or order issued hereunder or as required by law;
- ii. Use appropriate safeguards to prevent use or disclosure of PHI other than as permitted by this Contract or any SOW or order issued hereunder;
- iii. Report to VITA or Authorized User, as applicable, any use or disclosure of PHI not provided for by this Contract or the applicable SOW or order;
- iv. Mitigate, to the extent practicable, any harmful effect that is known to the Supplier of a use or disclosure of PHI by the Supplier or its employees, agents or subcontractors in violation of the requirements of this Contract or the applicable SOW or order;
- v. Impose the same requirements and restrictions contained in this provision on its employees, subcontractors and agents performing on this Contract or a SOW or order issued hereunder;
- vi. Provide access to PHI contained in its records to VITA or the requesting Authorized User, in the time and manner designated by VITA or the requesting Authorized User, or at the request of VITA or an Authorized User, to an individual in order to meet HIPAA access;
- vii. Make available PHI in its records to VITA or an Authorized User for amendment and incorporate any amendments to PHI in its records at VITA's or an Authorized User's request; (end of HIPAA additional language)

All Supplier documents now or later comprising the Contract may be released in their entirety under the Virginia Freedom of Information Act, and Supplier agrees that any confidentiality or similar stamps or legends that are attached to any future documents or information may be ignored to the extent they claim confidentiality beyond that permitted herein.

**22. INDEMNIFICATION AND LIABILITY**

**A. Indemnification**

Supplier agrees to indemnify, defend and hold harmless the Commonwealth, VITA, any Authorized User, their officers, directors, agents and employees (collectively, "Commonwealth's Indemnified Parties") from and against any and all losses, damages, claims, demands, proceedings, suits and actions, including any related liabilities, obligations, losses, damages, assessments, fines, penalties (whether criminal or civil), judgments, settlements, expenses (including attorneys' and accountants' fees and disbursements) and costs (each, a "Claim" and collectively, "Claims"), incurred by, borne by or asserted against any of Commonwealth's Indemnified Parties to the extent such Claims in any way relate to, arise out of or result from: (i) any intentional or willful conduct or negligence of any employee, agent, or subcontractor of Supplier, (ii) any act or omission of any employee, agent, or subcontractor of Supplier, (iii) breach of any representation, warranty or covenant of Supplier contained herein, (iv) any defect in the Supplier-provided products or services, or (v) any actual or alleged infringement or misappropriation of any third party's intellectual property rights by any of the Supplier-provided products or services. Selection and approval of counsel and approval of any settlement shall be accomplished in accordance with all applicable laws, rules and regulations. For state agencies the applicable laws include §§ 2.2-510 and 2.2-514 of the Code of Virginia. In all cases involving the Commonwealth or state agencies, the selection and approval of counsel and approval of any settlement shall be satisfactory to the Commonwealth. In the event of a settlement between Supplier and a private institution of higher education who is an Authorized User of this contract, such settlement shall be satisfactory to that institution.

In the event that a Claim is commenced against any of Commonwealth's Indemnified Parties alleging that use of the Supplier-provided products or services, including any components thereof, or that the Supplier's performance or delivery of any product or service under this Contract infringes any third party's intellectual property rights and Supplier is of the opinion that the allegations in such Claim in whole or in part are not covered by this indemnification provision, Supplier shall immediately notify VITA and the affected Authorized User(s) in writing, via certified mail, specifying to what extent Supplier believes it is obligated to defend and indemnify under the terms and conditions of this Contract. Supplier shall in such event protect the interests of the Commonwealth's Indemnified Parties and secure a continuance to permit VITA and the affected Authorized User(s) to appear and defend their interests in cooperation with Supplier as is appropriate, including any jurisdictional defenses VITA or the affected Authorized User(s) may have.

In the event of a Claim pursuant to any actual or alleged infringement or misappropriation of any third party's intellectual property rights by any of the Supplier-provided Deliverables, Products, Software, Services, Solution, including Solution Components, Application and Licensed Services, as applicable, or Supplier's performance, and in addition to all other obligations of Supplier in this Section, Supplier shall at its expense, either (a) procure for all Authorized Users the right to continue use of such infringing Deliverables, Products, Software, Services, Solution, including Solution Components, Application and Licensed Services, as applicable, or any component thereof; or (b) replace or modify such infringing Deliverables, Products, Software, Services, Solution, including Solution Components, Application and Licensed Services, as applicable, or any component thereof, with non-infringing Deliverables, Products, Software, Services, Solution or Solution Component(s), Application and Licensed Services, as applicable, satisfactory to VITA. And in addition, Supplier shall provide any Authorized User with a comparable temporary replacement products and/or services or reimburse VITA or any Authorized User for the reasonable costs incurred by VITA or such Authorized User in obtaining an alternative product or service, in the event such Authorized User cannot use the affected Deliverable, Product, Software, Services, Solution or Solution Component(s), Application and Licensed Services, as applicable, or any component thereof. If Supplier cannot accomplish any of the foregoing within a reasonable time and at commercially reasonable rates, then Supplier shall accept the return of the infringing Deliverables, Products, Software, Services, Solution, Solution Component, Application and Licensed Services, as applicable, or any component thereof, along with any other components rendered unusable by any Authorized User as a result of the infringing component, and refund the price paid to Supplier for such components.

## **B. Liability**

Except for liability with respect to (i) any intentional or willful misconduct or negligence of any employee, agent, or subcontractor of Supplier, (ii) any act or omission of any employee, agent, or subcontractor of Supplier, (iii) claims for bodily injury, including death, and real and tangible property damage, (iv) Supplier's indemnification obligations, (v) Supplier's confidentiality obligations, (vi) Supplier's security compliance obligations, and (vii) Supplier's data privacy and security obligations as specified under this Contract, Supplier's liability shall be limited to twice the aggregate value of the delivered and accepted Deliverables, Products, Software, Services, Solution, including Solution Components, Application and Licensed Services, as applicable, provided by Supplier to all Authorized Users under this Contract. Supplier agrees that it is fully responsible for all acts and omissions of its employees, agents, and subcontractors, including their gross negligence or willful misconduct. The limitation shall apply on a per-incident basis, it being understood that multiple losses stemming from the same root cause constitute a single incident.

FOR ALL OTHER CONTRACTUAL CLAIMS, IN NO EVENT WILL ANY PARTY BE LIABLE TO ANY OTHER PARTY FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, INCLUDING (WITHOUT LIMITATION) LOSS OF PROFIT, INCOME OR SAVINGS, EVEN IF ADVISED OF THE POSSIBILITY THEREOF, EXCEPT WHEN SUCH DAMAGES ARE CAUSED BY THE GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF THE PARTY, ITS EMPLOYEES, AGENTS OR SUBCONTRACTORS.

**23. INSURANCE**

In addition to the insurance coverage required by law as referenced in the Incorporated Contractual Provisions section of this Contract, Supplier shall carry:

Errors and omissions insurance coverage in the amount of \$2,000,000 per occurrence.

**24. SECURITY COMPLIANCE**

Supplier agrees to comply with all provisions of the then-current Commonwealth of Virginia security procedures, published by the Virginia Information Technologies Agency (VITA) and which may be found at: (<http://www.vita.virginia.gov/library/default.aspx?id=537#securityPSGs>) or a successor URL(s), as are pertinent to Supplier's operation. Supplier further agrees to comply with all provisions of the relevant Authorized User's then-current security procedures as are pertinent to Supplier's operation and which have been supplied to Supplier by such Authorized User. Supplier shall also comply with all applicable federal, state and local laws and regulations. For any individual Authorized User location, security procedures may include but not be limited to: background checks, records verification, photographing, and fingerprinting of Supplier's employees or agents. Supplier may, at any time, be required to execute and complete, for each individual Supplier employee or agent, additional forms which may include non-disclosure agreements to be signed by Supplier's employees or agents acknowledging that all Authorized User information with which such employees and agents come into contact while at the Authorized User site is confidential and proprietary. Any unauthorized release of proprietary or Personal information by the Supplier or an employee or agent of Supplier shall constitute a breach of its obligations under this Section and the Contract. Supplier shall immediately notify VITA and Authorized User, if applicable, of any Breach of Unencrypted and Unredacted Personal Information, as those terms are defined in Virginia Code 18.2-186.6, and other personal identifying information, such as insurance data or date of birth, provided by VITA or Authorized User to Supplier. Supplier shall provide VITA the opportunity to participate in the investigation of the Breach and to exercise control over reporting the unauthorized disclosure, to the extent permitted by law. Supplier shall indemnify, defend, and hold the Commonwealth, VITA, the Authorized User, their officers, directors, employees and agents harmless from and against any and all fines, penalties (whether criminal or civil), judgments, damages and assessments, including reasonable expenses suffered by, accrued against, or charged to or recoverable from the Commonwealth, VITA, the Authorized User, their officers, directors, agents or employees, on account of the failure of Supplier to perform its obligations pursuant this Section.

**25. IMPORT/EXPORT**

In addition to compliance by Supplier with all export laws and regulations, VITA requires that any data deemed "restricted" or "sensitive" by either federal or state authorities, must only be collected, developed, analyzed, or otherwise used or obtained by persons or entities working within the boundaries of the United States.

**26. BANKRUPTCY**

If Supplier becomes insolvent, takes any step leading to its cessation as a going concern, fails to pay its debts as they become due, or ceases business operations continuously for longer than fifteen (15) business days, then VITA may immediately terminate this Contract, and an Authorized User may terminate an order or SOW, on notice to Supplier unless Supplier immediately gives VITA or such Authorized User adequate assurance of the future performance of this Contract or the applicable order or SOW. If bankruptcy proceedings are commenced with respect to Supplier, and if this Contract has not otherwise terminated, then VITA may suspend all further performance of this Contract until Supplier assumes this Contract and provides adequate assurance of performance thereof or rejects this Contract pursuant to Section 365 of the Bankruptcy Code or any similar or successor provision, it being agreed by VITA and Supplier that this is an executory contract. Any such suspension of further performance by VITA or Authorized User pending Supplier's assumption

or rejection shall not be a breach of this Contract, and shall not affect the rights of VITA or any Authorized User to pursue or enforce any of its rights under this Contract or otherwise.

## 27. GENERAL PROVISIONS

### A. Relationship Between VITA and Authorized User and Supplier

Supplier has no authority to contract for VITA or any Authorized User or in any way to bind, to commit VITA or any Authorized User to any agreement of any kind, or to assume any liabilities of any nature in the name of or on behalf of VITA or any Authorized User. Under no circumstances shall Supplier, or any of its employees, hold itself out as or be considered an agent or an employee of VITA or any Authorized User, and neither VITA nor any Authorized User shall have any duty to provide or maintain any insurance or other employee benefits on behalf of Supplier or its employees. Supplier represents and warrants that it is an independent contractor for purposes of federal, state and local employment taxes and agrees that neither VITA nor any Authorized User is responsible to collect or withhold any federal, state or local employment taxes, including, but not limited to, income tax withholding and social security contributions, for Supplier. Any and all taxes, interest or penalties, (including, but not limited to, any federal, state or local withholding or employment taxes, and any penalties related to health care or employee benefits laws) that are imposed, assessed or levied as a result of this Contract or Services performed pursuant to this Contract shall be paid or withheld by Supplier or, if assessed against and paid by VITA or any Authorized User, shall be reimbursed by Supplier upon demand by VITA or such Authorized User.

### B. Incorporated Contractual Provisions

The then-current contractual provisions at the following URL are mandatory contractual provisions, required by law or by VITA, and that are hereby incorporated by reference: [http://www.vita.virginia.gov/uploadedfiles/VITA\\_Main\\_Public/scm/StatutorilyMandatedTsandCs.pdf](http://www.vita.virginia.gov/uploadedfiles/VITA_Main_Public/scm/StatutorilyMandatedTsandCs.pdf)

The contractual claims provision §2.2-4363 of the Code of Virginia and the required eVA provisions at [http://www.vita.virginia.gov/uploadedfiles/VITA\\_Main\\_Public/scm/eVATsandCs.pdf](http://www.vita.virginia.gov/uploadedfiles/VITA_Main_Public/scm/eVATsandCs.pdf) are also incorporated by reference.

The then-current terms and conditions in documents posted to the aforementioned URLs are subject to change pursuant to action by the legislature of the Commonwealth of Virginia, change in VITA policy, or the adoption of revised eVA business requirements. If a change is made to the terms and conditions, a new effective date will be noted in the document title. Supplier is advised to check the URLs periodically.

### C. Compliance with the Federal Lobbying Act

Supplier's signed certification of compliance with 31 USC 1352 (entitled "Limitation on use of appropriated funds to influence certain Federal Contracting and financial transactions") or by the regulations issued from time to time thereunder (together, the "Lobbying Act") is incorporated as an exhibit to this Contract.

### D. Governing Law

This Contract shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia without regard to that body of law controlling choice of law. Any and all litigation shall be brought in the circuit courts of the Commonwealth of Virginia. The English language version of this Contract prevails when interpreting this Contract. The United Nations Convention on Contracts for the International Sale of Goods and all other laws and international treaties or conventions relating to the sale of goods are expressly disclaimed. UCITA shall apply to this Contract only to the extent required by §59.1-501.15 of the Code of Virginia.

### E. Dispute Resolution

In accordance with §2.2-4363 of the Code of Virginia, Contractual claims, whether for money or other relief, shall be submitted in writing to the public body from whom the relief is sought no later than sixty (60) days after final payment; however, written notice of the Supplier's intention to file such claim must be given to such public body at the time of the occurrence or beginning of the

work upon which the claim is based. Pendency of claims shall not delay payment of amounts agreed due in the final payment. The relevant public body shall render a final decision in writing within thirty (30) days after its receipt of the Supplier's written claim.

The Supplier may not invoke any available administrative procedure under §2.2-4365 of the Code of Virginia nor institute legal action prior to receipt of the decision of the relevant public body on the claim, unless that public body fails to render its decision within thirty (30) days. The decision of the relevant public body shall be final and conclusive unless the Supplier, within six (6) months of the date of the final decision on the claim, invokes appropriate action under §2.2-4364, Code of Virginia or the administrative procedure authorized by §2.2-4365, Code of Virginia.

Upon request from the public body from whom the relief is sought, Supplier agrees to submit any and all contractual disputes arising from this Contract to such public body's alternative dispute resolution (ADR) procedures, if any. Supplier may invoke such public body's ADR procedures, if any, at any time and concurrently with any other statutory remedies prescribed by the Code of Virginia.

In the event of any breach by a public body or a private institution, Supplier's remedies shall be limited to claims for damages and Prompt Payment Act interest and, if available and warranted, equitable relief, all such claims to be processed pursuant to this Section. In no event shall Supplier's remedies include the right to terminate any license or support services hereunder.

**F. Advertising and Use of Proprietary Marks**

Supplier shall not use the name of VITA or any Authorized User or refer to VITA or any Authorized User, directly or indirectly, in any press release or formal advertisement without receiving prior written consent of VITA or such Authorized User. In no event may Supplier use a proprietary mark of VITA or an Authorized User without receiving the prior written consent of VITA or the Authorized User.

**G. Notices**

Any notice required or permitted to be given under this Contract shall be in writing and shall be deemed to have been sufficiently given if delivered in person, or if deposited in the U.S. mails, postage prepaid, for mailing by registered, certified mail, or overnight courier service addressed to:

- i. To VITA and to Supplier, if Supplier is incorporated in the Commonwealth of Virginia, to the addresses shown on the signature page.
- ii. To Supplier, if Supplier is incorporated outside the Commonwealth of Virginia, to the Registered Agent registered with the Virginia State Corporation Commission.

Pursuant to Title 13.1 of the Code of Virginia, VITA or Supplier may change its address for notice purposes by giving the other notice of such change in accordance with this Section.

Administrative contract renewals, modifications or non-claim related notices are excluded from the above requirement. Such written and/or executed contract administration actions may be processed by the assigned VITA and Supplier points of contact for this Contract and may be given in person, via U.S. mail, courier service or electronically.

**H. No Waiver**

Any failure to enforce any terms of this Contract shall not constitute a waiver.

**I. Assignment**

This Contract shall be binding upon and shall inure to the benefit of the permitted successors and assigns of VITA and Supplier. Supplier may not assign, subcontract, delegate or otherwise convey this Contract or any of its rights and obligations hereunder, to any entity without the prior written consent of VITA, and any such attempted assignment or subcontracting without consent shall be void. VITA may assign this Contract to any entity, so long as the assignee agrees in writing to be bound by the all the terms and conditions of this Contract.

If any law limits the right of VITA or Supplier to prohibit assignment or nonconsensual assignments, the effective date of the assignment shall be thirty (30) days after the Supplier gives

VITA prompt written notice of the assignment, signed by authorized representatives of both the Supplier and the assignee. Any payments made prior to receipt of such notification shall not be covered by this assignment.

**J. Captions**

The captions are for convenience and in no way define, limit or enlarge the scope of this Contract or any of its Sections.

**K. Severability**

Invalidity of any term of this Contract, in whole or in part, shall not affect the validity of any other term. VITA and Supplier further agree that in the event such provision is an essential part of this Contract, they shall immediately begin negotiations for a suitable replacement provision.

**L. Survival**

Any provisions of this Contract regarding Software License, Rights To Work Product, Warranty, Escrow, Confidentiality, Content Privacy and Security, Liability, Indemnification, and the General Provisions shall survive the expiration or termination of this Contract.

**M. Force Majeure**

No Party shall be responsible for failure to meet its obligations under this Contract if the failure arises from causes beyond the control and without the fault or negligence of the non-performing Party. If any performance date under this Contract is postponed or extended pursuant to this section for longer than thirty (30) calendar days, VITA, by written notice given during the postponement or extension, may terminate Supplier's right to render further performance after the effective date of termination without liability for that termination, and in addition an Authorized User may terminate any order or SOW affected by such postponement or delay.

**N. Remedies**

The remedies set forth in this Contract are intended to be cumulative. In addition to any specific remedy, VITA and all Authorized Users reserve any and all other remedies that may be available at law or in equity.

**O. Right to Audit**

VITA reserves the right to audit those Supplier records that relate to the Contract or any SOWs or orders issued there under. VITA's right to audit shall be limited as follows:

- i. Three (3) years from end date of the Contract;
- ii. Performed at Supplier's premises, during normal business hours at mutually agreed upon times; and
- iii. Excludes access to Supplier cost information. In no event shall Supplier have the right to audit, or require to have audited, VITA or any Authorized User.

**P. Offers of Employment**

During the first twelve (12) months of the Contract, should Supplier hire an employee of any Authorized User who has substantially worked on any project covered by this Contract without prior written consent, the Supplier shall be billed for fifty percent (50%) of the employee's annual salary in effect at the time of termination.

**Q. Contract Administration**

Supplier agrees that at all times during the term of this Contract an account executive, at Supplier's senior management level, shall be assigned and available to VITA. Supplier reserves the right to change such account executive upon reasonable advance written notice to VITA.

**R. Entire Contract**

The following Exhibits, including all subparts thereof, are attached to this Contract and are made a part of this Contract for all purposes:

Exhibit A - Requirements

Exhibit B - Options List; Fees, Service Charges, and Payment Schedule

Exhibit C - Escrow Agreement

- Exhibit D - Statement of Work (SOW) Template
- Exhibit E - Change Order Template
- Exhibit F - Reserved
- Exhibit G - Certification Regarding Lobbying
- Exhibit H - Software as a Service

This Contract, its Exhibits, and any prior non-disclosure agreement constitute the entire agreement between VITA and Supplier and supersede any and all previous representations, understandings, discussions or agreements between VITA and Supplier as to the subject matter hereof. Any and all terms and conditions contained in, incorporated into, or referenced by the Supplier's Proposal shall be deemed invalid. The provisions of the Virginia Department of General Services, Division of Purchases and Supply Vendor's Manual shall not apply to this Contract or any order issued hereunder. This Contract may only be amended by an instrument in writing signed by VITA and Supplier. In the event of a conflict, the following order of precedence shall apply: this Contract document, Exhibit A, any individual SOW, Exhibit B.

An Authorized User and Supplier may enter into an ordering agreement pursuant to this Contract. To the extent that such ordering agreement, or any order or SOW issued hereunder, include any terms and conditions inconsistent with the terms and conditions of this Contract, such terms and conditions shall be of no force and effect.

VITA and Supplier each acknowledge that it has had the opportunity to review this Contract and to obtain appropriate legal review if it so chose.

Executed as of the last date set forth below by the undersigned authorized representatives of VITA and Supplier.

Carahsoft  
 By: 

(Signature)

Name: Ellen Lord

(Print)

Title: Contracts Manager

Date: October 13, 2015

Address for Notice:

1860 Michael Faraday Drive

Suite 100

Reston, Virginia 20190

Attention: Jack Dixon

VITA

By: 

(Signature)

Name: Nelson P. Moe

(Print)

Title: CIO

Date: 11-19-2015

Address for Notice:

11751 Meadowville Lane

Chester, VA 23836

Attention: Contract Administrator



**EXHIBIT A REQUIREMENTS**  
**CONTRACT NUMBER VA-150915-CARA**  
**BETWEEN**  
**VIRGINIA INFORMATION TECHNOLOGIES AGENCY**  
**AND**  
**CARASOFT TECHNOLOGY CORPORATION**

Exhibit A is hereby incorporated into and made an integral part of Contract Number VA-150915-CARA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Carahsoft Technology Corporation (“Supplier”).

In the event of any discrepancy between this Exhibit A and the Contract, the provisions of the Contract shall control.

A – Product Specifications & Standards

	Requirements	A	B
1	Does your solution comply with all current COV ITRM Policies and Standards, as applicable, found at: <a href="http://www.vita.virginia.gov/library/default.aspx?id=537">http://www.vita.virginia.gov/library/default.aspx?id=537</a> .  If proposed solution does not, please provide details that specify the Standard/Policy and how Supplier's solution does not comply.	Y	Yes, Carahsoft Technology Corporation is currently compliant with all Policies and Standards set forth by VITA.
2	Do your proposed interfaces to Commonwealth systems comply with or have approved exceptions to all applicable Commonwealth Data Standards as found at <a href="http://www.vita.virginia.gov/oversight/default.aspx?id=10344">http://www.vita.virginia.gov/oversight/default.aspx?id=10344</a> If not, please explain.	Y	Yes, as a corporation registered within the State of Virginia, Carahsoft confirms that all interfaces currently comply with the Commonwealth Data Standards.
3	Does your solution provide effective, interactive control and use with nonvisual means and provide 508 Compliance in	Y	Yes, for detailed information regarding compliance with VPAT, please see the completed VPAT information for each

	Requirements	A	B
	<p>accordance with the following standard regarding IT Accessibility and 508 Compliance:</p> <p><a href="http://www.vita.virginia.gov/uploadedFiles/Library/AccessibilityStandard_GOV103-00_Eff_11-04-05.pdf">http://www.vita.virginia.gov/uploadedFiles/Library/AccessibilityStandard_GOV103-00_Eff_11-04-05.pdf</a>                      (Refer to <a href="http://www.section508.gov">www.section508.gov</a> and <a href="http://www.access-board.gov">www.access-board.gov</a> for further information)</p> <p>If yes, please describe how this functionality is achieved and include a completed Voluntary Product Accessibility Template (VPAT) with your proposal: (The VPAT template is located in APPENDIX C of the Accessibility Standard (GOV103-00)).</p> <p>If no, does your solution provide alternate accessibility functionality? Please describe.</p>		<p>proposed product located in Appendix F.</p> <p>If VITA requires additional VPATs for specific Vendors, Carahsoft will provide these upon request.</p>

B – General

	Requirements	A	B
1	Selected vendors, if asked, will need to perform a selected vendor proposed pilot within one year of contract award. Does your Solution meet this requirement?	Y	Yes, Carahsoft and its proposed solution providers will be able to perform a pilot within one year of contract award.
2	There will be no cost to the Commonwealth or the participating agencies for the use of tools or Supplier resources utilized during this evaluation and pilot(s). Does your Solution meet this requirement?	Y	<p>Yes, Carahsoft will be able to offer the proposed pilots at no cost to the Commonwealth or the participating agencies.</p> <p>Cloudera and Digital Reasoning Pilot will be done at no cost on suitable Commonwealth of Virginia Supplied Linux Rack Server Hardware with direct attached storage that meet Cloudera minimum specifications.</p> <p>Splunk Pilot will be at no cost to the Commonwealth in accordance with mutually agreed upon document specified in #3 (VPAT)</p>
3	Vendors selected for pilots will need to work with any agency providing data to support that pilot to develop a mutually agreed upon document before a pilot can commence. That agreement needs to address exactly how the vendor intends to analyze any agency data and all of the controls and associated roles that will be applied to that data. Does your Solution meet this requirement?	Y	<p>Carahsoft can meet this requirement through pilots provided by Splunk, Cloudera, and Digital Reasoning (DR).</p> <p>Splunk is fully able to meet this requirement.</p> <p>Cloudera and DR routinely develop a pilot document prior to the engagement of customer pilots. Pilot documents define requirements and set criteria that outline how a requirement will be satisfied from a functional and performance perspective.</p>
4	All applicable state and federal laws concerning the protection of this data must be complied with. Does your Solution meet this requirement?	Y	Yes, Carahsoft's proposed solutions are compliant with all applicable state and federal laws concerning the protection of this data.
5	All Commonwealth data utilized during pilots must remain at the hosting agency. No Commonwealth data is to be analyzed offsite, copied, transformed to obscure Commonwealth's ownership, or transmitted in any way without formal agency approval. Does your Solution meet this requirement?	Y	Yes, Carahsoft can meet this requirement.

	Requirements	A	B
6	<p>Pilots are to be performed on dedicated devices (laptops) supplied by VITA or on vendor supplied appliances. Vendor provided appliances will need an approved plan (by VITA &amp; participating agencies) for protecting and deleting Commonwealth data. Does your Solution meet this requirement?</p>	Y	<p>Yes, Carahsoft's proposed solutions can meet this requirement.</p> <p>Splunk In order to achieve operationally acceptable performance during the Pilot, Splunk strongly recommends that Pilot equipment, at a minimum, meets the Reference Machine Specifications found at <a href="http://docs.splunk.com/Documentation/Splunk/6.2.2/Capacity/Referencehardware#Reference_machine_for_single-instance_deployments">http://docs.splunk.com/Documentation/Splunk/6.2.2/Capacity/Referencehardware#Reference_machine_for_single-instance_deployments</a>.</p> <p>Tableau Pilot will be done at no cost on suitable Commonwealth of Virginia Supplied Linux Rack Server Hardware with direct attached storage. Cloudera has strategic relationships and certified reference architectures with hardware vendors such as HP, Dell, IBM, Lenovo, and Oracle and can inform and guide VITA and participating agencies on proper hardware selection for the Pilot. Tableau can run as a desktop application on a Laptop and access the Synthesys Knowledge Graph along with the data secured in the Cloudera EDH. The following detail provides more information regarding minimal requirements for Pilot Hardware.</p>
7	<p>VITA supplied laptops and vendor supplied appliances must be under full control of the pilot hosting agency for the duration of the pilot. Vendor will have no administrative rights to VITA supplied laptop. Agency or VITA staff will load any required software.</p> <p>Pilot should be accomplished with the minimum amount of Commonwealth data as possible/practical</p> <p>The agency may require that the analytic methods be demonstrated to agency staff by the vendor on agency provided test data and any analysis of actual agency data would only be performed by agency staff</p> <p>Vendor access to agency data may require vendor staff to attend specific training provided by the agency.</p> <p>Does your Solution meet these</p>	Y	<p>Yes, Carahsoft's solution providers are flexible in respect to working with VITA technical products such as laptops, servers and server appliances provided they meet our minimum operating requirements. Carahsoft's vendor partners can also guide and mentor VITA and agency personnel to perform proxy technical actions required by the Pilot such as installation, configuration, monitoring, and troubleshooting.</p>

	Requirements	A	B
	requirements?		
8	Suppliers will provide subject matter experts as need to support the pilots. Does your Solution meet this requirement?	Y	Yes, Carahsoft's solution providers will provide subject matter experts (SMEs) that have experience and implementation knowledge of Hadoop, Natural Language Processing, and Business Intelligence and Visualization.
9	Does your Solution safeguard sensitive data? If yes, explain how.	Y	<p>Yes, Carahsoft's solutions can meet this requirement. Please see full details pertaining to the solutions below:</p> <p><b>Splunk</b>                      Splunk software safeguards sensitive data through granular user account controls, data encryption, and data integrity validation. By default, Splunk comes with multiple user roles defined ranging from administrative users to unprivileged users. These roles can easily be modified to meet data privacy or business needs. Splunk also supports Lightweight Directory Access Protocol (LDAP) integration which makes integration with directory services such as Microsoft Active Directory (AD). Splunk software supports ingest of data via encrypted SSL/TLS connections. This ensures that data is encrypted in-transit from a source as it is sent to Splunk. Data stored within Splunk can be encrypted at-rest via hard drive encryption or through third party application encryption solutions. Splunk supports data integrity validation/non-repudiation by optionally hashing raw events with the SHA-256 hashing algorithm during indexing. When an analyst runs a search against data that has been hashed, the unique hashes of the events returned in search results are verified, then displayed indicated as unadulterated in the user interface.</p> <p><b>Cloudera</b>                      Cloudera provides a security implementation that covers authentication, authorization, access control, encryption, and auditing. Safeguarding of sensitive data will minimally require a full lifecycle approach to insures that an individual is full authenticated via Kerberos security, validation that the authenticated user is permitted to access the data, and lastly if the user possesses an encryption key that enables that user to decrypt the sensitive data.</p> <p><b>Encryption and Safeguarding of Sensitive Data</b>                      Cloudera provides the following two solutions for data at rest encryption to safe sensitive data.</p> <p><b>HDFS Encryption (HDFS-6134)</b> – operates at the HDFS folder level and file level, enabling encryption to be applied only to the HDFS folders where it is needed. Encryption Zones are the basis of the encryption scope. An encryption zone is a directory in HDFS with every file</p>

	Requirements	A	B
			<p>and subdirectory in it encrypted. To ensure reliable key storage (so that data cannot be lost), Navigator Key Trustee is required for production use, while the default Java key store can be used for test purposes. This is a key differentiator with Cloudera as the default Java key store is not a sufficient Key Management Server for most Enterprise deployments.</p> <p>Navigator Encrypt (formerly Gazzang zNcrypt) is production ready and available now for Cloudera customers licensed for Cloudera Navigator. Navigator encrypt operates at the Linux volume level or file system level, so it can encrypt cluster data outside HDFS, such as temp/spill files, config files and metadata databases (to be used only for data related to a CDH cluster). Must be used together with Navigator Key Trustee (formerly Gazzang zTrustee).</p> <p>This second option (Navigator Encrypt) is important because sensitive data stored on Hadoop can also be exposed outside of HDFS, whether it's in temp/spill files, config files and metadata databases. If you have encryption requirements, you will most likely have to encrypt data outside of HDFS as well.</p> <p>Authorization and Role Based Access Control (RBAC) of Sensitive Data</p> <p>Cloudera provides a solution called Apache Sentry for role based access control (RBAC) to provide grant and deny functionality to protect general access and authorization to storage areas that require safeguards for sensitive data.</p> <p>Apache Sentry – a standard, open source, unified authorization engine for enforcing role- based access controls (RBAC) across the Hadoop ecosystem. It provides unified access control for data as well as metadata stored in Hadoop. Enterprises can define the privileges for data sets that that will be enforced from multiple access paths including HDFS, Apache Hive, Impala, Cloudera Search as well as Apache Pig, Apache MapReduce/Yarn via HCatalog.</p> <p>Apache Sentry can be considered to be a security access approach to grant or deny access to sensitive areas for users that are fully authenticated with Kerberos. HDFS and Navigator encryption is the next level of safeguard through direct encryption of sensitive data if access to the data has been granted or denied. In this scenario an authenticated user will possess a decryption key that entitles the user to access sensitive data.</p>
10	Does your solution have mechanisms that will prevent one	Y	Yes, Carahsoft's solutions can meet this requirement.

	Requirements	A	B
	<p>entity from viewing another entity's data if applicable if the toolset was deployed on a shared platform? If yes, explain how they work.</p>		<p>Please see full details pertaining to the solutions below:</p> <p>Splunk Splunk features administrator-configurable roles that enable highly granular accesses to various parts of the Management Interface as well as the scope of data users are allowed to access, reporting, configurations, rule modifications, and access to certain organizational tenants. Role modifications can be applied to individual users and/or groups.</p> <p>Cloudera – Authorization and Role Based Access Control (RBAC) of Entity Data Cloudera provides a solution called Apache Sentry for role based access control (RBAC) to provide grant and deny functionality to protect general access and authorization to storage areas that require safeguards for sensitive data.</p> <p>Apache Sentry – a standard, open source, unified authorization engine for enforcing role- based access controls (RBAC) across the Hadoop ecosystem. It provides unified access control for data as well as metadata stored in Hadoop. Enterprises can define the privileges for data sets that that will be enforced from multiple access paths including HDFS, Apache Hive, Impala, Cloudera Search as well as Apache Pig, Apache MapReduce/Yarn via HCatalog.</p> <p>Apache Sentry can be considered to be a security access approach to grant or deny access to sensitive areas for users that are fully authenticated with Kerberos. HDFS and Navigator encryption is the next level of safeguard through direct encryption of sensitive data if access to the data has been granted or denied. In this scenario an authenticated user will possess a decryption key that entitles the user to access sensitive data.</p>
11	<p>Does your solution have the ability to extract data from multiple existing analytic tool sets (Cognos, SAS, Business Objects, MicroStrategy, Microsoft Analytics, etc.)? If so, please list.</p>	Y	<p>Yes, Carahsoft's solutions can meet this requirement. Please see full details pertaining to the solutions below:</p> <p>Splunk Splunk can index and query data from virtually any machine generated text-based data including external relational database management systems (RDBMS) ) or legacy business intelligence tools and integrate the results from these structured data sources within searches or index the data into Splunk. <a href="https://splunkbase.splunk.com/app/2686/#/documentation">https://splunkbase.splunk.com/app/2686/#/documentation</a> <a href="https://splunkbase.splunk.com/app/1606/#/overview">https://splunkbase.splunk.com/app/1606/#/overview</a></p> <p>Cloudera and Digital Reasoning</p>

	Requirements	A	B
			<p>Cloudera Enterprise Data Hub (EDH) implements Apache Hadoop project frameworks such as HDFS, MapReduce, Pig, Hive, Search and Impala. Each of these frameworks store data in HDFS (Hadoop Distributed File System) that is part of a Hadoop cluster. Data can also be stored in non-Hadoop HDFS data stores by these analytic toolsets. Analytic tool sets such as Cognos, SAS, Business Objects, MicroStrategy, and Microsoft Analytics have the ability to access data stored in non-Hadoop data stores as well as data that has been migrated to Hadoop HDFS.</p> <p>Cloudera have relationships with a number of the analytic tool set vendors that support data integration capabilities so that data can be extracted from a Hadoop cluster or extracted using interface implementations such as ODBC, JDBC, and analytic tool vendor specialized connectors.</p> <p>The following analytic tools sets are supported, although not limited to this list:                      Tableau Desktop and Server 8.1 or greater                      Cognos Business Intelligence 10.2.1 Fix Pack 3                      Base SAS 9.4M2, SAS Access for Hadoop 9.4M2, SAS Access for Impala 9.4M2, SAS Data Loader for Hadoop 2.2, SAS HPA High Performance Data Mining 9.4M2, SAS HPA High Performance Statistics 9.4M2, SAS Visual Analytics 6.4                      MicroStrategy 9.4.1</p> <p>Since Digital Reasoning's Synthesys gets its input data from HDFS, any unstructured data in the Cloudera EDH that's transformed to the Synthesys input format can be analyzed.</p>
12	Supplier staff will submit to background checks conducted and paid for by the Commonwealth. Does your Solution meet this requirement?	Y	Yes, Carahsoft's solution providers will submit to background checks as required.
13	Agencies may need expertise/resources in utilizing these next-generation analytics tools to address business needs. Role examples include: Data Scientists, Data Analysts, Data Hygienists, Data Explorers, Data Visualizers, Does your Solution have the ability to provide these types of resources? If so, what roles can you provide?	Y	<p>Yes, Carahsoft's solution providers are able to meet these requirements.</p> <p>Splunk is primarily a software company and has historically been focused on enabling client's big data analytic endeavors through its software. In cases where our clients desire (or require) support with a deployment of Splunk – Architecture, Installation/configuration, Data Structuring, Creation of analytics, Data normalization, Creation of visualizations, Splunk offers on-site professional services to ensure that agency business/mission needs are met.</p>



C – Solution Information (by category)

For each applicable Solution Information Category, Carahsoft Technology Corp. has provided specific and detailed responses for each of the proposed solution providers. Each response has been outlined below.

SUPPLIERS NOTE: There are eight sub-sections to this RFP Section 5.C “Solution Information”. Suppliers do not need to respond to each of these sub-sections in order to be considered for award.

Business Intelligence – the set of techniques and tools for the transformation of raw data into meaningful and useful information for business analysis purposes. Common functions are querying, reporting, online analytical processing (OLAP), "alerts", dashboards, process mining, complex event processing, business performance management, benchmarking, data warehousing, data marts, etc. This also includes:

Descriptive analytics – looks at past performance and understands that performance by mining historical data to look for the reasons behind past success or failure. Most management reporting - such as sales, marketing, operations, and finance - uses this type of post-mortem analysis.

Carahsoft Response:


For the Business Intelligence category, Carahsoft can meet the Solution Information requirements via our Solution Providers, Tableau and Splunk.

