

Virginia Information Technologies Agency



COMMONWEALTH OF VIRGINIA
VIRGINIA INFORMATION TECHNOLOGIES AGENCY (VITA)
SUPPLY CHAIN MANAGEMENT DIVISION
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REQUEST FOR INFORMATION (RFI) 2017-14
FOR:
SERVER, DATA CENTER, AND SECURITY SERVICES

Issue Date: September 29, 2016
Due Date/Time: October 21, 2016 @ 3:00 pm Eastern
Response Delivery Method: E-mail attachment to Single Point of Contact
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VITA is committed to increasing procurement opportunities for small, women-owned, and minority-owned (SWaM) businesses, strengthening the Commonwealth's overall economic growth through the development of its IT suppliers.

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1. INTRODUCTION

The intent of this Request for Information (RFI) is solely to gather information; it is not a formal procurement. Responding to the RFI is not a pre-requisite to submitting a proposal for any subsequent procurement. Respondents should not provide any confidential or proprietary information.

Ownership of all data, materials, and documentation originated and prepared for VITA pursuant to the RFI shall rest exclusively with VITA. All information provided to VITA as part of this RFI will not be publicly disclosed, but shall be subject to public inspection in accordance with the §2.2-4342 of the *Virginia Public Procurement Act* and the *Virginia Freedom of Information Act*.

A. IT Infrastructure Services Program (ITISP) Overview

This procurement event is a component in VITA's overall strategy to implement a new IT Infrastructure Services Program (ITISP). This program will position VITA to fulfill its vision to "deliver agile technology services at the speed of business" by better balancing the needs of the individual agencies and the enterprise in a multisupplier ecosystem. The ITISP is intended to accomplish the following:

- **Maintain and improve service quality.**
 - Develop the capability to address evolving agency needs and create opportunities to improve service performance without degrading service reliability, security, and quality.
- **Ensure cost competitiveness – both now and in the future.**
 - Structure service offerings so they can be more easily compared to market services at market rates; offer a menu of service options to customers.
- **Create a platform view of service delivery that is highly visible and accountable.**
 - Provide for Enterprise and Agency visibility of consumption, cost, performance, and the responsiveness of suppliers. Establish a governance structure and forums to promote stakeholder engagement and improve the balance of agencies and enterprise needs.

Procurement of new services that will transition the Commonwealth from a single supplier model to an integrated multisupplier model is occurring over three waves. VITA has begun implementing Wave 1 of this transition by awarding a contract for Messaging services in July 2016 and a contract for IBM Mainframe services in September 2016. Wave 2 of this transition begins with this Request for Proposal ("RFP") soliciting proposals for the services of a multisourcing service integrator (MSI). That procurement was released on September 29, 2016 under RFP# 2017-03. The Wave 2 procurements are also intended to include services for Server, Storage, Data Center LAN, Data Center Facilities, and Managed Security Services (abbreviated as "Server, DC, and Security").

Respondents to this RFI are encouraged to review the publicly available RFP# 2017-03 documents for additional context. Note also that there will be a Pre-Proposal Web Conference for the MSI RFP, scheduled for Tuesday, October 4th at 2 pm. Information to register for the conference is indicated in the RFP Instructions for RFP# 2017-03.

B. RFI Purpose

VITA has decided to accelerate its MSI implementation, such that the contract for RFP# 2017-03 is awarded while the other Wave 2 procurements are still underway. The initial focus on the MSI RFP allows additional time at the front-end of the timeline to gather further market research for Server, DC, and Security via this RFI. This RFI will allow VITA to improve the quality of the resultant RFP or RFPs to be released around the end of 2016.

Currently, VITA's Wave 2 internal RFP teams are structured around two separate potential RFPs: 1.) Server, Storage and Data Center Services and 2.) Managed Security Services. However, VITA is interested in identifying the most efficient demarcation or bundling of these services between RFPs. For example, perhaps it would be more efficient to separate the Data Center facilities from the other Server services; or perhaps it would be better to include some or all of the Security services with the Server RFP. VITA anticipates resolving these decisions, and other questions as detailed in the Section 5 (Questions) below, in part by considering feedback obtained from marketplace participants via this RFI.

The Commonwealth has the following goals for the procurements:

Server, Storage, and Data Center Services

- Assume all existing Services for Server, Storage, Data Center LAN, and Centralized Data Center facility currently provided to the Commonwealth via the Comprehensive Infrastructure Agreement (CIA) with Northrop Grumman.
- Transition to the next generation of delivery for Server, Storage, and Data Center services to VITA and Customers, taking advantage of the ever-changing technology landscape while decreasing costs to VITA and Customers.
- Provide compute, storage, and Data Center LAN services that are flexible, rapidly provisioned, cost effective, transparent, and elastic to meet VITA and Customer needs while preserving enterprise requirements such as security and compliance management.