Tableau

Please find Tableau’s response to Solution Information 1 – Business Intelligence below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Tableau software consists of Tableau Desktop and Tableau Server.</p> <p>Tableau Desktop is used to connect to data, for content creation of dashboards and views, defining the semantic layer from a dimension and measure model perspective, and blending or federating data from disparate data sources.</p> <p>Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	Tableau Server can be deployed on premise, on a private cloud, on the Tableau cloud, or on a PaaS solution.
3	Explain licensing options for the tools you	n/a	Tableau Desktop – Used to author and build Dashboards and Visualizations (On Premise)

	Requirements	A	B
	<p>have included in this category</p>		<p>This is our Flagship offering at Tableau - it allows you to be the author of your Data Visualizations.</p> <p>Named user licensing, not concurrent, only one person can use the license, software purchased for the individual user</p> <p>Number of installations permitted per EULA</p> <p>1 Primary</p> <p>1 Backup (Home/Laptop)</p> <p>Tableau Server – Used to share dashboards via web (On Premise) Second of our flagship products, with Desktop you have the ability to author workbooks – with Server comes the ability to publish information to share via network/VPN</p> <p>Tableau Server is the software that the customer will install on their own server hardware - Tableau does not sell the hardware</p> <p>Number of installations permitted per EULA:</p> <p>Primary (Production) Environment</p> <p>Backup/Test (Non-production) Environments</p> <p>COLD High Availability Environment</p> <p>Core Server</p> <p>Unlimited users, licensing the hardware (Number of CPU's used on their Server equipment)</p> <p>Minimum purchase is an 8 Core license;</p> <p>Tableau Online – SaaS (Software as a Service) hosted by Tableau Server</p> <p>Pay for a yearly subscription per seat online. Allows customers to integrate easily with Tableau Server from a variety of devices, without purchasing any server hardware</p> <p>Similar to other cloud based software like Salesforce: sign in to a webpage to access content</p> <p>Customer agrees to an Online Agreement - different than the Tableau EULA</p>
4	<p>Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.</p>	Y	<p>Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).</p>
5	<p>Do you provide training on your solution? If yes, please explain the options.</p>	Y	<p>Tableau provides 50+ on-demand training videos on its main website, in addition to live daily training classes that users can sign up for. These two offerings are completely free of charge.</p> <p>Tableau also offers traditional live, classroom training on per-attendee fee basis, more information can also be found on Tableau's main website.</p>

	Requirements	A	B
6	Do you provide installation (including configuration) services for these tool components above?	Y	<p>Many customers find Tableau simple enough to install and configure that they do not require services to complete.</p> <p>However, Tableau Professional Services does offer small packages of a few days to assist if desired.</p>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	<p>Tableau is unique in that we empower users to get value instantly out of the solution without requiring lengthy and expensive implementation services. It is for this reason that Gartner has ranked Tableau #1 in terms of ability to execute among BI tool in both 2014 and 2015.</p>  <p>As of February 2015</p>
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Tableau Software helps people see and understand data. It offers the power and flexibility to serve a broad range of use cases, from answering questions with small spreadsheets to completing enterprise business intelligence projects involving massive volumes of data.</p> <p>Other solutions in the analytics space require many months of development effort to start to get value, involving staff with specialized technical/programming skills and training, or very expensive consulting resources. Tableau, however, allows users in your organization to get value in minutes, by quickly connecting to their data and answering their questions with instant visualization, involving no programming or technical skills.</p> <p>The proposed Tableau Software solution is comprised of two products: Tableau Desktop, a self-service, powerful analytics product for anyone with data, and Tableau Server, a business intelligence platform for organizations to share content in a 100% web-based, secure, scalable, and automated manner.</p> <p><b>Tableau Desktop</b></p> <p>Tableau Desktop helps knowledge workers make sense of the many kinds of data they encounter every day. The defining capability of Tableau Desktop is the interactive experience it provides for exploring and analyzing data. By fundamentally</p>

	Requirements	A	B
			<p>integrating data analysis and visualization, our products provide a visual window into data trapped in spreadsheets and databases, fostering greater engagement with data and allowing people to better answer questions, develop insights and solve problems. The result is a self-service analytics environment that empowers people to access and analyze data independently and at a rapid pace.</p> <p>Tableau Desktop’s key capabilities include:</p> <p>Visual Analytics —Tableau Desktop empowers people to ask sophisticated questions by composing drag-and-drop pictures of their data. Tableau Desktop’s easy-to-use interface is built on VizQL, which is capable of describing thousands of easily understood visual presentations of data including tables, maps, time series, dashboards and tables of graphs. The combination of a sophisticated language with a simple user interface means users can explore many different perspectives of their data. We believe being able to quickly view data from different perspectives inspires creative thinking and helps people find the right view to answer a question.</p> <p>Analytical Depth — An important aspect of Tableau Desktop is its ability to marry powerful visualization with deep analytics. Users can filter and sort their data, create sophisticated calculations, drill into underlying information, define sets and cohorts, identify outliers, perform statistical analysis and derive correlations between diverse data sets with agility and relative ease. For example, with a few clicks, users can generate sophisticated forecasting models. This combination of simplicity and usefulness, of ease of use and analytical depth, is what makes it possible for Tableau Desktop to empower a whole new group of people to become data analysts.</p> <p>Data Access — Tableau Desktop lets people access and query a large number of common data sources, from traditional database systems like Oracle and SQL Server, to innovative new data stores like SAP HANA and Teradata Aster, to Web applications like salesforce.com and Google Analytics, to spreadsheets and files, to newly emerging data sources like Hadoop and NoSQL databases. Users can connect to these data sources with a few clicks, without any scripting or programming.</p> <p>Live Query — Tableau Desktop translates users’ interactions into live queries. As people use the drag-and-drop interface to examine information, they are automatically generating sophisticated queries against their database. Each query is optimized for the target platform and its unique performance and analytical characteristics. This live query approach allows customers to leverage their investments in database infrastructure and enables them to take advantage of query-optimized databases. This capability also allows for real-time</p>

	Requirements	A	B
			<p>access to data for true real-time analytics.</p> <p>In-Memory Query — Tableau Desktop contains an in-memory data engine that can be used for rapid analysis. Many business users have data that is not stored in a database, and many databases are not set-up to support interactive and analytical queries. In these cases, users can import the data into Tableau Desktop's in-memory data engine. This data engine is designed to support analytical queries on hundreds of millions of rows of data with responses rendered in seconds.</p> <p>Data Integration — Many questions require combining data from multiple sources. Tableau Desktop provides a number of ways for people to combine data without requiring a typical data loading and transformation project. A Tableau workbook can connect to many different data sources, with each source independently leveraging either a live query or in-memory approach. Users can then combine the data in single dashboard, visualization, filter or calculation using our Data Blending functionality. This approach can greatly extend the scope and depth of questions a person can answer.</p> <p>Sharing and Presentation—Tableau Desktop allows users to author and distribute visualizations and dashboards with the ease expected of everyday office tools like spreadsheets. Content created in Tableau Desktop can be embedded in documents and presentations, or the workbooks can be distributed for viewing by people who have Tableau Desktop or Tableau Reader, a free product to view and interact with visualizations built in Tableau Desktop. Alternately, users can publish their workbooks to Tableau Server enabling others in the organization to access them using a web browser.</p> <p>Tableau Server</p> <p>Tableau Server is a powerful business intelligence platform with enterprise-class data management, scalability and security. The collaborative features of Tableau Server are designed to foster more sharing of data to improve the dissemination of information across an organization and promote improved decision-making.</p> <p>Tableau Server's key capabilities include:</p> <p>Shared Content — Tableau Server provides an easy-to-navigate repository of shared visualizations and dashboards within an organization. After users of Tableau Desktop create and publish their work to Tableau Server, any other user with appropriate security credentials can view and interact with it using a Web browser or mobile application. These viewers can also edit the work and republish it back to the server. The ability to publish dashboards and easily share impactful visual</p>

	Requirements	A	B
			<p>analysis increases awareness of business data and promotes improved decision-making. In addition, allowing others to interact with an analysis gives them deeper understanding of the information which leads to an improved grasp on the problem and hence greater confidence in the solution.</p> <p>Shared Data — Just as Tableau Server is a platform for shared analysis, it is also a platform for shared data. Organizations can use Tableau Server to centrally manage enterprise data sources and metadata enabling knowledge sharing, efficiency, data consistency and security. Business users or IT professionals can create rich data models, containing calculations, hierarchies, field aliases, sets and groups of interest, and publish them to Tableau Server to be shared across an organization. Others can use these models as a starting point while extending them to meet their own specific analytical needs. While centralized data models are not a prerequisite for analysis in Tableau, they provide flexibility and increased productivity while maintaining control and security of data.</p> <p>Universal Access — We have designed Tableau Server to enable seamless sharing of content across desktop, mobile and Web clients. Once users author and publish analytical content to the server, people across an organization can consume it on different browsers and devices. Further, Tableau Server automatically detects the access device being used and adapts the content to take advantage of the device's capabilities including native touch experience, form factor and security. Tableau Server allows users to actively subscribe to content for automatic delivery on their devices or pull content on demand.</p> <p>Integration — Tableau Server offers APIs that help developers, customers and partners embed and control our software from portals, websites and other enterprise applications. Our APIs can also be used to construct in-memory databases, upload content and add users to the server programmatically. In addition to APIs, we also offer command line utilities to automate management tasks, and data upload tools to move data rapidly into Tableau Server.</p> <p>Scalability — Tableau Server's distributed multi-tier architecture allows it to scale to tens of thousands of users, across desktop, Web and mobile clients, meeting the needs of some of the largest organizations globally.</p> <p>Security — Tableau Server provides a robust security model that encompasses authentication, data and network security. Tableau Server is also built on a multi-tenant architecture that allows administrators to logically partition a single system across user populations, providing for separation of content.</p>

	Requirements	A	B
			<p>Administration — We believe the ease of administering a system is tremendously important to its adoption. While Tableau Server’s management interface is designed to be simple enough for a line-of-business user, we also provide APIs to allow administrators to automate routine management processes. After the initial setup, many of our customers have reported that they spend little time on Tableau Server administration.</p>

Splunk

Please find Splunk’s response to Solution Information 1 – Business Intelligence below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Splunk is applicable to a wide variety of Business Intelligence tasks requiring transformation and correlation of raw data, scattered across multiple disparate sources and locations. Splunk Enterprise software natively enables powerful transaction searches and reporting, OLAP, alerting, visualizations, dashboards, process analysis, event processing, business performance management, and beyond – turning data into valuable business information. Unlike traditional business intelligence and web analytics tools, Splunk can access all of your data and turn it into valuable transaction information. Business Intelligence analysts can leverage Splunk to work with actual events and transactions rather than synthetic data. This enables analysts to gain insights among even loosely connected events from disparate systems and technologies – driving impactful historical analysis as well as real-time analysis and business insights for marketing, sales, operations, and finance teams.</p> <p>Once collected, users can perform advanced analytics across historical and real-time data to link/correlate related events to discover problems or opportunities. Splunk users can query the data using our highly intuitive search interface to gain the intelligence necessary to make informed business decisions. Query results can then be presented in terms that are business friendly via our highly customizable visualization features such as real-time dashboards or automated email with an attached PDF Report.</p> <p>From end user experience and service cost analytics to case trends and application usage statistics, Splunk has the flexibility</p>

	Requirements	A	B
			to do any type of real-time and historical analysis, and the power to deliver custom views, reports, and dashboards to anyone in your organization.
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	Splunk is a software solution and as a result, enables client flexibility by supporting multiple deployment options both from a hosting, and architecture perspective. Hosting options include running Splunk software on-premises in a client's datacenter, in a client-maintained private cloud, on a Splunk-hosted cloud, or a hybrid of on-premises and cloud topology. System architecture options include both 64 and 32 bit CPU architectures, numerous Unix-based and Windows operating systems, integration with client's existing relational databases through Splunk's DB connect functionality, and industry-standard connectivity with third-party analytics tools through Splunk's ODBC driver.
3	Explain licensing options for the tools you have included in this category	n/a	<p>Splunk proposes Splunk Enterprise to meet the Commonwealth's Business Intelligence functionality requirement. Splunk Enterprise is available in Perpetual and Annual/Subscription licensing models. Splunk Enterprise is on-premises.</p> <p>For the full-featured version of Splunk Enterprise, pricing is based on the amount of data indexed per day. Customers receive significant volume discounts with larger licenses (higher daily indexing levels)</p> <p>No charge for the number of users                      No charge for the number of CPUs, cores or nodes                      No charge for data sources or data types                      No charge for the number of searches, alerts or volume of data searched                      No charge for the total amount of data you store in Splunk Enterprise</p> <p>Once you license Splunk Enterprise there is no limit to the number of users, searches, alerts, correlations, reports, dashboards or automated remedial actions. It's all included—at no additional cost.</p> <p>A third license offering is Splunk Cloud. Splunk Cloud is our SAAS offering and is hosted in Amazon Web Services.</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	Splunk users access and interface with their data via a web browser and access credentials – regardless of their physical location. Sharing of analytic results, dashboards, reports, searches, alerts, etc. among users is accomplished through this user interface. Additionally, the Splunk software platform - components can be centrally located or distributed across multiple geographic locations, depending on the customer and mission requirements. This ensures that any users that have access to the network and appropriate credentials can conduct analyses. User roles are also highly customizable within Splunk, providing granular control over which users have

	Requirements	A	B
			access to different types of data.
5	Do you provide training on your solution? If yes, please explain the options.	Y	Splunk offers Instructor-led classes available virtually or at your site. In addition to individual courses, Splunk also offers the following certification tracks: Splunk Certified Knowledge Manager, Splunk Certified Admin and Splunk Certified Architect. Additional information can be found at <a href="http://www.splunk.com/view/education/SP-CAAAAH9">http://www.splunk.com/view/education/SP-CAAAAH9</a> .
6	Do you provide installation (including configuration) services for these tool components above?	Y	<p>Splunk Professional Services provide expertise that supports and accelerates deployment for enterprise customers. Starting from the ground up, the deployments are designed with best practices and are ready to scale as needed. Splunk Enterprise Professional Services include Splunk core infrastructure design, installation, data collection and onboarding and management best practices framework implementation. Splunk deployments typically follow the 5 phases below:</p> <ol style="list-style-type: none"> <li>1. Infrastructure Planning</li> <li>2. Data Acquisition</li> <li>3. Data Extraction and Enrichment</li> <li>4. Reporting, Alerting, Monitoring</li> <li>5. Dashboards, Forms, and Integration</li> </ol>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	Splunk Professional Services provide Splunk experts that collaboratively work customers understand customer requirements/goals to recommend an expansive set of solutions to ensure success. Our professional services team can help you understand and adopt best practices for your enterprise deployment so you can get the most out of your Splunk investment. This guidance includes use-case development, data source identification, architecture guidance, reference architecture scenarios, retention policies, availability, searching capability.
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Domino Pizza originally selected Splunk Enterprise to resolve IT issues by collecting, indexing and monitoring machine data and reports upfront savings of more than \$300,000 by replacing legacy technology. This initial investment in Splunk quickly led Domino's to expand its use across the organization, leading to revenue insights in both business and marketing through online sales data collected across its entire corporate and franchise network of more than 10,000 stores.</p> <p>"In business and marketing, we have just begun scratching the surface of how we can use Splunk Enterprise to make better decisions. Comparing coupons, for example, already has vastly improved the effectiveness of those campaigns," said Russell Turner, manager of site reliability engineering, Domino's.</p> <p>"Splunk software cut our mean time to resolution from hours or days to minutes and seconds, which frees up our IT and engineering teams to spend more time dreaming up new ways to use Splunk. In fact, if we unleashed all the business insights we now have access to with Splunk, we would be inundated with company requests for information. It really is our secret</p>

	Requirements	A	B
			<p>sauce."</p> <p>Using Splunk Enterprise, Domino's IT teams routinely resolve issues including quickly identifying and fixing network bandwidth and latency, Internet connection or payment processing issues across stores. Beyond traditional IT operations, Domino's uses Splunk Enterprise to visualize business sales trends across geographical locations such as orders per minute, numbers of transactions per store, what types of pizza and other food items customers order and what coupons they may be using to do so.</p> <p>Initially, the company is using its newfound business insights to make more precise marketing decisions. For instance, the IT team can track and create marketing reports about what types of devices - whether iPhones, Androids or Kindle Fires - are being used to place orders. With this knowledge, Domino's can better determine where and when it may be more lucrative to run promotional campaigns. Splunk Enterprise also gives Domino's marketing teams a way to analyze the success of promotional campaigns as well as one-off promotions in real time. For instance, the team can now compare the effectiveness of various percent-off coupons. If one is more effective than the other, Domino's can quickly make the proper online adjustments</p> <p>Below are additional examples that customers have leveraged Splunk's analytic capabilities for increased business intelligence:</p> <ul style="list-style-type: none"> <li>Provide analytics for site usage metrics, feature usage and adoption</li> <li>Provide insights into service quality with performance dashboards</li> <li>Faster identification of errors and abandonment</li> <li>Correlate weblogs with application performance data</li> <li>Analyze user behavior patterns across web mobile</li> <li>Measure/analyze customer email campaigns</li> <li>Drive user experience enhancement by refining features</li> <li>Provide real-time insights into mobile product feature usage</li> </ul>

Predictive and Prescriptive analytics

Predictive analytics - the three basic cornerstones of predictive analytics are: Predictive modeling; Decision analysis and Optimization; Transaction profiling. Predictive analytics answers the question what will happen. This is when historical performance data is combined with rules, algorithms, and occasionally external data to determine the probable future outcome of an event or the likelihood of a situation occurring.

Prescriptive analytics - ingests hybrid data, a combination of structured (numbers, categories) and unstructured data (videos, images, sounds, texts), and business rules to predict what lies ahead and to prescribe how to take advantage of this predicted future without compromising other priorities.

Carahsoft Response:


For the Predictive and Prescriptive Analytics category, Carahsoft can meet the Solution Information requirements via our Solution Provider, Tableau.

Tableau

Please find Tableau's response to Solution Information 2 –Predictive and Prescriptive Analytics below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Unlike many vendors, whose solution to meet all use cases is a collection of loosely associated products that are not truly integrated, Tableau is a single solution for all use cases, which means many of the responses to this section are identical to the other use cases.</p> <p>Tableau software consists of Tableau Desktop and Tableau Server.</p> <p>Tableau Desktop is used to connect to data, for content creation of dashboards and views, defining the semantic layer from a dimension and measure model perspective, and blending or federating data from disparate data sources.</p> <p>Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	Tableau Server can be deployed on-premise, on a private cloud, on the Tableau cloud, or on a PaaS solution.
3	Explain licensing options for the tools you have included in this category	n/a	<p>Tableau Desktop – Used to author and build Dashboards and Visualizations (On Premise)</p> <p>This is our Flagship offering at Tableau - it allows you to be the</p>

	Requirements	A	B
			<p>author of your Data Visualizations.</p> <p>Named user licensing, not concurrent, only one person can use the license, software purchased for the individual user</p> <p>Number of installations permitted per EULA</p> <p>1 Primary</p> <p>1 Backup (Home/Laptop)</p> <p>Tableau Server – Used to share dashboards via web (On Premise) Second of our flagship products, with Desktop you have the ability to author workbooks – with Server comes the ability to publish information to share via network/VPN</p> <p>Tableau Server is the software that the customer will install on their own server hardware - Tableau does not sell the hardware</p> <p>Number of installations permitted per EULA:</p> <p>Primary (Production) Environment</p> <p>Backup/Test (Non-production) Environments</p> <p>COLD High Availability Environment</p> <p>Core Server</p> <p>Unlimited users, licensing the hardware (Number of CPU's used on their Server equipment)</p> <p>Minimum purchase is an 8 Core license;</p> <p>Tableau Online – SaaS (Software as a Service) hosted by Tableau Server</p> <p>Pay for a yearly subscription per seat online. Allows customers to integrate easily with Tableau Server from a variety of devices, without purchasing any server hardware</p> <p>Similar to other cloud based software like Salesforce: sign in to a webpage to access content</p> <p>Customer agrees to an Online Agreement - different than the Tableau EULA</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).
5	Do you provide training on your solution? If yes, please explain the options.	Y	<p>Tableau provides 50+ on-demand training videos on its main website, in addition to live daily training classes that users can sign up for. These two offerings are completely free of charge.</p> <p>Tableau also offers traditional live, classroom training on per-attendee fee basis, more information can also be found on Tableau's main website.</p>

	Requirements	A	B
6	Do you provide installation (including configuration) services for these tool components above?	Y	<p>Many customers find Tableau simple enough to install and configure that they do not require services to complete.</p> <p>However, Tableau Professional Services does offer small packages of a few days to assist if desired.</p>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	<p>Tableau is unique in that we empower users to get value instantly out of the solution without requiring lengthy and expensive implementation services. It is for this reason that Gartner has ranked Tableau #1 in terms of ability to execute among BI tool in both 2014 and 2015.</p> 
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Tableau provides native, out-of-the-box, predictive features around Trending and Forecasting that do not require R or other any stats programs. There is also multi-pass aggregation capabilities that can be used for some predictive processing scenarios that may not be easily overlooked. The Tableau Trending feature covers both linear and nonlinear model types including Linear, Logarithmic, Exponential and Polynomial modeling with statistical significance details, model formulas, p-value, t-value, degrees of freedom, standard error, mean squared error, confidence bands, residual analysis and related model evaluation information. Tableau Forecasting features use exponential smoothing algorithms with and without trending and seasonality detection. Both Trending and Forecasting can be accessed by right-clicking on a visualization in Tableau or via the Analysis menu. Anyone can easily use these Tableau predictive features – they do not need to be a data scientist. It would be helpful if they understood the concepts of statistical significance to understand the generated model formulas, what is a good model vs. what is not so good, or further deep dive into the model evaluation details.</p> <p>If you are looking for more sophisticated data mining models, a combined Tableau solution can be used with other predictive analytics tools like R, SPSS, SAS, and others. Using R as an example, you can use R to generate predictive models such as classification (kmeans, decision tree, regression tree), clustering (hierarchial, ewkm, bicluster), association (market basket),</p>

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	Requirements	A	B
			neural networks, support vector machines, or other types of R models, then export the R predictive model scoring output to a .csv file or a database, and visually analyze those predictive model outputs in Tableau just as you would any other data source. The newest version of Tableau also now provides direct connections to SAS, SPSS and R data source types.

**Statistical analysis and Simulation**

Statistical programming - traditional analysis of variance and linear regression to exact methods and statistical visualization techniques, statistical programming is essential for making data-based decisions in every field

Econometrics - modeling, forecasting and simulating business processes for improved strategic and tactical planning. This method applies statistics to economics to forecast future trends

Operations research - identifies the actions that will produce the best results - based on many possible options and outcomes. Scheduling, simulation, and related modeling processes are used to optimize business processes and management challenges

Matrix programming - powerful computer techniques for implementing your own statistical methods and exploratory data analysis using row operation algorithms

Statistical visualization - fast, interactive statistical analysis and exploratory capabilities in a visual interface can be used to understand data and build models

Statistical quality improvement - mathematical approach to reviewing the quality and safety characteristics for all aspects of production.

High-performance statistics - in-memory infrastructures and parallel processing can fit predictive models faster, perform more modeling iterations and use complex techniques for faster results

Simulation - tools that allow users to simulate and observe an operation without actually performing that operation

**Carahsoft Response:**


For the Statistical Analysis and Simulation category, Carahsoft can meet the Solution Information requirements via our Solution Providers, Tableau and Splunk.

**Tableau**

Please find Tableau's response to Solution Information 3 – Statistical Analysis and Simulation below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Unlike many vendors, whose solution to meet all use cases is a collection of loosely associated products that are not truly integrated, Tableau is a single solution for all use cases, which means many of the responses to this section are identical to the other use cases.</p> <p>Tableau software consists of Tableau Desktop and Tableau Server.</p> <p>Tableau Desktop is used to connect to data, for content creation of dashboards and views, defining the semantic layer from a dimension and measure model perspective, and blending or federating data from disparate data sources.</p> <p>Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).</p>
2	Identify platforms	n/a	Tableau Server can be deployed on-premise, on a private cloud, on

	Requirements	A	B
	for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category		the Tableau cloud, or on a PaaS solution.
3	Explain licensing options for the tools you have included in this category	n/a	<p>Tableau Desktop – Used to author and build Dashboards and Visualizations (On Premise)</p> <p>This is our Flagship offering at Tableau - it allows you to be the author of your Data Visualizations.</p> <p>Named user licensing, not concurrent, only one person can use the license, software purchased for the individual user</p> <p>Number of installations permitted per EULA</p> <p>1 Primary</p> <p>1 Backup (Home/Laptop)</p> <p>Tableau Server – Used to share dashboards via web (On Premise)</p> <p>Second of our flagship products, with Desktop you have the ability to author workbooks – with Server comes the ability to publish information to share via network/VPN</p> <p>Tableau Server is the software that the customer will install on their own server hardware - Tableau does not sell the hardware</p> <p>Number of installations permitted per EULA:</p> <p>Primary (Production) Environment</p> <p>Backup/Test (Non-production) Environments</p> <p>COLD High Availability Environment</p> <p>Core Server</p> <p>Unlimited users, licensing the hardware (Number of CPU's used on their Server equipment)</p> <p>Minimum purchase is an 8 Core license;</p> <p>Tableau Online – SaaS (Software as a Service) hosted by Tableau Server</p> <p>Pay for a yearly subscription per seat online. Allows customers to integrate easily with Tableau Server from a variety of devices, without purchasing any server hardware</p> <p>Similar to other cloud based software like Salesforce: sign in to a webpage to access content</p> <p>Customer agrees to an Online Agreement - different than the Tableau EULA</p>
4	Does your Solution allow for	Y	Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance

	Requirements	A	B
	your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.		and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).
5	Do you provide training on your solution? If yes, please explain the options.	Y	<p>Tableau provides 50+ on-demand training videos on its main website, in addition to live daily training classes that users can sign up for. These two offerings are completely free of charge.</p> <p>Tableau also offers traditional live, classroom training on per-attendee fee basis, more information can also be found on Tableau's main website.</p>
6	Do you provide installation (including configuration) services for these tool components above?	Y	<p>Many customers find Tableau simple enough to install and configure that they do not require services to complete.</p> <p>However, Tableau Professional Services does offer small packages of a few days to assist if desired.</p>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	<p>Tableau is unique in that we empower users to get value instantly out of the solution without requiring lengthy and expensive implementation services. It is for this reason that Gartner has ranked Tableau #1 in terms of ability to execute among BI tool in both 2014 and 2015.</p> 
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what	n/a	Tableau provides native, out-of-the-box, predictive features around Trending and Forecasting that do not require R or other any stats programs. There is also multi-pass aggregation capabilities that can be used for some predictive processing scenarios that may not be easily overlooked. The Tableau Trending feature covers both linear and nonlinear model types including Linear, Logarithmic, Exponential and Polynomial modeling with statistical significance details, model formulas, p-value, t-value, degrees of freedom, standard error, mean squared error, confidence bands, residual analysis and related model evaluation information. Tableau

	Requirements	A	B
	entity used the tools. If possible, use government related examples.		<p>Forecasting features use exponential smoothing algorithms with and without trending and seasonality detection. Both Trending and Forecasting can be accessed by right-clicking on a visualization in Tableau or via the Analysis menu. Anyone can easily use these Tableau predictive features – they do not need to be a data scientist. It would be helpful if they understood the concepts of statistical significance to understand the generated model formulas, what is a good model vs. what is not so good, or further deep dive into the model evaluation details.</p> <p>If you are looking for more sophisticated data mining models, a combined Tableau solution can be used with other predictive analytics tools like R, SPSS, SAS, and others. Using R as an example, you can use R to generate predictive models such as classification (kmeans, decision tree, regression tree), clustering (hierarchial, ewkm, bicluster), association (market basket), neural networks, support vector machines, or other types of R models, then export the R predictive model scoring output to a .csv file or a database, and visually analyze those predictive model outputs in Tableau just as you would any other data source. The newest version of Tableau also now provides direct connections to SAS, SPSS and R data source types.</p>

Splunk

Please find Splunk’s response to Solution Information 3 – Statistical Analysis and Simulation below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Splunk automatically extracts key value pairs for self-describing data formats including but not limited to key=value pairs, JSON, XML or CSV. Splunk is pre-configured to understand hundreds of common data formats from widely-used vendors and technologies. In rare cases where Splunk does not natively support field extractions from a data source, it can easily be configured to extract fields using regular expressions or via a simplified field extraction user interface for novice users. This functionality ensures rapid and simplified data ingest for exotic or rarely seen data types and ensures that as new data types and sources emerge, Splunk will have the flexibility to ingest and analyze the data.</p> <p>In cases where data sets may contain sensitive information (e.g, credit card numbers, personally identifiable information (PII), personal health information (PHI), etc.), Splunk can be configured to match these sensitive fields and perform data sanitization (cleansing) when a match is found. The result is that these sensitive fields are overwritten with innocuous characters or a unique identifier, hash, et cetera when indexed or returned in search results.</p> <p>Splunk supports multiple mechanisms to map and match related</p>

	Requirements	A	B
			<p>data elements across diverse and disparate data sets. Common approaches include tagging similar data fields, categorizing similar event types, and/or enforcing data uniformity according to Splunk's Common Information Model (CIM) during ingest/indexing.</p> <p>Splunk enables data enrichment through Lookups and Workflows. Lookups and workflow actions are categories of knowledge objects that extend the usefulness of client's data in various ways. Field lookups enable users to add fields to your data from external data sources such as static tables (CSV files) or Python-based commands. Workflow actions enable correlation of fields in client data sets with other resources, such as a WHOIS lookup on a field containing an IP address, or Domain name lookups against a "known-malicious" domain list. There is no limit to the number of lookups or external sources accessed through Splunk, this enables users the flexibility to configure multiple ways to lookup threat and business context information for data enrichment and provides an easy mechanism to integrate new enrichment resources on an as-needed basis as they emerge.</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>Splunk is a software solution and as a result, enables client flexibility by supporting multiple deployment options both from a hosting, and architecture perspective. Hosting options include running Splunk software on-premises in a client's datacenter, in a client-maintained private cloud, on a Splunk-hosted cloud, or a hybrid of on-premises and cloud topology. System architecture options include both 64 and 32 bit CPU architectures, numerous Unix-based and Windows operating systems, integration with client's existing relational databases through Splunk's DB connect functionality, and industry-standard connectivity with third-party analytics tools through Splunk's ODBC driver.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>Splunk proposes Splunk Enterprise to meet the Commonwealth's Business Intelligence functionality requirement. Splunk Enterprise is available in Perpetual and Annual/Subscription licensing models. Splunk Enterprise is on-premises.</p> <p>For the full-featured version of Splunk Enterprise, pricing is based on the amount of data indexed per day. Customers receive significant volume discounts with larger licenses (higher daily indexing levels)</p> <ul style="list-style-type: none"> <li>No charge for the number of users</li> <li>No charge for the number of CPUs, cores or nodes</li> <li>No charge for data sources or data types</li> <li>No charge for the number of searches, alerts or volume of data searched</li> <li>No charge for the total amount of data you store in Splunk Enterprise</li> </ul> <p>Once you license Splunk Enterprise there is no limit to the number of users, searches, alerts, correlations, reports, dashboards or automated remedial actions. It's all included—at no additional cost. A third license offering is Splunk Cloud. Splunk Cloud is our SAAS offering and is hosted in Amazon Web Services.</p>

	Requirements	A	B
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	Splunk users access and interface with their data via a web browser and access credentials – regardless of their physical location. Sharing of analytic results, dashboards, reports, searches, alerts, etc. among users is accomplished through this user interface. Additionally, the Splunk software platform components can be centrally located or distributed across multiple geographic locations, depending on the customer and mission requirements. This ensures that any users that have access to the network and appropriate credentials can conduct analyses. User roles are also highly customizable within Splunk, providing granular control over which users have access to different types of data.
5	Do you provide training on your solution? If yes, please explain the options.	Y	Splunk offers Instructor-led classes available virtually or at your site. In addition to individual courses, Splunk also offers the following certification tracks: Splunk Certified Knowledge Manager, Splunk Certified Admin and Splunk Certified Architect. Additional information can be found at <a href="http://www.splunk.com/view/education/SP-CAAAAH9">http://www.splunk.com/view/education/SP-CAAAAH9</a> .
6	Do you provide installation (including configuration) services for these tool components above?	Y	Splunk Professional Services provide expertise that supports and accelerates deployment for enterprise customers. Starting from the ground up, the deployments are designed with best practices and are ready to scale as needed. Splunk Enterprise Professional Services include Splunk core infrastructure design, installation, data collection and onboarding and management best practices framework implementation. Splunk deployments typically follow the 5 phases below:  <ol style="list-style-type: none"> <li>1. Infrastructure Planning</li> <li>2. Data Acquisition</li> <li>3. Data Extraction and Enrichment</li> <li>4. Reporting, Alerting, Monitoring</li> <li>5. Dashboards, Forms, and Integration</li> </ol>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	Splunk Professional Services provide Splunk experts that collaboratively work customers understand customer requirements/goals to recommend an expansive set of solutions to ensure success. Our professional services team can help you understand and adopt best practices for your enterprise deployment so you can get the most out of your Splunk investment. This guidance includes use-case development, data source identification, architecture guidance, reference architecture scenarios, retention policies, availability, searching capability.
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used	n/a	Splunk is used as an analytic platform across multiple University Affiliated Research Centers, Defense Industrial Base partners, The US Federal Government, Federally Funded Research and Development Centers, and over 75 of the Fortune 100 Commercial organizations. These organizations leverage Splunk for complex big data analytical challenges including business performance analysis, cyber security, IT operations, research and exploratory development, cyber operations, communication / information / navigation, materials and manufacturing analysis, sensors and instrumentation systems, national security analysis, civil space,

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	Requirements	A	B
	the tools. If possible, use government related examples.		national security analysis, and beyond. Data abstractions in Splunk, particularly through the Pivot User Interface and high-level dashboards, enable quick ramp-up and usability for business users or junior analysts, while the Splunk Processing Language (SPL) and the extensibility of Splunk Enterprise software empower highly-experienced analysts and data scientists to gain new insights from their data through highly-tailored analytics.

Data Visualization – pictorial representation of data that may take the form of an animation, a cloud, a map, a chart, or a simple picture. This also includes: infographics, dials and gauges, geographic maps, sparklines, heat maps, and detailed bar, pie and fever charts. The images may include interactive capabilities, enabling users to manipulate them or drill into the data for querying and analysis.

Carahsoft Response:


For the Data Visualization category, Carahsoft can meet the Solution Information requirements via our Solution Providers, Tableau and Splunk.

Tableau

Please find Tableau’s response to Solution Information 4 – Data Visualization below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Unlike many vendors, whose solution to meet all use cases is a collection of loosely associated products that are not truly integrated, Tableau is a single solution for all use cases, which means many of the responses to this section are identical to the other use cases.</p> <p>Tableau software consists of Tableau Desktop and Tableau Server.</p> <p>Tableau Desktop is used to connect to data, for content creation of dashboards and views, defining the semantic layer from a dimension and measure model perspective, and blending or federating data from disparate data sources.</p> <p>Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>Tableau Server can be deployed on-premise, on a private cloud, on the Tableau cloud, or on a PaaS solution.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>Tableau Desktop – Used to author and build Dashboards and Visualizations (On Premise)</p> <p>This is our Flagship offering at Tableau - it allows you to be the author of your Data Visualizations.</p> <p>Named user licensing, not concurrent, only one person can use the license, software purchased for the individual user</p> <p>Number of installations permitted per EULA</p>

	Requirements	A	B
			<p>1 Primary 1 Backup (Home/Laptop)</p> <p>Tableau Server – Used to share dashboards via web (On Premise) Second of our flagship products, with Desktop you have the ability to author workbooks – with Server comes the ability to publish information to share via network/VPN</p> <p>Tableau Server is the software that the customer will install on their own server hardware - Tableau does not sell the hardware</p> <p>Number of installations permitted per EULA: Primary (Production) Environment Backup/Test (Non-production) Environments COLD High Availability Environment</p> <p>Core Server Unlimited users, licensing the hardware (Number of CPU's used on their Server equipment) Minimum purchase is an 8 Core license;</p> <p>Tableau Online – SaaS (Software as a Service) hosted by Tableau Server Pay for a yearly subscription per seat online. Allows customers to integrate easily with Tableau Server from a variety of devices, without purchasing any server hardware Similar to other cloud based software like Salesforce: sign in to a webpage to access content Customer agrees to an Online Agreement - different than the Tableau EULA</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).
5	Do you provide training on your solution? If yes, please explain the options.	Y	<p>Tableau provides 50+ on-demand training videos on its main website, in addition to live daily training classes that users can sign up for. These two offerings are completely free of charge.</p> <p>Tableau also offers traditional live, classroom training on per-attendee fee basis, more information can also be found on Tableau's main website.</p>
6	Do you provide installation (including	Y	Many customers find Tableau simple enough to install and configure that they do not require services to complete.

	Requirements	A	B
	configuration) services for these tool components above?		However, Tableau Professional Services does offer small packages of a few days to assist if desired.
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	<p>Tableau is unique in that we empower users to get value instantly out of the solution without requiring lengthy and expensive implementation services. It is for this reason that Gartner has ranked Tableau #1 in terms of ability to execute among BI tool in both 2014 and 2015.</p> 
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Data visualization tools allow anyone to organize and present information intuitively. This is becoming more vital as data proliferates in every field from bar codes in retail stores to player behavior in online games. All of this data is meaningless without a way to organize and present important findings within it.</p> <p>People comprehend data better through pictures than by reading numbers in rows and columns. So by visualizing data, you are able to more effectively ask and answer important questions such as “Where are sales growing,” “What is driving growth” and “What are the characteristics of my customers using different services?” By using Tableau visualizations, you gain the ability to quickly answer questions; your data becomes a competitive advantage instead of an underutilized asset.</p> <p>A broad range of data visualization tools – A bar chart doesn’t work for everything. Data visualization tools must be flexible enough for you to tell any story. And getting to the best visual representation of your data is rarely a journey along a straight line: when you navigate between different perspectives, you can find the trends and outliers that are the most important.</p> <p>There are many ways to look at simple sales data, from a crosstab report to a daily sales graph to sales by segment by month. Different views answer different questions. Looking at data with a geographic element on a map brings in an entirely new dimension: notice how in this example it becomes clear that sales are clustered in a few metro areas.</p>

	Requirements	A	B
			<p>Tableau offers the ability to create different views of your data and change them as your needs evolve. And switching between views is as easy as a click, so you don't have to wait on an IT change request to understand your data.</p> <p>Anyone can get questions answered – The irony of most data visualization tools is that the people who know the data and have questions don't have the skills to use the tool to answer them, and the people who have the ability to use the tool don't know the data. The result can be a frustrating, slow, back-and forth process to answer basic questions.</p> <p>An easy-to-use interface breaks this pattern. By enabling anyone to answer their own questions without needing programming knowledge or specialized skills, the process of analyzing data gets much faster, easier and more insightful.</p> <p>This video shows how you can simply drag and drop to create views, add filters and combine views on a dashboard. A few clicks of the mouse can change a filter type, rearrange a dashboard or create a new view. At no point does the user have to resort to programming and he or she can get up and running fast simply by watching free online training. This easy-to-use interface means that anyone who has data can answer their own questions about it.</p> <p>Visualize data, no matter where it lives – Dashboards are powerful because they let you relate different views of information visually. And while some dashboards are used over and over again, it's often useful to create a dashboard on the fly to investigate an issue or provide background for a strategic decision.</p> <p>The key to providing this kind of valuable decision support is to allow the business user to quickly and easily create or modify a dashboard. If every new dashboard or change request requires IT support and takes weeks, then you can't get the most out of your data.</p> <p>This video shows how easy the process of creating and sharing a dashboard is in Tableau. You simply drag different views into the dashboard to add them, then add filtering and highlighting with a few clicks. Publishing is just as easy: simply point and click to publish, then share a live and interactive dashboard right in a web page.</p> <p>In this case, you may be evaluating your business in different regions and deciding whether to invest in additional personnel. By looking at the overall growth trend, geographic distribution of sales, and top customers, you can quickly access all the information you need to make a decision.</p> <p>Interactivity supports visual thinking – The cycle of visual analysis is a</p>

	Requirements	A	B
			process of getting data, representing it one way, noticing results and asking follow on questions. The follow-on questions might lead to a need to drill down, drill up, filter, bring in new data, or create another view of your data. Without interactivity, the analyst is left with unanswered questions. With the right interactivity, the data visualization becomes a natural extension of the analyst’s thought process.

Splunk

Please find Splunk’s response to Solution Information 4 – Data Visualization below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Analytics – Splunk supports a rich set of workflow options to take the results of a correlation search and convert the data set into built-in visualizations (pie charts, bar charts, column charts, line charts, tables, gauges, scatter plots, heat maps, etc.). Any search can be converted to a visualization (where it makes sense, of course) and saved as either a visualized search or a dashboard panel. Users can use the in-line workflow and management pages to quickly and easily build dashboards from these searches and panels and share them out to groups of individuals.</p> <p>All visualizations and search results support drill-down and drill-across into underlying data aggregations or raw data, which allows users to easily pivot to look at the data from different perspectives. Users can pivot from these views to visually correlate different data sets and drive a more efficient analysis process. By drilling down through the data searches are automatically constructed by Splunk to support new dashboard creation.</p> <p>The Splunk UI and its ability to quickly allow a user to pivot on an event to perform deeper data exploration and create ad hoc reports are key differentiators for Splunk.</p> <p>Reporting – Splunk enables users to easily build advanced graphs, charts and spark lines from search results and visualize important trends, see highs and lows, summarize top values and report on the most and least frequent types of conditions.</p> <p>Build summary reports based on the results of any search interactively by clicking on available fields and statistics.</p> <p>Create reports using fields and schemas identified at search time. Supports multiple schema views into the same data without redundant storage or re-indexing.</p> <p>Supports sophisticated statistical and summary analysis by pipelining advanced search commands together in a single search.</p> <p>Leverage report acceleration features to efficiently report on the very large volumes of data, e.g., long-term trends.</p>

	Requirements	A	B
			<p>Accelerate reports by maintaining summaries that are up-to-date, scalable and used by other eligible searches.</p> <p>View report results in tabular form; as interactive line, bar, pie, scatterplot and heat map charts</p> <p>Pivot or drill down into any field or term.</p> <p>Click through to another dashboard, form, view, or external website, carrying forward any relevant context.</p> <p>Cache the results of scheduled reports for re-use.</p> <p>Create real-time reports based on live streaming data sources.</p> <p>Splunk users have complete flexibility to generate any possible custom report ad hoc using the Splunk search language and its statistical and filtering commands. A report builder feature helps users build reports by selecting fields and statistics from a wizard-like interface. Because fields are extracted at search time, the way the data is loaded does not limit one's ability to do custom reports later, further, Splunk provides multiple, discrete, views from the same data set. Once a report has been created, the user can keep it private or share it with others</p> <p>With the report builder feature, non-IT users can build reports by selecting fields and statistical constructs from a wizard-like interface. Users select the desired visualization or tabular view, making it easy for business users and analysts to create and edit dashboard panels without having to get assistance from administrators. Dashboards are editable through simple drag/drop and chart types can be changed on the fly to support different data views. Because fields are extracted at search time, the dashboards will continue to work even as new data is on boarded and existing data sources change.</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>Splunk is a software solution and as a result, enables client flexibility by supporting multiple deployment options both from a hosting, and architecture perspective. Hosting options include running Splunk software on-premises in a client's datacenter, in a client-maintained private cloud, on a Splunk-hosted cloud, or a hybrid of on-premises and cloud topology. System architecture options include both 64 and 32 bit CPU architectures, numerous Unix-based and Windows operating systems, integration with client's existing relational databases through Splunk's DB connect functionality, and industry-standard connectivity with third-party analytics tools through Splunk's ODBC driver.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>Splunk proposes Splunk Enterprise to meet the Commonwealth's Business Intelligence functionality requirement. Splunk Enterprise is available in Perpetual and Annual/Subscription licensing models. Splunk Enterprise is on-premises.</p> <p>For the full-featured version of Splunk Enterprise, pricing is based on the amount of data indexed per day. Customers receive significant volume discounts with larger licenses (higher daily indexing levels)</p> <p>No charge for the number of users</p> <p>No charge for the number of CPUs, cores or nodes</p>

	Requirements	A	B
			<p>No charge for data sources or data types</p> <p>No charge for the number of searches, alerts or volume of data searched</p> <p>No charge for the total amount of data you store in Splunk Enterprise</p> <p>Once you license Splunk Enterprise there is no limit to the number of users, searches, alerts, correlations, reports, dashboards or automated remedial actions. It's all included—at no additional cost.</p> <p>A third license offering is Splunk Cloud. Splunk Cloud is our SAAS offering and is hosted in Amazon Web Services.</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	<p>Splunk users access and interface with their data via a web browser and access credentials – regardless of their physical location. Sharing of analytic results, dashboards, reports, searches, alerts, etc. among users is accomplished through this user interface. Additionally, the Splunk software platform components can be centrally located or distributed across multiple geographic locations, depending on the customer and mission requirements. This ensures that any users that have access to the network and appropriate credentials can conduct analyses. User roles are also highly customizable within Splunk, providing granular control over which users have access to different types of data.</p>
5	Do you provide training on your solution? If yes, please explain the options.	Y	<p>Splunk offers Instructor-led classes available virtually or at your site. In addition to individual courses, Splunk also offers the following certification tracks: Splunk Certified Knowledge Manager, Splunk Certified Admin and Splunk Certified Architect. Additional information can be found at <a href="http://www.splunk.com/view/education/SP-CAAAAH9">http://www.splunk.com/view/education/SP-CAAAAH9</a>.</p>
6	Do you provide installation (including configuration) services for these tool components above?	Y	<p>Splunk Professional Services provide expertise that supports and accelerates deployment for enterprise customers. Starting from the ground up, the deployments are designed with best practices and are ready to scale as needed. Splunk Enterprise Professional Services include Splunk core infrastructure design, installation, data collection and onboarding and management best practices framework implementation. Splunk deployments typically follow the 5 phases below:</p> <ol style="list-style-type: none"> <li>1. Infrastructure Planning</li> <li>2. Data Acquisition</li> <li>3. Data Extraction and Enrichment</li> <li>4. Reporting, Alerting, Monitoring</li> <li>5. Dashboards, Forms, and Integration</li> </ol>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools	Y	<p>Splunk Professional Services provide Splunk experts that collaboratively work customers understand customer requirements/goals to recommend an expansive set of solutions to ensure success. Our professional services team can help you understand and adopt best practices for your enterprise deployment so you can get the most out of your Splunk investment. This guidance includes use-case development, data source identification, architecture guidance, reference architecture scenarios, retention policies, availability, searching capability.</p>

	Requirements	A	B
	to meet a business need)		
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Two Examples Provided:</p> <p>Located as a suburb of Phoenix, AZ, the City of Chandler Police Department serves its 250,000 residents with a staff of 320 officers and 150 civilian employees. The police department (PD) staff maintains a network that links the main police station and two satellite facilities. To ensure system availability and performance, the department needed to monitor machine-generated logs from its LDAP (Lightweight Directory Access Protocol) and web servers, and especially its comprehensive records management system (RMS), Versadex. This RMS captures all police processes, investigations and records. It also stores calls from citizens and police dispatches from the department's computer-aided dispatching system (CAD).</p> <p>With its ability to gather, index and graphically display machine-generated data in dashboards, Splunk proved an effective solution for the Chandler police department. The Splunk platform is now used to collect logs from the RMS, CAD and servers, allowing administrators to routinely track the health of their system infrastructure. Chandler PD also uses the Splunk App for VMware to monitor virtual machines and their servers in the department's virtualized environment, allowing staff to maximize utilization and anticipate when a system will be overtaxed.</p> <p>"Splunk lets us know of a problem prior to someone alerting us to it," says the sysadmin for the Chandler Police Department. "Proactive management is important for any IT department, but it's essential for maintaining systems vital to public safety." As with many Splunk customers, the Chandler Police Department quickly realized that the solution's functionality extended beyond improved network management. The department's RMS system offers a wealth of information, but extracting and presenting data from the solution was complex and its functionalities were limited</p> <p>According to the police officer who also performs IT duties: "We found that Splunk can display statistical data from our RMS system. Our first use case was querying the software to identify the kinds of reports officers submitted in a given timeframe. Suddenly, we could perform operational analytics on our entire data trove. With that, Splunk became an indispensable tool for oversight and quality control."</p> <p>Splunk also paid dividends in accelerating the department's access to structured data in the RMS database. Previously, administrators needed to write APIs, a laborious process. Then they discovered the Splunk DB Connect application, which allows Splunk to index structured data. This solution eliminated the costs of programming and enriched data gleaned from machine-generated logs with statistics from the RMS's database, allowing for deeper analytics and greater insights.</p> <p>Chandler PD now uses Splunk for a variety of operational analytics.</p>

	Requirements	A	B
			<p>Splunk presents the times when a citizen reports an incident and when officers arrive at the scene, and then calculates response rates across the city. A Splunk dashboard tracks the dates when an incident report was filed and when the incident actually occurred for analysis of the frequency and timing of crimes. Additionally, rather than manually parse email to determine if the National Crime Information Center (NCIC) responded correctly to a query such as a request for an arrest record, Chandler PD staff use Splunk to analyze these communications and graphically present the findings in a dashboard.</p> <p>Splunk DB Connect makes querying the RMS more informative and user friendly. It uses lookup tables to access employees' names and employee ID numbers, permitting staff to better identify one another as they access reports on the department's intranet. This functionality is particularly useful as employees are offered personalized Splunk dashboards. Officers can easily review the number and kinds of arrest or crime reports they submitted in the past month and sergeants can monitor the performance of their teams.</p> <p>The department deploys Splunk dashboards to audit compliance with internal policies. The RMS captures messaging from the CAD system and feeds the data to Splunk, which reports inappropriate language between officers as they communicate in their patrol vehicles. "Before, if we wanted to look at a specific team, we'd have to print all the messages and then manually highlight improper words or phrases," explains the police officer source. "Splunk not only automates this process—saving a lot of time—a dashboard even alerts us when there's a problem."</p> <p>To take its analytics to another level, figuratively and literally, the Chandler Police Department is implementing Google Maps for Splunk, an application that overlays data on maps in dashboards. Employees will be able to geo-locate incident reports on maps of the city to determine, for example, where burglaries are most likely to happen and to analyze response times to emergency calls in various neighborhoods.</p> <p>Like many enterprises, the Chandler Police Department initially deployed Splunk to better manage its networked resources. "By troubleshooting before trouble begins, we maximize our system's uptime," notes the sysadmin. "With Splunk's comprehensive visibility, we're administering our infrastructure more productively and efficiently. Whenever a question arises, we turn to Splunk."</p> <p>Thanks to views of both structured and unstructured data, the platform quickly became an invaluable source of operational analytics, business intelligence, quality control, internal compliance and security. The department relies on the solution for insights into crime patterns and how its officers respond to citizens' needs. It derives actionable intelligence by analyzing events by time and location, and has streamlined how employees report and share information. "Our officers greatly appreciate having data available to them so easily and</p>

	Requirements	A	B
			<p>cleanly," says the police officer. "Splunk vastly improves our processes, giving officers more time and information to do their jobs."</p> <p>Moreover, Splunk enables the department to effectively audit employees' adherence to procedures and policies. Administrators are also mindful that Splunk can further enhance the department's security posture. For example, they are considering using Splunk to verify compliance with the Criminal Justice Information System (CJIS), a central repository of law enforcement records.</p> <p>"I never thought that Splunk could be such a useful law enforcement tool," concludes the police officer. "Splunk lets us query our data like a Google search. We connect the dots and see patterns and insights that were once hidden in all the statistics. We're improving our services and operating smarter and more cost-effectively. The bottom line is we're making our city safer and giving the public greater returns on its tax dollars."</p> <p>New York Air Brake (NYAB), a Knorr-Bremse company, is a leading supplier to the railroad industry of braking systems and components, training simulators and train control systems. Train Dynamic Systems (TDS), a unit of New York Air Brake, is considered the worldwide leading industry expert in train dynamics, train control and training simulators. Based in Irving, Texas, NYAB division Train Dynamic Systems (TDS) is helping many of the world's top railroads achieve substantial improvements in fuel efficiency and other operational metrics with its LEADER (Locomotive Engineer Assist/Display &amp; Event Recorder) train management system. The LEADER system uses data captured from onboard train systems to help railroads achieve 'golden runs' where fuel economy, in-train forces and schedule compliance are optimized.</p> <p>Prior to deploying Splunk software, the TDS support team spent many hours using Excel spreadsheets to prepare monthly reports for railroad customers on system performance and resource utilization. For example, a report might show a customer's fuel savings when they were 55% or 70% compliant with optimal driving recommendations.</p> <p>However, if the customer requested another type of report, it would take another four or five hours to prepare it, according to the TDS spokesperson. TDS was running most analyses in batch mode, with almost no online or dynamic interactivity.</p> <p>According to the TDS director of engineering, "With Splunk, we have the ability to add additional data--any type of data--without having to redesign our systems. Customers frequently send us new types of information and with Splunk we don't need to rebuild anything. We just start piping data in and consuming it in any way we need."</p> <p>Instead of monthly reports, the TDS engineering team now uses Splunk Enterprise 6 to provide customers with dashboards displaying</p>

	Requirements	A	B
			<p>realtime information on train performance. The dashboards report on fuel efficiency, impacts on time-to-destination, in-train force reduction, driver compliance and other factors, then correlate that to overall savings and other business objectives. Thanks to Splunk software, this new LEADER capability has become a mission-critical system for NYAB customers.</p> <p>The advanced visualization made possible with Splunk Enterprise has also led to value-added services and a source of additional revenue for TDS/NYAB. According to the director of engineering, there are an infinite number of variables and operational adjustments that railroads have to consider when making decisions. For instance, what would be the impact on fuel consumption if a coal train arrived a half hour later than expected? "If it saves two percent on fuel, they might be willing to make that trade-off. We are using Splunk Enterprise to help customers sort out the many 'what ifs' and they are willing to pay for that service," he says.</p> <p>TDS has big plans to use Splunk to extend LEADER capabilities in the near future. The TDS engineering team is already using Splunk software to incorporate new types of sensors being deployed on locomotives and train cars. "Right now, there's an average of 10-12 different types of remote sensors on a typical train," the director of engineering notes. "We expect that number to grow ten-fold in the coming years as railroads work to achieve ever greater efficiency. Splunk Enterprise gives us the flexibility to handle any data our customers may send us, and the confidence to know we'll be able to provide them with meaningful insight from it."</p> <p>TDS also plans to use Splunk analytics and dashboards to gain new insight from data generated during train simulator runs. The engineering group is developing rule sets in Splunk to identify positive and negative driver behaviors, and using Splunk software's time series indexing to generate DVR style playback of individual runs.</p>

Data quality:

Parsing and standardization — Decomposition of text fields into component parts and formatting of values into consistent layouts based on industry standards, local standards (for example, postal authority standards for address data), user-defined business rules, and knowledge bases of values and patterns

Generalized “cleansing” — Modification of data values to meet domain restrictions, integrity constraints or other business rules that define sufficient data quality for the organization

Matching — Identification, linking or merging related entries within or across sets of data. This includes technologies that enable analysis of diverse depersonalized data sets (example: anonymization and resolution and the functions that support this type of technology: standardization, masking/hashing, encryption, linkage of records, etc.)

Profiling — Analysis of data to capture statistics (metadata) that provide insight into the quality of the data and aid in the identification of data quality issues

Monitoring — Deployment of controls to ensure ongoing conformance of data to business rules that define data quality for the organization

Enrichment — Enhancing the value of internally held data by appending related attributes from external sources (for example, consumer demographic attributes or geographic descriptors)

Carahsoft Response:

For the Data Quality category, Carahsoft can meet the Solution Information requirements via our Solution Providers, Tableau, Informatica, and Splunk.

Tableau

Please find Tableau’s response to Solution Information 5 – Data Quality below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Unlike many vendors, whose solution to meet all use cases is a collection of loosely associated products that are not truly integrated, Tableau is a single solution for all use cases, which means many of the responses to this section are identical to the other use cases.</p> <p>Tableau software consists of Tableau Desktop and Tableau Server.</p> <p>Tableau Desktop is used to connect to data, for content creation of dashboards and views, defining the semantic layer from a dimension and measure model perspective, and blending or federating data from disparate data sources.</p> <p>Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database)	n/a	Tableau Server can be deployed on-premise, on a private cloud, on the Tableau cloud, or on a PaaS solution.

	Requirements	A	B
	versions etc.) for the tools you have included in this category		
3	Explain licensing options for the tools you have included in this category	n/a	<p>Tableau Desktop – Used to author and build Dashboards and Visualizations (On Premise)</p> <p>This is our Flagship offering at Tableau - it allows you to be the author of your Data Visualizations.</p> <p>Named user licensing, not concurrent, only one person can use the license, software purchased for the individual user</p> <p>Number of installations permitted per EULA</p> <p>1 Primary</p> <p>1 Backup (Home/Laptop)</p> <p>Tableau Server – Used to share dashboards via web (On Premise) Second of our flagship products, with Desktop you have the ability to author workbooks – with Server comes the ability to publish information to share via network/VPN</p> <p>Tableau Server is the software that the customer will install on their own server hardware - Tableau does not sell the hardware</p> <p>Number of installations permitted per EULA:</p> <p>Primary (Production) Environment</p> <p>Backup/Test (Non-production) Environments</p> <p>COLD High Availability Environment</p> <p>Core Server</p> <p>Unlimited users, licensing the hardware (Number of CPU's used on their Server equipment)</p> <p>Minimum purchase is an 8 Core license;</p> <p>Tableau Online – SaaS (Software as a Service) hosted by Tableau Server</p> <p>Pay for a yearly subscription per seat online. Allows customers to integrate easily with Tableau Server from a variety of devices, without purchasing any server hardware</p> <p>Similar to other cloud based software like Salesforce: sign in to a webpage to access content</p> <p>Customer agrees to an Online Agreement - different than the Tableau EULA</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies?	Y	Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone"

	Requirements	A	B
	Explain how.		access).
5	Do you provide training on your solution? If yes, please explain the options.	Y	<p>Tableau provides 50+ on-demand training videos on its main website, in addition to live daily training classes that users can sign up for. These two offerings are completely free of charge.</p> <p>Tableau also offers traditional live, classroom training on per-attendee fee basis, more information can also be found on Tableau's main website.</p>
6	Do you provide installation (including configuration) services for these tool components above?	Y	<p>Many customers find Tableau simple enough to install and configure that they do not require services to complete.</p> <p>However, Tableau Professional Services does offer small packages of a few days to assist if desired.</p>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	<p>Tableau is unique in that we empower users to get value instantly out of the solution without requiring lengthy and expensive implementation services. It is for this reason that Gartner has ranked Tableau #1 in terms of ability to execute among BI tool in both 2014 and 2015.</p>
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Customers frequently use Tableau as part of the data quality initiatives to enable real-time data profiling by the analysts most familiar with the data, rather than a lengthy IT-led development process before the analysts can start to look at the data. This means that throughout the data quality process, those who are closest to the data are not only investigating obvious data consistency issues (null values, orphan records, etc) but also process and performance outliers that may indicate data issues that are valid from a technical perspective, but are not reasonable from the business perspective.</p> <p>Tableau provides the ability for analysts to quickly profile and explore their data, as well as the ability to create interactive dashboards to share for continued monitoring.</p>

Informatica

Please find Informatica's response to Solution Information 5 – Data Quality below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	Informatica® Big Data Edition provides all the Data Quality functionality required for Hadoop environments, including profiling, data quality, complex parsing, data lineage and monitoring.
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	Informatica® Big Data Edition can be deployed on servers (chip sets include Itanium, x64, IBM zSeries, Sparc, Power, x86). Those servers can be be located on premise or can run in a cloud environment such as AWS. Operating systems include AIX, HP-UX, Redhat Linux, SuSe Linux, Solaris and Windows. Databases include Oracle, DB2, SQL Server and Sybase.
3	Explain licensing options for the tools you have included in this category	n/a	Informatica® Big Data Edition is licensed based on the number of Hadoop nodes and can be a perpetual or subscription license.
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	Yes, Informatica® Big Data Edition can be deployed so that multiple agencies can use the software. Informatica software is currently being used in such a manner at many state agencies.
5	Do you provide training on your solution? If yes, please explain the options.	Y	Yes, Informatica provides classroom-based training, online training, self-paced computer based training and custom training options.
6	Do you provide installation (including configuration) services for these tool components above?	Y	Yes, Informatica provides installation and configuration services for our software.
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	Yes, Informatica provides implementation services for our software components.
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	Informatica software was designed to be used by both business and IT groups. The training provided by Informatica is based on the skill set and prior training of each individual, which allows many types of employees to use the software. In many states, the main entity administering the Informatica technology is IT-related, but the end-users are the business team. An example might be a state Health agency. The end users are the business team of the Health department, but the state IT agency maintains the servers and development environments.

Splunk

Please find Splunk's response to Solution Information 5 – Data Quality below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Splunk automatically extracts key value pairs for self-describing data formats including but not limited to key=value pairs, JSON, XML or CSV. Splunk is pre-configured to understand hundreds of common data formats from widely-used vendors and technologies. In rare cases where Splunk does not natively support field extractions from a data source, it can easily be configured to extract fields using regular expressions or via a simplified field extraction user interface for novice users. This functionality ensures rapid and simplified data ingest for exotic or rarely seen data types and ensures that as new data types and sources emerge, Splunk will have the flexibility to ingest and analyze the data.</p> <p>In cases where data sets may contain sensitive information (e.g, credit card numbers, personally identifiable information (PII), personal health information (PHI), etc.), Splunk can be configured to match these sensitive fields and perform data sanitization (cleansing) when a match is found. The result is that these sensitive fields are overwritten with innocuous characters or a unique identifier, hash, et cetera when indexed or returned in search results.</p> <p>Splunk supports multiple mechanisms to map and match related data elements across diverse and disparate data sets. Common approaches include tagging similar data fields, categorizing similar event types, and/or enforcing data uniformity according to Splunk's Common Information Model (CIM) during ingest/indexing.</p> <p>Splunk enables data enrichment through Lookups and Workflows. Lookups and workflow actions are categories of knowledge objects that extend the usefulness of client's data in various ways. Field lookups enable users to add fields to your data from external data sources such as static tables (CSV files) or Python-based commands. Workflow actions enable correlation of fields in client data sets with other resources, such as a WHOIS lookup on a field containing an IP address, or Domain name lookups against a "known-malicious" domain list. There is no limit to the number of lookups or external sources accessed thorough Splunk, this enables users the flexibility to configure multiple ways to lookup threat and business context information for data enrichment and provides an easy mechanism to integrate new enrichment resources on an as-needed basis as they emerge.</p>
2	Identify platforms for deployment (cloud, Intel,	n/a	Splunk is a software solution and as a result, enables client flexibility by supporting multiple deployment options

	Requirements	A	B
	appliance, OSs, database versions etc.) for the tools you have included in this category		both from a hosting, and architecture perspective. Hosting options include running Splunk software on-premises in a client's datacenter, in a client-maintained private cloud, on a Splunk-hosted cloud, or a hybrid of on-premises and cloud topology. System architecture options include both 64 and 32 bit CPU architectures, numerous Unix-based and Windows operating systems, integration with client's existing relational databases through Splunk's DB connect functionality, and industry-standard connectivity with third-party analytics tools through Splunk's ODBC driver.
3	Explain licensing options for the tools you have included in this category	n/a	<p>Splunk proposes Splunk Enterprise to meet the Commonwealth's Business Intelligence functionality requirement. Splunk Enterprise is available in Perpetual and Annual/Subscription licensing models. Splunk Enterprise is on-premises.</p> <p>For the full-featured version of Splunk Enterprise, pricing is based on the amount of data indexed per day. Customers receive significant volume discounts with larger licenses (higher daily indexing levels)</p> <p>No charge for the number of users                      No charge for the number of CPUs, cores or nodes                      No charge for data sources or data types                      No charge for the number of searches, alerts or volume of data searched                      No charge for the total amount of data you store in Splunk Enterprise</p> <p>Once you license Splunk Enterprise there is no limit to the number of users, searches, alerts, correlations, reports, dashboards or automated remedial actions. It's all included—at no additional cost.</p> <p>A third license offering is Splunk Cloud. Splunk Cloud is our SAAS offering and is hosted in Amazon Web Services.</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	Splunk users access and interface with their data via a web browser and access credentials – regardless of their physical location. Sharing of analytic results, dashboards, reports, searches, alerts, etc. among users is accomplished through this user interface. Additionally, the Splunk software platform components can be centrally located or distributed across multiple geographic locations, depending on the customer and mission requirements. This ensures that any users that have access to the network and appropriate credentials can conduct analyses. User roles are also highly customizable within Splunk, providing granular control over which users have access to different types of data.
5	Do you provide training on your solution? If yes,	Y	Splunk offers Instructor-led classes available virtually or at your site. In addition to individual courses, Splunk also

	Requirements	A	B
	please explain the options.		offers the following certification tracks: Splunk Certified Knowledge Manager, Splunk Certified Admin and Splunk Certified Architect. Additional information can be found at <a href="http://www.splunk.com/view/education/SP-CAAAAH9">http://www.splunk.com/view/education/SP-CAAAAH9</a> .
6	Do you provide installation (including configuration) services for these tool components above?	Y	<p>Splunk Professional Services provide expertise that supports and accelerates deployment for enterprise customers. Starting from the ground up, the deployments are designed with best practices and are ready to scale as needed. Splunk Enterprise Professional Services include Splunk core infrastructure design, installation, data collection and onboarding and management best practices framework implementation. Splunk deployments typically follow the 5 phases below:</p> <ol style="list-style-type: none"> <li>1. Infrastructure Planning</li> <li>2. Data Acquisition</li> <li>3. Data Extraction and Enrichment</li> <li>4. Reporting, Alerting, Monitoring</li> <li>5. Dashboards, Forms, and Integration</li> </ol>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	Splunk Professional Services provide Splunk experts that collaboratively work customers understand customer requirements/goals to recommend an expansive set of solutions to ensure success. Our professional services team can help you understand and adopt best practices for your enterprise deployment so you can get the most out of your Splunk investment. This guidance includes use-case development, data source identification, architecture guidance, reference architecture scenarios, retention policies, availability, searching capability.
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	Splunk is used as an analytic platform across multiple University Affiliated Research Centers, Defense Industrial Base partners, The US Federal Government, Federally Funded Research and Development Centers, and over 75 of the Fortune 100 Commercial organizations. These organizations leverage Splunk for complex big data analytical challenges including business performance analysis, cyber security, IT operations, research and exploratory development, cyber operations, communication / information / navigation, materials and manufacturing analysis, sensors and instrumentation systems, national security analysis, civil space, national security analysis, and beyond. Data abstractions in Splunk, particularly through the Pivot User Interface and high-level dashboards, enable quick ramp-up and usability for business users or junior analysts, while the Splunk Processing Language (SPL) and the extensibility of Splunk Enterprise software empower highly-experienced analysts and data scientists to gain new insights from their data through highly-tailored analytics.



Data Governance – a quality control discipline for assessing, managing, using, improving, monitoring, maintaining, and protecting information. It is a system of decision rights and accountabilities for information-related processes, executed according to agreed-upon models which describe who can take what actions with what information, and when, under what circumstances, using what methods. This also includes:

Metadata management - the end-to-end process and governance framework for creating, controlling, enhancing, attributing, defining and managing a metadata schema, model or other structured aggregation system, either independently or within a repository and the associated supporting processes (often to enable the management of content).

Carahsoft Response:


For the Data Governance category, Carahsoft can meet the Solution Information requirements via our Solution Providers, Tableau, Informatica and Splunk.

Tableau

Please find Tableau’s response to Solution Information 6 – Data Governance below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Unlike many vendors, whose solution to meet all use cases is a collection of loosely associated products that are not truly integrated, Tableau is a single solution for all use cases, which means many of the responses to this section are identical to the other use cases.</p> <p>Tableau software consists of Tableau Desktop and Tableau Server.</p> <p>Tableau Desktop is used to connect to data, for content creation of dashboards and views, defining the semantic layer from a dimension and measure model perspective, and blending or federating data from disparate data sources.</p> <p>Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	Tableau Server can be deployed on-premise, on a private cloud, on the Tableau cloud, or on a PaaS solution.
3	Explain licensing options for the tools you have included in this category	n/a	<p>Tableau Desktop – Used to author and build Dashboards and Visualizations (On Premise)</p> <p>This is our Flagship offering at Tableau - it allows you to be</p>

	Requirements	A	B
			<p>the author of your Data Visualizations.</p> <p>Named user licensing, not concurrent, only one person can use the license, software purchased for the individual user</p> <p>Number of installations permitted per EULA</p> <p>1 Primary</p> <p>1 Backup (Home/Laptop)</p> <p>Tableau Server – Used to share dashboards via web (On Premise) Second of our flagship products, with Desktop you have the ability to author workbooks – with Server comes the ability to publish information to share via network/VPN</p> <p>Tableau Server is the software that the customer will install on their own server hardware - Tableau does not sell the hardware</p> <p>Number of installations permitted per EULA:</p> <p>Primary (Production) Environment</p> <p>Backup/Test (Non-production) Environments</p> <p>COLD High Availability Environment</p> <p>Core Server</p> <p>Unlimited users, licensing the hardware (Number of CPU's used on their Server equipment)</p> <p>Minimum purchase is an 8 Core license;</p> <p>Tableau Online – SaaS (Software as a Service) hosted by Tableau Server</p> <p>Pay for a yearly subscription per seat online. Allows customers to integrate easily with Tableau Server from a variety of devices, without purchasing any server hardware</p> <p>Similar to other cloud based software like Salesforce: sign in to a webpage to access content</p> <p>Customer agrees to an Online Agreement - different than the Tableau EULA</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).
5	Do you provide training on your solution? If yes, please explain the options.	Y	<p>Tableau provides 50+ on-demand training videos on its main website, in addition to live daily training classes that users can sign up for. These two offerings are completely free of charge.</p> <p>Tableau also offers traditional live, classroom training on per-attendee fee basis, more information can also be found on Tableau's main website.</p>

	Requirements	A	B
6	Do you provide installation (including configuration) services for these tool components above?	Y	<p>Many customers find Tableau simple enough to install and configure that they do not require services to complete.</p> <p>However, Tableau Professional Services does offer small packages of a few days to assist if desired.</p>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	<p>Tableau is unique in that we empower users to get value instantly out of the solution without requiring lengthy and expensive implementation services. It is for this reason that Gartner has ranked Tableau #1 in terms of ability to execute among BI tool in both 2014 and 2015.</p> 
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>As part of a modern BI solution, Tableau Desktop allows you to rapidly analyze data through insightful visualizations. Tableau works well with data from traditional governed sources, such as data warehouses, as well as non-traditional sources external to your enterprise IT infrastructure.</p> <p>As the usage of Tableau permeates through an organization, the first questions that will be asked of your Tableau analytics are, “Where did the data come from?” and “How did you calculate the values?” Data governance and proper content management controls will lend credibility and confidence to the reports and dashboards you produce using Tableau. People and processes need to be in place to provide oversight, security, and protocols for publishing. This is not to say that every visualization you create in Tableau should go through review, but rather that the level of governance should be dictated by the degree of risk and visibility associated with the information.</p> <p><b>Challenges</b></p> <p>Accuracy – The correctness of your data and metrics is paramount to the quality of your Tableau reports.</p> <p>Dependability – Your analysis is deemed dependable if it is repeatable, reliable, and available to others.</p> <p>Maintainability – Tableau data sources and workbooks</p>

	Requirements	A	B
			<p>should be centralized, organized, and backed up to ensure they are available when needed.</p> <p>Security – Access to your Tableau resources should be restricted to authorized users.</p> <p>Take Control – Your data is coming from different sources, so you will want to assign ownership for your different data entities to the appropriate people to act as data stewards, guiding usage of your data. Vital to this role is ensuring the data is accurate and consistent across sources. As part of this process, your Tableau metrics should be reviewed to ensure they conform to standards. Gaining insights into your data to drive business decisions is at the core of Tableau, so you want to be certain that your calculations are accurate.</p> <p>Once you have created meaningful visualizations with Tableau, you will want to reuse them, and others may want to leverage your work for their own purposes. Centralizing your data sources and workbooks in Tableau Server ensures that your work is available whenever and wherever you need to access it. Connections to your enterprise data can be defined and managed within Tableau by IT resources and made available to authorized users, adding consistency and security. Workbooks should be grouped together based on functional areas, subject matter, or any other method of organization that is appropriate for your needs.</p> <p>Tableau Server offers robust security to help keep your data and workbooks secure. Users, logging in through secured authentication, can be organized into a variety of segmented permission groups: project-based, workbook-based, data source, or even user groups. Data itself can have user permissions, only allowing users to see the data rows that they are granted permissions to.</p>

Informatica

Please find Informatica's response to Solution Information 6 – Data Governance below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Informatica® Big Data Edition provides all the Data Governance functionality required for Hadoop environments. An example of this functionality is end-to-end data lineage, which provides complete transparency with end-to-end data lineage of all data movement from source data, through Hadoop, to target applications. Another example is “Data discovery on Hadoop”, which</p>

	Requirements	A	B
			automates the discovery of data domains and relationships on Hadoop such as sensitive data that needs to be protected.
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	Informatica® Big Data Edition can be deployed on servers (chip sets include Itanium, x64, IBM zSeries, Sparc, Power, x86). Those servers can be located on premise or can run in a cloud environment such as AWS. Operating systems include AIX, HP-UX, Redhat Linux, SuSe Linux, Solaris and Windows. Databases include Oracle, DB2, SQL Server and Sybase.
3	Explain licensing options for the tools you have included in this category	n/a	Informatica® Big Data Edition is licensed based on the number of Hadoop nodes and can be a perpetual or subscription license.
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	Yes, Informatica® Big Data Edition can be deployed so that multiple agencies can use the software. Informatica software is currently being used in such a manner at many state agencies.
5	Do you provide training on your solution? If yes, please explain the options.	Y	Yes, Informatica provides classroom-based training, online training, self-paced computer based training and custom training options.
6	Do you provide installation (including configuration) services for these tool components above?	Y	Yes, Informatica provides installation and configuration services for our software.
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	Yes, Informatica provides implementation services for our software components.
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	Informatica software was designed to be used by both business and IT groups. The training provided by Informatica is based on the skill set and prior training of each individual, which allows many types of employees to use the software. In many states, the main entity administering the Informatica technology is IT-related, but the end-users are the business team. An example might be a state Health agency. The end users are the business team of the Health department, but the state IT agency maintains the servers and development environments.

Splunk

Please find Splunk’s response to Solution Information 6 – Data Governance below:

	Requirements	A	B
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	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Unlike traditional big data analytics platforms, Splunk does not rely on a relational database management system (RDBMS) for data storage. Splunk creates a “schema on-the-fly” at search time versus indexing time. This eliminates the time-consuming process of defining and managing schemas associated with RDBMS-based analytic solutions. This also has the added benefits of reducing or removing the need to fund costly enterprise database licenses and reduces the headcount required to maintain them. Splunk features highly-granular configurable roles, where administrators can define roles and apply granular access to the various parts of the Management Interface as well as the scope of data users are allowed to access - reporting, configuration, rule modification, access to certain organizational tenants but not others are all achievable. Roles can be applied to users and/or groups. Regardless of user role or group, Splunk maintains an audit log that captures all interactions with Splunk (e.g., search, configuration changes, etc.).</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>Splunk is a software solution and as a result, enables client flexibility by supporting multiple deployment options both from a hosting, and architecture perspective. Hosting options include running Splunk software on-premises in a client’s datacenter, in a client-maintained private cloud, on a Splunk-hosted cloud, or a hybrid of on-premises and cloud topology. System architecture options include both 64 and 32 bit CPU architectures, numerous Unix-based and Windows operating systems, integration with client’s existing relational databases through Splunk’s DB connect functionality, and industry-standard connectivity with third-party analytics tools through Splunk’s ODBC driver.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>Splunk proposes Splunk Enterprise to meet the Commonwealth’s Business Intelligence functionality requirement. Splunk Enterprise is available in Perpetual and Annual/Subscription licensing models. Splunk Enterprise is on-premises.</p> <p>For the full-featured version of Splunk Enterprise, pricing is based on the amount of data indexed per day. Customers receive significant volume discounts with larger licenses (higher daily indexing levels)</p> <ul style="list-style-type: none"> <li>No charge for the number of users</li> <li>No charge for the number of CPUs, cores or nodes</li> <li>No charge for data sources or data types</li> <li>No charge for the number of searches, alerts or volume of data searched</li> <li>No charge for the total amount of data you store in Splunk Enterprise</li> </ul> <p>Once you license Splunk Enterprise there is no limit to the number of users, searches, alerts, correlations, reports, dashboards or automated remedial actions. It's all</p>

	Requirements	A	B
			<p>included—at no additional cost.</p> <p>A third license offering is Splunk Cloud. Splunk Cloud is our SAAS offering and is hosted in Amazon Web Services.</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	Splunk users access and interface with their data via a web browser and access credentials – regardless of their physical location. Sharing of analytic results, dashboards, reports, searches, alerts, etc. among users is accomplished through this user interface. Additionally, the Splunk software platform components can be centrally located or distributed across multiple geographic locations, depending on the customer and mission requirements. This ensures that any users that have access to the network and appropriate credentials can conduct analyses. User roles are also highly customizable within Splunk, providing granular control over which users have access to different types of data.
5	Do you provide training on your solution? If yes, please explain the options.	Y	Splunk offers Instructor-led classes available virtually or at your site. In addition to individual courses, Splunk also offers the following certification tracks: Splunk Certified Knowledge Manager, Splunk Certified Admin and Splunk Certified Architect. Additional information can be found at <a href="http://www.splunk.com/view/education/SP-CAAAAH9">http://www.splunk.com/view/education/SP-CAAAAH9</a> .
6	Do you provide installation (including configuration) services for these tool components above?	Y	<p>Splunk Professional Services provide expertise that supports and accelerates deployment for enterprise customers. Starting from the ground up, the deployments are designed with best practices and are ready to scale as needed. Splunk Enterprise Professional Services include Splunk core infrastructure design, installation, data collection and onboarding and management best practices framework implementation. Splunk deployments typically follow the 5 phases below:</p> <ol style="list-style-type: none"> <li>1. Infrastructure Planning</li> <li>2. Data Acquisition</li> <li>3. Data Extraction and Enrichment</li> <li>4. Reporting, Alerting, Monitoring</li> <li>5. Dashboards, Forms, and Integration</li> </ol>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	Splunk Professional Services provide Splunk experts that collaboratively work customers understand customer requirements/goals to recommend an expansive set of solutions to ensure success. Our professional services team can help you understand and adopt best practices for your enterprise deployment so you can get the most out of your Splunk investment. This guidance includes use-case development, data source identification, architecture guidance, reference architecture scenarios, retention policies, availability, searching capability.
8	For your Solution, provide examples of how the tools were used by both	n/a	Splunk has been ranked in the Leader's Quadrant of Gartner's Magic Quadrant for Security Incident Event Management (SIEM) two years in row; three examples

	Requirements	A	B
	<p>business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.</p>		<p>have been provided:</p> <p>OhioHealth is a not-for-profit healthcare organization based in Columbus, Ohio. Founded in 1891, OhioHealth is comprised of 28,000 associates, physicians and volunteers, and a network of 11 hospitals, more than 50 ambulatory sites, hospice, home-health, medical equipment and other health services spanning a 40-county area. OhioHealth is recognized as one of the top five largest health systems in America by Truven Health Analytics.</p> <p>OhioHealth relies on a networked environment to provide seamless and secure access to patient medical records, telemedicine and other healthcare services. The health network has many software and hardware tools to help secure its IT environment, including firewalls, data loss prevention (DLP) software, vulnerability scanning, Active Directory domain controllers, antivirus and anti-malware protection, as well as a security information and event management (SIEM) solution.</p> <p>OhioHealth’s security operations team deployed Splunk Enterprise on a server dubbed “The Beast” and installed Splunk forwarders on all firewalls, domain controllers, switches and other devices. Splunk forwarders provide reliable and secure collection and delivery of data to the Splunk platform for indexing, storage and analysis.</p> <p>Once logs and other data began to flow into Splunk Enterprise, the team used the solution to better support its missions: “guard the gates,” ensure compliance to HIPAA and other regulatory requirements, and act as advisors to other IT groups and the business. Splunk enables the group to pull in data from all machine data sources, including firewalls and domain controllers. It also enables integration with an IT service management solution. Splunk software has helped accelerate incident investigations, enhance event correlation, and provide automated, real-time data analytics.</p> <p>OhioHealth was evaluating services to conduct phishing audits of its health network. The security group was close to hiring a service that would have cost \$5,000 per phishing test session. Instead, the team tied an internal phishing web server to Splunk Enterprise and wrote a basic script to send phishing emails to 700 randomly selected recipients throughout the OhioHealth network. After months of tests, the team conducted a live demo for upper management, using Splunk dashboards to display the results in real time. They were able to see exactly who clicked on the email—and if the phishing emails had been</p>

	Requirements	A	B
			<p>real, this would have resulted in potential infection or stolen credentials.</p> <p>During the implementation of a new biometric access system for OhioHealth physicians and other clinicians, critical blocks of users were inadvertently deleted from Active Directory. While the implementation team was eventually able to restore the users, the cause of the deletions remained unknown.</p> <p>“We considered a leading security and compliance solution, but we realized it wasn’t exactly what we needed and it would have cost us about \$30k annually,” says Allen. “We needed a way to audit our Active Directory services and determine what and when things were happening. We discovered we could create the system using Splunk Enterprise, basically for free.”</p> <p>By deploying Splunk forwarders on every domain controller to collect information from these devices and securely and reliably send them to the central Splunk instance for analysis, the security operations group was able to monitor the entire Active Directory Forest in real time, including any changes made to directories and user accounts. According to Allen, “We experienced the same access problem associated with the biometric solution about a week after we finished the auditing system in Splunk. This time, we found the source of the problem in matter of minutes. Problem solved.”</p> <p>OhioHealth is replacing its current SIEM with the Splunk App for Enterprise Security, which provides out-of-the-box incident review and classification, reports and security metrics, risk-based analyses, threat intelligence framework, unified search editor, statistical analysis and flexible dashboards.</p> <p>Allen notes, “Our SIEM was just a SIEM, whereas Splunk is a data analytics platform with SIEM capability. Particularly when we have to dig through logs or look at Internet usage reports, it’s just much faster to do it with Splunk Enterprise. If one of our business managers wants to know what his employees have been doing, we’ll run that report in Splunk. We can ask any question and, with the right data, we can provide an answer with Splunk software. When it comes to anomaly detection, that’s what we’ll get with the Enterprise Security app.”</p> <p>The University of Texas at Austin is using Splunk Enterprise to improve network security across its campus. Splunk software enables the University’s Information</p>

	Requirements	A	B
			<p>Security Office (ISO) to take a proactive approach to security, using Splunk to identify unknown threats and network anomalies and allowing the ISO team to alert the impacted departments and schools faster than ever before.</p> <p>UT Austin depends heavily on its wired and wireless networks to enhance the educational experience and quality of life for its 50,000 students and 24,000 faculty and staff. Up to 120,000 individual devices—servers, switches, wireless access points, desktops, laptops, tablets, smart phones, security cameras, and other systems—may be connected to the network at any given time, and the university's eight-person Information Security Office (ISO) team is responsible for ensuring network security for the entire campus.</p> <p>Prior to using Splunk, the ISO analysts used intrusion detection/prevention system (IDS/IPS) appliances and custom-developed software tools to monitor network activity. With Splunk, the ISO team is able to investigate security threats and incidents faster and more accurately across the university's distributed network.</p> <p>A past malware outbreak provides an example of how the ISO team uses Splunk to identify and control suspicious events before they escalate into outages or breaches. In April 2012 the so-called Flashback Trojan began infecting Apple's OS X operating system.</p> <p>The ISO team used its own custom Splunk application for event correlation and anomaly detection in combating Flashback. "Splunk helped us do a lot of the initial detection and identification of anomalies," Beasley recalls. "We used Splunk to trigger on certain types of events and alert us. By reducing our response time, we were able to contain the event."</p> <p>"Splunk provides a simple, visual view into our data that enables us to see emerging patterns, compare results, isolate commonalities and take action that prevents escalations and outages," said Cam Beasley, chief information security officer, Information Security Office, University of Texas at Austin. "We use Splunk software daily and it's critical to our operations. It makes us better equipped to detect new anomalies and respond to them quickly. Without it, we would be far less effective—I'm sure of that."</p> <p>Middlesex Hospital, recognized as a HIMSS Stage 6 hospital, Hospital &amp; Healthcare Network's Most Wired and ranked one of the top 100 hospitals in the U.S., recently</p>

	Requirements	A	B
			<p>expanded its use of Splunk® Enterprise to secure Electronic Healthcare Records (EHR) and ensure regulatory compliance across its entire hospital IT network.</p> <p>Critical applications on these systems service the main hospital, three emergency departments and many off-site primary care and specialty services locations. Middlesex originally selected Splunk software in 2013 to achieve global visibility and maintain optimal uptime performance on its Windows-based networked operating systems.</p> <p>“Splunk software is a critical part of our compliance initiatives at Middlesex Hospital in support of Meaningful Use Stage 2 requirements for the Medicare and Medicaid EHR Incentive Programs. It also helps the hospital save hundreds of thousands of dollars by eliminating unnecessary applications and technologies,” said Richard Schubach, director of IT, Middlesex Hospital. “Splunk software immediately proved its value by helping us to transform IT operations and accomplish our top priorities at the hospital - protecting our patients’ privacy and ensuring regulatory compliance.”</p> <p>Splunk software helps enable customers to ensure efficient adherence to the Health Insurance Portability and Accountability Act (HIPAA) and Health Information Technology for Economic and Clinical Health (HITECH) Act. Middlesex Hospital can also now review activity on the network and identify suspicious behavior. Recently, leveraging Splunk software, the hospital was able to swiftly conduct investigations to determine if there was inappropriate access to electronic protected health information (ePHI). In IT operations, Middlesex Hospital reports that Splunk software helped to turn resolution times from hours or days to minutes or seconds - a critical turnaround given the importance of these systems.</p>

Hadoop, MapReduce etc. – tools that address the analysis of collections of data sets that are so large and/or complex that it is difficult/expensive to process using traditional data management tools or approaches. This includes the ability to address, Volume, Velocity, Variety, Veracity and Value.

Unstructured data analysis – the ability to analyze/process information that either does not have a pre-defined data model or is not organized in a pre-defined manner. Unstructured information is typically text-heavy, but may contain data such as dates, numbers, and facts as well. This results in irregularities and ambiguities that make it difficult to understand using traditional computer programs as compared to data stored in fielded form in databases or annotated (semantically tagged) in documents.

Carahsoft Response:


For the Data Governance category, Carahsoft can meet the Solution Information requirements via our Solution Providers, Cloudera, Digital Reasoning, Tableau, Informatica, and Splunk.

Tableau

Please find Tableau’s response to Solution Information 7 – Hadoop, MapReduce etc. below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Unlike many vendors, whose solution to meet all use cases is a collection of loosely associated products that are not truly integrated, Tableau is a single solution for all use cases, which means many of the responses to this section are identical to the other use cases.</p> <p>Tableau software consists of Tableau Desktop and Tableau Server.</p> <p>Tableau Desktop is used to connect to data, for content creation of dashboards and views, defining the semantic layer from a dimension and measure model perspective, and blending or federating data from disparate data sources.</p> <p>Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>Tableau Server can be deployed on-premise, on a private cloud, on the Tableau cloud, or on a PaaS solution.</p>
3	Explain licensing options for the tools you have included in this	n/a	<p>Tableau Desktop – Used to author and build Dashboards and Visualizations (On Premise)</p> <p>This is our Flagship offering at Tableau - it allows you to be the author of your Data Visualizations.</p>

	Requirements	A	B
	category		<p>Named user licensing, not concurrent, only one person can use the license, software purchased for the individual user</p> <p>Number of installations permitted per EULA</p> <p>1 Primary</p> <p>1 Backup (Home/Laptop)</p> <p>Tableau Server – Used to share dashboards via web (On Premise) Second of our flagship products, with Desktop you have the ability to author workbooks – with Server comes the ability to publish information to share via network/VPN</p> <p>Tableau Server is the software that the customer will install on their own server hardware - Tableau does not sell the hardware</p> <p>Number of installations permitted per EULA:</p> <p>Primary (Production) Environment</p> <p>Backup/Test (Non-production) Environments</p> <p>COLD High Availability Environment</p> <p>Core Server</p> <p>Unlimited users, licensing the hardware (Number of CPU's used on their Server equipment)</p> <p>Minimum purchase is an 8 Core license;</p> <p>Tableau Online – SaaS (Software as a Service) hosted by Tableau Server</p> <p>Pay for a yearly subscription per seat online. Allows customers to integrate easily with Tableau Server from a variety of devices, without purchasing any server hardware</p> <p>Similar to other cloud based software like Salesforce: sign in to a webpage to access content</p> <p>Customer agrees to an Online Agreement - different than the Tableau EULA</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	<p>Tableau Server is used for collaboration and sharing of analytic content such as dashboards and views; enforcing data governance and security from an enterprise perspective; providing access internally, externally, and citizen/public facing (anonymous guest or "everyone" access).</p>
5	Do you provide training on your solution? If yes, please explain the options.	Y	<p>Tableau provides 50+ on-demand training videos on its main website, in addition to live daily training classes that users can sign up for. These two offerings are completely free of charge.</p> <p>Tableau also offers traditional live, classroom training on per-attendee fee basis, more information can also be found on Tableau's main website.</p>
6	Do you provide	Y	<p>Many customers find Tableau simple enough to install and configure that</p>

	Requirements	A	B
	installation (including configuration) services for these tool components above?		<p>they do not require services to complete.</p> <p>However, Tableau Professional Services does offer small packages of a few days to assist if desired.</p>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	<p>Tableau is unique in that we empower users to get value instantly out of the solution without requiring lengthy and expensive implementation services. It is for this reason that Gartner has ranked Tableau #1 in terms of ability to execute among BI tool in both 2014 and 2015.</p> 
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Everywhere you look, you see data—and lots of it. For a large enterprise, big data may be in the petabytes or more, while for a small or mid-size enterprise, data volumes that grow into tens or hundreds of terabytes can become challenging to analyze and manage. Organizations are storing a variety of unstructured data from websites, infrastructure logs and sensors, and ecommerce velocity gives less and less time to interpret and act on information.</p> <p>If it's hard to comprehend a few thousand rows of numbers, what chance do you have to get insight from millions or billions of rows at a time? How do you get value from all that data?</p> <p>The proliferation of data makes easy-to-use business analysis tools more important than ever. The ability for business users to visualize data so they can spot trends and outliers is not nice to have, it's critical. Otherwise you've got warehouses of data but no data intelligence.</p> <p>Options for fast in-memory data engine or live database connection  Tableau has optimized direct connections for many high-performance databases, cubes, Hadoop, and cloud data sources such as (but not limited to) Hadoop, MapReduce, Cloudera, Hortonworks, Salesforce.com and Google Analytics. You can work directly with your data to create reports and dashboards. Tableau lets you connect live or bring your data into its fast, in-memory analytical engine.</p>

	Requirements	A	B
			<p>It's easy to get started: just connect to one or more than 30 databases and formats supported by Tableau, enter your credentials and begin, with a single click to select live connect or in-memory analytics. You can publish web dashboards with live connections on your corporate portal, SharePoint or wiki so your data automatically refreshes. Mix-and-match multiple data sources from different database types in the same web dashboard.</p> <p>Tableau's in-memory data engine is not subject to the restrictions of many in-memory solutions which require that all your data fit into your machine's RAM. Advanced in-memory technology takes advantage of all the memory on your laptop or PC, down to the hard disk, so your analysis can be wicked fast and huge, all at the same time.</p> <p>Get value from data with Tableau's big data BI Tableau's powerful big data software enables the people who know the data the best to do their own analysis. With drag &amp; drop, point &amp; click ease to build charts, reports and dashboards, Tableau gets people throughout an organization connected directly to their data. There's no more waiting in an IT queue to answer questions, so now you can begin getting answers from your data.</p> <p>This dashboard uses millions of rows of stock data to show trends in key securities. It was built without any programming by a regular business user. With the right tools, anyone who needs answers from data can get them.</p> <p>Using Tableau for self-reliant visual analytics means you can analyze data with lightning-fast queries on massive amounts of data. By giving you this ability to ask – and answer – questions at the speed-of-thought, Tableau's big data software puts you at a distinct advantage.</p>

Cloudera and Digital Reasoning

Please find Cloudera and Digital Reasoning's response to Solution Information 7 – Hadoop, MapReduce etc. below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Cloudera Enterprise Data Hub (EDH) is an enterprise ready product that implements Apache Hadoop standards and frameworks. Cloudera recommends our Enterprise Data Hub Edition to meet the enterprise requirements and operational features needed by the Commonwealth of Virginia when building a world-class next generation data platform. Our currently shipping version of Cloudera Enterprise Data Hub Edition is 5.3.</p> <p>The unstructured text analytics performed by Digital Reasoning are a set of Hadoop MapReduce jobs that are run in an optimized workflow within the Cloudera EDH environment. The resulting data is stored in the same Cloudera EDH, giving Digital Reasoning's Synthesys Knowledge Graph enterprise-level scalability and security.</p>

	Requirements	A	B
			<p><b>CLOUDERA ENTERPRISE DATA HUB – Hadoop for the Enterprise</b></p> <p>Cloudera Enterprise helps your business realize pervasive analytics with Apache Hadoop by leveraging best-in-class open technologies with enterprise capabilities necessary to meet even the most stringent business requirements. Designed specifically for mission-critical environments, Cloudera Enterprise includes the world's most popular open source Hadoop-based platform, CDH, as well as advanced system management tools. It also features dedicated support and community advocacy from our world-class team of Hadoop developers and experts. Cloudera is your partner on the path to big data, with the flexibility and stability needed to evolve with your business.</p> <p><b>Rethink Data Management –</b></p> <p>Cloudera Enterprise (powered by Hadoop) is a single, unified solution that lets you store and analyze all your data and metadata, while providing compliance-ready security and governance, and end-to-end system management. With Cloudera Enterprise, today's leading organizations can leverage the full power of their data to achieve pervasive analytics, increase business visibility, and reduce costs - all while successfully managing risk and compliance requirements.</p> <p>Cloudera Enterprise, with Apache Hadoop at the core, is:</p> <p>Unified – one integrated system, bringing diverse users and application workloads to one pool of data on common infrastructure; no data movement required</p> <p>Secure – compliance-ready perimeter security, authentication, granular authorization, and data protection (through encryption and key management)</p> <p>Governed – enterprise-grade data auditing, data lineage, and data discovery</p> <p>Managed – best-in-class holistic interface that provides end-to-end system management and key enterprise features, such as zero-downtime rolling upgrades</p> <p>Open – open platform to ensure easy integration with existing systems and a focus on open source to achieve stability, continuous innovation, and portability.</p> <p>The following high level use cases are commonly implemented with the previously listed functional components:</p> <p><b>Active Archive:</b> One place to store all your data, in any format, at any volume, for as long as you like, allowing you to address compliance requirements and deliver data on demand to satisfy internal and external regulatory demands. Because it is secure, you control who sees what; because it delivers governance and lineage services, you can trace access to, and the evolution of, your data over time.</p> <p><b>Transformation and Processing:</b> ETL workloads that previously had to run on expensive systems can migrate to the enterprise data hub, where they run at very low cost, in parallel, much faster than before. Optimizing the</p>

	Requirements	A	B
			<p>placement of these workloads and the data on which they operate frees capacity on high-end analytic and data warehouse systems, making them more valuable by allowing them to concentrate on the business- critical OLAP and other applications that they run.</p> <p>Self-Service Exploratory BI: Users frequently want access to enterprise data for reporting, exploration, and analysis. Production enterprise data warehouse systems must often be protected from casual use so they can run the mission-critical financial and operational workloads they support. An enterprise data hub allows users to explore data, with full security, using traditional interactive business intelligence tools via SQL and keyword search.</p> <p>Advanced Analytics: Multiple computing frameworks that enable analytics, search, machine learning, and more unlock value in new and old data sources. Rather than examining samples of data, or snapshots from short time periods, all historical data, in full fidelity, can be combined in comprehensive analyses. Simple tabular data can mix with more complex and multi-structured data in ways that were never before possible.</p>
2	<p>Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category</p>	n/a	<p>Cloudera Enterprise Data Hub (EDH) can be deployed using Cloudera supported x86/x64 certified hardware platforms. Cloud platforms are also supported. The following sections outline supported platforms and requirements for Cloudera EDH tools.</p> <p>Supported Configurations with Virtualization and Cloud Platforms This section lists supported configurations for deploying Cloudera software on virtualization and cloud platforms, and provides links to reference architectures for these platforms.</p> <p>Cloudera on AWS – Cloudera delivers on that objective with Cloudera Enterprise and now makes it possible for organizations to deploy the Cloudera solution as an enterprise data hub in the Amazon Web Services (AWS) cloud. This joint solution combines Cloudera's expertise in large-scale data management and analytics, along with AWS's expertise in cloud computing.</p> <p>Microsoft Azure – For information on deploying Cloudera software on a Microsoft Azure cloud infrastructure, see the Reference architecture for deploying on Microsoft Azure on the Cloudera website. The following limitations and restrictions apply to deploying on Microsoft Azure in the current release: Only the D-14 instance type with locally attached disks is supported. Only Cloudera Manager 5.x and CDH 5.x are supported. The only supported operating system is CentOS 6.5. The following services are supported: MRv2 (YARN) Hive Pig Crunch</p>

	Requirements	A	B
			<p>The following services are not supported:</p> <ul style="list-style-type: none"> <li>HBase</li> <li>Impala</li> <li>Spark</li> <li>Solr</li> </ul> <p>VMware – For information on deploying Cloudera software on a VMware-based infrastructure, see the Reference architecture for deploying on VMware on the Cloudera website.</p> <p>The following limitations and restrictions apply to deploying on VMware in the current release:</p> <ul style="list-style-type: none"> <li>Use the part of Hadoop Virtual Extensions that has been implemented in HDFS: HADOOP-8468. This will prevent data loss when a physical node goes down that hosts two or more DataNodes.</li> <li>Isilon and shared storage are not supported.</li> </ul> <p>Supported Intel and compatible x86/x64 Hardware Vendors</p> <ul style="list-style-type: none"> <li>Intel</li> <li>AMD</li> <li>HP</li> <li>Dell</li> <li>Cisco</li> <li>IBM/Lenovo</li> <li>SGI</li> <li>SuperMicro</li> <li>Hitachi</li> <li>EMC</li> </ul> <p>Supported Operating Systems – CDH 5 provides packages for Red-Hat-compatible, SLES, Ubuntu, and Debian systems</p> <p>Supported Databases</p> <ul style="list-style-type: none"> <li>MySQL, Oracle, and PostgreSQL</li> </ul> <p>Supported JDK Versions – CDH 5 is supported with the versions shown in the table that follows.</p> <ul style="list-style-type: none"> <li>1.7.0_67</li> <li>1.8.0_11</li> </ul> <p>Supported Web Browsers – The Cloudera Manager Admin Console, which you use to install, configure, manage, and monitor services, supports the following browsers:</p> <ul style="list-style-type: none"> <li>Mozilla Firefox 11 and higher</li> </ul>

	Requirements	A	B
			<p>Google Chrome</p> <p>Internet Explorer 9 and higher</p> <p>Safari 5 and higher</p>
3	Explain licensing options for the tools you have included in this category	n/a	Licensing option by both server quantity and user volume are provided via the GSA Schedule 70
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	<p>Cloudera Enterprise Data Hub (EDH) supports an Active Archive capability that is implemented using Hadoop HDFS and provides one place to store all your data, in any format, at any volume, for as long as you like, allowing you to address compliance requirements and deliver data on demand to satisfy internal and external regulatory demands. Because it is secure, you control who sees what; because it delivers governance and lineage services, you can trace access to, and the evolution of, your data over time.</p> <p>The centralized storage of data with an EDH active archive arrangement is supportive of coupling typical data management functions such as transformation and processing of ETL workloads, Self-Service Exploratory BI, and Advanced Predictive Analytics. In this arrangement the computational aspects of each Commonwealth agency's requirements can be brought directly to the data as opposed to creating one-off development integration and migration projects for the data required by a given agency.</p> <p>Cloudera EDH organizes the activities of ingest, storage, processing, and integration while also applying enterprise security, data governance, and multi-tenant resource management and control features.</p>
5	Do you provide training on your solution? If yes, please explain the options.	Y	Complete training services for both system administration and analytic users is available based on the individual needs of the purchasing entity.
6	Do you provide installation (including configuration) services for these tool components above?	Y	Complete installation services are available as needed.
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	Digital Reasoning service personnel are available for both short term and permanent engagement to support agency needs and objectives.

	Requirements	A	B
8	<p>For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.</p>	n/a	<p>State of Minnesota</p> <p>MNSure is the health insurance marketplace initiated as part of federal healthcare reform act, it allows MN residents to find and compare health plans, and choose the coverage. Since the application will be serving sensitive and regulated information, all activities occurring through the site must be logged and stored for later analysis and auditing. For example, as transactions occurring on the site touch the different component systems (web-server, app-server, database, etc) audit logs are generated indicating the system generating the event, the type of event, timestamp, etc. In aggregate, these logs could grow to several TB each month and the logs themselves are sensitive in nature. Meaning that the storage and analysis system must support not just scalable storage and analysis, but also security, backup, and auditing (yes, auditing who accessed the audit logs).</p> <p>Cloudera Enterprise Data Hub (EDH) provides a secure, low-cost, and scalable storage platform for MNSure's audit log data. Using HBase, HDFS, and and Flume, application servers generate audit events that are streamed into Hadoop/CDH and made available for analysis. The ingest of log data into Cloudera EDH facilitates exploratory analysis of the unstructured data using skillsets that are familiar to the State of Minnesota such as SQL as EDH technologies such as Hive and Impala provide SQL access for unstructured data stored in the Cloudera Enterprise Data Hub. As MNSure traffic grows, Hadoop is able to scale horizontally to support the increased traffic. Future use-cases include using Impala and interactive Hadoop frameworks to do near-real-time analytics on the data stored in Hadoop.</p> <p>State of Indiana</p> <p>The State of Indiana to reduce infant mortality, saving 60 children annually, with data discovery</p> <p>Background – The state of Indiana has a population of more than 6.5 million people (known as “Hoosiers”) and 36,500 square miles of land area. It ranks 16th in the country based on population.</p> <p>Challenge – One of the state’s goals is “transparency,” providing citizens with comprehensive insight into state operations to confirm that taxpayer dollars are delivering the most efficient and effective services possible. State officials also see great opportunity in using data and analytics to help improve the lives of Indiana citizens. However, as with most state governments, officials found it difficult to integrate data stored in silos across 71 departments quickly or efficiently. Its existing data platforms couldn’t scale (except at great cost) to manage the huge amount of data needed.</p> <p>Additionally, ETL processes to move data into a common platform were extremely time-consuming. In one case, staff found that integrating expense reports from different agencies so they could be analyzed took more than 8 hours, which was unacceptable to users.</p> <p>Solution – By implementing a Hadoop-based operational data store with Cloudera Enterprise, Data Hub Edition, the organization is tackling these</p>

	Requirements	A	B
			<p>challenges--reducing the time and cost to mine its data and gaining new insight.</p> <p>Cloudera can ingest, process, and analyze data from SAP HANA and more than 50 other data sources, including virtual SQL tables, across the organization. Staff will be able to analyze statewide data via Impala + R. SAP Lumira will be used for data visualization.</p> <p>Cloudera Navigator will support data auditing, lineage and discovery. And enterprise architects will use Cloudera Manager to monitor and quickly diagnose cluster issues.</p> <p>Security was a significant concern for state officials given that the state manages sensitive information, including financial and health data. The state will use Sentry to encrypt data columns and Kerberos for authentication.</p> <p>Bringing together so much data in a single view can be challenging and vendor support can make a significant difference between success and failure. Cloudera was selected due to its excellent support, and according to state enterprise data architects, Cloudera is "much easier to work with" than other vendors – enabling staff to focus on their big picture goals.</p> <p>Benefit – What will be the benefit of this state’s enterprise data platform and work with Cloudera?</p> <p>From an operational perspective, current tests show significant time savings from offloading ETL work to Hadoop, with queries once taking more than eight hours reduced to just four minutes. Additionally, the platform will help reduce costs as IT staff can optimize how and when they use SAP HANA, offloading less critical or even hot workloads to Hadoop.</p> <p>However, what’s most exciting is the new insight that will be gained to help improve the lives of Indiana’s citizens.</p> <p>Take, for example, the state’s goal to reduce the infant mortality rate. Indiana currently has one of the highest infant mortality rates in the U.S. One baby dies every 13 hours in Indiana. At the 2nd annual Indiana Infant Mortality Summit, held in 2014, presenters reported that if the state could reduce infant mortality rate to national average, 60 babies would survive each year.</p> <p>But the question for officials is: Which programs are best delivered to which mothers and when? Many factors contribute to infant mortality, including smoking, obesity, prenatal care, unsafe sleep, and early deliveries. By being able to integrate and analyze data across a family’s interaction with state agencies – from social and family services, to health services, to financial aid and food programs – state officials are confident they’ll uncover important insights that help them prevent unnecessary deaths. For example, officials want to understand the relationship between infant mortality and nutrition programs; do moms who receive WIC funds</p>

	Requirements	A	B
			(The Special Supplemental Nutrition Program for Women, Infants, and Children) have healthier babies, and if so, would increasing funding WIC funds in specific areas of the state help save newborns?

Informatica – Hadoop, MapReduce etc.

Please find Informatica’s response to Solution Information 7 – Hadoop, MapReduce etc. below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	Informatica® Big Data Edition provides all the unstructured data analysis functionality required for Hadoop environments. Details of the complex data parsing on Hadoop: Parse complex, multi-structured, unstructured, and industry standard data on Hadoop using pre-built parsers, or easily create your own. Natural language processing can also be performed in Hadoop. VITA can use natural language processing to identify and classify entities in social media and text files, for example.
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	Informatica® Big Data Edition can be deployed on servers (chip sets include Itanium, x64, IBM zSeries, Sparc, Power, x86). Those servers can be located on premise or can run in a cloud environment such as AWS. Operating systems include AIX, HP-UX, Redhat Linux, SuSe Linux, Solaris and Windows. Databases include Oracle, DB2, SQL Server and Sybase.
3	Explain licensing options for the tools you have included in this category	n/a	Informatica® Big Data Edition is licensed based on the number of Hadoop nodes and can be a perpetual or subscription license.
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	Yes, Informatica® Big Data Edition can be deployed so that multiple agencies can use the software. Informatica software is currently being used in such a manner at many state agencies.
5	Do you provide training on your solution? If yes, please explain the options.	Y	Yes, Informatica provides classroom-based training, online training, self-paced computer based training and custom training options.
6	Do you provide installation (including configuration) services for these tool components above?	Y	Yes, Informatica provides installation and configuration services for our software.
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	Yes, Informatica provides implementation services for our software components.
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and	n/a	Informatica software was designed to be used by both business and IT groups. The training provided by Informatica is based on the skill set and prior training of each individual, which allows many types of employees

	Requirements	A	B
	skill required by each. Include what entity used the tools. If possible, use government related examples.		to use the software. In many states, the main entity administering the Informatica technology is IT-related, but the end-users are the business team. An example might be a state Health agency. The end users are the business team of the Health department, but the state IT agency maintains the servers and development environments.

Splunk

Please find Splunk’s response to Solution Information 7 – Hadoop, MapReduce etc. below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Splunk leverages MapReduce, a technology pioneered by Google, to retrieve and analyze massive datasets of unstructured and structured data using a "divide and conquer" approach for distributed processing. Splunk has optimized the execution of its search language using the MapReduce model with a focus on parallelism and holds multiple patents related to data analytics and time-series searching. Splunk’s implementation of MapReduce enables massively parallelized analysis and retrieval of data across a large number of distributed systems, resulting in extreme scalability. Parallelizing analytics via MapReduce is not unique to Splunk. However, the Splunk implementation of MapReduce on top of its indexed data store along with its expressive search language provides a simpler, faster way to analyze huge volumes of data. Beyond this, the Splunk MapReduce implementation is part of a complete solution for collecting, storing and processing machine data in real time, thereby eliminating the need to write or maintain code—a requisite of other, more generic, MapReduce implementations.</p> <p>Current Splunk customers are able to consistently index hundreds of terabytes of data per day on commodity hardware due to Splunk’s multi-tiered, horizontally-scalable architecture. As the volume of data ingested per day and/or the number of users on the system expand, additional servers can be added at different tiers in the Splunk architecture to add additional compute/memory/storage capacity when needed. Despite the complexity of Splunk’s MapReduce implementation, it appears to end-users that they are searching one large Splunk instance</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>Splunk is a software solution and as a result, enables client flexibility by supporting multiple deployment options both from a hosting, and architecture perspective. Hosting options include running Splunk software on-premises in a client’s datacenter, in a client-maintained private cloud, on a Splunk-hosted cloud, or a</p>

	Requirements	A	B
			<p>hybrid of on-premises and cloud topology. System architecture options include both 64 and 32 bit CPU architectures, numerous Unix-based and Windows operating systems, integration with client's existing relational databases through Splunk's DB connect functionality, and industry-standard connectivity with third-party analytics tools through Splunk's ODBC driver.</p>
3	<p>Explain licensing options for the tools you have included in this category</p>	n/a	<p>Splunk proposes Splunk Enterprise to meet the Commonwealth's Business Intelligence functionality requirement. Splunk Enterprise is available in Perpetual and Annual/Subscription licensing models. Splunk Enterprise is on-premises.</p> <p>For the full-featured version of Splunk Enterprise, pricing is based on the amount of data indexed per day. Customers receive significant volume discounts with larger licenses (higher daily indexing levels)</p> <p>No charge for the number of users                      No charge for the number of CPUs, cores or nodes                      No charge for data sources or data types                      No charge for the number of searches, alerts or volume of data searched                      No charge for the total amount of data you store in Splunk Enterprise</p> <p>A third license offering is Splunk Cloud. Splunk Cloud is our SAAS offering and is hosted in Amazon Web Services.</p>
4	<p>Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.</p>	Y	<p>Splunk users access and interface with their data via a web browser and access credentials – regardless of their physical location. Sharing of analytic results, dashboards, reports, searches, alerts, etc. among users is accomplished through this user interface. Additionally, the Splunk software platform components can be centrally located or distributed across multiple geographic locations, depending on the customer and mission requirements. This ensures that any users that have access to the network and appropriate credentials can conduct analyses. User roles are also highly customizable within Splunk, providing granular control over which users have access to different types of data.</p>
5	<p>Do you provide training on your solution? If yes, please explain the options.</p>	Y	<p>Splunk offers Instructor-led classes available virtually or at your site. In addition to individual courses, Splunk also offers the following certification tracks: Splunk Certified Knowledge Manager, Splunk Certified Admin and Splunk Certified Architect. Additional information can be found at <a href="http://www.splunk.com/view/education/SP-CAAAAH9">http://www.splunk.com/view/education/SP-CAAAAH9</a>.</p>
6	<p>Do you provide installation (including configuration) services</p>	Y	<p>Splunk Professional Services provide expertise that supports and accelerates deployment for enterprise</p>

	Requirements	A	B
	for these tool components above?		<p>customers. Starting from the ground up, the deployments are designed with best practices and are ready to scale as needed. Splunk Enterprise Professional Services include Splunk core infrastructure design, installation, data collection and onboarding and management best practices framework implementation. Splunk deployments typically follow the 5 phases below:</p> <ol style="list-style-type: none"> <li>1. Infrastructure Planning</li> <li>2. Data Acquisition</li> <li>3. Data Extraction and Enrichment</li> <li>4. Reporting, Alerting, Monitoring</li> <li>5. Dashboards, Forms, and Integration</li> </ol>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	<p>Splunk Professional Services provide Splunk experts that collaboratively work customers understand customer requirements/goals to recommend an expansive set of solutions to ensure success. Our professional services team can help you understand and adopt best practices for your enterprise deployment so you can get the most out of your Splunk investment. This guidance includes use-case development, data source identification, architecture guidance, reference architecture scenarios, retention policies, availability, searching capability.</p>
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Splunk is used as an analytic platform across multiple University Affiliated Research Centers, Defense Industrial Base partners, The US Federal Government, Federally Funded Research and Development Centers, and over 75 of the Fortune 100 Commercial organizations. These organizations leverage Splunk for complex big data analytical challenges including business performance analysis, cyber security, IT operations, research and exploratory development, cyber operations, communication / information / navigation, materials and manufacturing analysis, sensors and instrumentation systems, national security analysis, civil space, national security analysis, and beyond. Data abstractions in Splunk, particularly through the Pivot User Interface and high-level dashboards, enable quick ramp-up and usability for business users or junior analysts, while the Splunk Processing Language (SPL) and the extensibility of Splunk Enterprise software empower highly-experienced analysts and data scientists to gain new insights from their data through highly-tailored analytics.</p>

Other – please include any other next-generation analytics tools sets that you feel should be considered

Carahsoft Response:

For the Business Intelligence category, Carahsoft can meet the Solution Information requirements via our Solution Provider, Splunk.

Splunk

Please find Splunk’s response to Solution Information 8 – Other below:

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>Splunk offers the leading Platform for Operational Intelligence and has been recognized as one of the most Innovative Big Data Companies by Fast Company two years in a row. Splunk makes machine data accessible, usable and valuable to everyone—no matter where it comes from.</p> <p>Machine data contains a definitive record of all the activity and behavior of your customers, users, transactions, applications, servers, networks and mobile devices. And it's more than just logs. It includes configurations, data from APIs, message queues, change events, the output of diagnostic commands, call detail records and sensor data from industrial systems and more.</p> <p>Machine data comes in an array of unpredictable formats and the traditional set of monitoring and analysis tools were not designed for the variety, velocity, volume or variability of this data. A new approach, one specifically architected for this unique class of data, is required to quickly diagnose service problems, detect sophisticated security threats/fraudulent activity, understand the health and performance of remote equipment and demonstrate compliance.</p> <p>Splunk provides a common platform for aggregation, analysis, visualization, and alerting across a virtually limitless range of relevant data types. Splunk holds multiple patents related to data analytics and time series searching that set it significantly apart from legacy analytics offerings. Splunk’s ability to ingest and leverage these widely disparate data types has facilitated a paradigm shift towards integrated analysis. Real-time correlation of open-source, signals/sensor, communications, geospatial data, and beyond, provided by Splunk, dramatically reduces the time required for the collection-aggregation analysis workflow for analysts – ultimately enabling more time to gain operational insights that drive actionable decision-making.</p> <p>Currently, there are many legacy point solutions that focus on the primary IT functions such as IT Operations, Business Intelligence, Application Management and Security/Compliance creating a siloed view of the organization’s IT environment. Splunk offers a single platform, Splunk Enterprise, to break down these organizational data</p>

	Requirements	A	B
			<p>silos to provide a holistic view of the organization. This also allows organizations to meet multiple requirements using one solution.</p> <p>Organizations have traditionally used Splunk Enterprise to mitigate cybersecurity risk, prevent fraud, improve service performance and reduce cost by collecting from traditional data sources. In addition to traditional use cases, organizations are now using Splunk's patented technology in the areas such as Internet of Things (IOT) and Industrial/facilities data.</p> <p>Current Splunk customers are able to consistently index hundreds of terabytes of data per day due to Splunk's multi-tiered, horizontally-scalable architecture. As the volume of data ingested per day and/or the number of users on the system expand, additional servers can be added at different tiers in the Splunk architecture to add additional compute/memory/storage capacity when needed. Splunk leverages MapReduce, a technology pioneered by Google to retrieve and analyze massive datasets using a "divide and conquer" approach for distributed processing. Splunk has optimized the execution of its search language using the MapReduce model with a focus on parallelism. Splunk holds multiple patents related to data analytics and time-series searching – its implementation of MapReduce, enables massively parallelized analysis and retrieval of data across a large number of distributed systems, resulting in extreme scalability. Despite the complexity of Splunk's MapReduce implementation, it appears to end-users that they are searching one large Splunk instance</p> <p>Splunk investments in our products and key technologies provide significant competitive differentiation.</p> <ol style="list-style-type: none"> <li>1. Schema-on-the-fly: to collect and index data irrespective of source and format. Rather than requiring that data be input into a pre-defined structure, our schema-on-the-fly technology creates structure as data is being searched.</li> <li>2. Universal Data Platform: for collection and indexing of machine data from virtually any source.</li> <li>3. Powerful search processing language to search and analyze real-time and historical data.</li> <li>4. Scalable Solution: because Splunk and Splunk for Enterprise Security are not built upon a traditional relational database, we can scale to much higher data volumes and user search loads than traditional data platforms.</li> <li>5. Real-time Architecture: for real-time collection, search, monitoring, and analysis across massive streams of machine data in a single platform.</li> <li>6. Agile Reporting and Analytics: powerful interactive search and easy to use reporting, enabling rapid, iterative analysis and visualization of data.</li> <li>7. Custom dashboards and views for different users and roles.</li> <li>8. Predictive and Real-time: monitoring for patterns and thresholds, trigger alerts when specific conditions arise.</li> </ol>

	Requirements	A	B
			<p>9. Secure: granular role-based security and access controls.</p> <p>10. Robust Development Platform: flexible for developing apps and integration with other data stores</p> <p>11. Fast Time to Value: Splunk is a fully integrated platform, easy to install, operate and scale. Splunk customers typically achieve a positive ROI in just a few weeks or months.</p> <p>12. Passionate and Vibrant Community: Splunk online communities include Splunk Apps, Splunk Answers, and Splunk Dev.</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>Splunk is a software solution and as a result, enables client flexibility by supporting multiple deployment options both from a hosting, and architecture perspective. Hosting options include running Splunk software on-premises in a client's datacenter, in a client-maintained private cloud, on a Splunk-hosted cloud, or a hybrid of on-premises and cloud topology. System architecture options include both 64 and 32 bit CPU architectures, numerous Unix-based and Windows operating systems, integration with client's existing relational databases through Splunk's DB connect functionality, and industry-standard connectivity with third-party analytics tools through Splunk's ODBC driver.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>Splunk proposes Splunk Enterprise to meet the Commonwealth's Business Intelligence functionality requirement. Splunk Enterprise is available in Perpetual and Annual/Subscription licensing models. Splunk Enterprise is on-premises.</p> <p>For the full-featured version of Splunk Enterprise, pricing is based on the amount of data indexed per day. Customers receive significant volume discounts with larger licenses (higher daily indexing levels)</p> <p>No charge for the number of users                      No charge for the number of CPUs, cores or nodes                      No charge for data sources or data types                      No charge for the number of searches, alerts or volume of data searched                      No charge for the total amount of data you store in Splunk Enterprise</p> <p>Once you license Splunk Enterprise there is no limit to the number of users, searches, alerts, correlations, reports, dashboards or automated remedial actions. It's all included—at no additional cost.</p> <p>A third license offering is Splunk Cloud. Splunk Cloud is our SAAS offering and is hosted in Amazon Web Services.</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Y	<p>Splunk users access and interface with their data via a web browser and access credentials – regardless of their physical location. Sharing of analytic results, dashboards, reports, searches, alerts, etc. among users is accomplished through this user interface. Additionally, the Splunk software platform components can be centrally located or distributed across multiple geographic locations, depending on the customer and mission requirements. This ensures that any users that have access to the network and appropriate credentials can conduct analyses. User roles are also highly customizable within Splunk, providing granular control over which users have access to different</p>

	Requirements	A	B
			types of data.
5	Do you provide training on your solution? If yes, please explain the options.	Y	Splunk offers Instructor-led classes available virtually or at your site. In addition to individual courses, Splunk also offers the following certification tracks: Splunk Certified Knowledge Manager, Splunk Certified Admin and Splunk Certified Architect. Additional information can be found at <a href="http://www.splunk.com/view/education/SP-CAAAAH9">http://www.splunk.com/view/education/SP-CAAAAH9</a> .
6	Do you provide installation (including configuration) services for these tool components above?	Y	<p>Splunk Professional Services provide expertise that supports and accelerates deployment for enterprise customers. Starting from the ground up, the deployments are designed with best practices and are ready to scale as needed. Splunk Enterprise Professional Services include Splunk core infrastructure design, installation, data collection and onboarding and management best practices framework implementation. Splunk deployments typically follow the 5 phases below:</p> <ol style="list-style-type: none"> <li>1. Infrastructure Planning</li> <li>2. Data Acquisition</li> <li>3. Data Extraction and Enrichment</li> <li>4. Reporting, Alerting, Monitoring</li> <li>5. Dashboards, Forms, and Integration</li> </ol>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Y	Splunk Professional Services provide Splunk experts that collaboratively work customers understand customer requirements/goals to recommend an expansive set of solutions to ensure success. Our professional services team can help you understand and adopt best practices for your enterprise deployment so you can get the most out of your Splunk investment. This guidance includes use-case development, data source identification, architecture guidance, reference architecture scenarios, retention policies, availability, searching capability.
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Two Examples provided:</p> <p>The Nevada Department of Transportation (NDOT), a division of Nevada's state government, has been enhancing public safety and commerce by planning, constructing, operating and maintaining the state's highways. NDOT's information security officer sought better reporting from the department's Internet content filtering solution to document web activity. She was concerned that too many employees believed that hackers are only motivated to steal information that they can monetize and, therefore, NDOT was not at risk. The ISO understood that hackers from rogue nations and elsewhere seek to cause economic and social disruptions, which makes NDOT, responsible for transportation infrastructure, a target. She had to identify the agency's security vulnerabilities and document attempted hacks into its network. However, NDOT's manual processes for system log reviews were tedious, unreliable and often tardy. To gain visibility into network traffic, the ISO needed to systematically collect the logs from various hosts as well as those from web servers. Once NDOT began sending log event data from across their infrastructure into Splunk, they immediately gained operational visibility into security and IT/Ops issues that had previously taken numerous man-hours to</p>

	Requirements	A	B
			<p>resolve.</p> <p>Even prior to the full deployment of Splunk at NDOT, the security team soon found that a variety of networked devices were misconfigured, which potentially compromised security and performance. For example, on the morning a firewall was installed at a remote location, NDOT discovered via Splunk that someone overseas was attempting to use the device to access the network. Thanks to Splunk, the firewall was correctly reconfigured that afternoon to deny such outside connections, plugging what could have been a costly security hole for NDOT. This helped to bolster the agency's defenses and enabled the ISO to verify the many attempts by hackers to penetrate NDOT's network.</p> <p>Once Splunk software was fully implemented at NDOT, it quickly proved to be a valuable tool for gaining insight into challenges across the agency's infrastructure--not just limited to security. For example, when some video feeds from NDOT's traffic video network were not appearing, engineers initially attributed the problem to recently installed anti-virus software. Data collected by Splunk, however, revealed that the video was indeed flowing, but the problem was with the browser used to display the footage.</p> <p>When NDOT's information security officer used Splunk to find that some malicious files sent via FTP were being written to a set of non-public folders, she used Splunk to uncover a faulty script. Upon fixing the problem, she then used Splunk to identify contractors and engineers who no longer use the FTP server and, for another safeguard, closed their accounts. Additionally, after staff had invested several weeks trying to determine why periodically some remote employees were unable to log into the network, insights from Splunk enabled staff to identify the issue and correct it within days.</p> <p>For an unexpected benefit, NDOT has deployed Splunk to improve operational efficiencies. In one case, a large color printer/copier had become extremely costly to own because of its consumption of color inks. When discussions arose about replacing the device with an inkjet printer for each employee in the office, staff collected printing logs in Splunk. They found that the printer's default setting was color rather than black and white, causing excess use of the color cartridges. Resetting the printer turned out to be more cost-effective than replacing it with multiple inkjet printers, a discovery that has saved the department thousands of dollars. They even identified the printer's heaviest users to curtail their usage and further contain costs.</p> <p>McKenney's, Inc., one of the most trusted mechanical contractors in the Southeast, offers a full range of services, including heating, ventilating and air conditioning (HVAC), process piping, plumbing, service and maintenance, and building automation and control systems</p>

	Requirements	A	B
			<p>The McKenney's Automation &amp; Control Solutions (ACS) division provides systems that enable customers to manage their facilities for optimal comfort, cost savings and energy efficiency. One of the greatest challenges in achieving these objectives is integrating the data generated by a wide array of disparate systems and devices used to control discrete building and campus operations, including pumps, valves, thermostats, uninterruptible power supplies (UPSs), power distribution units (PDUs), variable air volume units and many others. The building systems from a single campus or site can be comprised of tens of thousands of devices—monitoring and providing analytics on these represented a big data challenge.</p> <p>In early 2012, McKenney's was enlisted to assist Gulf Power and its partner Chevron Energy Solutions in implementing a new energy management system at Eglin Air Force Base through Gulf Power's GSA contract services in Florida. At 724 square miles, Eglin is one of the largest military bases in the world and includes hundreds of buildings and a base population of about 17,000.</p> <p>The Enterprise Intelligence Group leveraged its in-house experience with Splunk to provide bdoc with continuous collection and aggregation of data from almost any energy management, IT infrastructure or building control system. This enhanced version of bdoc uses Splunk to help monitor and analyze tens of thousands of sensors and data inputs from HVAC systems in more than 100 Eglin buildings.</p> <p>The new Eglin energy management system (EMS) will leverage the Splunk-enhanced bdoc solution to provide dashboards that will help base maintenance staff to assess building performance and energy efficiency, generate automated Air Force/DoD energy usage reports, compare current energy usage with historical data, and enable the deployment of load shedding and load shifting strategies to take advantage of favorable electric rates. The project is projected to save about \$2.5 million annually, with a payback period of less than three years.</p> <p>Eglin is taking advantage of bdoc's native field device integration capabilities and Splunk to provide a common interface for data from every nook of the campus. The Splunk-enabled system will connect to, normalize and present data harvested from thousands of devices from disparate manufacturers and protocols, including a very large HVAC control system and wireless power metering infrastructure.</p> <p>"We've always allowed customers to see what was happening in the three-dimensional space that their facilities occupy, but it was just a real-time view and lacked historical perspective. By using Splunk to capture and index data, we now enable customers to compare averages and see trends in usage."</p> <p>The Splunk-enhanced bdoc solution provides for better fault detection</p>

	Requirements	A	B
			and diagnosis, supports the practice of continuous commissioning, integrates physical infrastructure with business practices, and provides correlation between building and operational intelligence.

## D – Pilot

For each applicable Pilot Category, Carahsoft Technology Corp. has provided specific and detailed responses for each of the proposed solution providers. Each response has been outlined below.

### General:

After contract award, suppliers may be requested to perform one of the pilots recommended below within one year, at no cost to the Commonwealth of Virginia

The pilot should, if possible, utilize actual Commonwealth of Virginia data

Optionally, the pilot may utilize publically available data (e.g. social media, federal) in addition to the Commonwealth data

The pilots should demonstrate specific next-generation analytics functional capabilities

When applicable, pilots should include the construction of a financial business case for tool set implementation

Pilot recommendations should be based on the supplier's application of next-generation analytics tools set by previous state, federal, locality or relevant private sector customers

Pilots should demonstrate the supplier's experience and innovation and include metrics where practical

Proposals do not need to address all of the following pilots. Suppliers may address one or more pilots.

### Pilot 1: Cost Savings and Revenue Enhancement

#### Objectives:

Create a business case for significant cost savings and revenue enhancement through the deployment of a next-generation analytics tool set

The main focus of the business case for the short-term return on investment (ROI) must be costs savings or revenue enhancement; cost avoidance may also be included for long-term only

Fraud prevention is one example of a candidate for this pilot

Cost savings should be identified as early as possible within the business process (i.e. identifying fraudulent tax refunds before they are issued)

The intent is for the Supplier to leverage previous state, federal or locality experience in demonstrating tool capability; relevant private sector experience/innovation may also be relevant

#### Notes:

Supplier suggested approach will need to be approved by the agency hosting the pilot

Supplier will analyze a subset of data using a set of use cases implemented at another state/locality, etc., to predict cost savings and/or revenue enhancement

Supplier will extrapolate predicted cost savings and/or revenue enhancement to entire population as part of the business case

#### Deliverables:

Completed business case; including range of projected cost savings, revenue enhancements, short-term ROI and optionally long-term cost avoidance

Documentation on how the business case was derived, including all calculations and assumptions

References to validate business case and approach

Demonstrated ability for the tool set to learn and self-tune

### Carahsoft Response:

For Pilot 1: Cost Savings and Revenue Enhancement, Carahsoft can meet the Pilot requirements via our Solution Provider, Splunk.

Splunk

Please find Splunk’s response to Pilot 1: Cost Savings and Revenue Enhancement below:

	Requirements	A	B
1	Describe your suggested approach (include Supplier resources necessary to complete the pilot and their general qualifications)	n/a	<p>Splunk would recommend the following process for Pilot #1 upon completion of the mutual agreed upon Pilot document:</p> <p>1. Complete Interactive Value Assessment (IVA) with hosting Agency. The IVA is an internal tool that Splunk uses with prospective customers to create a business case showing return on investment (ROI), hard and soft cost savings, and revenue enhancement.</p> <p>The IVA leverages industry/Splunk customer baseline calculations/assumptions and actuals obtained via interviews conducted with appropriate agency employees. Splunk would collaboratively create this document with the hosting agency to ensure accuracy and full fidelity of the numbers produced.</p> <p>2. Initiate Pilot with hands on evaluation of Splunk Enterprise. First step would be the onboarding of relevant data sources to the use case. Second step would be to begin creating searches/correlations and generation of reports/dashboards relevant to the use case. Splunk technical engineers would be available during the process to offer support and recommendations.</p>
2	What next-generation analytics tool set components would be utilized to perform the pilot?	n/a	Splunk Enterprise would be leveraged for the pilot.
3	What platform would be used?	n/a	Splunk Enterprise
4	Where have you done something similar before? Please provide references that may be contacted concerning this use.	n/a	<p>One of the largest Integrated Eligibility System Portals in the United States leverages Splunk to improve end user experience and detection of fraudulent benefit applications/claims.</p> <p>A large State that was going through a massive 50+ agency data center consolidation recently selected Splunk as the statewide standard for Operational Intelligence. Given the need for a single solution to collect from disparate data sources producing terabytes of data per day, the State selected Splunk to improve its Security Intelligence, detect fraud, and improve application uptime/service delivery to its chargeback customers (the 50+ agencies).</p> <p>During the pilot stage, Splunk and the State conducted an IVA to determine the ROI of the Splunk project. It was determined that the State would save a total of \$24 million per year (\$5 million in reduced expenses, \$7 million in cost avoidance/man hours and \$12 million in</p>

	Requirements	A	B
			risk mitigation).
5	How long would the pilot take?	n/a	Traditional Splunk pilots do not exceed 30 days.
6	Given a go-ahead, how long would it take to start the pilot?	n/a	Within 15 days
7	Which agencies or types of businesses would need to participate and what is the projected agency commitment (what kind of resources and for how long)?	n/a	The participating agencies/types of business would be dependent on the use case. Splunk would work with VITA and hosting agency to determine which parties should be included. In the example pilot for identifying fraudulent tax refunds before they are issued, it is likely that the pilot could include the Department of Taxation, Virginia Information Technology Agency, Virginia Department of Motor Vehicles, and Virginia State Police. Splunk would request technical resources from the Agency and potentially Agency SMEs related to the pilot use case (i.e. Fraud Analyst).

Pilot 2: Efficacy

Objectives:

Identify a sub-group that would receive quantifiable benefits (better outcomes, better coordination of services)

Create a mechanism in which members will only be identifiable to original data source

Leverage previous state, federal or locality experience using their tools to address a similar need

Notes:

Supplier suggested approach will need to be approved by agency hosting pilot

Utilize data from multiple sources

Optionally demonstrate ability to safeguard source data utilizing an anonymizing/resolution or other technique (as defined elsewhere in this document)

Deliverables:

Document a business case that provides the value of implementing this model to the Commonwealth of Virginia

Documentation showing how sub-group was identified

Model showing how sub-group can benefit from interaction (quantified if possible)

Demonstration of how members can only be linked back to source data

Carahsoft Response:

For Pilot 2: Efficacy, Carahsoft can meet the Pilot requirements via our Solution Provider, Splunk.

Splunk

Please find Splunk's response to Pilot 2: Efficacy below:

	Requirements	A	B
1	Describe your suggested approach (include Supplier resources necessary to complete the pilot and their general qualifications)	n/a	<p>1. Prior to initiating pilot, Splunk recommends working with the Commonwealth to determine the sub-group that would benefit most from the deliverables outlined for Pilot #2. Splunk would collaboratively work with the sub-group on the data sources needed and how Splunk can improve outcomes and service delivery/coordinate services.</p> <p>2. Initiate Pilot with hands on evaluation of Splunk Enterprise. First step would be the onboarding of relevant data sources to the use case. Second step would be to begin creating searches/correlations and generation of reports/dashboards relevant to the use case. Splunk technical engineers would be available during the process to offer support and recommendations</p>
2	What next-generation analytics tool set components would be utilized to perform the pilot?	n/a	Splunk Enterprise would be leveraged for the pilot.
3	What platform would be used?	n/a	Splunk Enterprise

	Requirements	A	B
4	Where have you done something similar before? Please provide references that may be contacted concerning this use.	n/a	<p>One of the largest Integrated Eligibility System Portals in the United States leverages Splunk to improve end user experience and detection of fraudulent benefit applications/claims.</p> <p>A large State that was going through a massive 50+ agency data center consolidation recently selected Splunk as the statewide standard for Operational Intelligence. Given the need for a single solution to collect from disparate data sources producing terabytes of data per day, the State selected Splunk to improve its Security Intelligence, detect fraud, and improve application uptime/service delivery to its chargeback customers (the 50+ agencies).</p> <p>During the pilot stage, Splunk and the State conducted an IVA to determine the ROI of the Splunk project. It was determined that the State would save a total of \$24 million per year (\$5 million in reduced expenses, \$7 million in cost avoidance/man hours and \$12 million in risk mitigation).</p>
5	How long would the pilot take?	n/a	Traditional Splunk pilots do not exceed 30 days.
6	Given a go-ahead, how long would it take to start the pilot?	n/a	Within 15 days
7	Which agencies or types of businesses would need to participate and what is the projected agency commitment (what kind of resources and for how long)?	n/a	The participating agencies/types of business would be dependent on the use case. Splunk would work with VITA and hosting agency to determine which parties should be included. Technical resources from the hosting agency would be requirement at the minimum. Use case specific SMEs may also need to be included.

Pilot 3: Predictive Analytics

Objectives:

Process historical data and outcomes in order to create a model that predicts the likelihood that a future event or behavior might occur

Leverage previous state, federal or locality experience using their tools to address a similar need

Notes:

Supplier suggested approach will need to be approved by agency hosting pilot

Evaluate data, choose best algorithm/set of variables that results in the best prediction (using specific elements to do so)

Utilize data from multiple agencies

Deliverables:

Demonstration of ability to select best methodology and variables that predict the highest quality result

Demonstration of resulting predictive equation

Document a business case that provides the value of implementing this model to the Commonwealth of Virginia

Carahsoft Response:

Carahsoft cannot meet the requirements to provide Pilot 3: Predictive Analytics.

Pilot 4: Unstructured Data

Objective:

Leverage natural language processing to understand the meaning and context of human language within textual information, found in multiple data sources such as: documents, reports, email, web content, notes, social media, scanned .pdf files, etc.

Leverage previous state, federal or locality experience using their tools to address a similar need

Notes:

Supplier suggested approach will need to be approved by agency hosting pilot

Develop actionable insights through the identification of trends, patterns and relationships in unstructured data

Use Hadoop or similar technology as part of platform for this pilot

Deliverables:

Live demonstration of functionality being used on Commonwealth of Virginia unstructured data

Carahsoft Response:

For Pilot 4: Efficacy, Carahsoft can meet the Pilot requirements via our Solution Provider, Splunk.

Joint Pilot – Cloudera, Digital Reasoning, Tableau, and Informatica – Pilot 4: Unstructured Data

Please find details outlining Cloudera, Digital Reasoning, Tableau, and Informatica’s Pilot for Unstructured Data in the table below:

	Requirements	A	B
1	Describe your suggested approach (include Supplier resources necessary to complete the pilot and their general qualifications)	n/a	<p>Cloudera's suggested approach for the Pilot describes a process that involves a number of activities that guide the start and completion of the Pilot. Cloudera expertise is at the Hadoop system level of design and implementation. However, full Pilot functionality will also involve the participation of Cloudera partners, Digital Reasoning, and Tableau.</p> <p>The approach is enumerated as follows:</p> <p>Overview of Requirements – Cloudera, Digital Reasoning and Tableau will assess Hadoop application goals and requirements for the Pilot. Cloudera, Digital Reasoning, and Tableau will meet with agencies and development teams to discuss the requirements and any limitations to understand Pilot applicability. In addition, Customer may request Cloudera, Digital Reasoning, and Tableau to address specific topics.</p> <p>Hadoop Application Architecture Review Cloudera, Digital Reasoning and Tableau will review a proposed Hadoop application architecture for the Pilot. This review includes and in depth understanding of the data sources, data processing jobs, analytic processes, and SLAs for published results.</p>

	Requirements	A	B
			<p><b>Data Ingestion Pipeline Review</b> Cloudera, Digital Reasoning, and Tableau will review the Hadoop application's data ingestion pipeline. This review will include an evaluation of the data sources, data ingestion rates, and SLAs for newly arrived data being available for processing.</p> <p><b>Data Schema and Partitioning System Review</b> Cloudera, Digital Reasoning, and Tableau will review the Hadoop application's data schemas and partitioning system. This review will include an evaluation of application data access patterns, how data schemas are managed and evolved, and how effective the partitioning system is in minimizing the working set of individual processing jobs and analytic processes.</p> <p><b>Data Processing Jobs and Analytic Processes Review</b> Cloudera, Digital Reasoning, and Tableau will review any data processing jobs and/or analytic processes that comprise the Hadoop application. This review will included an evaluation of the correctness of any Pig scripts, Hive queries, Impala queries, MapReduce jobs, HBase or other similar processes. Cloudera will evaluate of the efficiency of any data processing jobs and analytic processes. Cloudera, Digital Reasoning, and Tableau will also evaluate the implementation and management of the workflow orchestrating data processing jobs and analytic processes into the complete application.</p> <p><b>Data Publishing and Serving Review</b> Cloudera, Digital Reasoning, and Tableau will review how application results are published to external systems and/or served to end-users.</p> <p><b>Hadoop Cluster Hardware Review</b> Cloudera will review Customer's cluster hardware including the number of nodes, node specifications, and network architecture. Cloudera will evaluate the cluster's suitability to the Hadoop application based on data volumes, data processing job implementation, analytic processes, and data publishing requirements.</p> <p><b>Hadoop Tests and Benchmarking</b> Cloudera will run standard and specialized performance tests to detect bottlenecks and suggest improvements. Cloudera, Digital Reasoning, and Tableau will provide minimally 1 resource per company that have several years of expertise in experience in Hadoop, Natural Language Processing, and Business Intelligence and Visualization.</p>
2	What next-generation analytics	n/a	Cloudera Enterprise Data Hub (EDH) supports a big data approach toward next generation analytics and is built on open

	Requirements	A	B
	tool set components would be utilized to perform the pilot?		source Hadoop at the core, it is a single central system to store and work with all data, with the flexibility to run a variety of enterprise workloads - including batch processing, interactive SQL, enterprise search and advanced analytics - together with the integrations to existing systems, robust security, governance, data protection, and management that enterprises require. Cloudera EDH previously mentioned frameworks when combined with the application capabilities of Digital Reasoning, and Tableau facilitate the development and implementation of exploratory/descriptive and predictive analytic capabilities.
3	What platform would be used?	n/a	Cloudera Enterprise Data Hub (EDH) is the Hadoop platform that will provide big data functions and frameworks that support data ingest, storage, transformation, and integration. Cloudera Enterprise Data Hub is implemented on a Hadoop cluster that is an organization of several rack-mounted x86 server support current versions of the Linux Operating System. Application functionality that will support use case goals for the pilot will be satisfied by Digital Reasoning and Tableau. Each product integrates and directly uses the services and features of the Cloudera Enterprise Data Hub.
4	Where have you done something similar before? Please provide references that may be contacted concerning this use.	n/a	While this solution is being piloted in a unique fashion – in terms of utilizing a joint partnership for a pilot demonstration – the joint pilot of Cloudera, Digital Reasoning, Tableau, and Informatica is based on many smaller pre-existing partnerships in which such demonstrations have been successfully completed on many occasions.
5	How long would the pilot take?	n/a	Planning and implementation of a Hadoop cluster typically takes 2-3 weeks if x86 server hardware is already provisioned.
6	Given a go-ahead, how long would it take to start the pilot?	n/a	Cloudera estimates minimally 1 month start pilot and engage initial discussions.
7	Which agencies or types of businesses would need to participate and what is the projected agency commitment (what kind of resources and for how long)?	n/a	VITA requirements outlined earlier suggest that vendors require liaison for technical system actions and access to Commonwealth agency data that are part of Commonwealth hardware/software systems. Our expectation is that a project plan will be developed and identify VITA and agency stakeholders and resources that are assigned to the unstructured data pilot and will be available for the run length of the pilot to ensure successful completion based on agreed success criteria for the pilot.



**EXHIBIT B PRICING**  
**CONTRACT NUMBER VA-150915-CARA**  
**BETWEEN**  
**VIRGINIA INFORMATION TECHNOLOGIES AGENCY**  
**AND**  
**CARASOFT TECHNOLOGY CORPORATION**

Exhibit B is hereby incorporated into and made an integral part of Contract Number VA-150915-CARA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Carahsoft Technology Corporation (“Supplier”).

In the event of any discrepancy between this Exhibit B and the Contract, the provisions of the Contract shall control.

Manufacturer	Part Number	Description	List Price	VITA Discount	VITA Price
cloudera	CDS-A	Cloudera Center of Excellence: Full deployment - use case discovery deployment data ingestion information architecture data serving process & team development final development certification up to 100 nodes.	\$395,000.00	6.00%	\$371,300.00
cloudera	CDS-CC	Cloudera Cluster Certification	\$20,000.00	6.00%	\$18,800.00
cloudera	CDS-D	Cloudera Hadoop Cluster Deployment Covers new installs upgrades or certifying existing clusters 100 nodes or less. 1 week plus documentation time.	\$20,000.00	6.00%	\$18,800.00
cloudera	CDS-E	Cloudera Hadoop ETL Pilot: Ingestion and ETL pilot focused on getting data into the system based on a defined use case. Includes 3 sources 5 transformations and 1 sink. Up to 2 weeks plus documentation time.	\$40,000.00	6.00%	\$37,600.00
cloudera	CDS-ESI	Cloudera EDH Security Integration	\$50,000.00	6.00%	\$47,000.00
cloudera	CDS-HBC	Cloudera HBase Certification	\$65,000.00	6.00%	\$61,100.00
cloudera	CDS-HR-A	Cloudera Solutions Architect for available software hourly rate (Minimum 1 week engagement)	\$400.00	6.00%	\$376.00
cloudera	CDS-HR-C	Cloudera Solutions Consultant for available software hourly rate (Minimum 1 week engagement)	\$350.00	6.00%	\$329.00
cloudera	CDS-HR-DM	Cloudera Services Delivery Manager for available software hourly rate (Minimum 1 week engagement)	\$225.00	6.00%	\$211.50
cloudera	CDS-HR-PA	Cloudera Principal Solutions Architect for available software hourly rate (Minimum 1 week engagement)	\$500.00	6.00%	\$470.00
cloudera	CDS-HR-S	Cloudera Data Scientist for available software hourly rate (Minimum 1 week engagement)	\$650.00	6.00%	\$611.00

cloudera	CDS-HR-SA	Cloudera Senior Solutions Architect for available software hourly rate (Minimum 1 week engagement)	\$450.00	6.00%	\$423.00
cloudera	CDS-HR-SDM	Cloudera Senior Services Delivery Manager for available software hourly rate (Minimum 1 week engagement)	\$250.00	6.00%	\$235.00
cloudera	CDS-HR-SPA	Cloudera Senior Principal Solutions Architect for available software hourly rate (Minimum 1 week engagement)	\$550.00	6.00%	\$517.00
cloudera	CDS-P	Cloudera Hadoop Production Readiness: Includes cluster certification assessment and recommendations for application architecture Development Team and Operations Support Team. Up to 4 weeks plus documentation time.	\$75,000.00	6.00%	\$70,500.00
cloudera	CDS-Y	Cloudera Hadoop Analytics Pilot: Application Pilot focused on descriptive analytics using Hive Pig or Impala applications. Up to 2 weeks plus documentation time.	\$40,000.00	6.00%	\$37,600.00
cloudera	CDT-A10	Cloudera Developer Private Training 10 Cloudera Admin Private Training 10 Three Day Private Training for Cloudera Administration for up to 10 students	\$26,000.00	6.00%	\$24,440.00
cloudera	CDT-A20	Cloudera Admin Private Training for up to 20 students	\$36,000.00	6.00%	\$33,840.00
cloudera	CDT-ACM	Cloudera Admin Private Training - Cloudera Manager	\$36,000.00	6.00%	\$33,840.00
cloudera	CDT-ACM10	Cloudera Admin Private Training 10 - Cloudera Manager	\$26,000.00	6.00%	\$24,440.00
cloudera	CDT-AN	Cloudera Data Analyst Private Training for up to 20 students (three days)	\$27,000.00	6.00%	\$25,380.00
cloudera	CDT-AN10	Cloudera Data Analyst Private Training for up to 10 students (three days)	\$19,500.00	6.00%	\$18,330.00
cloudera	CDT-BD	Cloudera Big Data Applications Private Training	\$36,000.00	6.00%	\$33,840.00
cloudera	CDT-BD10	Cloudera Big Data Applications Private Training	\$26,000.00	6.00%	\$24,440.00

		10			
cloudera	CDT-CR	Cloudera Training Credit - A credit which can be prepurchased and used for any type of private or public Cloudera training offering. Each Training Credit has a value of \$1 (USD) as applied to the sale price of any training offering. The minimum credi	\$1.00	6.00%	\$0.94
cloudera	CDT-D	Cloudera Developer Private Training for up to 20 students	\$36,000.00	6.00%	\$33,840.00
cloudera	CDT-D10	Cloudera Developer Private Training 10 Four Day Cloudera Developer Training and Certification for 10 students	\$26,000.00	6.00%	\$24,440.00
cloudera	CDT-DS	Cloudera Introduction to Data Science Private Training for up to 20 students	\$27,000.00	6.00%	\$25,380.00
cloudera	CDT-DS10	Cloudera Introduction to Data Science Private Training for up to 10 students	\$19,500.00	6.00%	\$18,330.00
cloudera	CDT-E	Cloudera Essentials Private Training	\$9,000.00	6.00%	\$8,460.00
cloudera	CDT-E10	Cloudera Essentials Private Training 10	\$6,500.00	6.00%	\$6,110.00
cloudera	CDT-HB	Cloudera Hbase Private Training for up to 20 students (four days)	\$36,000.00	6.00%	\$33,840.00
cloudera	CDT-HB-10	Cloudera Hbase Private Training for up to 10 students (four days)	\$26,000.00	6.00%	\$24,440.00
cloudera	CDT-M	Cloudera Essentials One Day Cloudera Hadoop Essentials for Managers up to 20 students	\$9,000.00	6.00%	\$8,460.00
cloudera	CDT-M10	Cloudera Essentials Private Training 10 One Day Cloudera Hadoop Essentials Training for up to 10 students	\$6,500.00	6.00%	\$6,110.00
cloudera	CDT-M10-B	Cloudera Enterprise Private Training for up to 10 students (must be sold with Cloudera Admin Private Training)	\$6,500.00	6.00%	\$6,110.00
cloudera	CDT-M-B	Cloudera Enterprise Private Training for up to 20 students (must be sold with Cloudera Admin Private Training)	\$9,000.00	6.00%	\$8,460.00

cloudera	CDT-PA	Cloudera Public Administrator Training (four days; redeemable for Cloudera-delivered classes only)	\$2,995.00	6.00%	\$2,815.30
cloudera	CDT-PAN	Cloudera Public Analyst Training (three days; redeemable for Cloudera-delivered classes only)	\$2,295.00	6.00%	\$2,157.30
cloudera	CDT-PB	Cloudera Public HBase Training (four days; redeemable for Cloudera-delivered classes only)	\$2,995.00	6.00%	\$2,815.30
cloudera	CDT-PBD	Cloudera Big Data Applications Public Training	\$3,295.00	6.00%	\$3,097.30
cloudera	CDT-PD	Cloudera Public Developer Training (four days; redeemable for Cloudera-delivered classes only)	\$2,995.00	6.00%	\$2,815.30
cloudera	CDT-PDS	Cloudera Public Data Science Training (three days; redeemable for Cloudera-delivered classes only)	\$2,295.00	6.00%	\$2,157.30
cloudera	CDT-PM	Cloudera Essentials Public Training	\$995.00	6.00%	\$935.30
cloudera	CDT-PSP	Cloudera Spark Public Training	\$2,295.00	6.00%	\$2,157.30
cloudera	CDT-SP	Cloudera Spark Private Training	\$27,000.00	6.00%	\$25,380.00
cloudera	CDT-SP10	Cloudera Spark Private Training 10	\$19,500.00	6.00%	\$18,330.00
cloudera	CDT-TC	Cloudera Training Credit Redeemable for public classes (minimum purchase of 100 credits)	\$100.00	6.00%	\$94.00
cloudera	CEBC-247	Annual subscription (per TB) for the Basic Edition of the Cloudera Enterprise platform. Includes a commercial license and Support for all components of Cloudera's platform with the exceptions of Apache HBase Apache Accumulo Cloudera Impala Cloudera S	\$178.00	6.00%	\$167.32
cloudera	CEBC-247-I	Cloudera Enterprise Basic Edition + Indemnification Capacity License 24x7	\$230.00	6.00%	\$216.20

cloudera	CEBC-85	Annual subscription (per TB) for the Basic Edition of the Cloudera Enterprise platform. Includes a commercial license and Support for all components of Cloudera's platform with the exceptions of Apache HBase Cloudera Impala Cloudera Search Apache Spa	\$139.00	6.00%	\$130.66
cloudera	CEBC-85-I	Cloudera Enterprise Basic Edition + Indemnification Capacity License 8x5	\$180.00	6.00%	\$169.20
cloudera	CEBC-IS-247	Cloudera Enterprise for EMC Isilon Basic Edition 24x7	\$230.00	6.00%	\$216.20
cloudera	CEBC-IS-247-I	Cloudera Enterprise for EMC Isilon Basic Edition + Indemnification 24x7	\$230.00	6.00%	\$216.20
cloudera	CEBC-IS-85	Cloudera Enterprise for EMC Isilon Basic Edition 8x5	\$180.00	6.00%	\$169.20
cloudera	CEBC-IS-85-I	Cloudera Enterprise for EMC Isilon Basic Edition + Indemnification 8x5	\$180.00	6.00%	\$169.20
cloudera	CEBN-247	Annual subscription (per node) for the Basic Edition of the Cloudera Enterprise platform. Includes a commercial license and Support for all components of Cloudera's platform with the exceptions of Apache HBase Apache Accumulo Cloudera Impala Cloudera	\$2,304.00	6.00%	\$2,165.76
cloudera	CEBN-247-I	Cloudera Enterprise Basic Edition + Indemnification Node License 24x7	\$2,304.00	6.00%	\$2,165.76
cloudera	CEBN-85	Annual subscription (per node) for the Basic Edition of the Cloudera Enterprise platform. Includes a commercial license and Support for all components of Cloudera's platform with the exceptions of Apache HBase Cloudera Impala Cloudera Search Apache	\$1,800.00	6.00%	\$1,692.00
cloudera	CEBN-85-I	Cloudera Enterprise Basic Edition + Indemnification Node License 8x5	\$1,800.00	6.00%	\$1,692.00

cloudera	CEC-247	Cloudera Enterprise Core 24x7: CDH + Annual subscription (per node) for Cloudera Manager and Technical Support (not including optional components and services). Support available 24 hours a day 7 days a week.	\$3,328.00	6.00%	\$3,128.32
cloudera	CEC-85	Cloudera Enterprise Core 8x5: CDH + Annual subscription (per node) for Cloudera Manager and Technical Support (not including optional components and services). Support available Monday through Friday during customer's local	\$2,600.00	6.00%	\$2,444.00
cloudera	CEDC-247	Annual subscription (per TB) for the Data Hub Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all of Cloudera's platform software. Support available 24 hours per day 7 days per week	\$552.00	6.00%	\$518.88
cloudera	CEDC-247P	Annual subscription (per TB) for the Data Hub Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all of Cloudera's platform software. Support available 24 hours per day 7 days per week plus a 15	\$617.00	6.00%	\$579.98
cloudera	CEDC-85	Annual subscription (per TB) for the Data Hub Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all of Cloudera's platform software. Support available Monday to Friday 8AM to 5PM customer's local	\$431.00	6.00%	\$405.14
cloudera	CEDC-IS-247	Cloudera Enterprise for EMC Isilon Data Hub Edition 24x7	\$717.00	6.00%	\$673.98
cloudera	CEDC-IS-247P	Cloudera Enterprise for EMC Isilon Data Hub Edition 24x7 Premium	\$801.00	6.00%	\$752.94
cloudera	CEDC-IS-85	Cloudera Enterprise for EMC Isilon Data Hub Edition 8x5	\$560.00	6.00%	\$526.40

cloudera	CEDN-247	Annual subscription (per node) for the Data Hub Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all of Cloudera's platform software. Support available 24 hours per day 7 days per week	\$7,168.00	6.00%	\$6,737.92
cloudera	CEDN-247P	Annual subscription (per node) for the Data Hub Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all of Cloudera's platform software. Support available 24 hours per day 7 days per week plus a	\$8,008.00	6.00%	\$7,527.52
cloudera	CEDN-85	Annual subscription (per node) for the Data Hub Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all of Cloudera's platform software. Support available Monday to Friday 8AM to 5PM customer's slo	\$5,600.00	6.00%	\$5,264.00
cloudera	CEFC-247	Annual subscription (per TB) for the Flex Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all components included in the Basic Edition plus the choice of ONE of the following: Apache HBase Ap	\$384.00	6.00%	\$360.96
cloudera	CEFC-247P	Annual subscription (per TB) for the Flex Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all components included in the Basic Edition plus the choice of ONE of the following: Apache HBase Ap	\$429.00	6.00%	\$403.26
cloudera	CEFC-85	Annual subscription (per TB) for the Flex Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all components included in the	\$300.00	6.00%	\$282.00

		Basic Edition plus the choice of ONE of the following: Apache HBase Ap			
cloudera	CEFC-IS-247	Cloudera Enterprise for EMC Isilon Flex Edition 24x7	\$499.00	6.00%	\$469.06
cloudera	CEFC-IS-247P	Cloudera Enterprise for EMC Isilon Flex Edition 24x7 Premium	\$558.00	6.00%	\$524.52
cloudera	CEFC-IS-85	Cloudera Enterprise for EMC Isilon Flex Edition 8x5	\$390.00	6.00%	\$366.60
cloudera	CEFN-247	Annual subscription (per node) for the Flex Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all components included in the Basic Edition plus the choice of ONE of the following: Apache HBase	\$4,992.00	6.00%	\$4,692.48
cloudera	CEFN-247P	Annual subscription (per node) for the Flex Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all components included in the Basic Edition plus the choice of ONE of the following: Apache HBase	\$5,577.00	6.00%	\$5,242.38
cloudera	CEFN-85	Annual subscription (per node) for the Flex Edition of the Cloudera Enterprise platform. Includes a commercial license indemnification and Support for all components included in the Basic Edition plus the choice of ONE of the following: Apache HBase	\$3,900.00	6.00%	\$3,666.00
cloudera	CEQS-0001	Cloudera Quickstart: Data Processing: 8-month/20-node Cloudera Enterprise Core subscription w/8x5 Support 2 seats of public Administrator Training 4 seats of public Developer training and a Professional Services engagement	\$75,000.00	6.00%	\$70,500.00

cloudera	CEQS-0002	Cloudera Quickstart: Data Analytics: 8-month/20-node Cloudera Enterprise Core and RTQ subscriptions w/8x5 Support 2 seats of public Administrator Training 2 seats of public Developer Training 2 seats of public Hive/Pig Tra	\$75,000.00	6.00%	\$70,500.00
cloudera	CE-RTD-247	Cloudera Enterprise RTD 24x7: Annual subscription (per node) to add monitoring management and technical support for Hbase. Support available 24 hours a day 7 days a week. Requires subscription to Cloudera Enterprise Core.	\$1,664.00	6.00%	\$1,564.16
cloudera	CE-RTD-85	Cloudera Enterprise RTD 8x5: Annual subscription (per node) to add monitoring management and technical support for Hbase. Support available Monday to Friday during customer's local business hours. Requires subscription to Cl	\$1,300.00	6.00%	\$1,222.00
cloudera	CE-RTQ-247	Cloudera Enterprise RTQ 24 x 7: Annual subscription (per node) to add monitoring management and technical support for Cloudera Impala. Support available 24 hours a day 7 days a week. Requires a subscription to Cloudera Enter	\$1,920.00	6.00%	\$1,804.80
cloudera	CE-RTQ-85	Cloudera Enterprise RTQ 8 x 5: Annual subscription (per node) to add monitoring management and technical support for Cloudera Impala. Support available Monday to Friday during customer's local business hours. Requires a subs	\$1,500.00	6.00%	\$1,410.00
cloudera	DSE-01	Designated Support Engineer - Tier 1	\$95,000.00	6.00%	\$89,300.00
cloudera	DSE-02	Designated Support Engineer - Tier 2	\$175,000.00	6.00%	\$164,500.00
cloudera	DSE-03	Designated Support Engineer - Tier 3	\$250,000.00	6.00%	\$235,000.00

cloudera	EB-AA	EDH for Advanced Analytics Enablement Bundle - Services and training bundle focused on deploying Cloudera's platform for Advanced Analytics use cases. Includes a Cloudera Analytics Pilot (CDS-AP) Cloudera Admin Private Training for up to 10 students	\$85,500.00	6.00%	\$80,370.00
cloudera	EB-BAS	Cloudera Enterprise Basic Enablement Bundle - Services and training bundle focused on basic cluster deployment and team enablement. Includes a Cloudera Cluster Certification (CDS-CC) and 30000 Cloudera Training Credits (CDT-CR)	\$50,000.00	6.00%	\$47,000.00
cloudera	EB-DW	EDH for Data Warehousing Enablement Bundle - Services and training bundle focused on deploying Cloudera's platform for data warehouse optimization. Includes a Cloudera ETL Pilot (CDS-ETL) Cloudera Developer Private Training for up to 10 students (CDT	\$92,000.00	6.00%	\$86,480.00
cloudera	EB-ODS	EDH for ODS Enablement Bundle - Services and training bundle focused on deploying Cloudera's platform as an Operational Data Store (ODS). Includes a Cloudera ETL Pilot (CDS-ETL) Cloudera EDH Security Integration (CDS-ESI) Cloudera Admin Private Train	\$135,500.00	6.00%	\$127,370.00
cloudera	EB-SIEM	EDH for SIEM Enablement Bundle - Services and training bundle focused on deploying Cloudera's platform for Security Information and Event Management (SIEM) use cases. Includes a Cloudera ETL Pilot (CDS-ETL) a Cloudera Analytics Pilot (CDS-AP) Clouder	\$125,500.00	6.00%	\$117,970.00
cloudera	RSA-01	Resident Architect - Tier 1	\$43,200.00	6.00%	\$40,608.00
cloudera	RSA-02	Resident Architect - Tier 2	\$86,400.00	6.00%	\$81,216.00
cloudera	RSA-03	Resident Architect - Tier 3	\$129,600.00	6.00%	\$121,824.00
cloudera	RSA-04	Resident Architect - Tier 4	\$216,000.00	6.00%	\$203,040.00

cloudera	SMBD-0805	Cloudera Enterprise BDR 8 x 5: Annual subscription (per node) to license the backup and disaster recovery module of Cloudera Manager. Support available Monday to Friday during customer's local business hours. Requires subscri	\$400.00	6.00%	\$376.00
cloudera	SMBD-2407	Cloudera Enterprise BDR 24 x 7: Annual subscription (per node) to license the backup and disaster recovery module of Cloudera Manager. Support available 24 hours a day 7 days a week. Requires subscription to Cloudera Enterpr	\$512.00	6.00%	\$481.28
cloudera	SMCN-0805	Cloudera Navigator 8 x 5: Annual subscription (per node) to license Cloudera Navigator for data management. Support available Monday to Friday during customer's local business hours. Requires a subscription to Cloudera Enterp	\$500.00	6.00%	\$470.00
cloudera	SMCN-2407	Cloudera Navigator 24 x 7: Annual subscription (per node) to license Cloudera Navigator for data management. Support available 24 hours a day 7 days a week. Requires a subscription to Cloudera Enterprise Core	\$640.00	6.00%	\$601.60
Digital Reasoning	DATA1	Structured/Unstructured Data Integration û 1 Day	\$2,625.00	5.00%	\$2,493.75
Digital Reasoning	DATA5	Structured/Unstructured Data Integration û 5 Days	\$10,500.00	5.00%	\$9,975.00
Digital Reasoning	PERNA1	Domain Specialized Tagging Services (Peruna Based Tuning Services) û 1 Day	\$2,100.00	5.00%	\$1,995.00
Digital Reasoning	PERNA5	Domain Specialized Tagging Services (Peruna Based Tuning Services) û 5 Days	\$8,400.00	5.00%	\$7,980.00
Digital Reasoning	SYN-009	Synthesys Single Site Named Program Perpetual Server License --up to 9 Physical Servers* (requires Synthesys Single Site Perpetual User	\$262,500.00	5.00%	\$249,375.00

		License)			
Digital Reasoning	SYN-C1	Synthesys Single Site Named Program Annual Term Server License -- up to 9 Physical Servers* (requires Synthesys Annual Term User License)	\$105,000.00	5.00%	\$99,750.00
Digital Reasoning	SYNCLINST	Synthesys Cloud Set-up and Install (Remote Only)	\$2,100.00	5.00%	\$1,995.00
Digital Reasoning	SYN-CU1	Synthesys Single Site Named Program Annual Term User License Per User Annual Fee (requires Synthesys Annual Term Server License)	\$420.00	5.00%	\$399.00
Digital Reasoning	SYNINST	On Premise Synthesys Installation (Includes Initial Synthesys installation for one location less than 50 physical servers)	\$15,750.00	5.00%	\$14,962.50
Digital Reasoning	SYN-MAINT009	Synthesys Single Site Named Program Annual Software Maintenance (One Year) -- Up to 9 Servers	\$57,750.00	5.00%	\$54,862.50
Digital Reasoning	SYN-MAINT-U1	Synthesys Single Site Named Program Annual Software Maintenance (One Year) Per User	\$92.40	5.00%	\$87.78
Digital Reasoning	SYN-U1	Synthesys Single Site Named Program Perpetual User License per user (requires Single Site Perpetual Server License)	\$1,050.00	5.00%	\$997.50
Digital Reasoning	SYSTRAIN1	Synthesys Administration Training Class 6 Hours Up to 10 students at customer location	\$4,200.00	5.00%	\$3,990.00
Digital Reasoning	SYSTRAIN2	Synthesys KBQL API Training Class 6 Hours Up to 10 students at customer location	\$4,200.00	5.00%	\$3,990.00
Digital Reasoning	SYSTRAIN3	Synthesys Data Ingestion and Schema Mapping Training 6 Hours Up to 10 students at customer location	\$4,200.00	5.00%	\$3,990.00
Informatica	9048-32007	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production License	\$11,400.00	17.50%	\$9,405.00

Informatica	9048-32008	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production Standard Maintenance	\$2,280.00	18.50%	\$1,858.20
Informatica	9048-32009	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$2,508.00	18.50%	\$2,044.02
Informatica	9048-32010	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production Standard Renewal Maintenance	\$2,280.00	18.50%	\$1,858.20
Informatica	9048-32011	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production Enterprise Renewal Maintenance	\$2,508.00	18.50%	\$2,044.02
Informatica	9048-32012	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production ELA Mission Critical Maintenance	\$2,052.00	18.50%	\$1,672.38
Informatica	9048-32013	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production ELA Mission Critical Renewal Maintenance	\$2,052.00	18.50%	\$1,672.38
Informatica	9048-32014	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production Mission Critical Maintenance	\$2,850.00	18.50%	\$2,322.75
Informatica	9048-32015	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production Mission Critical Renewal Maintenance	\$2,850.00	18.50%	\$2,322.75
Informatica	9048-32016	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production ELA Premium Renewal Maintenance	\$1,824.00	18.50%	\$1,486.56
Informatica	9048-32017	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production ELA Premium Maintenance	\$1,824.00	18.50%	\$1,486.56
Informatica	9048-32018	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production License	\$10,300.00	17.50%	\$8,497.50

Informatica	9048-32019	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production Standard Maintenance	\$2,060.00	18.50%	\$1,678.90
Informatica	9048-32020	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$2,266.00	18.50%	\$1,846.79
Informatica	9048-32021	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production Standard Renewal Maintenance	\$2,060.00	18.50%	\$1,678.90
Informatica	9048-32022	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production Enterprise Renewal Maintenance	\$2,266.00	18.50%	\$1,846.79
Informatica	9048-32023	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production ELA Mission Critical Maintenance	\$1,854.00	18.50%	\$1,511.01
Informatica	9048-32024	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production ELA Mission Critical Renewal Maintenance	\$1,854.00	18.50%	\$1,511.01
Informatica	9048-32025	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production Mission Critical Maintenance	\$2,575.00	18.50%	\$2,098.63
Informatica	9048-32026	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production Mission Critical Renewal Maintenance	\$2,575.00	18.50%	\$2,098.63
Informatica	9048-32027	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production ELA Premium Renewal Maintenance	\$1,648.00	18.50%	\$1,343.12
Informatica	9048-32028	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production ELA Premium Maintenance	\$1,648.00	18.50%	\$1,343.12
Informatica	9048-32029	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production License	\$9,300.00	17.50%	\$7,672.50

Informatica	9048-32030	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production Standard Maintenance	\$1,860.00	18.50%	\$1,515.90
Informatica	9048-32031	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$2,046.00	18.50%	\$1,667.49
Informatica	9048-32032	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production Standard Renewal Maintenance	\$1,860.00	18.50%	\$1,515.90
Informatica	9048-32033	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production Enterprise Renewal Maintenance	\$2,046.00	18.50%	\$1,667.49
Informatica	9048-32034	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production ELA Mission Critical Maintenance	\$1,674.00	18.50%	\$1,364.31
Informatica	9048-32035	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production ELA Mission Critical Renewal Maintenance	\$1,674.00	18.50%	\$1,364.31
Informatica	9048-32036	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production Mission Critical Maintenance	\$2,325.00	18.50%	\$1,894.88
Informatica	9048-32037	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production Mission Critical Renewal Maintenance	\$2,325.00	18.50%	\$1,894.88
Informatica	9048-32038	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production ELA Premium Renewal Maintenance	\$1,488.00	18.50%	\$1,212.72
Informatica	9048-32039	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production ELA Premium Maintenance	\$1,488.00	18.50%	\$1,212.72
Informatica	9048-32040	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production License	\$8,400.00	17.50%	\$6,930.00

Informatica	9048-32041	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production Standard Maintenance	\$1,680.00	18.50%	\$1,369.20
Informatica	9048-32042	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$1,848.00	18.50%	\$1,506.12
Informatica	9048-32043	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production Standard Renewal Maintenance	\$1,680.00	18.50%	\$1,369.20
Informatica	9048-32044	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production Enterprise Renewal Maintenance	\$1,848.00	18.50%	\$1,506.12
Informatica	9048-32045	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production ELA Mission Critical Maintenance	\$1,512.00	18.50%	\$1,232.28
Informatica	9048-32046	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production ELA Mission Critical Renewal Maintenance	\$1,512.00	18.50%	\$1,232.28
Informatica	9048-32047	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production Mission Critical Maintenance	\$2,100.00	18.50%	\$1,711.50
Informatica	9048-32048	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production Mission Critical Renewal Maintenance	\$2,100.00	18.50%	\$1,711.50
Informatica	9048-32049	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production ELA Premium Renewal Maintenance	\$1,344.00	18.50%	\$1,095.36
Informatica	9048-32050	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production ELA Premium Maintenance	\$1,344.00	18.50%	\$1,095.36
Informatica	9048-32202	Informatica Big Data Governance Edition (0-99) per Node 1 yr (S) Production License	\$3,500.00	0.00%	\$3,500.00

Informatica	9048-32203	Informatica Big Data Governance Edition (100-249) per Node 1 yr (S) Production License	\$3,150.00	0.00%	\$3,150.00
Informatica	9048-32204	Informatica Big Data Governance Edition (250-499) per Node 1 yr (S) Production License	\$2,800.00	0.00%	\$2,800.00
Informatica	9048-32205	Informatica Big Data Governance Edition (500+) per Node 1 yr (S) Production License	\$2,450.00	0.00%	\$2,450.00
Informatica	9048-32206	Informatica Big Data Governance Edition (0-99) per Node 2 yr (S) Production License	\$3,150.00	0.00%	\$3,150.00
Informatica	9048-32207	Informatica Big Data Governance Edition (100-249) per Node 2 yr (S) Production License	\$2,835.00	0.00%	\$2,835.00
Informatica	9048-32208	Informatica Big Data Governance Edition (250-499) per Node 2 yr (S) Production License	\$2,520.00	0.00%	\$2,520.00
Informatica	9048-32209	Informatica Big Data Governance Edition (500+) per Node 2 yr (S) Production License	\$2,205.00	0.00%	\$2,205.00
Informatica	9048-32210	Informatica Big Data Governance Edition (0-99) per Node 3 yr (S) Production License	\$2,800.00	0.00%	\$2,800.00
Informatica	9048-32211	Informatica Big Data Governance Edition (100-249) per Node 3 yr (S) Production License	\$2,520.00	0.00%	\$2,520.00
Informatica	9048-32212	Informatica Big Data Governance Edition (250-499) per Node 3 yr (S) Production License	\$2,240.00	0.00%	\$2,240.00
Informatica	9048-32213	Informatica Big Data Governance Edition (500+) per Node 3 yr (S) Production License	\$1,960.00	0.00%	\$1,960.00
Informatica	9048-32236	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$2,508.00	18.50%	\$2,044.02
Informatica	9048-32237	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$2,266.00	18.50%	\$1,846.79
Informatica	9048-32238	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$2,046.00	18.50%	\$1,667.49

Informatica	9048-32239	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$1,848.00	18.50%	\$1,506.12
Informatica	9048-32240	Informatica Big Data Governance Edition (0-99) per Node Multi-core Multi-OS Production License	\$11,400.00	17.50%	\$9,405.00
Informatica	9048-32241	Informatica Big Data Governance Edition (100-249) per Node Multi-core Multi-OS Production License	\$10,300.00	17.50%	\$8,497.50
Informatica	9048-32242	Informatica Big Data Governance Edition (250-499) per Node Multi-core Multi-OS Production License	\$9,300.00	17.50%	\$7,672.50
Informatica	9048-32243	Informatica Big Data Governance Edition (500+) per Node Multi-core Multi-OS Production License	\$8,400.00	17.50%	\$6,930.00
Informatica	9048-32227	Informatica Big Data Relationship Management (0-99) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$10,032.00	18.50%	\$8,176.08
Informatica	9048-32228	Informatica Big Data Relationship Management (100-249) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$9,064.00	18.50%	\$7,387.16
Informatica	9048-32229	Informatica Big Data Relationship Management (250-499) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$8,184.00	18.50%	\$6,669.96
Informatica	9048-32230	Informatica Big Data Relationship Management (500+) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$7,392.00	18.50%	\$6,024.48
Informatica	9048-32231	Big Data Relationship Management (1-3) per CPU-cores Multi-core Multi-OS Development Lab Enterprise Maintenance	\$4,400.00	18.50%	\$3,586.00
Informatica	9048-32232	Big Data Relationship Management (4-7) per CPU-cores Multi-core Multi-OS Development Lab Enterprise Maintenance	\$3,300.00	18.50%	\$2,689.50

Informatica	9048-32233	Big Data Relationship Management (8-11) per CPU-cores Multi-core Multi-OS Development Lab Enterprise Maintenance	\$2,640.00	18.50%	\$2,151.60
Informatica	9048-32234	Big Data Relationship Management (12+) per CPU-cores Multi-core Multi-OS Development Lab Enterprise Maintenance	\$2,090.00	18.50%	\$1,703.35
Informatica	9048-32235	Big Data Relationship Management Unlimited CPU-cores per Environment Multi-core Multi-OS Development Lab Enterprise Maintenance	\$46,200.00	18.50%	\$37,653.00
Informatica	9048-32181	Informatica Big Data Relationship Management (0-99) per Node Multi-core Multi-OS Production License	\$45,600.00	17.50%	\$37,620.00
Informatica	9048-32182	Informatica Big Data Relationship Management (100-249) per Node Multi-core Multi-OS Production License	\$41,200.00	17.50%	\$33,990.00
Informatica	9048-32183	Informatica Big Data Relationship Management (250-499) per Node Multi-core Multi-OS Production License	\$37,200.00	17.50%	\$30,690.00
Informatica	9048-32184	Informatica Big Data Relationship Management (500+) per Node Multi-core Multi-OS Production License	\$33,600.00	17.50%	\$27,720.00
Informatica	9048-32185	Informatica Big Data Relationship Management (0-99) per Node 1 yr (S) Production License	\$14,000.00	0.00%	\$14,000.00
Informatica	9048-32186	Informatica Big Data Relationship Management (100-249) per Node 1 yr (S) Production License	\$12,600.00	0.00%	\$12,600.00
Informatica	9048-32187	Informatica Big Data Relationship Management (250-499) per Node 1 yr (S) Production License	\$11,200.00	0.00%	\$11,200.00
Informatica	9048-32188	Informatica Big Data Relationship Management (500+) per Node 1 yr (S) Production License	\$9,800.00	0.00%	\$9,800.00
Informatica	9048-32189	Informatica Big Data Relationship Management (0-99) per Node 2 yr (S) Production License	\$12,600.00	0.00%	\$12,600.00

Informatica	9048-32190	Informatica Big Data Relationship Management (100-249) per Node 2 yr (S) Production License	\$11,340.00	0.00%	\$11,340.00
Informatica	9048-32191	Informatica Big Data Relationship Management (250-499) per Node 2 yr (S) Production License	\$10,080.00	0.00%	\$10,080.00
Informatica	9048-32192	Informatica Big Data Relationship Management (500+) per Node 2 yr (S) Production License	\$8,820.00	0.00%	\$8,820.00
Informatica	9048-32193	Informatica Big Data Relationship Management (0-99) per Node 3 yr (S) Production License	\$11,200.00	0.00%	\$11,200.00
Informatica	9048-32194	Informatica Big Data Relationship Management (100-249) per Node 3 yr (S) Production License	\$10,080.00	0.00%	\$10,080.00
Informatica	9048-32195	Informatica Big Data Relationship Management (250-499) per Node 3 yr (S) Production License	\$8,960.00	0.00%	\$8,960.00
Informatica	9048-32196	Informatica Big Data Relationship Management (500+) per Node 3 yr (S) Production License	\$7,840.00	0.00%	\$7,840.00
Informatica	9048-32197	Big Data Relationship Management (1-3) per CPU-cores Multi-core Multi-OS Development Lab License	\$20,000.00	17.50%	\$16,500.00
Informatica	9048-32198	Big Data Relationship Management (4-7) per CPU-cores Multi-core Multi-OS Development Lab License	\$15,000.00	17.50%	\$12,375.00
Informatica	9048-32199	Big Data Relationship Management (8-11) per CPU-cores Multi-core Multi-OS Development Lab License	\$12,000.00	17.50%	\$9,900.00
Informatica	9048-32200	Big Data Relationship Management (12+) per CPU-cores Multi-core Multi-OS Development Lab License	\$9,500.00	17.50%	\$7,837.50
Informatica	9048-32201	Big Data Relationship Management Unlimited CPU-cores per Environment Multi-core Multi-OS Development Lab License	\$210,000.00	17.50%	\$173,250.00
Informatica	9048-31963	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production License	\$6,800.00	17.50%	\$5,610.00

Informatica	9048-31964	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production Standard Maintenance	\$1,360.00	18.50%	\$1,108.40
Informatica	9048-31965	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$1,496.00	18.50%	\$1,219.24
Informatica	9048-31966	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production Standard Renewal Maintenance	\$1,360.00	18.50%	\$1,108.40
Informatica	9048-31967	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production Enterprise Renewal Maintenance	\$1,496.00	18.50%	\$1,219.24
Informatica	9048-31968	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production ELA Mission Critical Maintenance	\$1,224.00	18.50%	\$997.56
Informatica	9048-31969	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production ELA Mission Critical Renewal Maintenance	\$1,224.00	18.50%	\$997.56
Informatica	9048-31970	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production Mission Critical Maintenance	\$1,700.00	18.50%	\$1,385.50
Informatica	9048-31971	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production Mission Critical Renewal Maintenance	\$1,700.00	18.50%	\$1,385.50
Informatica	9048-31972	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production ELA Premium Renewal Maintenance	\$1,088.00	18.50%	\$886.72
Informatica	9048-31973	Informatica Big Data Standard Edition (0-99) per Node Multi-core Multi-OS Production ELA Premium Maintenance	\$1,088.00	18.50%	\$886.72
Informatica	9048-31974	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production License	\$6,100.00	17.50%	\$5,032.50

Informatica	9048-31975	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production Standard Maintenance	\$1,220.00	18.50%	\$994.30
Informatica	9048-31976	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$1,342.00	18.50%	\$1,093.73
Informatica	9048-31977	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production Standard Renewal Maintenance	\$1,220.00	18.50%	\$994.30
Informatica	9048-31978	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production Enterprise Renewal Maintenance	\$1,342.00	18.50%	\$1,093.73
Informatica	9048-31979	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production ELA Mission Critical Maintenance	\$1,098.00	18.50%	\$894.87
Informatica	9048-31980	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production ELA Mission Critical Renewal Maintenance	\$1,098.00	18.50%	\$894.87
Informatica	9048-31981	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production Mission Critical Maintenance	\$1,525.00	18.50%	\$1,242.88
Informatica	9048-31982	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production Mission Critical Renewal Maintenance	\$1,525.00	18.50%	\$1,242.88
Informatica	9048-31983	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production ELA Premium Renewal Maintenance	\$976.00	18.50%	\$795.44
Informatica	9048-31984	Informatica Big Data Standard Edition (100-249) per Node Multi-core Multi-OS Production ELA Premium Maintenance	\$976.00	18.50%	\$795.44
Informatica	9048-31985	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production License	\$5,500.00	17.50%	\$4,537.50

Informatica	9048-31986	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production Standard Maintenance	\$1,100.00	18.50%	\$896.50
Informatica	9048-31987	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$1,210.00	18.50%	\$986.15
Informatica	9048-31988	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production Standard Renewal Maintenance	\$1,100.00	18.50%	\$896.50
Informatica	9048-31989	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production Enterprise Renewal Maintenance	\$1,210.00	18.50%	\$986.15
Informatica	9048-31990	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production ELA Mission Critical Maintenance	\$990.00	18.50%	\$806.85
Informatica	9048-31991	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production ELA Mission Critical Renewal Maintenance	\$990.00	18.50%	\$806.85
Informatica	9048-31992	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production Mission Critical Maintenance	\$1,375.00	18.50%	\$1,120.63
Informatica	9048-31993	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production Mission Critical Renewal Maintenance	\$1,375.00	18.50%	\$1,120.63
Informatica	9048-31994	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production ELA Premium Renewal Maintenance	\$880.00	18.50%	\$717.20
Informatica	9048-31995	Informatica Big Data Standard Edition (250-499) per Node Multi-core Multi-OS Production ELA Premium Maintenance	\$880.00	18.50%	\$717.20
Informatica	9048-31996	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production License	\$4,900.00	17.50%	\$4,042.50

Informatica	9048-31997	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production Standard Maintenance	\$980.00	18.50%	\$798.70
Informatica	9048-31998	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production Enterprise Maintenance	\$1,078.00	18.50%	\$878.57
Informatica	9048-31999	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production Standard Renewal Maintenance	\$980.00	18.50%	\$798.70
Informatica	9048-32000	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production Enterprise Renewal Maintenance	\$1,078.00	18.50%	\$878.57
Informatica	9048-32001	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production ELA Mission Critical Maintenance	\$882.00	18.50%	\$718.83
Informatica	9048-32002	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production ELA Mission Critical Renewal Maintenance	\$882.00	18.50%	\$718.83
Informatica	9048-32003	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production Mission Critical Maintenance	\$1,225.00	18.50%	\$998.38
Informatica	9048-32004	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production Mission Critical Renewal Maintenance	\$1,225.00	18.50%	\$998.38
Informatica	9048-32005	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production ELA Premium Renewal Maintenance	\$784.00	18.50%	\$638.96
Informatica	9048-32006	Informatica Big Data Standard Edition (500+) per Node Multi-core Multi-OS Production ELA Premium Maintenance	\$784.00	18.50%	\$638.96
Splunk	APP-SESS-100GB-ET	Splunk App for Enterprise Security Annual 100GB/day	\$20,000.00	4.00%	\$19,200.00
Splunk	APP-SESS-100GB-P	Splunk App for Enterprise Security Perpetual 100GB/day	\$50,000.00	4.00%	\$48,000.00

Splunk	APP-SESS-100GB-P-ES	Splunk App for Enterprise Security 100GB/day; Enterprise Support 1 Year	\$10,000.00	4.00%	\$9,600.00
Splunk	APP-SESS-100GB-P-GS	Splunk App for Enterprise Security 100GB/day; Global Support 1 Year	\$12,500.00	4.00%	\$12,000.00
Splunk	APP-SESS-10GB-ET	Splunk App for Enterprise Security Annual 10GB/day	\$6,000.00	4.00%	\$5,760.00
Splunk	APP-SESS-10GB-P	Splunk App for Enterprise Security Perpetual 10GB/day	\$15,000.00	4.00%	\$14,400.00
Splunk	APP-SESS-10GB-P-ES	Splunk App for Enterprise Security 10GB/day; Enterprise Support 1 Year	\$3,000.00	4.00%	\$2,880.00
Splunk	APP-SESS-10GB-P-GS	Splunk App for Enterprise Security 10GB/day; Global Support 1 Year	\$3,750.00	4.00%	\$3,600.00
Splunk	APP-SESS-1GB-ET	Splunk App for Enterprise Security Annual 1GB/day	\$2,000.00	4.00%	\$1,920.00
Splunk	APP-SESS-1GB-P	Splunk App for Enterprise Security Perpetual 1GB/day	\$5,000.00	4.00%	\$4,800.00
Splunk	APP-SESS-1GB-P-ES	Splunk App for Enterprise Security 1GB/day; Enterprise Support 1 Year	\$1,000.00	4.00%	\$960.00
Splunk	APP-SESS-1GB-P-GS	Splunk App for Enterprise Security 1GB/day; Global Support 1 Year	\$1,250.00	4.00%	\$1,200.00
Splunk	APP-SESS-20GB-ET	Splunk App for Enterprise Security Annual 20GB/day	\$12,000.00	4.00%	\$11,520.00
Splunk	APP-SESS-20GB-P	Splunk App for Enterprise Security Perpetual 20GB/day	\$30,000.00	4.00%	\$28,800.00
Splunk	APP-SESS-20GB-P-ES	Splunk App for Enterprise Security 20GB/day; Enterprise Support 1 Year	\$6,000.00	4.00%	\$5,760.00
Splunk	APP-SESS-20GB-P-GS	Splunk App for Enterprise Security 20GB/day; Global Support 1 Year	\$7,500.00	4.00%	\$7,200.00
Splunk	APP-SESS-2GB-ET	Splunk App for Enterprise Security Annual 2GB/day	\$3,000.00	4.00%	\$2,880.00
Splunk	APP-SESS-2GB-P	Splunk App for Enterprise Security Perpetual 2GB/day	\$7,500.00	4.00%	\$7,200.00
Splunk	APP-SESS-2GB-P-ES	Splunk App for Enterprise Security 2GB/day; Enterprise Support 1 Year	\$1,500.00	4.00%	\$1,440.00

Splunk	APP-SESS-2GB-P-GS	Splunk App for Enterprise Security 2GB/day; Global Support 1 Year	\$1,875.00	4.00%	\$1,800.00
Splunk	APP-SESS-500MB-ET	Splunk App for Enterprise Security Annual 500MB/day	\$1,000.00	4.00%	\$960.00
Splunk	APP-SESS-500MB-P	Splunk App for Enterprise Security Perpetual 500MB/day	\$2,500.00	4.00%	\$2,400.00
Splunk	APP-SESS-500MB-P-ES	Splunk App for Enterprise Security 500MB/day; Enterprise Support 1 Year	\$500.00	4.00%	\$480.00
Splunk	APP-SESS-500MB-P-GS	Splunk App for Enterprise Security 500MB/day; Global Support 1 Year	\$625.00	4.00%	\$600.00
Splunk	APP-SESS-50GB-ET	Splunk App for Enterprise Security Annual 50GB/day	\$16,000.00	4.00%	\$15,360.00
Splunk	APP-SESS-50GB-P	Splunk App for Enterprise Security Perpetual 50GB/day	\$40,000.00	4.00%	\$38,400.00
Splunk	APP-SESS-50GB-P-ES	Splunk App for Enterprise Security 50GB/day; Enterprise Support 1 Year	\$8,000.00	4.00%	\$7,680.00
Splunk	APP-SESS-50GB-P-GS	Splunk App for Enterprise Security 50GB/day; Global Support 1 Year	\$10,000.00	4.00%	\$9,600.00
Splunk	APP-SESS-5GB-ET	Splunk App for Enterprise Security Annual 5GB/day	\$4,000.00	4.00%	\$3,840.00
Splunk	APP-SESS-5GB-P	Splunk App for Enterprise Security Perpetual 5GB/day	\$10,000.00	4.00%	\$9,600.00
Splunk	APP-SESS-5GB-P-ES	Splunk App for Enterprise Security 5GB/day; Enterprise Support 1 Year	\$2,000.00	4.00%	\$1,920.00
Splunk	APP-SESS-5GB-P-GS	Splunk App for Enterprise Security 5GB/day; Global Support 1 Year	\$2,500.00	4.00%	\$2,400.00
Splunk	APP-SESSU-100GB-ET	Splunk App for Enterprise Security Annual License Upgrade (50GB to 100GB)	\$4,800.00	4.00%	\$4,608.00
Splunk	APP-SESSU-100GB-P	Splunk App for Enterprise Security Perpetual License Upgrade (50GB to 100GB)	\$12,000.00	4.00%	\$11,520.00
Splunk	APP-SESSU-100GB-P-ES	Splunk App for Enterprise Security License Upgrade (50GB to 100GB); Enterprise Support 1 Year	\$2,400.00	4.00%	\$2,304.00

Splunk	APP-SESSU-100GB-P-GS	Splunk App for Enterprise Security License Upgrade (50GB to 100GB); Global Support 1 Year	\$3,000.00	4.00%	\$2,880.00
Splunk	APP-SESSU-10GB-ET	Splunk App for Enterprise Security Annual License Upgrade (5GB to 10GB)	\$2,400.00	4.00%	\$2,304.00
Splunk	APP-SESSU-10GB-P	Splunk App for Enterprise Security Perpetual License Upgrade (5GB to 10GB)	\$6,000.00	4.00%	\$5,760.00
Splunk	APP-SESSU-10GB-P-ES	Splunk App for Enterprise Security License Upgrade (5GB to 10GB); Enterprise Support 1 Year	\$1,200.00	4.00%	\$1,152.00
Splunk	APP-SESSU-10GB-P-GS	Splunk App for Enterprise Security License Upgrade (5GB to 10GB); Global Support 1 Year	\$1,500.00	4.00%	\$1,440.00
Splunk	APP-SESSU-1GB-ET	Splunk App for Enterprise Security Annual License Upgrade (500MB to 1GB)	\$1,200.00	4.00%	\$1,152.00
Splunk	APP-SESSU-1GB-P	Splunk App for Enterprise Security Perpetual License Upgrade (500MB to 1GB)	\$3,000.00	4.00%	\$2,880.00
Splunk	APP-SESSU-1GB-P-ES	Splunk App for Enterprise Security License Upgrade (500MB to 1GB); Enterprise Support 1 Year	\$600.00	4.00%	\$576.00
Splunk	APP-SESSU-1GB-P-GS	Splunk App for Enterprise Security License Upgrade (500MB to 1GB); Global Support 1 Year	\$750.00	4.00%	\$720.00
Splunk	APP-SESSU-20GB-ET	Splunk App for Enterprise Security Annual License Upgrade (10GB to 20GB)	\$7,200.00	4.00%	\$6,912.00
Splunk	APP-SESSU-20GB-P	Splunk App for Enterprise Security Perpetual License Upgrade (10GB to 20GB)	\$18,000.00	4.00%	\$17,280.00
Splunk	APP-SESSU-20GB-P-ES	Splunk App for Enterprise Security License Upgrade (10GB to 20GB); Enterprise Support 1 Year	\$3,600.00	4.00%	\$3,456.00
Splunk	APP-SESSU-20GB-P-GS	Splunk App for Enterprise Security License Upgrade (10GB to 20GB); Global Support 1 Year	\$4,500.00	4.00%	\$4,320.00
Splunk	APP-SESSU-2GB-ET	Splunk App for Enterprise Security Annual License Upgrade (1GB to 2GB)	\$1,200.00	4.00%	\$1,152.00

Splunk	APP-SESSU-2GB-P	Splunk App for Enterprise Security Perpetual License Upgrade (1GB to 2GB)	\$3,000.00	4.00%	\$2,880.00
Splunk	APP-SESSU-2GB-P-ES	Splunk App for Enterprise Security License Upgrade (1GB to 2GB); Enterprise Support 1 Year	\$600.00	4.00%	\$576.00
Splunk	APP-SESSU-2GB-P-GS	Splunk App for Enterprise Security License Upgrade (1GB to 2GB); Global Support 1 Year	\$750.00	4.00%	\$720.00
Splunk	APP-SESSU-50GB-ET	Splunk App for Enterprise Security Annual License Upgrade (20GB to 50GB)	\$4,800.00	4.00%	\$4,608.00
Splunk	APP-SESSU-50GB-P	Splunk App for Enterprise Security Perpetual License Upgrade (20GB to 50GB)	\$12,000.00	4.00%	\$11,520.00
Splunk	APP-SESSU-50GB-P-ES	Splunk App for Enterprise Security License Upgrade (20GB to 50GB); Enterprise Support 1 Year	\$2,400.00	4.00%	\$2,304.00
Splunk	APP-SESSU-50GB-P-GS	Splunk App for Enterprise Security License Upgrade (20GB to 50GB); Global Support 1 Year	\$3,000.00	4.00%	\$2,880.00
Splunk	APP-SESSU-5GB-ET	Splunk App for Enterprise Security Annual License Upgrade (2GB to 5GB)	\$1,200.00	4.00%	\$1,152.00
Splunk	APP-SESSU-5GB-P	Splunk App for Enterprise Security Perpetual License Upgrade (2GB to 5GB)	\$3,000.00	4.00%	\$2,880.00
Splunk	APP-SESSU-5GB-P-ES	Splunk App for Enterprise Security License Upgrade (2GB to 5GB); Enterprise Support 1 Year	\$600.00	4.00%	\$576.00
Splunk	APP-SESSU-5GB-P-GS	Splunk App for Enterprise Security License Upgrade (2GB to 5GB); Global Support 1 Year	\$750.00	4.00%	\$720.00
Splunk	APP-SVMW-100GB-P	Splunk App for VMware Perpetual 100GB	\$20,000.00	4.00%	\$19,200.00
Splunk	APP-SVMW-100GB-P-ES	Splunk App for VMware Perpetual 100GB; Enterprise Support 1 Year	\$4,000.00	4.00%	\$3,840.00
Splunk	APP-SVMW-100GB-P-GS	Splunk App for VMware Perpetual 100GB; Global Support 1 Year	\$5,000.00	4.00%	\$4,800.00
Splunk	APP-SVMW-20GB-P	Splunk App for VMware Perpetual 20GB	\$10,000.00	4.00%	\$9,600.00
Splunk	APP-SVMW-20GB-P-ES	Splunk App for VMware Perpetual 20GB; Enterprise Support 1 Year	\$2,000.00	4.00%	\$1,920.00

Splunk	APP-SVMW-20GB-P-GS	Splunk App for VMware Perpetual 20GB; Global Support 1 Year	\$2,500.00	4.00%	\$2,400.00
Splunk	APP-SVMW-5GB-P	Splunk App for VMware Perpetual 5GB	\$5,000.00	4.00%	\$4,800.00
Splunk	APP-SVMW-5GB-P-ES	Splunk App for VMware Perpetual 5GB; Enterprise Support 1 Year	\$1,000.00	4.00%	\$960.00
Splunk	APP-SVMW-5GB-P-GS	Splunk App for VMware Perpetual 5GB; Global Support 1 Year	\$1,250.00	4.00%	\$1,200.00
Splunk	APP-SVMW-P101GB-P	Splunk App for VMware Perpetual 101GB plus	\$35,000.00	4.00%	\$33,600.00
Splunk	APP-SVMW-P101GB-P-ES	Splunk App for VMware Perpetual 101GB Plus; Enterprise Support 1 Year	\$7,000.00	4.00%	\$6,720.00
Splunk	APP-SVMW-P101GB-P-GS	Splunk App for VMware Perpetual 101GB Plus; Global Support 1 Year	\$8,750.00	4.00%	\$8,400.00
Splunk	APP-SVMWU-100GB-P	Splunk App for VMware Perpetual License Upgrade (20GB to 100GB)	\$6,000.00	4.00%	\$5,760.00
Splunk	APP-SVMWU-100GB-P-ES	Splunk App for VMware Perpetual License; Upgrade (20GB to 100GB); Enterprise Support 1 Year	\$1,200.00	4.00%	\$1,152.00
Splunk	APP-SVMWU-100GB-P-GS	Splunk App for VMware Perpetual License Upgrade (20GB to 100GB); Global Support 1 Year	\$1,500.00	4.00%	\$1,440.00
Splunk	APP-SVMWU-20GB-P	Splunk App for VMware Perpetual License Upgrade (5GB to 20GB)	\$5,000.00	4.00%	\$4,800.00
Splunk	APP-SVMWU-20GB-P-ES	Splunk App for VMware Perpetual License; Upgrade (5GB to 20GB); Enterprise Support 1 Year	\$1,000.00	4.00%	\$960.00
Splunk	APP-SVMWU-20GB-P-GS	Splunk App for VMware Perpetual License Upgrade (5GB to 20GB); Global Support 1 Year	\$1,250.00	4.00%	\$1,200.00
Splunk	APP-SVMWU-P101GB-P	Splunk App for VMware Perpetual License Upgrade (100GB to 101GB Plus)	\$15,000.00	4.00%	\$14,400.00
Splunk	APP-SVMWU-P101GB-P-ES	Splunk App for VMware Perpetual License; Upgrade (100GB to 101GB Plus); Enterprise Support 1 Year	\$3,200.00	4.00%	\$3,072.00

Splunk	APP-SVMWU-P101GB-P-GS	Splunk App for VMware Perpetual License Upgrade (100GB to 101GB Plus); Global Support 1 Year	\$4,000.00	4.00%	\$3,840.00
Splunk	EDU-ACLAB-1-V6	Splunk Architect Certification Lab V6 1 student	\$1,000.00	4.00%	\$960.00
Splunk	EDU-ADM CERT-ONSITE-V6	Splunk Admin Certification V6 Track (Using Know Obj S & R Admin) Onsite Maximum 12 students T&E not included	\$36,000.00	4.00%	\$34,560.00
Splunk	EDU-ADM CERT-V6	Splunk Admin Certification V6 Track (Using Know Obj S & R Admin) 1 student	\$4,500.00	4.00%	\$4,320.00
Splunk	EDU-ADMIN-DV-V6	Administering Splunk V6 Dedicated Virtual Class Maximum 12 Students	\$15,000.00	4.00%	\$14,400.00
Splunk	EDU-ADMIN-ONSITE-V6	Administering Splunk V6 Onsite Maximum 12 students T&E Not included	\$20,000.00	4.00%	\$19,200.00
Splunk	EDU-ADMIN-V6	Administering Splunk V6 1 Student	\$2,500.00	4.00%	\$2,400.00
Splunk	EDU-ADSRPT-1-V6	Advanced Searching and Reporting with Splunk V6 1 student	\$1,000.00	4.00%	\$960.00
Splunk	EDU-ADSRPT-4-V6	Advanced Searching and Reporting with Splunk V6 Dedicated Virtual Class Maximum 12 students	\$6,000.00	4.00%	\$5,760.00
Splunk	EDU-ADSRPT-ONSITE-V6	Advanced Searching and Reporting with Splunk V6 Onsite Maximum 12 students T&E not included	\$8,000.00	4.00%	\$7,680.00
Splunk	EDU-ARCH-1-V6	Splunk Architect series (Using S&R Knowledge Admin Deploy Develop) V6 Architect lab not included 1 student	\$7,500.00	4.00%	\$7,200.00
Splunk	EDU-ARCHCERT-1-V6	Splunk Architect Series and Architect Cert lab V6 1 student	\$8,500.00	4.00%	\$8,160.00
Splunk	EDU-BUSER-ONSITE-V6	Using Splunk V6 Onsite Maximum 12 students T&E not included	\$4,000.00	4.00%	\$3,840.00
Splunk	EDU-BUSR-1-V6	Using Splunk V6 1 student	\$500.00	4.00%	\$480.00
Splunk	EDU-BUSR-4-V6	Using Splunk V6 Dedicated Virtual Class V6 Maximum 12 students	\$3,000.00	4.00%	\$2,880.00
Splunk	EDU-DEPL-1-V6	Architecting and Deploying Splunk V6 1 student	\$1,500.00	4.00%	\$1,440.00

Splunk	EDU-DEPL-4-V6	Architecting and Deploying Splunk V6 Dedicated Virtual Course Maximum 12 students	\$7,500.00	4.00%	\$7,200.00
Splunk	EDU-DEPL-ONSITE-V6	Architecting and Deploying Splunk V6 Onsite Maximum 12 students T&E not included	\$9,000.00	4.00%	\$8,640.00
Splunk	EDU-DEV-1-V6	Developing Apps with Splunk V6 1 student	\$1,500.00	4.00%	\$1,440.00
Splunk	EDU-DEV-4-V6	Developing Apps with Splunk V6 Dedicated Virtual Course Maximum 12 students	\$7,500.00	4.00%	\$7,200.00
Splunk	EDU-DEV-ONSITE-V6	Developing Apps with Splunk V6 Onsite Maximum 12 students T&E not included	\$10,500.00	4.00%	\$10,080.00
Splunk	EDU-ICESS-1-V3	Administering Enterprise Security V3 1 Student	\$1,500.00	4.00%	\$1,440.00
Splunk	EDU-ICESS-4-V3	Administering Enterprise Security V3 Dedicated Virtual Class Maximum 12 students	\$7,500.00	4.00%	\$7,200.00
Splunk	EDU-ICESS-ONSITE-V3	Administering Enterprise Security V3 Onsite Maximum 12 students T&E not included	\$10,500.00	4.00%	\$10,080.00
Splunk	EDU-KNWCERT-DV-V6	Splunk Knowledge Manager V6 Certification Track (Using S & R Know Obj) Dedicated Virtual Class maximum 12 students	\$12,000.00	4.00%	\$11,520.00
Splunk	EDU-KNWCERT-ONSITE-V6	Splunk Knowledge Manager V6 Certification Track (Using S & R Know Obj) Onsite maximum 12 students T&E not included	\$16,000.00	4.00%	\$15,360.00
Splunk	EDU-KNWCERT-V6	Splunk Knowledge Manager V6 Certification Track (Using S & R Know Obj) 1 student	\$2,000.00	4.00%	\$1,920.00
Splunk	EDU-KNWL-DV-V6	Creating Splunk Knowledge Objects V6 Dedicated Virtual Maximum 12 students	\$3,000.00	4.00%	\$2,880.00
Splunk	EDU-KNWL-ONSITE-V6	Creating Splunk Knowledge Objects V6 Onsite Maximum 12 Students	\$4,000.00	4.00%	\$3,840.00
Splunk	EDU-KNWL-V6	Creating Splunk Knowledge Objects V6 1 Student	\$500.00	4.00%	\$480.00
Splunk	EDU-SRPT-1-V6	Searching and Reporting with Splunk V6 1 student	\$1,000.00	4.00%	\$960.00

Splunk	EDU-SRPT-4-V6	Searching and Reporting with Splunk V6 Dedicated Virtual Class Maximum 12 students	\$6,000.00	4.00%	\$5,760.00
Splunk	EDU-SRPT-ONSITE-V6	Searching and Reporting with Splunk V6 Onsite Maximum 12 students T&E not included	\$8,000.00	4.00%	\$7,680.00
Splunk	EDU-SUPP-1-V6	Supporting Splunk V6 1 student	\$1,500.00	4.00%	\$1,440.00
Splunk	EDU-SUPP-4-V6	Supporting Splunk V6 Dedicated Virtual Class Maximum 12 students	\$7,500.00	4.00%	\$7,200.00
Splunk	EDU-SUPP-ONSITE-V6	Supporting Splunk V6 Onsite Maximum 12 students T&E not included	\$9,000.00	4.00%	\$8,640.00
Splunk	EDU-U ESS-1-V3	Using Splunk Enterprise Security V3 1 student	\$500.00	4.00%	\$480.00
Splunk	EDU-U ESS-4-V3	Using Splunk Enterprise Security V3 Dedicated Virtual Class Maximum 12 students	\$3,000.00	4.00%	\$2,880.00
Splunk	EDU-U ESS-ONSITE-V3	Using Splunk Enterprise Security V3 Onsite Maximum 12 students T&E not included	\$4,000.00	4.00%	\$3,840.00
Splunk	EDU-WHATNEW-ONSITE-V6	What's New in Splunk V6 Onsite Maximum 12 students T&E not included	\$5,000.00	4.00%	\$4,800.00
Splunk	EDU-WHATNEW-V6	What's New in Splunk V6	\$1,000.00	4.00%	\$960.00
Splunk	EDU-WHTNEW-DV-V6	What's New in Splunk V6 Dedicated Virtual Maximum 12 students	\$4,500.00	4.00%	\$4,320.00
Splunk	SE-100GB-C120	Splunk Enterprise Capacity On Demand + Enterprise Support 120 days 100 GB/day	\$24,000.00	4.00%	\$23,040.00
Splunk	SE-100GB-C90	Splunk Enterprise Capacity On Demand + Enterprise Support 90 days 100 GB/day	\$18,000.00	4.00%	\$17,280.00
Splunk	SE-100GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year 100 GB/day (5 support contacts)	\$60,000.00	4.00%	\$57,600.00
Splunk	SE-100GB-ET-DD	Splunk Enterprise Annual + Enterprise Support 1 Year Data Duplication 100 GB/day	\$30,000.00	4.00%	\$28,800.00
Splunk	SE-100GB-GT	Splunk Enterprise Annual + Global Support 1 Year 100 GB/day (5 support contacts)	\$67,500.00	4.00%	\$64,800.00
Splunk	SE-100GB-GT-DD	Splunk Enterprise Annual + Global Support 1 Year Data Duplication 100 GB/day	\$33,750.00	4.00%	\$32,400.00

Splunk	SE-100GB-P	Splunk Enterprise Perpetual 100 GB/day (5 support contacts)	\$150,000.00	4.00%	\$144,000.00
Splunk	SE-100GB-P-DD	Splunk Enterprise Perpetual Data Duplication 100 GB/day	\$75,000.00	4.00%	\$72,000.00
Splunk	SE-100GB-P-DD-ES	Splunk Enterprise Data Duplication 100 GB/day; Enterprise Support 1 Year	\$15,000.00	4.00%	\$14,400.00
Splunk	SE-100GB-P-DD-GS	Splunk Enterprise Data Duplication 100 GB/day; Global Support 1 Year	\$18,750.00	4.00%	\$18,000.00
Splunk	SE-100GB-P-ES	Splunk Enterprise 100 GB/day (5 support contacts); Enterprise Support 1 Year	\$30,000.00	4.00%	\$28,800.00
Splunk	SE-100GB-P-GS	Splunk Enterprise 100 GB/day (5 support contacts); Global Support 1 Year	\$37,500.00	4.00%	\$36,000.00
Splunk	SE-10GB-C120	Splunk Enterprise Capacity On Demand + Enterprise Support 120 days 10 GB/day	\$4,000.00	4.00%	\$3,840.00
Splunk	SE-10GB-C90	Splunk Enterprise Capacity On Demand + Enterprise Support 90 days 10 GB/day	\$3,000.00	4.00%	\$2,880.00
Splunk	SE-10GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year 10 GB/day (3 support contacts)	\$10,000.00	4.00%	\$9,600.00
Splunk	SE-10GB-ET-DD	Splunk Enterprise Annual + Enterprise Support 1 Year Data Duplication 10 GB/day	\$5,000.00	4.00%	\$4,800.00
Splunk	SE-10GB-P	Splunk Enterprise Perpetual 10 GB/day (3 support contacts)	\$25,000.00	4.00%	\$24,000.00
Splunk	SE-10GB-P-DD	Splunk Enterprise Perpetual Data Duplication 10 GB/day	\$12,500.00	4.00%	\$12,000.00
Splunk	SE-10GB-P-DD-ES	Splunk Enterprise Data Duplication 10 GB/day; Enterprise Support 1 Year	\$4,000.00	4.00%	\$3,840.00
Splunk	SE-10GB-P-DD-GS	Splunk Enterprise Data Duplication 10 GB/day; Global Support 1 Year	\$5,000.00	4.00%	\$4,800.00
Splunk	SE-10GB-P-ES	Splunk Enterprise 10 GB/day (3 support contacts); Enterprise Support 1 Year	\$8,000.00	4.00%	\$7,680.00
Splunk	SE-10GB-P-GS	Splunk Enterprise 10 GB/day (3 support contacts); Global Support 1 Year	\$10,000.00	4.00%	\$9,600.00

Splunk	SE-1GB-C120	Splunk Enterprise Capacity On Demand + Enterprise Support 120 days 1 GB/day	\$720.00	4.00%	\$691.20
Splunk	SE-1GB-C90	Splunk Enterprise Capacity On Demand + Enterprise Support 90 days 1 GB/day	\$540.00	4.00%	\$518.40
Splunk	SE-1GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year 1 GB/day (1 support contact)	\$1,800.00	4.00%	\$1,728.00
Splunk	SE-1GB-ET-DD	Splunk Enterprise Annual + Enterprise Support 1 Year Data Duplication 1 GB/day	\$900.00	4.00%	\$864.00
Splunk	SE-1GB-P	Splunk Enterprise Perpetual 1 GB/day (1 support contact)	\$4,500.00	4.00%	\$4,320.00
Splunk	SE-1GB-P-DD	Splunk Enterprise Perpetual Data Duplication 1 GB/day	\$2,250.00	4.00%	\$2,160.00
Splunk	SE-1GB-P-DD-ES	Splunk Enterprise Data Duplication 1 GB/day; Enterprise Support 1 Year	\$1,000.00	4.00%	\$960.00
Splunk	SE-1GB-P-DD-GS	Splunk Enterprise Data Duplication 1 GB/day; Global Support 1 Year	\$1,250.00	4.00%	\$1,200.00
Splunk	SE-1GB-P-ES	Splunk Enterprise 1 GB/day (1 support contact); Enterprise Support 1 Year	\$2,000.00	4.00%	\$1,920.00
Splunk	SE-1GB-P-GS	Splunk Enterprise 1 GB/day (1 support contact); Global Support 1 Year	\$2,500.00	4.00%	\$2,400.00
Splunk	SE-20GB-C120	Splunk Enterprise Capacity On Demand + Enterprise Support 120 days 20 GB/day	\$7,200.00	4.00%	\$6,912.00
Splunk	SE-20GB-C90	Splunk Enterprise Capacity On Demand + Enterprise Support 90 days 20 GB/day	\$5,400.00	4.00%	\$5,184.00
Splunk	SE-20GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year 20 GB/day (3 support contacts)	\$18,000.00	4.00%	\$17,280.00
Splunk	SE-20GB-ET-DD	Splunk Enterprise Annual + Enterprise Support 1 Year Data Duplication 20 GB/day	\$9,000.00	4.00%	\$8,640.00
Splunk	SE-20GB-GT	Splunk Enterprise Annual + Global Support 1 Year 20 GB/day (3 support contacts)	\$20,250.00	4.00%	\$19,440.00
Splunk	SE-20GB-GT-DD	Splunk Enterprise Annual + Global Support 1 Year Data Duplication GB/day	\$10,125.00	4.00%	\$9,720.00

Splunk	SE-20GB-P	Splunk Enterprise Perpetual 20 GB/day (3 support contacts)	\$45,000.00	4.00%	\$43,200.00
Splunk	SE-20GB-P-DD	Splunk Enterprise Perpetual Data Duplication 20 GB/day	\$22,500.00	4.00%	\$21,600.00
Splunk	SE-20GB-P-DD-ES	Splunk Enterprise Data Duplication 20 GB/day; Enterprise Support 1 Year	\$6,000.00	4.00%	\$5,760.00
Splunk	SE-20GB-P-DD-GS	Splunk Enterprise Data Duplication 20 GB/day; Global Support 1 Year	\$7,500.00	4.00%	\$7,200.00
Splunk	SE-20GB-P-ES	Splunk Enterprise 20 GB/day (3 support contacts); Enterprise Support 1 Year	\$12,000.00	4.00%	\$11,520.00
Splunk	SE-20GB-P-GS	Splunk Enterprise 20 GB/day (3 support contacts); Global Support 1 Year	\$15,000.00	4.00%	\$14,400.00
Splunk	SE-2GB-C120	Splunk Enterprise Capacity On Demand + Enterprise Support 120 days 2 GB/day	\$1,200.00	4.00%	\$1,152.00
Splunk	SE-2GB-C90	Splunk Enterprise Capacity On Demand + Enterprise Support 90 days 2 GB/day	\$900.00	4.00%	\$864.00
Splunk	SE-2GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year 2 GB/day (1 support contact)	\$3,000.00	4.00%	\$2,880.00
Splunk	SE-2GB-ET-DD	Splunk Enterprise Annual + Enterprise Support 1 Year Data Duplication 2 GB/day	\$1,500.00	4.00%	\$1,440.00
Splunk	SE-2GB-P	Splunk Enterprise Perpetual 2 GB/day (1 support contact)	\$7,500.00	4.00%	\$7,200.00
Splunk	SE-2GB-P-DD	Splunk Enterprise Perpetual Data Duplication 2 GB/day	\$3,750.00	4.00%	\$3,600.00
Splunk	SE-2GB-P-DD-ES	Splunk Enterprise Data Duplication 2 GB/day; Enterprise Support 1 Year	\$1,800.00	4.00%	\$1,728.00
Splunk	SE-2GB-P-DD-GS	Splunk Enterprise Data Duplication 2 GB/day; Global Support 1 Year	\$2,250.00	4.00%	\$2,160.00
Splunk	SE-2GB-P-ES	Splunk Enterprise 2 GB/day (1 support contact); Enterprise Support 1 Year	\$3,600.00	4.00%	\$3,456.00
Splunk	SE-2GB-P-GS	Splunk Enterprise 2 GB/day (1 support contact); Global Support 1 Year	\$4,500.00	4.00%	\$4,320.00

Splunk	SE-500MB-C120	Splunk Enterprise Capacity On Demand + Enterprise Support 120 days 500 MB/day	\$800.00	4.00%	\$768.00
Splunk	SE-500MB-C90	Splunk Enterprise Capacity On Demand + Enterprise Support 90 days 500 MB/day	\$600.00	4.00%	\$576.00
Splunk	SE-500MB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year 500 MB/day (1 support contact)	\$2,000.00	4.00%	\$1,920.00
Splunk	SE-500MB-ET-DD	Splunk Enterprise Annual + Enterprise Support 1 Year Data Duplication 500 MB/day	\$1,000.00	4.00%	\$960.00
Splunk	SE-500MB-P	Splunk Enterprise Perpetual 500 MB/day (1 support contact)	\$5,000.00	4.00%	\$4,800.00
Splunk	SE-500MB-P-DD	Splunk Enterprise Perpetual Data Duplication 500 MB/day	\$2,500.00	4.00%	\$2,400.00
Splunk	SE-500MB-P-DD-ES	Splunk Enterprise Data Duplication 500 MB/day; Enterprise Support 1 Year	\$500.00	4.00%	\$480.00
Splunk	SE-500MB-P-DD-GS	Splunk Enterprise Data Duplication 500 MB/day; Global Support 1 Year	\$625.00	4.00%	\$600.00
Splunk	SE-500MB-P-ES	Splunk Enterprise 500 MB/day (1 support contact); Enterprise Support 1 Year	\$1,000.00	4.00%	\$960.00
Splunk	SE-500MB-P-GS	Splunk Enterprise 500 MB/day (1 support contact); Global Support 1 Year	\$1,250.00	4.00%	\$1,200.00
Splunk	SE-50GB-C120	Splunk Enterprise Capacity On Demand + Enterprise Support 120 days 50 GB/day	\$15,400.00	4.00%	\$14,784.00
Splunk	SE-50GB-C90	Splunk Enterprise Capacity On Demand + Enterprise Support 90 days 50 GB/day	\$11,400.00	4.00%	\$10,944.00
Splunk	SE-50GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year 50 GB/day (3 support contacts)	\$38,000.00	4.00%	\$36,480.00
Splunk	SE-50GB-ET-DD	Splunk Enterprise Annual + Enterprise Support 1 Year Data Duplication 50 GB/day	\$19,000.00	4.00%	\$18,240.00
Splunk	SE-50GB-GT	Splunk Enterprise Annual + Global Support 1 Year 50 GB/day (3 support contacts)	\$42,750.00	4.00%	\$41,040.00

Splunk	SE-50GB-GT-DD	Splunk Enterprise Annual + Global Support 1 Year Data Duplication 50 GB/day	\$21,375.00	4.00%	\$20,520.00
Splunk	SE-50GB-P	Splunk Enterprise Perpetual 50 GB/day (3 support contacts)	\$95,000.00	4.00%	\$91,200.00
Splunk	SE-50GB-P-DD	Splunk Enterprise Perpetual Data Duplication 50 GB/day	\$47,500.00	4.00%	\$45,600.00
Splunk	SE-50GB-P-DD-ES	Splunk Enterprise Data Duplication 50 GB/day; Enterprise Support 1 Year	\$9,500.00	4.00%	\$9,120.00
Splunk	SE-50GB-P-DD-GS	Splunk Enterprise Data Duplication 50 GB/day; Global Support 1 Year	\$11,875.00	4.00%	\$11,400.00
Splunk	SE-50GB-P-ES	Splunk Enterprise 50 GB/day (3 support contacts); Enterprise Support 1 Year	\$19,000.00	4.00%	\$18,240.00
Splunk	SE-50GB-P-GS	Splunk Enterprise 50 GB/day (3 support contacts); Global Support 1 Year	\$23,750.00	4.00%	\$22,800.00
Splunk	SE-5GB-C120	Splunk Enterprise Capacity On Demand + Enterprise Support 120 days 5 GB/day	\$2,400.00	4.00%	\$2,304.00
Splunk	SE-5GB-C90	Splunk Enterprise Capacity On Demand + Enterprise Support 90 days 5 GB/day	\$1,800.00	4.00%	\$1,728.00
Splunk	SE-5GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year 5 GB/day (2 support contacts)	\$6,000.00	4.00%	\$5,760.00
Splunk	SE-5GB-ET-DD	Splunk Enterprise Annual + Enterprise Support 1 Year Data Duplication 5 GB/day	\$3,000.00	4.00%	\$2,880.00
Splunk	SE-5GB-P	Splunk Enterprise Perpetual 5 GB/day (2 support contacts)	\$15,000.00	4.00%	\$14,400.00
Splunk	SE-5GB-P-DD	Splunk Enterprise Perpetual Data Duplication 5 GB/day	\$7,500.00	4.00%	\$7,200.00
Splunk	SE-5GB-P-DD-ES	Splunk Enterprise Data Duplication 5 GB/day; Enterprise Support 1 Year	\$2,750.00	4.00%	\$2,640.00
Splunk	SE-5GB-P-DD-GS	Splunk Enterprise Data Duplication 5 GB/day; Global Support 1 Year	\$3,437.50	4.00%	\$3,300.00
Splunk	SE-5GB-P-ES	Splunk Enterprise 5 GB/day (2 support contacts); Enterprise Support 1 Year	\$5,500.00	4.00%	\$5,280.00

Splunk	SE-5GB-P-GS	Splunk Enterprise 5 GB/day (2 support contacts); Global Support 1 Year	\$6,875.00	4.00%	\$6,600.00
Splunk	SEU-100GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year License Upgrade (50GB to 100GB)	\$26,400.00	4.00%	\$25,344.00
Splunk	SEU-100GB-P	Splunk Enterprise Perpetual License Upgrade (50GB to 100GB)	\$66,000.00	4.00%	\$63,360.00
Splunk	SEU-100GB-P-DD	Splunk Enterprise Perpetual Data Duplication License Upgrade (50GB to 100GB)	\$33,000.00	4.00%	\$31,680.00
Splunk	SEU-100GB-P-DD-ES	Splunk Enterprise Data Duplication License Upgrade (50GB to 100GB); Enterprise Support 1 Year	\$6,600.00	4.00%	\$6,336.00
Splunk	SEU-100GB-P-DD-GS	Splunk Enterprise Data Duplication License Upgrade (50GB to 100GB); Global Support 1 Year	\$8,250.00	4.00%	\$7,920.00
Splunk	SEU-100GB-P-ES	Splunk Enterprise License Upgrade (50GB to 100GB); Enterprise Support 1 Year	\$13,200.00	4.00%	\$12,672.00
Splunk	SEU-100GB-P-GS	Splunk Enterprise License Upgrade (50GB to 100GB); Global Support 1 Year	\$16,500.00	4.00%	\$15,840.00
Splunk	SEU-100GB-T-DD	Splunk Enterprise Annual + Enterprise Support 1 Year DD License Upgrade (50GB to 100GB)	\$13,200.00	4.00%	\$12,672.00
Splunk	SEU-10GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year License Upgrade (5GB to 10GB)	\$4,800.00	4.00%	\$4,608.00
Splunk	SEU-10GB-P	Splunk Enterprise Perpetual License Upgrade (5GB to 10GB)	\$12,000.00	4.00%	\$11,520.00
Splunk	SEU-10GB-P-DD	Splunk Enterprise Perpetual Data Duplication License Upgrade (5GB to 10GB)	\$6,000.00	4.00%	\$5,760.00
Splunk	SEU-10GB-P-DD-ES	Splunk Enterprise Data Duplication License Upgrade (5GB to 10GB); Enterprise Support 1 Year	\$1,500.00	4.00%	\$1,440.00
Splunk	SEU-10GB-P-DD-GS	Splunk Enterprise Data Duplication License Upgrade (5GB to 10GB); Global Support 1 Year	\$1,875.00	4.00%	\$1,800.00

Splunk	SEU-10GB-P-ES	Splunk Enterprise License Upgrade (5GB to 10GB); Enterprise Support 1 Year	\$3,000.00	4.00%	\$2,880.00
Splunk	SEU-10GB-P-GS	Splunk Enterprise License Upgrade (5GB to 10GB); Global Support 1 Year	\$3,750.00	4.00%	\$3,600.00
Splunk	SEU-10GB-T-DD	Splunk Enterprise Annual + Enterprise Support 1 Year DD License Upgrade (5GB to 10GB)	\$2,400.00	4.00%	\$2,304.00
Splunk	SEU-1GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year License Upgrade (500MB to 1GB)	\$400.00	4.00%	\$384.00
Splunk	SEU-1GB-P	Splunk Enterprise Perpetual License Upgrade (500MB to 1GB)	\$1,000.00	4.00%	\$960.00
Splunk	SEU-1GB-P-DD	Splunk Enterprise Perpetual Data Duplication License Upgrade (500MB to 1GB)	\$500.00	4.00%	\$480.00
Splunk	SEU-1GB-P-DD-ES	Splunk Enterprise Data Duplication License Upgrade (500MB to 1GB); Enterprise Support 1 Year	\$500.00	4.00%	\$480.00
Splunk	SEU-1GB-P-DD-GS	Splunk Enterprise Data Duplication License Upgrade (500MB to 1GB); Global Support 1 Year	\$625.00	4.00%	\$600.00
Splunk	SEU-1GB-P-ES	Splunk Enterprise License Upgrade (500MB to 1GB); Enterprise Support 1 Year	\$1,000.00	4.00%	\$960.00
Splunk	SEU-1GB-P-GS	Splunk Enterprise License Upgrade (500MB to 1GB); Global Support 1 Year	\$1,250.00	4.00%	\$1,200.00
Splunk	SEU-1GB-T-DD	Splunk Enterprise Annual + Enterprise Support 1 Year DD License Upgrade (500MB to 1GB)	\$200.00	4.00%	\$192.00
Splunk	SEU-20GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year License Upgrade (10GB to 20GB)	\$9,600.00	4.00%	\$9,216.00
Splunk	SEU-20GB-P	Splunk Enterprise Perpetual License Upgrade (10GB to 20GB)	\$24,000.00	4.00%	\$23,040.00
Splunk	SEU-20GB-P-DD	Splunk Enterprise Perpetual Data Duplication License Upgrade (10GB to 20GB)	\$12,000.00	4.00%	\$11,520.00
Splunk	SEU-20GB-P-DD-ES	Splunk Enterprise Data Duplication License Upgrade (10GB to 20GB); Enterprise Support 1	\$2,400.00	4.00%	\$2,304.00

		Year			
Splunk	SEU-20GB-P-DD-GS	Splunk Enterprise Data Duplication License Upgrade (10GB to 20GB); Global Support 1 Year	\$3,000.00	4.00%	\$2,880.00
Splunk	SEU-20GB-P-ES	Splunk Enterprise License Upgrade (10GB to 20GB); Enterprise Support 1 Year	\$4,800.00	4.00%	\$4,608.00
Splunk	SEU-20GB-P-GS	Splunk Enterprise License Upgrade (10GB to 20GB); Global Support 1 Year	\$6,000.00	4.00%	\$5,760.00
Splunk	SEU-20GB-T-DD	Splunk Enterprise Annual + Enterprise Support 1 Year DD License Upgrade (10GB to 20GB)	\$4,800.00	4.00%	\$4,608.00
Splunk	SEU-2GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year License Upgrade (1GB to 2GB)	\$1,440.00	4.00%	\$1,382.40
Splunk	SEU-2GB-P	Splunk Enterprise Perpetual License Upgrade (1GB to 2GB)	\$3,600.00	4.00%	\$3,456.00
Splunk	SEU-2GB-P-DD	Splunk Enterprise Perpetual Data Duplication License Upgrade (1GB to 2GB)	\$1,800.00	4.00%	\$1,728.00
Splunk	SEU-2GB-P-DD-ES	Splunk Enterprise Data Duplication License Upgrade (1GB to 2GB); Enterprise Support 1 Year	\$960.00	4.00%	\$921.60
Splunk	SEU-2GB-P-DD-GS	Splunk Enterprise Data Duplication License Upgrade (1GB to 2GB); Global Support 1 Year	\$1,200.00	4.00%	\$1,152.00
Splunk	SEU-2GB-P-ES	Splunk Enterprise License Upgrade (1GB to 2GB); Enterprise Support 1 Year	\$1,920.00	4.00%	\$1,843.20
Splunk	SEU-2GB-P-GS	Splunk Enterprise License Upgrade (1GB to 2GB); Global Support 1 Year	\$2,400.00	4.00%	\$2,304.00
Splunk	SEU-2GB-T-DD	Splunk Enterprise Annual + Enterprise Support 1 Year DD License Upgrade (1GB to 2GB)	\$720.00	4.00%	\$691.20
Splunk	SEU-50GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year License Upgrade (20GB to 50GB)	\$18,480.00	4.00%	\$17,740.80
Splunk	SEU-50GB-P	Splunk Enterprise Perpetual License Upgrade (20GB to 50GB)	\$46,200.00	4.00%	\$44,352.00

Splunk	SEU-50GB-P-DD	Splunk Enterprise Perpetual Data Duplication License Upgrade (20GB to 50GB)	\$23,100.00	4.00%	\$22,176.00
Splunk	SEU-50GB-P-DD-ES	Splunk Enterprise Data Duplication License Upgrade (20GB to 50GB); Enterprise Support 1 Year	\$4,620.00	4.00%	\$4,435.20
Splunk	SEU-50GB-P-DD-GS	Splunk Enterprise Data Duplication License Upgrade (20GB to 50GB); Global Support 1 Year	\$5,775.00	4.00%	\$5,544.00
Splunk	PS-APP-BASE-US-5	Splunk Professional Services Premium App Configuration (5 days) T&E included	\$12,500.00	4.00%	\$12,000.00
Splunk	SEU-50GB-P-ES	Splunk Enterprise License Upgrade (20GB to 50GB); Enterprise Support 1 Year	\$9,240.00	4.00%	\$8,870.40
Splunk	SEU-50GB-P-GS	Splunk Enterprise License Upgrade (20GB to 50GB); Global Support 1 Year	\$11,550.00	4.00%	\$11,088.00
Splunk	SEU-50GB-T-DD	Splunk Enterprise Annual + Enterprise Support 1 Year DD License Upgrade (20GB to 50GB)	\$9,240.00	4.00%	\$8,870.40
Splunk	SEU-5GB-ET	Splunk Enterprise Annual + Enterprise Support 1 Year License Upgrade (2GB to 5GB)	\$3,600.00	4.00%	\$3,456.00
Splunk	SEU-5GB-P	Splunk Enterprise Perpetual License Upgrade (2GB to 5GB)	\$9,000.00	4.00%	\$8,640.00
Splunk	SEU-5GB-P-DD	Splunk Enterprise Perpetual Data Duplication License Upgrade (2GB to 5GB)	\$4,500.00	4.00%	\$4,320.00
Splunk	SEU-5GB-P-DD-ES	Splunk Enterprise Data Duplication License Upgrade (2GB to 5GB); Enterprise Support 1 Year	\$1,140.00	4.00%	\$1,094.40
Splunk	SEU-5GB-P-DD-GS	Splunk Enterprise Data Duplication License Upgrade (2GB to 5GB); Global Support 1 Year	\$1,425.00	4.00%	\$1,368.00
Splunk	SEU-5GB-P-ES	Splunk Enterprise License Upgrade (2GB to 5GB); Enterprise Support 1 Year	\$2,280.00	4.00%	\$2,188.80
Splunk	SEU-5GB-P-GS	Splunk Enterprise License Upgrade (2GB to 5GB); Global Support 1 Year	\$2,850.00	4.00%	\$2,736.00
Splunk	SEU-5GB-T-DD	Splunk Enterprise Annual + Enterprise Support 1 Year DD License Upgrade (2GB to 5GB)	\$1,800.00	4.00%	\$1,728.00

Tableau Software	3510101.1307	Tableau Desktop - Professional - License RSR	\$1,599.00	1.00%	\$1,583.01
Tableau Software	3510102.1307	Tableau Desktop - Professional - Annual Maintenance RSR	\$400.00	1.00%	\$396.00
Tableau Software	3510103.1307	Tableau Desktop - Professional - Annual Maintenance Renewal RSR	\$400.00	1.00%	\$396.00
Tableau Software	3510201.1307	Tableau Desktop - Personal - License RSR	\$800.00	1.00%	\$792.00
Tableau Software	3510202.1307	Tableau Desktop - Personal - Annual Maintenance RSR	\$200.00	1.00%	\$198.00
Tableau Software	3510203.1307	Tableau Desktop - Personal - Annual Maintenance Renewal RSR	\$200.00	1.00%	\$198.00
Tableau Software	3531101.1307	Tableau Server - Web Client Interactor - License RSR	\$800.00	1.00%	\$792.00
Tableau Software	3531102.1307	Tableau Server - Web Client Interactor - Annual Maintenance RSR	\$200.00	1.00%	\$198.00
Tableau Software	3531103.1307	Tableau Server - Web Client Interactor - Annual Maintenance Renewal RSR	\$200.00	1.00%	\$198.00
Tableau Software	3531104.1307	Tableau Server - WebClient Interactor (Add-on) License RSR	\$800.00	1.00%	\$792.00
Tableau Software	3531105.1307	Tableau Server - WebClient Interactor (Add-on) Annual Maintenance License RSR	\$200.00	1.00%	\$198.00
Tableau Software	3550101.1307	Tableau Server-Eight Core-License	\$239,000.00	1.00%	\$236,610.00
Tableau Software	3550102.1307	Tableau Server-Eight Core-Maintenance	\$60,000.00	1.00%	\$59,400.00
Tableau Software	3550103.1307	Tableau Server-Eight Core-Maintenance Renewal	\$60,000.00	1.00%	\$59,400.00
Tableau Software	3540505.1307	Health Check - Remote Support Only	\$1,000.00	1.00%	\$990.00
Tableau Software	3540605.1307	Team Fast Track - Remote Support Only	\$1,000.00	1.00%	\$990.00
Tableau Software	3540705.1307	Server Rapid Start - 4 days at customer site T&E Not Included	\$10,000.00	1.00%	\$9,900.00
Tableau Software	3540805.1307	Architecture Review - 2 days at customer site T&E Not Included	\$5,000.00	1.00%	\$4,950.00
Tableau Software	3546105.1307	Tableau Desktop Fundamentals Private - 2 days at customer site up to 15 students	\$10,000.00	1.00%	\$9,900.00

Tableau Software	3546205.1307	Tableau Desktop Advanced Private - 2 days at customer site up to 15 students	\$10,000.00	1.00%	\$9,900.00
Tableau Software	3546305.1307	Tableau Visual Analytics Private - 2 days at customer site up to 15 students	\$10,000.00	1.00%	\$9,900.00
Tableau Software	3546605.1307	Tableau Server Essentials Private - 1 day at customer site up to 15 students T&E Not Included	\$5,000.00	1.00%	\$4,950.00
Tableau Software	3546705.1307	Tableau Server Comprehensive Private - 5 days at customer site up to 15 students T&E Not Included	\$25,000.00	1.00%	\$24,750.00
Tableau Software	3546405.1307	Tableau Desktop Fundamentals & Advanced Private - 3 days at customer site up to 15 students T&E Not Included	\$15,000.00	1.00%	\$14,850.00
Tableau Software	3546505.1307	Custom Data Private	\$5,000.00	1.00%	\$4,950.00
Tableau Software	TAB-ON	Tableau Online-Single User 1 year	\$500.00	1.00%	\$495.00
Tableau Software	TAB-ONR	Tableau Online-Single User-Renewal 1 year	\$500.00	1.00%	\$495.00
Tableau Software	TAB-PUBL	Tableau Public Premium - Low Tier	\$6,000.00	1.00%	\$5,940.00
Tableau Software	TAB-PUBH	Tableau Public Premium - High Tier	\$25,000.00	1.00%	\$24,750.00
Tableau Software	TAB-ENT9-LIC	Tableau Server-Eight Core Enterprise V9--License	\$260,000.00	1.00%	\$257,400.00
Tableau Software	TAB-ENT9-MAIN	Tableau Server-Eight Core Enterprise V9--Maintenance	\$65,000.00	1.00%	\$64,350.00
Tableau Software	TAB-ENT9-MR	Tableau Server-Eight Core Enterprise V9--Maintenance Renewal	\$65,000.00	1.00%	\$64,350.00

\*Please Note: All services pricing varies based on size of deal and license provided. A standard labor rates template is available on the following tab, which includes Implementation Costs; Training Costs; and applicable Post Deployment Costs.

**Normal Business Hours**

	<b>Position</b>	<b>Year 1 Hourly Rate</b>	<b>Year 2 Hourly Rate</b>	<b>Year 3 Hourly Rate</b>	<b>Year 4 Hourly Rate</b>	<b>Year 5 Hourly Rate</b>
1	Network Administrator	\$195.00	\$203.13	\$211.59	\$220.40	\$229.59
2	Installation Technician	\$230.00	\$239.58	\$249.57	\$259.96	\$270.80
3	Maintenance Technician	\$200.00	\$208.33	\$217.01	\$226.06	\$235.48
4	Trainer	\$195.00	\$203.13	\$211.59	\$220.40	\$229.59
5	Senior Information Architect	\$250.00	\$260.42	\$271.27	\$282.57	\$294.34
6	Senior Project Manager	\$244.57	\$254.76	\$265.38	\$276.43	\$287.95

**After Hours**

	<b>Position</b>	<b>Year 1 Hourly Rate</b>	<b>Year 2 Hourly Rate</b>	<b>Year 3 Hourly Rate</b>	<b>Year 4 Hourly Rate</b>	<b>Year 5 Hourly Rate</b>
1	Network Administrator	\$260.00	\$270.83	\$282.12	\$293.87	\$306.12
2	Installation Technician	\$306.67	\$319.44	\$332.75	\$346.62	\$361.06
3	Maintenance Technician	\$266.67	\$277.78	\$289.35	\$301.41	\$313.97
4	Trainer	\$260.00	\$270.83	\$282.12	\$293.87	\$306.12
5	Senior Information Architect	\$333.33	\$347.22	\$361.69	\$376.76	\$392.46
6	Senior Project Manager	\$326.09	\$339.68	\$353.83	\$368.58	\$383.93

Carahsoft is pleased to offer the following volume discounts to VITA customers. Volume discounts are applied on a per Vendor, Per Order basis. When applicable, volume discounts may be aggregated across multiple orders, but will still be offered per Vendor.

<b>Vendor Name</b>	<b>\$0-\$50,000 Sale</b>	<b>\$50,001-\$100,000 Sale</b>	<b>\$100,001-\$500,000 Sale</b>	<b>\$500,000+ Sale</b>
<b>Cloudera</b>	VITA Price	VITA Price Minus 3%	VITA Price Minus 5%	VITA Price Minus 7%
<b>Informatica</b>	VITA Price	VITA Price Minus 3%	VITA Price Minus 5%	VITA Price Minus 7%
<b>Tableau</b>	VITA Price	VITA Price Minus 3%	VITA Price Minus 5%	VITA Price Minus 7%
<b>Digital Reasoning</b>	VITA Price	VITA Price Minus 3%	VITA Price Minus 5%	VITA Price Minus 7%
<b>Splunk</b>	VITA Price	VITA Price Minus 3%	VITA Price Minus 5%	VITA Price Minus 7%



**EXHIBIT C ESCROW**  
**CONTRACT NUMBER VA-150915-CARA**  
**BETWEEN**  
**VIRGINIA INFORMATION TECHNOLOGIES AGENCY**  
**AND**  
**CARASOFT TECHNOLOGY CORPORATION**

Exhibit C is hereby incorporated into and made an integral part of Contract Number VA-150915-CARA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Carahsoft Technology Corporation (“Supplier”).

In the event of any discrepancy between this Exhibit C and the Contract, the provisions of the Contract shall control.



**EXHIBIT D SOW TEMPLATE  
CONTRACT NUMBER VA-150915-CARA  
BETWEEN  
VIRGINIA INFORMATION TECHNOLOGIES AGENCY  
AND  
CARAHSOFT TECHNOLOGY CORPORATION**

Exhibit D is hereby incorporated into and made an integral part of Contract Number VA-150915-CARA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Carahsoft Technology Corporation (“Supplier”).

In the event of any discrepancy between this Exhibit D and the Contract, the provisions of the Contract shall control.

**EXHIBIT D-~~X~~ STATEMENT OF WORK (SOW) TEMPLATE  
BETWEEN (NAME OF AUTHORIZED USER) AND CARAHSOFT TECHNOLOGY CORPORATION**

**ISSUED UNDER**

**CONTRACT NUMBER VA-150915-CARA  
BETWEEN  
VIRGINIA INFORMATION TECHNOLOGIES AGENCY  
AND  
CARAHSOFT TECHNOLOGY CORPORATION**

Exhibit D-~~X~~, between (Name of Agency/Institution) and Carahsoft Technology Corporation (“Supplier”) is hereby incorporated into and made an integral part of Contract Number VA-150915-CARA (“Contract”) between the Virginia Information Technologies Agency (“VITA”) on behalf of the Commonwealth of Virginia and Supplier.

In the event of any discrepancy between this Exhibit D-~~X~~ and the Contract, the provisions of the Contract shall control.

Any Service, Licensed Services, Solution or Software provided under this SOW must comply with all COVA Security and Enterprise Architecture ITRM policies, standards and guidelines located at: <http://www.vita.virginia.gov/library/default.aspx?id=537> and all COVA Enterprise Architecture Data Standards and requirements located at: <http://www.vita.virginia.gov/oversight/default.aspx?id=10344>.

If Authorized User is a State Agency and determines any area of non-compliance with the ITRM PSGs at the above links in the Service, Licensed Services, Solution or Software to be provided by Supplier under this SOW, such Authorized User’s Project Manager must obtain written waiver from VITA in accordance

with the waiver process prior to placing any related order or authorizing Supplier to commence any work. Agency should collaborate with their designated Customer Account Manager to obtain such waiver.

*[Note to Template Users: Instructions for using this template to draft a Statement of Work are in gray highlight and **italics**. These instructions should be deleted after the appropriate text has been added to the Statement of Work. Contractual language is **not italicized** and should remain in the document. Text that is highlighted in **blue** is variable based on the nature of the project.]*

## STATEMENT OF WORK

This Statement of Work (SOW) is issued by the **(Name of Agency/Institution)**, hereinafter referred to as "Authorized User" under the provisions of the Contract. The objective of the project described in this SOW is for the Supplier to provide the Authorized User with a **Solution ("Solution") or Services ("Services") or Software ("Software") or Hardware and Maintenance or Licensed Application Services** for **Authorized User Project Name**. *(Customize the last sentence to state what you are getting from the Supplier, based on the VITA Contract language, and with your project name.)*

### 1. PERIOD OF PERFORMANCE

The work authorized in this SOW will occur within **XX (XX) months** of execution of this Statement of Work. This includes **delivery, installation, implementation, integration, testing and acceptance all of products and services** necessary to implement the Authorized User's **Solution, training, and any support, other than on-going maintenance services**. The period of performance for **maintenance services shall be one (1) year after implementation or end of Warranty Period and may be extended for additional one (1) year periods**, pursuant to and unless otherwise specified in the Contract. *(Customize this section to match what you are getting from the Supplier, based on the allowable scope of the VITA Contract and your project's specific needs within that allowable scope.)*

### 2. PLACE OF PERFORMANCE

*(Assign performance locations to major milestones or any other project granularity, depending on your transparency and governance needs, if needed.)*

Tasks associated with this project will be performed at **the Authorized User's location(s) in City/State, at Supplier's location(s) in City/State**, or other locations as required by the effort.

### 3. PROJECT DEFINITIONS

*Provide project unique definitions so that all stakeholders have the same understanding. Ensure these do not conflict with the Contract definition.)*

All definitions of the Contract shall apply to and take precedence over this SOW. Authorized User's specific project definitions are listed below:

### 4. PROJECT SCOPE

*(Provide a description of the scope of your project and carve out what is NOT in the scope of your project. Remember that it must fit within the VITA Contract scope.)*

#### A. General Description of the Project Scope

#### B. Project Boundaries

### 5. AUTHORIZED USER'S SPECIFIC REQUIREMENTS

*(Provide information about your project's and your agency's specific requirements for this particular project including, but not limited to the following subsections):*

- A. Authorized User-Specific Requirements
- B. Special Considerations for Implementing Technology at Authorized User's Location(s)
- C. Other Project Characteristics to Insure Success

## 6. CURRENT SITUATION

*(Provide enough background information to clearly state the current situation to Supplier so that Supplier cannot come back during performance claiming any unknowns or surprises. Some example subsections are provided below. You may collapse/expand as you feel is necessary to provide adequate information and detail.)*

- A. Background of Authorized User's Business Situation
- B. Current Architecture and Operating System
- C. Current Work Flow/Business Flow and Processes
- D. Current Legacy Systems
- E. Current System Dependencies
- F. Current Infrastructure (Limitations, Restrictions)
- G. Usage/Audience Information

## 7. PRODUCTS AND SERVICES TO SUPPORT THE PROJECT REQUIREMENTS (AND/OR SOLUTION)

### A. Required Products (or Solution Components)

*(List the products, or if your project is for a Solution, the Solution components, (hardware, software, etc.) provided by Supplier that will be used to support your project requirements. Identify any special configuration requirements, and describe the system infrastructure to be provided by the Authorized User. Provide an overview that reflects how the system will be deployed within the Authorized User's environment. You are urged to refer to the VITA Contract for allowable scope and other guidance in drafting language for this section.)*

### B. Required Services

*(List the services (e.g., requirements development, Solution design, configuration, interface design, data conversion, installation, implementation, testing, training, risk assessment, performance assessment, support and maintenance) that will be provided by Supplier in the performance of your project. You are urged to refer to the VITA Contract for the definition of Services and for the allowable scope in drafting language for this section. You will notice subsections "C" and "D" below offer areas for expanded detail on training, support and maintenance services. You may add other subsections in which you wish to expand the information/details/requirements for other service areas as well. It is likely some of this detail will be a combination of your known needs and the Supplier's proposal. In all cases the provisions should include all negotiated commitments by both parties, even if you reference by incorporation the Supplier's proposal in any subsection.)*

### C. Training Requirements and/or Authorized User Self-Sufficiency/Knowledge Transfer

*(Provide an overview and details of training services to be provided for your project and any special requirements for specific knowledge transfer to support successful implementation of the Solution. If the intent is for the Authorized User to become self-sufficient in operating or maintaining the Solution, determine the type of training necessary, and develop a training plan, for such user self-sufficiency. Describe how the Supplier will complete knowledge transfer in the event this Statement of Work is not completed due to actions of Supplier or the non-appropriation of funds for completion affecting the Authorized User. You may refer to the VITA Contract for guidance on the allowable scope for this.*

### D. Support and Maintenance Requirements

*(Document the level of support, as available under the Contract, required by your project to operate and maintain the Solution. This may include conversion support, legacy system integration, transition*

assistance, Solution maintenance (including maintenance level), or other specialized consulting to facilitate delivery or use of the Solution.

**E. Personnel Requirements**

(Provide any supplier personnel qualifications, requirements, licenses, certifications or restrictions including project manager, key personnel, subcontractors, etc., but ensure they do not conflict with the VITA Contract terms.)

**F. Transition Phase-In/Phase-Out Requirements**

(Describe any specific requirements for orientation or phasing in and/or phasing out of the project with the Supplier. Be specific on what the project needs and expected results are, the duration and other pertinent detail, but ensure they do not conflict with the VITA Contract provision(s) regarding Transition of Services or with any other training requirements in the SOW.)

**8. TOTAL PROJECT PRICE**

The total Fixed Price for this Project shall not exceed \$US XXX.

Supplier's invoices shall show retainage of [redacted]. Following completion of Solution implementation, Supplier shall submit a final invoice to the Authorized User, for the final milestone payment amount shown in the table in section 9 below, plus the total amount retained by the Authorized User. If travel expenses are not included in the fixed price of the Solution, such expenses shall be reimbursed in accordance with Commonwealth of Virginia travel policies as published by the Virginia Department of Accounts (<http://www.doa.virginia.gov>). In order to be reimbursed for travel expenses, Supplier must submit an estimate of such expenses to Authorized User for approval prior to incurring such expenses.

(Sections 9 through 11 should be used or deleted depending on the project's complexity, risk and need for governance. For a simple project you may only need the section 10 table, but for a more complex project, or a major IT project, you may need a combination of or all of the tables for check and balance and redundancy.)

**9. PROJECT DELIVERABLES**

(Provide a list of Supplier's deliverable expectations. The table is to be customized for the Authorized User's project. You may want to categorize deliverables for each phase or major milestone of the project and then categorize other interim deliverables and/or performance and status reports under one of them or under an Administrative or Project Management section.)

The following deliverables are to be provided by Supplier under this SOW. Subsequent sections may include further detail on the content requirements for some deliverables.

No.	Title	Due Date	Format Required (i.e., electronic/hard copy/CD/DVD)	Distribution Recipients	Review Complete Due Date	Final Due Date
	Project Plan					
	Design Plan					
	Implementation Plan					
	Data Conversion Plan					
	Risk Assessment Plan					
	Test Plan					

Training Plan					
Performance Plan					
Contingency Plan					
Disaster Recovery Plan					
Cutover Plan					
Change Management Plan					
Transition Plan					
Monthly Status Reports					
Quarterly Performance /SLA Reports					
Training Manual					
Final Solution Submission Letter					
Final Acceptance Letter					

**10. MILESTONES, DELIVERABLES, PAYMENT SCHEDULE, AND HOLDBACKS**

*(This table should include the project’s milestone events, associated deliverables, when due, milestone payments, any retainage amount to be held until final acceptance and the net payment you promise to pay for each completed and accepted milestone event. This table includes sample data only and must be customized for your project needs.)*

The following table identifies milestone events and deliverables, the associated schedule, any associated payments, any retainage amounts, and net payments.

Milestone Event	Associated Milestone Deliverable(s)	Schedule	Payment	Retainage	Net Payment
Project kick-off meeting	---	-----	---	---	---
-----	-----	-----	---	---	---
-----	-----	-----	-----	-----	-----
-----	-----	-----			
-----		-----			
-----		-----	-----	-----	-----
-----	---	-----	-----	-----	-----
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-----	---	-----	---	---	---
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	--	-----
Final Acceptance		-----	--	--	-----

**11. EVENTS AND TASKS FOR EACH MILESTONE**

*(If needed, provide a table of detailed project events and tasks to be accomplished to deliver the required milestones and deliverables for the complete Solution. Reference each with the relevant milestone. A Work Breakdown Structure can be used as shown in the table below or at the very least a Project Plan should have this granularity. The Supplier's proposal should be tailored to the level of detail desired by the Authorized User's business owner/project manager for project governance.)*

The following table identifies project milestone events and deliverables in a Work Breakdown Structure format.

WBS No.	Milestone	Milestone Event	Milestone Task	Interim Task Deliverables	Duration
1.0					
1.1					
1.1.1					
1.1.2					
1.2					

**12. ACCEPTANCE CRITERIA**

*(This section should reflect the mutually agreed upon UAT and Acceptance Criteria specific to this engagement. Please read the VITA contract definitions for the definitions or Requirements and Acceptance. Ensure the language in this section does not conflict with the VITA Contract language.)*

Acceptance Criteria for this Solution will be based on a User Acceptance Test (UAT) designed by Supplier and accepted by the Authorized User. The UAT will ensure that all of the requirements and functionality required for the Solution have been successfully delivered. Supplier will provide the Authorized User with a detailed test plan and acceptance check list based on the mutually agreed upon UAT Plan. This UAT Plan check-list is incorporated into this SOW in Exhibit B-X.

Each deliverable created under this Statement of Work will be delivered to the Authorized User with a Deliverable Acceptance Receipt. This receipt will describe the deliverable and provide the Authorized User's Project Manager with space to indicate if the deliverable is accepted, rejected, or conditionally accepted. Conditionally Accepted deliverables will contain a list of deficiencies that need to be corrected in order for the deliverable to be accepted by the Project Manager. The Project Manager will have ten (10) days from receipt of the deliverable to provide Supplier with the signed Acceptance Receipt unless an alternative schedule is mutually agreed to between Supplier and the Authorized User in advance.

**13. PROJECT ASSUMPTIONS AND PROJECT ROLES AND RESPONSIBILITIES**

*(This section contains areas to address project assumptions by both the Supplier and the Authorized User and to assign project-specific roles and responsibilities between the parties. Make sure that all assumptions are included to alleviate surprises during the project. Ensure that all primary and secondary (as needed) roles and responsibilities are included. You will tailor the Responsibility Matrix table below to fit your project's needs.)*

**A. Project Assumptions**

The following assumptions are specific to this project:

**B. Project Roles and Responsibilities**

The following roles and responsibilities have been defined for this project:

**(Sample Responsibility Matrix)**

Responsibility Matrix	Supplier	Authorized User
Infrastructure – Preparing the system infrastructure that meets the		√

recommended configuration defined in <a href="#">Section 2B herein</a>		
Server Hardware		√
Server Operating		√
Server Network Connectivity		√
Relational Database Management Software (Installation and Implementation)		√
Server Modules – Installation and Implementation	√	
PC Workstations – Hardware, Operating System, Network Connectivity		√
PC Workstations – Client Software		√
Application Installation on PC Workstations	√	
Wireless Network Access Points	√	
Cabling, Electric and User Network Connectivity from Access Points		√
Wireless Mobile Computing Products – Scanners, printers	√	
Project Planning and Management	√	√
Requirements Analysis	√	√
Application Design and Implementation	√	
Product Installation, Implementation and Testing	√	
Conversion Support	√	
Conversion Support -- Subject Matter Expertise		√
Documentation	√	
Training	√	
Product Maintenance and Support	√	
Problem Tracking	√	√
Troubleshooting – IT Infrastructure		√
Troubleshooting – Solution	√	

**14. COMMONWEALTH AND SUPPLIER-FURNISHED MATERIALS, EQUIPMENT, FACILITIES AND PROPERTY**

*(In this section, provide details of any materials, equipment, facilities and property to be provided by your Agency or the Supplier in performance of this project. If none, so state so that the requirements are clear. If delivery of any of these is critical to the schedule, you may want to identify such delivery with hard due dates tied to “business days after project start” or “days after [event/milestone](#).” Be sure to specify the delivery and point of contact information.)*

**A. PROVIDED BY THE COMMONWEALTH**

**B. PROVIDED BY THE SUPPLIER**

**15. SECURITY REQUIREMENTS**

*(Provide (or reference as an Attachment) Authorized User’s security requirements.)*

For any individual Authorized User location, security procedures may include but not be limited to: background checks, records verification, photographing, and fingerprinting of Supplier’s employees or agents. Supplier may, at any time, be required to execute and complete, for each individual Supplier employee or agent, additional forms which may include non-disclosure agreements to be signed by Supplier’s employees or agents acknowledging that all Authorized User information with which such employees and agents come into contact while at the Authorized User site is confidential and proprietary. Any unauthorized release of proprietary information by the Supplier or an employee or agent of Supplier shall constitute a breach of the Contract.

Supplier shall comply with all requirements in the Security Compliance section of the Contract

## 16. REQUIRED STANDARDS, CERTIFICATIONS AND SPECIFICATIONS

In addition to any standards and specifications included in the Contract, Supplier shall follow the standards and specifications listed below during performance of this effort.

*(List any specific Commonwealth, VITA, Federal, engineering, trade/industry or professional standards, certifications and specifications that Supplier is required to follow or possess in performing this work. The first bullet includes a link to COVA-required standards for all Commonwealth technology projects. The rest are examples only and highlighted to reflect this. If you need an exception of any COVA-required standard, please follow the process located at this link: <http://www.vita.virginia.gov/oversight/default.aspx?id=10344> and select the Data Standards Guidance bulleted link. Your AITR can assist you.*

- COV ITRM Policies and Standards: <http://www.vita.virginia.gov/library/default.aspx?id=537>
- IEEE 802®
- HIPAA
- SAS 70 Type II

## 17. U.S. ENVIRONMENTAL PROTECTION AGENCY'S AND DEPARTMENT OF ENERGY'S ENERGY STAR GUIDELINES RISK MANAGEMENT

*(Risk is a function of the probability of an event occurring and the impact of the negative effects if it does occur. Negative effects include schedule delay, increased costs, failure of dependent legacy system interoperability, other project dependencies that don't align with this project's schedule, and poor quality of deliverables. Depending on the level of risk of this project, as assessed by your Project Manager and/or Steering Committee, this section may contain any or all of the following components, at a level of detail commensurate with the level of risk. Remember to add them to the Deliverables table.)*

### C. Initial Risk Assessment

Authorized User and Supplier shall each provide an initial assessment from their point of view.

### D. Risk Management Strategy

*(The list below is taken from VITA PMD template discussing what should go into a Risk Management Strategy. Don't forget to consider and plan for any budget contingencies to accommodate potential risks that are identified.)*

1. **Risk Identification Process:** The processes for risk identification.
2. **Risk Evaluation and Prioritization:** How risks are evaluated and prioritized.
3. **Risk Mitigation Options:** Describe the risk mitigation options. They must be realistic and available to the project team.
4. **Risk Plan Maintenance:** Describe how the risk plan is maintained during the project lifecycle.
5. **Risk Management Responsibilities:** Identify all project team members with specific risk management responsibilities. (e.g., an individual responsible for updating the plan or an individual assigned as a manager).

### E. Risk Management Plan

*(Include a description of frequency and form of reviews, project team responsibilities, steering and oversight committee responsibilities and documentation. Be sure to add all deliverables associated with risk strategizing and planning to the list of Deliverables.)*

**18. DISASTER RECOVERY**

Planning for disaster recovery for your project is paramount to ensure continuity of service. The criticalness and complexity of your project, including its workflow into other dependent systems of the Commonwealth or federal systems, will help you determine if you require a simple contingency plan or a full-blow contingency plan that follows the Commonwealth’s ITRM Guideline SEC508-00 found at this link:

[http://www.vita.virginia.gov/uploadedFiles/Library/ContingencyPlanningGuideline04\\_18\\_2007.pdf](http://www.vita.virginia.gov/uploadedFiles/Library/ContingencyPlanningGuideline04_18_2007.pdf)

It is advisable that you visit the link before making your decision on how you need to address contingency planning and related deliverables in this SOW; as well as, how this will impact your planned budget. A likely deliverable for this section would be a Continuity of Operations Plan. You may choose to include the above link in your final SOW to describe what the Plan will entail. The same link includes the following processes, which you may choose to list in your final requirements for this section, to be performed by your team, the Supplier or both and/or a steering committee if your project warrants such oversight and approval:

- Development of the IT components of the Continuity of Operations Plan (COOP)
- Development and exercise of the IT Disaster Recovery Plan (IT DRP) within the COOP
- Development and exercise of the IT System Backup and Restoration Plan

**19. PERFORMANCE BOND**

(If your project is sizeable, complex and/or critical, and the VITA Contract does not already provide for a performance bond, you may want the Supplier to provide one. The VITA Contract may include an Errors and Omissions insurance requirement, which would cover the Supplier’s liability for any breach of the Contract or this SOW. Be sure to read the Contract for this information. However, if you feel that this project warrants further performance incentive due to the project or the Supplier’s viability, you may include the following language in this section.)

[Redacted]

**20. OTHER TECHNICAL/FUNCTIONAL REQUIREMENTS**

(Provide any other unique project technical and functional requirements and expectations in sufficient detail in this section. Ensure they do not conflict with existing requirements in the VITA Contract. Several examples are listed.)

F. [Redacted]

G. [Redacted]

H. [Redacted]

I. [Redacted]

**21. REPORTING**

(The following are examples of reporting requirements which may be included in your SOW depending on the project’s need for governance. In an effort to help VITA monitor Supplier performance, it is strongly recommended that the SOW include “Supplier Performance Assessments”. These assessments may be performed at the Project Manager’s discretion and are not mandated by VITA.)

**A. Weekly/Bi-weekly Status Update.**

The weekly/bi-weekly status report, to be submitted by Supplier to the Authorized User, should include: accomplishments to date as compared to the project plan; any changes in tasks, resources or schedule with new target dates, if necessary; all open issues or questions regarding the project; action plan for addressing open issues or questions and potential impacts on the project; risk management reporting.

**B. Supplier Performance Self-Assessment.**

Within thirty (30) days of execution of the project start, the Supplier and the Authorized User will agree on Supplier performance self-assessment criteria. Supplier shall prepare a monthly self-assessment to report on such criteria. Supplier shall submit its self-assessment to the Authorized User who will have five (5) days to respond to Supplier with any comments. If the Authorized User agrees with Supplier's self-assessment, such Authorized User will sign the self-assessment and submit a copy to the VITA Supplier Relationship Manager.

**C. Performance Auditing**

*(If you have included service level requirements in the above section entitled, Other Technical/Functional Requirements, you will want to include a requirement here for your ability to audit the results of the Supplier's fulfillment of all requirements, Likewise, you may want to include your validation audit of the Supplier's performance reporting under this Reporting section. It is important, however, that you read the VITA contract prior to developing this section's content so that conflicts are avoided. Suggested language is provided below, but must be customized for your project.)*

*\_\_\_\_\_ (If none, you may add your escalation procedure in this section.)*

**D. Supplier Performance Assessments**

*(You may want to develop assessments of the Supplier's performance and disseminate such assessments to other Authorized Users of the VITA Contract. Prior to dissemination of such assessments, Supplier will have an opportunity to respond to the assessments, and independent verification of the assessment may be utilized in the case of disagreement.)*

**22. CHANGE MANAGEMENT**

*(Changes to the baseline SOW must be documented for proper project oversight. Depending on your project, you may need to manage and capture changes to configuration, incidents, deliverables, schedule, price or other factors your team designates as critical. Any price changes must be done in compliance with the Code of Virginia, § 2.2-4309. Modification of the contract, found at this link: <http://leg1.state.va.us/cgi-bin/legp504.exe?000+coh+2.2-4309+500825>. Changes to the scope of this SOW must stay within the boundaries of the scope of the VITA Contract.*

*For complex and/or major projects, it is recommended that you use the VITA PMD processes and templates located at: <http://www.vita.virginia.gov/oversight/projects/default.aspx?id=567>. Administrative or non-technical/functional changes (deliverables, schedule, point of contact, reporting, etc.) should extrapolate the affected sections of this SOW in a "from/to" format and be placed in a numbered modification letter referencing this SOW and date, with a new effective date. The VITA Contract may include a template for your use or you may obtain one from the VITA Contract's Point of Contact. It is very important that changes do not conflict with, but do comply with, the VITA Contract, which takes precedence. The following language may be included in this section, but additional language is needed to list any technical/functional change management areas specific to this SOW; i.e., configuration, incident, work flow, or any others of a technical/functional nature.)*

All changes to this SOW must comply with the Contract. Price changes must comply with the Code of Virginia, § 2.2-4309. Modification of the contract, found at this link: <http://leg1.state.va.us/cgi-bin/legp504.exe?000+coh+2.2-4309+500825>

All changes to this SOW shall be in written form and fully executed between the Authorized User's and the Supplier's authorized representatives. For administrative changes, the parties agree to use the change template, attached to this SOW. For technical/functional change management requirements, listed below, the parties agree to follow the processes and use the templates provided at this link: <http://www.vita.virginia.gov/oversight/projects/default.aspx?id=567>

**23. POINT OF CONTACT**

For the duration of this project, the following project managers shall serve as the points of contact for day-to-day communication:

Authorized User: \_\_\_\_\_

Supplier: \_\_\_\_\_

By signing below, both parties agree to the terms of this Exhibit.

**Supplier:**

**Authorized User:**

\_\_\_\_\_

\_\_\_\_\_

(Name of Supplier)

(Name of Agency/Institution)

By: \_\_\_\_\_

By: \_\_\_\_\_

(Signature)

(Signature)

Name: \_\_\_\_\_

Name: \_\_\_\_\_

(Print)

(Print)

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_



**EXHIBIT E CHANGE ORDER TEMPLATE  
CONTRACT NUMBER VA-150915-CARA  
BETWEEN  
VIRGINIA INFORMATION TECHNOLOGIES AGENCY  
AND  
CARAHSOFT TECHNOLOGY CORPORATION**

Exhibit E is hereby incorporated into and made an integral part of Contract Number VA-150915-CARA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Carahsoft Technology Corporation (“Supplier”).

In the event of any discrepancy between this Exhibit E and the Contract, the provisions of the Contract shall control.

This Change Order No. **XXX** hereby modifies and is made an integral part of Statement of Work **D-X** (“SOW”), between **NAME OF AGENCY/INSTITUTION** (“Authorized User”) and Carahsoft Technology Corporation (“Supplier”), which was issued under Contract Number VA-150915-CARA (“Contract”) between the Virginia Information Technologies Agency (“VITA”) and Supplier, on behalf of the Commonwealth of Virginia and its Authorized Users.

*[Note: Instructions for using this template to draft a Change Order are in gray. These instructions should be deleted after the appropriate text has been added to the Change Order. Contractual language is not in gray and should remain in the document. Text that is highlighted in blue is contractual language that is variable based on the nature of the project and in final form should not be highlighted. Agency/Institution should remove the first two lines of the heading, which pertain to this template as an Exhibit to the VITA Contract and remove the Exhibit reference from the header.]*

**CHANGE ORDER**

This is Change Order No. **XXX** to a SOW issued by **Authorized User** to Supplier under which Supplier is to provide the Authorized User with a **Authorized User Project Name Solution (“Solution”)**.

The following item(s) is/are hereby modified as follows: *[Note: Include only the sections of the SOW that are being changed. Do not include sections not being modified. Changes should be clearly identified as “From” (copy/paste from current SOW section) and “To” (fully describe the change(s) to the referenced section). Here is an example, using SOW section 1.]*

**1. PERIOD OF PERFORMANCE**

**[Redacted]**

This Change Order No. **XXX** is issued pursuant to and, upon execution, shall become incorporated in the SOW, which is incorporated in the Contract. In the event of conflict, the following order of precedence shall apply:

- i). The Contract
- ii). Statement of Work E-X, as amended by this and previous Change Orders, with the more current Change Orders superseding older Change Orders.

The foregoing is the complete and final expression of the agreement between the parties to modify the SOW and cannot be modified, except by a writing signed by duly authorized representatives of both parties hereto.

ALL OTHER TERMS AND CONDITIONS OF THE REFERENCED SOW REMAIN UNCHANGED.

By signing below, the authorized parties agree to the terms of this Change Order No. XXX, effective **(INSERT EFFECTIVE DATE)**.

Supplier

By: \_\_\_\_\_

(Signature)

Name: \_\_\_\_\_

(Print)

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Authorized User

By: \_\_\_\_\_

(Signature)

Name: \_\_\_\_\_

(Print)

Title: \_\_\_\_\_

Date: \_\_\_\_\_



**EXHIBIT G LOBBYING CERTIFICATION  
CONTRACT NUMBER VA-150915-CARA  
BETWEEN  
VIRGINIA INFORMATION TECHNOLOGIES AGENCY  
AND  
CARAHSOFT TECHNOLOGY CORPORATION**

Exhibit G is hereby incorporated into and made an integral part of Contract Number VA-150915-CARA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Carahsoft Technology Corporation (“Supplier”).

In the event of any discrepancy between this Exhibit G and the Contract, the provisions of the Contract shall control.

**CERTIFICATION REGARDING LOBBYING**

The undersigned certifies, to the best of his or her knowledge and belief, that:

No Federal appropriated funds have been paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee or an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal Contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal Contract, grant, loan, or cooperative agreement.

If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal Contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The undersigned shall require that the language of this certification be included in the award documents for all sub awards at all tiers (including subcontracts, sub grants, and Contracts under grants, loans and cooperative agreements) and that all sub recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Signature:  \_\_\_\_\_

Printed Name: Ellen Lord

Organization: Carahsoft Technology Corporation

Date: October 13, 2015

**EXHIBIT H –SOFTWARE AS A SERVICE  
ADDITIONAL CONTRACT TERMS AND CONDITIONS  
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**EXHIBIT H –SOFTWARE AS A SERVICE  
ADDITIONAL CONTRACT TERMS AND CONDITIONS**

These additional terms and conditions for provision of Software as a Service contractual obligation as part of an overall Solution provided by the Supplier are in support of and incorporated herewith under Contract No. VA-150915-CARA. This Exhibit ("Exhibit") sets forth additional terms and conditions under which Supplier shall provide such Application and Licensed Services ("Licensed Services") to VITA and Authorized Users.

**1. DEFINITIONS**

**A. Application**

The software programs in object code and other related data, including intellectual data, proprietary information and Documentation contained and applicable to Licensed Services hosted and supported by Supplier under the Contract, as described in Exhibit A or as described in any SOW or order issued under the contract, including any Updates, enhancements, and replacements to the Application.

**B. Application Users**

Application Users shall include, as specified in the applicable Statement of Work or order, employees of an Authorized User, independent contractors engaged by an Authorized User, or entities contracting with an Authorized User for services, as well as customers, suppliers, members of the general public, and other entities with whom an Authorized User may find it necessary or desirable to process or communicate electronically in pursuit of its business. In the event that the Authorized User is a private institution chartered in Virginia and granted tax-exempt status under §501(c)(3) of the Internal Revenue Code, Application Users may include students of such private institution.

**C. Content**

Any data, including the selection, arrangement and organization of such data, entered, uploaded to the Application, or otherwise provided to Supplier by Authorized User or by any Application User, and any software and related documentation, from whatever source, provided by Authorized User or Application User to Supplier in connection with this Contract.

**D. Licensed Services**

The operation of the Application and the necessary operating system software, hardware and utilities on Supplier's host computer system, furnishing Supplier Product to Application Users, storing Content and making the Application, Content, and Supplier Product available to Application User(s) via the Web Site, as more fully described in Exhibit A or as described in any Statement of Work or order issued hereunder.

**E. Supplier Product**

Supplier's proprietary reports, information and data made available to Authorized User and its Application Users as part of the Licensed Services.

**F. Web Site**

The Internet site operated by Supplier to provide access to the Application, with the Uniform Resource Locator (URL) specified in the applicable Statement of Work or order (or any successor URL(s)).

**2. TERM AND TERMINATION**

**A. Scalability**

VITA or an Authorized User may make a written request to increase or decrease the scope (e.g., number of USERIDs) of Licensed Services ("revised usage") under an order or Statement of Work. The revised usage shall be effective not more than one (1) business hour following the request. Pricing for the revised usage of Licensed Services shall be calculated as provided in Exhibit B and shall be prorated on a daily basis for remaining portion of the current monthly billing period. For purposes of this provision, a written notice may include an e-mail or the use of a Supplier-provided provisioning website by an Authorized User's designated administrator.

### 3. DESCRIPTION OF LICENSED SERVICES

During the term of any order or SOW issued pursuant to this Contract, Supplier hereby agrees to host the Application(s) listed and described in Exhibit A and specified in such order or SOW by the ordering Authorized User on servers owned, operated, housed, and maintained by Supplier and shall make such Application(s) available to Authorized User's designated Application Users through the Internet.

Supplier has acquired any and all license rights in the Application(s) necessary and appropriate for Supplier to provide the Licensed Services as listed and described in Exhibit A for all Authorized Users. Supplier hereby grants each ordering Authorized User and its Application Users a non-exclusive, transferable, worldwide license to access and use by any method the Application during the term of the applicable order or SOW issued pursuant to this Contract. The license fee for the rights shall be as set forth in Exhibit B, and shall apply regardless of access mode.

If Authorized User is a state agency, board, commission, or other quasi-political entity of the Commonwealth of Virginia or other body referenced in Title 2.2 of the Code of Virginia, the license shall be held by the Commonwealth. If Authorized User is a locality, municipality, school, school system, college, university, local board, local commission, or local quasi-political entity, the license shall be held by that public body. If Authorized User is a private institution of higher education chartered in Virginia and granted tax-exempt status under §501(c)(3) of the Internal Revenue Code, the license shall be held by that institution.

Notwithstanding any other provision or other unilateral license terms which may be issued by Supplier after the Effective Date of this Contract, and irrespective of whether any such provisions have been proposed prior to or after the issuance of an order or SOW for Licensed Services, including access to the Application(s), or the fact that such other agreement may be presented to an Authorized User or its Application Users at the time of accessing the Application(s) ("click wrap"), the terms and conditions set forth herein in this Contract and any amendments or modifications thereto shall supersede and govern licensing and use of all products and services hereunder.

### 4. SUPPLIER RESPONSIBILITIES

#### A. Standard Application Responsibilities

Unless otherwise indicated in Exhibit A, Supplier shall acquire and maintain, at no charge to Authorized User, the hardware and software required to host the Application(s). The hardware and software on which the Application(s) is hosted will be maintained in good operating condition, consistent with or exceeding generally accepted industry practices and procedures. In addition:

- i). Supplier shall maintain sufficient hardware capacity to satisfy the technical requirements and the bandwidth and required storage capacity indicated in Exhibit A.
- ii). Supplier shall be responsible for all telecommunication connections from the server hosting the Application to the Internet.
- iii). Supplier may collect user-specific data only as necessary to provide the Licensed Services ordered by an Authorized User. No information regarding any Authorized User or any Application User shall be disclosed, provided, rented or sold to any third party for any reason unless required by law or regulation or by an order of a court of competent jurisdiction. This obligation shall extend beyond the term of the Contract.
- iv). The Application will be made available to Authorized User and/or designated Application Users, as specified in the applicable order or SOW, twenty-four (24) hours a day, seven (7) days a week ("Uptime") less Excusable Downtime. For the purposes of this Contract, "Excusable Downtime" is defined as that period of time when the Licensed Services are not available to Authorized User or its Application Users due to scheduled network, hardware or service maintenance and/or upgrades. Except in cases of emergency, Authorized User shall be provided a two (2) business day advance notification of such maintenance and/or upgrade. In cases of emergency, Supplier will use its best efforts to notify Authorized User of a planned Downtime as soon as practicable. Maintenance or upgrades are not to exceed thirty-six (36) hours in duration in a single month and cannot occur Monday through Friday, between the hours of 6:00 a.m. and 8:00 p.m. Eastern Time.

v). Excusable Downtime shall not include (i) an electronic hardware failure, (ii) a failure in the Supplier's Application, (iii) an electric utility failure at Supplier's facility where the Application is hosted, or (iv) a network failure up to, but not including, the interconnection point of Supplier's network to the public switched telephone network.

vi). Supplier guarantees the Application will be available for use at least ninety-nine percent (99%) of the total time during each month, excluding Excusable Downtime.

vii). If non-Excusable Downtime exceeds the parameters listed above, Supplier will credit to Authorized User the total recurring fees that would otherwise be owed by Authorized User under this Contract during the month of such failure. Such credit will be issued in the month immediately following the failure.

viii). Supplier shall be required to notify VITA in writing at least sixty (60) days prior to of any planned change(s) or Update(s) to the Application; its functionality; Content storage/ backup/disaster recovery, including physical location; security architecture, features or settings; terminations and/or replacement of any Supplier subcontractor. The planned changes or Updates include any change(s) that would potentially impact the secure and efficient use of the Application, as understood and agreed to between Supplier and VITA at Contract award. The purpose of this notice is to allow sufficient time for Supplier and VITA to discuss any technical/functional considerations and/or changes that would require action by the Commonwealth.

ix). Supplier is responsible for documenting and maintaining any customizations made for operational use of the Application and/or for interoperability use with other systems or applications used by an Authorized User and paid for solely by Authorized User. The associated technical data, code, documentation and other necessary information about such customizations shall be provided by Supplier to Authorized User within ten (10) business days of the customizations' operational use. Supplier shall be required to routinely transfer knowledge regarding the Application and Licensed Services, including Updates and all material changes, to Authorized Users in a reasonable manner to ensure proper and efficient use of Application and Licensed Services without degrading performance thereof.

x). (Add any additional, project specific Supplier Standard Application responsibilities.)

In addition, and at no additional cost to Authorized Users, Supplier shall provide access to additional Updates, features, and functionalities of the Application as are provided by Supplier to other customers of Supplier who require functionality similar to that of the Application provided to Authorized Users. All such additional features and functionality, where reasonably necessary, shall be accompanied by updated Documentation, whether in hard copy format or distributed electronically via email or the Supplier website. Notwithstanding the provisions of this Section and except as agreed to in writing by VITA and Supplier, nothing in the Contract shall oblige Supplier to undertake any modifications to the Application, and all such modifications are at Supplier's sole discretion whether suggested by an Authorized User or another party.

#### **B. Ancillary Responsibilities**

Supplier shall, throughout the term of this Contract, make available such resources, including Supplier personnel, as are reasonably required to: (i) train designated Authorized User personnel in the use of the Application; (ii) develop modifications to the Application as agreed by VITA and Supplier in any exhibit hereto or as agreed to by Supplier and Authorized User in any order or SOW issued hereunder; and (iii) otherwise support the Application as provided under this Contract and any exhibits hereto or as agreed in any order or SOW issued hereunder.

#### **C. Subcontractors**

(User-This may not be applicable to ASP, but is always applicable to SaaS. Important to delete if not applicable for your ASP project.)

It is understood that Supplier may utilize subcontractors to provide integral components of the Licensed Services and Application; however, except for those so named at time of Contract award, Supplier shall not use new or replacement subcontractors to perform or provide integral components of the Licensed Services or Application during performance of this Contract without advance written notification to and approval by VITA.

Supplier is responsible for the performance of its subcontractors used in providing any portion of the Licensed Services or Application. Additionally, Supplier is responsible for its subcontractors' compliance with the terms and conditions of this Contract.

If an order or SOW issued pursuant to this Contract is supported in whole or in part with federal funds, Supplier shall not subcontract any Services pursuant to such order or SOW to any subcontractor that is a party excluded from Federal Procurement and Nonprocurement Programs. In no event shall Supplier subcontract with any subcontractor which is debarred by the Commonwealth of Virginia or which owes back taxes to the Commonwealth and has not made arrangements with the Commonwealth for payment of such back taxes.

## 5. AUTHORIZED USER RESPONSIBILITIES

Unless otherwise agreed and as applicable, Authorized User or its Agent, or an Application User, will be responsible for input of Content into Supplier's Application and Authorized User or its Agent will be responsible for keeping said Content current and accurate. Supplier will have no responsibility for assisting Authorized User in creating, modifying or inputting the Content, unless specified in Exhibit A.

If Supplier issues unique USERIDs and passwords to an Application User:

i). Authorized User is responsible for protecting said passwords and for any authorized and unauthorized use made of the passwords. Authorized User will fully cooperate with law enforcement authorities in the detection and prosecution of illegal activity related to unauthorized use of the Licensed Services.

ii). Authorized User shall have the right to add, change access for, or delete USERIDs at its sole discretion. Authorized User shall designate Administrators who will be authorized to add, change access for or delete USERIDs.

iii). Upon notification by Authorized User of an Application User's deletion, Supplier shall remove said Application User from its server within one (1) hour of receipt of such notification. If Supplier fails to make such a deletion, Authorized User shall not be held liable for any charges or damages incurred due to use of the unauthorized USERID.

## 6. CONTENT PRIVACY AND SECURITY

Supplier shall provide a secure environment for Content and any hardware and software, including servers, network and data components provided by Supplier as part of its performance under this Contract. Supplier shall provide a secure environment for Content and any hardware and software in accordance with VITA's Security Standards located at:

<http://www.vita.virginia.gov/library/default.aspx?id=537#securityPSGs> in order to prevent unauthorized access to and use or modification of, and to protect, the Application and Content.

Supplier agrees that all Content of Authorized Users is intended solely for the business of the Authorized Users and is considered private data. Therefore, Supplier shall, at a minimum, implement the following procedures designed to protect the privacy and security of Content:

i). User identification and access controls designed to limit access to Content to Application Users.

ii). External connections to the World Wide Web which will have appropriate security controls including industry standard intrusion detection and countermeasures that will detect and terminate any unauthorized activity prior to entering the firewall maintained by Supplier.

iii). Industry standard firewalls regulating all data entering Supplier's internal data network from any external source which will enforce secure connections between internal and external systems and will permit only specific types of data to pass through;

iv). Industry standard encryption techniques which will be used when Content is transmitted by Supplier on behalf of Authorized User.

v). Physical security measures, including securing all Content on a secure server, in locked data cabinets within a secure facility located within the United States. Access to facilities housing the Application and Content restricted to only allow access to personnel and agents of Supplier who have a need to know in connection with operation and support of the Application.

vi). A backup of Content, for an orderly and timely recovery of such data in the event that the Licensed Services may be interrupted. Unless otherwise described in an order or Statement of Work,

Service Provider shall maintain a backup of Content that can be recovered within two (2) hours at any point in time. Additionally, Service Provider shall store a backup of Customer Data in an off-site "hardened" facility, located within the United States no less than daily, maintaining the security of Customer Data, the security requirements of which are further described herein.

- vii). Supplier agrees to maintain all metadata associated with any original Content submitted into the Application by an Authorized User for easy retrieval and access within two (2) hours at any point in time.
- viii). Supplier agrees to partition, in aggregate for this Contract, all Content submitted into the Application by an Authorized User in such a manner that it will not be impacted or forfeited due to E-discovery, search and seizure or other actions by third parties obtaining or attempting to obtain records, information or Content for reasons or activities that are not directly related to the business of the Authorized User.
- ix). Supplier agrees to maintain and follow a disaster recovery plan designed to maintain Application User access to the Application and Licensed Services, and to prevent the unintended destruction or loss of Content; and which plan, unless otherwise specified herein, shall provide for daily back-up of Content and archival of such Content at a secure facility located within the United States. The disaster recovery plan shall provide for and be followed by Supplier such that in no event shall the Application, Licensed Services, Supplier Product and/or Content be unavailable to any Application User for a period in excess of twenty-four (24) hours.
- x). Supplier agrees that during the term of this Contract, Supplier will retain Authorized Users' Content for the full term of the Contract.
- xi). Supplier, and through Supplier, its employees, agents and subcontractors, shall immediately notify any and all Authorized Users, of any degradation, potential breach or breach of Content and Application privacy or security in any systems supporting the Licensed Services. Supplier shall provide VITA the opportunity to participate in the investigation of the reported situation and to exercise control over reporting the unauthorized disclosure, to the extent permitted by law.
- xii). Supplier shall be required to notify all Authorized Users in writing thirty (30) days prior to its intention to replace or add any third-party that will be provided access to Content whether that access is provided by Supplier or Supplier's subcontractors. Authorized User may reject any additional or new third parties who may be provided access to Content.
- xiii). Supplier shall, at all times, remain compliant with the privacy and security requirements mandated by federal, state and local laws and regulations.
- xiv). Supplier shall ensure performance of a SSAE 16 Type II audit at least once annually of Supplier's environment. Upon request from VITA (not more than once annually), Supplier shall provide VITA with a copy of Supplier's final SSAE 16 Type II audit report. Supplier shall also assist VITA in obtaining the current SSAE 16 Type II audit report from any third-party providing services to Supplier, if said third-party services involve the processing or storage of Authorized Users' Content.
- xv). Supplier's failure to comply with the provisions in items (i) through (xiv) shall constitute a breach of this Contract.
- xvi). Within fifteen (15) business days after the expiration or termination of this Contract, Supplier shall confirm in writing to Authorized Users and VITA that all Content has been removed from all systems where the Content resided during performance of this Contract in a manner that complies with and/or exceeds the Commonwealth Data Removal standard located at the following URL: [http://www.vita.virginia.gov/uploadedFiles/Library/PSGs/Data\\_Removal\\_Standard.pdf](http://www.vita.virginia.gov/uploadedFiles/Library/PSGs/Data_Removal_Standard.pdf). The written confirmation shall include (i) sufficient detail describing the processes and procedures used in removing the Content, (ii) information about the locations of where it was removed from within the Application and storage and other locations, and (iii) the date the removals were performed. All metadata, in its original form, shall be returned to the respective Authorized User(s).
- xvii). Authorized Users of this Contract agree to notify Supplier of any degradation, potential breach, or breach of the Content and Application privacy or security as soon as possible after discovery. Authorized Users further agree to provide Supplier the opportunity to participate in the investigation of the reported situation.

- xviii). Regular training for Supplier personnel regarding the security and data recovery programs referenced in this Section.
- xix). Regular testing of the systems and procedures outlined in this Section; and
- xx). Audit controls that record and monitor Application and Licensed Services activity continuously.

## **7. PROPRIETARY RIGHTS**

### **A. Supplier's Proprietary Rights**

Except as otherwise stated herein, the Licensed Services (including without limitation, the Application and Updates, and Supplier Product, except to the extent that Supplier Product contains Content) and Documentation are the sole and exclusive property of Supplier and its licensors. All modifications, enhancements, Updates, and translations of the Licensed Services shall be deemed a part thereof.

### **B. Authorized User Requirements and License Restrictions**

Except as otherwise provided in this Contract or as provided by law:

- i). Authorized User will use commercially reasonable efforts to ensure that Application Users comply with all of the terms and conditions hereof;
- ii). Authorized User shall not reverse engineer, decompile, disassemble, or otherwise attempt to derive source code or other trade secrets from any of the software comprising or in any way making up a part of the Application;
- iii). Authorized User shall not directly or indirectly copy or reproduce all or any part of the Application, whether electronically, mechanically or otherwise, in any form including, but not limited to, the copying of presentation, style or organization, without prior written permission from Supplier; provided, however, an Authorized User may reproduce and distribute any Application output generated from the relevant Authorized User Content, and an Application User may reproduce and distribute any Application output generated pursuant to the permissions set forth in the applicable Authorized User's order or SOW;
- iv). Authorized User shall not rent, lease, sublicense, resell for profit, loan, distribute, network or modify the Application or Supplier Product or any component thereof, provided as part of the Licensed Services, except as otherwise authorized by Supplier. However, an Authorized User may reproduce and distribute any Application output (e.g., reports) generated by Authorized User using the Application, and an Application User may reproduce and distribute any reports or output generated by the Application User using the Application and pursuant to the permissions in the applicable Authorized User's order or SOW;
- v). Authorized User shall only use the Application and Supplier Product in the normal course of business, in connection with, and as part of, the Licensed Services;
- vi). Authorized User shall not attempt to gain unauthorized access to the Application or Licensed Services, other user accounts, computer systems or networks connected to the Licensed Services;
- vii). Authorized User shall not remove, obscure or alter Supplier's proprietary notices, disclaimers, trademarks, or other proprietary rights notices of any kind affixed or contained in the Application or Licensed Services or any written or electronic report, output or result generated in connection with the Licensed Services;
- viii). Authorized User shall take reasonable care not to, and shall not intentionally or knowingly, use the Application to post, transmit, distribute, store or destroy any information: (i) in violation of any applicable law, statute, ordinance or regulation; (ii) in a manner that shall infringe the intellectual property rights of others; (iii) that is defamatory or trade libelous, or (iv) that contains any Computer Viruses;
- ix). Authorized User shall not use the Application or Licensed Services for any illegal, obscene, offensive or immoral purpose.

### **C. Authorized User Proprietary Rights**

Except as otherwise stated herein and with the exception of any applicable third-party rights, Content and any customizations made for Authorized User's operation of the Application or for

interoperability with other Authorized User's systems or applications paid for by the Authorized User, are and shall remain the sole and exclusive property of Authorized User, including all applicable rights to patents, copyrights, trademarks, trade secrets or other proprietary property rights thereto. Additionally, all right, title and interest in and to any Content or customizations relating to Authorized User's business shall remain the property of Authorized User, whether or not supplied to Supplier or uploaded into the Application. Nothing in this Contract shall be construed as conveying any rights or interest in Content or customizations to Supplier. Upon termination of an order or SOW issued hereunder, Supplier agrees to either provide the Content and customizations to the applicable Authorized User, or, at such Authorized User's request, certify in writing that said Content and customizations in all formats, have been destroyed.

## **8. TRANSITION ASSISTANCE**

Upon execution of an order or SOW pursuant to this Contract, Supplier and Authorized User will develop a transition plan ("Transition Plan") detailing each Party's respective tasks for the orderly transition and migration of (i) all Content stored by Supplier pursuant to such order or SOW to Authorized User's archive and/or to a system or application maintained by Authorized User or a third party application service provider and agreed in writing by Authorized User and Supplier, (ii) the Application and Licensed Services to Authorized User or a third party service provider when such transition and migration to occur upon termination or expiration of the Contract or the order or SOW.

At a minimum, the Transition Plan shall provide that upon expiration or termination of this Contract or the applicable order or SOW for any reason, Supplier will return all Content in its possession to the Authorized User in a format accessible without the use of Supplier's Application. In addition, Supplier will, at Authorized User's option, continue to provide Licensed Services for up to six (6) months after the date of expiration or termination of such order or SOW in order to facilitate Authorized User's transition to a new service provider. Supplier shall also provide such reasonable assistance as may be requested by Authorized User to effectuate such transition.

Supplier shall, within thirty (30) days of expiration, completion, or termination of this Contract or any order or SOW issued hereunder, provide to all affected Authorized Users a complete set of all Content provided to Supplier by the relevant Authorized User and/or its Application Users and stored by the Application on behalf of such Authorized User. Supplier's failure to do so shall constitute a material breach of this Contract and, in addition to the remedies set forth in this Contract, VITA or the affected Authorized User may exercise all available rights and remedies under law and equity.

The obligations set forth in this section and in any Transition Plan developed pursuant to an order or SOW issued hereunder may extend beyond expiration or termination of the Contract for a period not to exceed six (6) months. In the event of a termination for breach and/or default of Supplier, Supplier shall perform such obligations at no charge or fee to VITA or any Authorized User; otherwise, Supplier shall perform such obligations at the hourly rate or a charge agreed upon by Supplier and VITA or an Authorized User.

## **9. COMMENCEMENT AND ACCEPTANCE OF LICENSED SERVICES**

### **A. Licensed Services Commencement Date**

The Supplier shall begin delivery of Licensed Services on the date requested by the Authorized User and agreed to by the Supplier in an order or SOW. An Authorized User may delay the Licensed Services commencement date by notifying the Supplier at least ten (10) days before the scheduled Licensed Services commencement date.

### **B. Acceptance**

The Application shall be deemed accepted when the Authorized User reasonably determines that such Authorized User and its Application Users can successfully access and use all functionalities of the Application which Supplier is required to provide to such Users. Such Authorized User agrees to complete Acceptance testing within fifteen (15) days after receiving written notice from Supplier of the ability of such Authorized User and its Application Users to access the Application, or within such other period as set forth in the applicable order or SOW. Supplier agrees to provide to such Authorized User such assistance and advice as such Authorized User may reasonably require, at no additional cost, during such Acceptance testing, other than pre-approved travel expenses incurred which will be reimbursable by such Authorized User at the then current per diem amounts set forth by the Virginia Department of Accounts and published at: <http://www.doa.virginia.gov/> or a successor URL(s). If the Authorized User is a

private institution chartered in Virginia and granted tax-exempt status under §501(c)(3) of the Internal Revenue Code, such private institution may have its own per diem amounts applicable to Supplier's pre-approved travel expenses. Authorized User shall provide to Supplier written notice of Acceptance upon completion of successful Acceptance testing. Should Authorized User fail to provide Supplier written notice of successful or unsuccessful Acceptance testing within five (5) business days following the Acceptance testing period, the Service shall be deemed Accepted.

**C. Cure Period**

If during the Acceptance test period, Authorized User is unable to access the licensed functionalities of the Application, Supplier shall provide Authorized User with such access, and such Authorized User's Application Users with their required access, within seven (7) days of written notice of inability to access, or as otherwise agreed between the Authorized User and Supplier in the applicable order or SOW. Should Supplier fail to provide access to the licensed functionalities of the Application, such Authorized User may, in its sole discretion: (i) reject the Application in its entirety and recover amounts previously paid hereunder; (ii) issue a "partial Acceptance" of the Application access with an equitable adjustment in the price to account for such deficiency; or (iii) conditionally accept the applicable Application access while reserving its right to revoke Acceptance if timely correction is not forthcoming.

If the Authorized User and its Application Users are unable to access the licensed functionalities of the Application after a second set of acceptance tests, Supplier shall be deemed in default of the order or SOW. In the event of such default, the Authorized User may, at its sole discretion, terminate its order or SOW, in whole or in part, for the Licensed Services to be provided thereunder by Supplier.

**10. RECORDS AND AUDIT**

Supplier shall maintain accurate records and other evidence pertaining to the costs and expenses for all Licensed Services performed/delivered under any order or SOW issued pursuant to this Contract in support of its charges invoiced to Authorized User. The records will be to the extent and in such detail as will properly reflect all direct and indirect costs associated with such order or SOW. In addition, Supplier shall maintain accurate records of the Licensed Services, including but not limited to, the "Uptime" and "Downtime" as set forth in the Supplier Responsibilities Section. Authorized User shall have the right, at any reasonable time during regular business hours after giving reasonable advance notice, to inspect and audit the records applicable to its order(s) or SOW(s). Supplier shall preserve such records for three (3) years after termination/completion of the Licensed Services agreed to under this Contract or any order or SOW issued hereunder.

**11. APPLICATION AND LICENSED SERVICES SUPPORT**

At any time during the term of any order or SOW issued pursuant to this Contract, Supplier shall provide the following Application Services (including unlimited telephonic support and all necessary travel and labor) without additional charge to any Authorized User in order to ensue such Authorized User and its Application Users are able to access and use the Application in accordance with the Requirements.

**A. Coverage**

Twenty-four (24) hours per day, seven (7) days a week, Supplier provide to any Authorized User all reasonably necessary telephone or written consultation requested by such Authorized User in connection with use, problems and operation of the Application.

**B. Service Levels**

Within one (1) hour after a request from an Authorized User, Supplier will respond to such request for support of Licensed Services regarding the Application and Licensed Services, including Application, Supplier Product and Documentation in accordance with the procedures identified in the Contract. In each case, Authorized User may describe the problem by telephone or electronic mail or via a web site provided by Supplier. Supplier shall use its best efforts/commercially reasonable efforts to meet Response Time and Resolution Time and other obligations under this Contract.

The level of severity (e.g., 1, 2, 3), shall be defined by such Authorized Users.

**C. Application Evolution**

Should Supplier merge or splinter the Application previously provided to any Authorized User, such action on the part of Supplier shall not in any way result in any Authorized User being charged additional license or support fees in order to access the Application, to enable its Application Users to access the Application, or to receive enhancements, releases, upgrades or support for the Application.

**12. SERVICE LEVELS AND REMEDIES****A. Availability**

Supplier's failure to make the Licensed Services Available to Authorized User and its Application Users at least 99% of the time in any given month during the term of such Authorized User's order or SOW, excluding scheduled maintenance or excusable downtime, shall be deemed a service level default ("Service Level Default") and Authorized User may obtain the non-exclusive remedies set forth in the Contract. For purposes of this Contract, "Available" means that Authorized User and its Application Users are able to access all features and functions of the Application and Licensed Services required by Authorized User, including but not limited to the Application and Supplier Product.

In the event Authorized User is eligible for a 100% Service Level Credit under this Section during any given month of the term of such Authorized User's order or SOW, Authorized User may terminate such order or SOW without penalty upon written notice to Supplier and, in addition to the remedies available under this Section, receive any additional remedies set forth in the Contract.

Credits shall be applied against the next invoice. In the event a Service Level Default occurs after VITA or an Authorized User has given notice of termination pursuant to the Term and Termination section of this Contract or due to non-appropriation of funds, or Authorized User has made final payment to Supplier for the Application and Licensed Services and no further invoices shall issue as a result, Supplier shall refund to Authorized User the amount of the appropriate Service Level Credit due for the period of default.

**B. Provisioning**

(Note: This clause is required for SaaS and may or may not be relevant to ASP contracts.) Incremental adds, moves or reductions in the scope of the Licensed Service (e.g., USERIDs), shall be completed within one (1) business hour of a written request (including e-mail or submission to Supplier's provisioning website) from an Authorized User's designated Administrator. In the event that provisioning is not made available within one (1) business hour of the request, a credit for the incremental amount of the revision shall be applied against the next invoice for 1/30th of the corresponding pro-rated amount.

**C. Reporting**

Once each calendar month during the term of an order or SOW issued pursuant to this Contract, Supplier shall provide Authorized User with a written report that shall contain information with respect to the performance of the Application and Licensed Services. Such report, unless otherwise agreed upon by the Parties, shall be in conformity with the reporting Supplier provides to its other customers utilizing an application and licensed services identical or similar to the Application and Licensed Services provided to the Authorized User. Representatives of Supplier and Authorized User shall meet as often as may be reasonably requested by either Party, but no less often than once each calendar quarter, to review Supplier's performance of Licensed Services and the performance of the Application and to discuss technical plans, financial matters, system performance, service levels and for any other matters related to this Contract or such Authorized User's order or SOW that may be reasonably requested by either Supplier or Authorized User. Authorized User may independently audit the report at its expense no more than two (2) times annually.

**D. Failure to Meet Service Level Commitments**

In the event that such Application fails to meet the Service Levels specified herein, Supplier will: (i) promptly replace the Application with an Application that conforms to this Contract and such specifications; (ii) repair the Application, at Supplier's expense, so that it conforms to this Contract and such specifications; or (iii) refund to Authorized User all fees paid for the Application and the Licensed Services after the failure of the Application to meet the Service Levels. In the event

Supplier fails to comply with these remedies, Authorized User may exercise all available rights and remedies under law and equity.

**E. Escalation Procedures**

See Contract terms.

**13. CYBER SECURITY LIABILITY INSURANCE**

In addition to other insurance coverage requirements in the Contract, Supplier shall carry Cyber Security Liability insurance coverage in the amount of \$5,000,000 per occurrence.

**14. ESCROW AGREEMENT**

Supplier shall maintain copies of all Application source code and related technical and user Documentation, in English, in an escrow account, and shall maintain with escrow agent the executed agreement attached hereto as Exhibit C-1 (Application Escrow Agreement). Supplier shall maintain, in a separate escrow account for each Authorized User, copies of all Content provided by or to such Authorized User in a format accessible without use of Supplier's Application. An executed agreement for providing for any such Content Escrow Agreement is attached hereto as Exhibit C-2 (Content Escrow Agreement). VITA acknowledges that, prior to the Effective Date of this Contract, Supplier delivered to VITA and VITA received a copy of the executed Application Escrow Agreement naming the Commonwealth of Virginia as a third party beneficiary. VITA has reviewed Application Escrow Agreement to ensure that such Application Escrow Agreement does not impose upon the Commonwealth any requirements other than administrative responsibilities necessary for the operation of the Application Escrow Agreement. If events give rise to a need for the escrow agent to release escrowed materials to the Commonwealth, the Commonwealth's sole responsibility shall be to request the release of such materials from the escrow agent. Supplier agrees to notify VITA in writing not less than thirty (30) calendar days prior to termination or any modification of the Application Escrow Agreement. Any Content Escrow Agreement shall name as a third party beneficiary the Authorized User whose Content is kept in escrow pursuant to such Content Escrow Agreement.

Supplier warrants that the information and materials to be kept in escrow in a media safe environment for the benefit of the Commonwealth pursuant to the Application Escrow Agreement are specifically identified and listed in Attachment A to the Application Escrow Agreement and include the most current version used by all Authorized Users of:

- i). the source code for the Application software and all future releases,
- ii). identification of the development/support technology stack, including but not limited to, every software tool, driver, script, app, etc. with versions and details needed to develop, test, support all phases of the SDLC for all tiers of the Application Software as used in the Authorized User's solution or operating environment,
- iii). all Documentation related thereto as well as all necessary and available information, proprietary information in English,
- iv). technical Documentation must be in English and shall enable VITA, any Authorized User, or an Agent of VITA or any Authorized User to create, maintain and/or enhance the Application Software without the aid of Supplier or any other person or reference to any other materials, maintenance tools (test programs and program specifications), or proprietary or third party system utilities (compiler and assembler descriptions); descriptions of the system/program generation; and descriptions of any Supplier tools required to enable VITA and all Authorized Users to continue to use the Application Software, and
- v). all Documentation must be provided in unprotected MS Word and other commonly used formats that can be updated.

Supplier warrants that all items, including future versions, deposited in escrow for VITA or an Authorized User shall be verified by the Escrow Agent within 30 days after deposit to validate the completeness, accuracy and functionality of the Supplier's escrow deposits. The verification process to be performed by the Escrow Agent for the original deposit and subsequent deposits shall be detailed in the Escrow Agreement and a detailed report of all tests of such verification shall be submitted in writing to VITA or the Authorized User within 10 business days of completion. To perform

such verification, Escrow Agent shall conduct a verification process that includes but is not be limited to:

- i). File List Test - To ensure the deposited items are catalogued and confirm they are readable and virus free, and if encrypted, that the Escrow Agent has the decryption keys on deposit.
- ii). Inventory and Analysis Test – To provide a complete audit and inventory of the deposit including analysis of deposited media to verify the presence of build instructions, to identify all of materials necessary to recreate the original development environment and to confirm the presence of all build instructions, file classification tables, database schema and listings.
- iii). Compile Test – To validate whether the development environment can be recreated from the deposited documentation and files; to identify third-party libraries, to recreate the Supplier's development environment; to compile source files and modules, to recreate executable code and to prepare a complete list of any hardware or software configurations.
- iv). Binary Comparison Test – To test the functionality of the complied deposit materials by comparing the files built in compile testing to the licensed, executable file running at VITA's or Authorized User's site.
- v). Full Usability Test – To confirm the source code placed in escrow will be fully functional in the event of a release and to perform a relevant series of tests to ensure that replicated software runs properly in the required VITA or Authorized User environment.
- vi). Final Operability Test – To perform a final demonstration of the functioning software.
- vii). Fault Remedy – To collaborate with Supplier on fixing any faults discovered during the testing, to obtain corrected escrow items and to re-perform any verification tests as necessary until all tests are successful, with written detailed reports to VITA or the Authorized User.

Supplier warrants that the information and materials to be kept in escrow in a media safe environment for the benefit of an Authorized User pursuant to a Content Escrow Agreement shall be specifically identified and listed in Attachment A to such Content Escrow Agreement and include a monthly back up of the Content repository for such Authorized User.

Supplier warrants that the Escrow Agreements provide or shall provide for, among other items, the release of the list of items on Attachment A of each Escrow Agreement which could occur upon the happening of certain events, including, but not limited to, Supplier's failure to carry out its support and maintenance obligations imposed by this Contract for a period of sixty (60) days, Supplier's breach or default under this Contract, Supplier's bankruptcy and/or Supplier's failure to continue to do business in the ordinary course. Any Content Escrow Agreement shall also provide for the release of the escrowed items in the event the Authorized User's Content is destroyed, lost, or damaged or following the termination or expiration of Authorized User's order or SOW for Licensed Services. Supplier agrees to pay all expenses associated with establishing and maintaining the escrow accounts and the contents mentioned above.

Subject to the information and materials listed on Attachment A of the Application Escrow Agreement being released to the Commonwealth pursuant to the terms of the Application Escrow Agreement, which is an agreement supplementary hereto, Supplier hereby grants to the Commonwealth a royalty-free, perpetual, irrevocable license, that permits disclosure to a third party support-vendor of a complete and accurate copy of then-current source code for the Application licensed hereunder, along with all related documentation.

Any Authorized User which is not a state agency, board, commission, or other quasi-political entity of the Commonwealth of Virginia or other body referenced in Title 2.2 of the Code of Virginia may require Supplier to execute an additional Application escrow agreement subject to the same requirements and binding Supplier to the same obligations as described above but naming such Authorized User as the beneficiary of the Application escrow agreement. Subject to the information and materials listed in such Application escrow agreement being released to such Authorized User, Supplier hereby grants to such Authorized User a royalty-free, perpetual, irrevocable license, that permits disclosure to a third party support-vendor of a complete and accurate copy of then-current source code for the Application licensed to such Authorized User, along with all related documentation.

## 15. GENERAL WARRANTY

### A. Licensed Services, Application and Documentation

Supplier warrants the following with respect to the Licensed Services and the Application:

- i). The Application is pursuant to a particular Request for Proposal (“RFP”), and therefore such Application shall be fit for the particular purposes specified by VITA in the RFP and in this Contract. Supplier is possessed of superior knowledge with respect to the Application and is aware that all Authorized Users are relying on Supplier's skill and judgment in providing the Licensed Services, including the Application.
- ii). Supplier represents and warrants (i) that it shall perform the Licensed Services in conformity to the specifications set forth in Exhibit A in a professional and workmanlike manner and (ii) that the Licensed Services shall not infringe any third party proprietary rights including (without limitation) any trademark, trade name, trade secret, copyright, moral rights, patents or similar intellectual property rights.
- iii). Supplier warrants that the Application and Licensed Services will conform in all material respects to the Requirements set forth in this Contract and any order or SOW issued hereunder. Supplier warrants that the Application Licensed Services will conform to the applicable specifications and Documentation, not including any post-Acceptance modifications or alterations to the Documentation which represent a material diminishment of the functionality of the Application, Licensed Services or Supplier Product. Supplier also warrants that such Application and Licensed Services are compatible with and will operate successfully when used on the equipment in accordance with the Documentation and all of the terms and conditions hereof.
- iv). The Application provided hereunder is at the current release level unless an Authorized User specifies an older version in its order or SOW;
- v). No corrections, work arounds or future Application releases provided by Supplier shall degrade the Application, cause any other warranty to be breached, or require an Authorized User to acquire additional hardware equipment or software;
- vi). Supplier warrants that all post-Acceptance Updates, changes, alterations or modifications to the Application, Licensed Services and Documentation by Supplier will be compatible with, and will not materially diminish the features or functionality of the Application, Licensed Services and/or Supplier Product when used on the equipment in accordance with the Documentation and all of the terms and conditions hereof.
- vii). Supplier warrants that the Documentation and all modifications or amendments thereto which Supplier is required to provide under this Contract shall be sufficient in detail and content to allow a user to understand and utilize fully the Application without reference to any other materials or information.

### B. Privacy and Security

Supplier warrants that Supplier and its employees, subcontractors, partners and third party providers have taken all necessary and reasonable measures to ensure that the Application, Licensed Services, Supplier Product, and any related deliverables do not include any degradation, known security vulnerabilities, or breach of privacy or security. Supplier agrees to notify VITA of any occurrence of such as soon as possible after discovery and provide VITA with fixes or upgrades for security vulnerabilities within 90 days of discovery.

### C. Operating System and Software Supportability

Supplier warrants that Supplier and its employees, subcontractors, partners and third party providers have taken all necessary and reasonable measures to ensure that the Application, Licensed Services, Supplier Product, and any deliverables do not have dependencies on other operating systems or software that are no longer supported by Supplier, or its Subcontractors, partners and third-party providers.

### D. Access to Product and Passwords

Supplier warrants that the Application and Licensed Services do not contain disabling code or any program device or other undisclosed feature, including but not limited to, viruses, worms, trojan horses, or other code which is designed to permit unauthorized access, delete, disable, deactivate, interfere with or otherwise harm the Application, Licensed Services or the hardware or

software of any Authorized User or its Application Users. In addition, Supplier warrants that Authorized User and its Application Users will be provided commercially reasonable uninterrupted access to the Application. Supplier also warrants that it will not cancel or otherwise terminate access to the Application by disabling passwords, keys or tokens that enable continuous use of the Application by the Authorized User and its Application Users during the term of this Contract or any order or SOW issued hereunder. Supplier further warrants that the Application and Licensed Services are compatible with and will operate successfully on the equipment.

**16. ACCEPTABLE USE POLICY (IF ACCEPTABLE)**

VITA and Authorized User agree to abide by Supplier's Acceptable Use Policy (AUP), as amended by the parties hereby and incorporated as Exhibit G. Because certain standard clauses that may appear in, or be incorporated by reference into, Supplier's standard AUP cannot be accepted by VITA, and in consideration of the convenience of using that form, and this form, without the necessity of specifically negotiating a separate contract document, the parties hereto specifically agree that:

- i. In the event of a conflict between this Contract and the AUP, the Contract shall control;
- ii. In the event of a material, unilateral revision to the AUP by Supplier that substantially impairs the ability of VITA or any other public body from its lawful use of the Service, VITA shall have the option to:
  - a. request that the revision be rescinded;
  - b. request that the revision be waived as to VITA or other public bodies receiving Services under this Agreement;

If Supplier fails to grant a request by VITA per a. or b. above, within 30 days of receiving the request, then VITA may, at its option, terminate this Contract, in whole or in part, or any order or SOW, in whole or in part, without termination liability;