Managed Security Services

- Replace the existing security services included within the Comprehensive Infrastructure Agreement (CIA) with Northrop Grumman.
- Support VITA's Commonwealth Security and Risk Management (CSR)M) directorate by acting as its operational "hands and feet":
 - Advising on risks and standards development
 - Assessing vulnerabilities and compliance (suppliers and agencies)
 - Provide security monitoring and integration tools across the environment
 - Respond to and address security risks and incidents
 - Provide tools and technologies to protect the environment from compromise
 - Provide security services that are adjustable to meet compliance needs of the Customer and adaptable to advancements in both security and technology industries
 - Establish, implement and maintain a secure enterprise information technology environment ensuring the confidentiality, integrity and availability of critical Commonwealth information and systems

- Provide VITA and its Customers with access to their data and metadata, in real-time

2. SUBMISSION LOGISTICS AND CONTACT INFORMATION

Issue Date:	September 29, 2016
Due Date / Time:	October 21, 2016 at 3:00 pm EST
Response Delivery Method:	E-mail attachment or CD sent to Single Point of Contact. Note: e-mail must be received by the due date and time; CD must be post-marked by the due date, but can be received later. E-mail attachments must be limited to 10 MB.
Single Point of Contact (SPOC):	Greg Searce
Telephone:	(804) 416-6166
E-mail Address:	gregory.searce@vita.virginia.gov
Mailing Address:	11751 Meadowville Lane, Chester, VA 23836
Pricing:	No pricing information should be submitted
Document Format:	Return this document, having populated Section 4 (Respondent Contact Information), Section 5 (Questions) below, and Section 6 (Feedback Regarding RFI Documents)
RFI Questions and Answers:	Suppliers may submit questions regarding this RFI at any time via e-mail to the SPOC.

3. OVERVIEW OF RFI DOCUMENTS

Within this RFI, VITA has chosen to release the following documents, which are drafts of some key documents anticipated for release in a final RFP or RFPs.

- Exhibit 2.1-a: Server, Storage, Data Center LAN Services
- Exhibit 2.1-b: Data Center Facilities Services
- Exhibit 2.1-c: Managed Security Services
- Exhibit 2.2: Cross-Functional Services
- Exhibit 3.1-a: Server, Storage, Data Center LAN, and Data Center Facilities SLA Matrix
- Exhibit 3.1-b: Managed Security SLA Matrix

- Exhibit 3.2-a: Server, Storage, Data Center LAN, and Data Center Facilities SLA Descriptions
- Exhibit 3.2-b: Managed Security SLA Descriptions
- Exhibit 4: Pricing and Financial Provisions
- Exhibit 4.1-a: Server, Storage, Data Center LAN, and Data Center Facilities Pricing and Volumes Matrix
- Exhibit 4.1-b: Managed Security Pricing and Volumes Matrix
- Exhibit 4.2-a: Server, Storage, Data Center LAN, and Data Center Facilities RU Definitions
- Exhibit 4.2-b: Managed Security RU Definitions
- Exhibit 4.4: Form of Invoice

4. RESPONDENT CONTACT INFORMATION

Please provide your contact information in the box below.

Contact Information	Enter your response here, enlarging the box as needed
Company Name	PCMG, Inc.
Company Mailing Address	14120 Newbrook Drive Suite 100 Chantilly, VA 20151
Company Website Address	www.pcmg.com
Name of Contact Person	Sharon O. Ennis
Contact Person E-mail Address	contract@pcmg.com
Contact Person Telephone #	703-594-8175

5. QUESTIONS

Please use the table to respond to the Commonwealth’s questions.

Ref#	Category	Question	Supplier Response
A. Server/Storage Services			
Q1.	Server/Storage	<p>The Commonwealth has upwards of 10 non-centralized Data Centers in Agency-operated buildings, primarily in the metro Richmond area. What are examples of Suppliers’ best practices in managing the Servers, Storage, Firewalls, and Data Center LANs in non-centralized (Agency) facilities?</p>	<p>Running disparate Data Centers is very common practice for organizations.</p> <p>PCMG has a unique Managed Services capability to support IT Infrastructure (Server, Storage, Network) regardless of geographic location or deployment type (physical, virtual, public cloud, etc.). Our core services offering allows customers to consume a standardized IT Operations service, which includes people, processes and technology. We offer varying levels of service, which offers our customers the flexibility to apply the necessary support services to each IT asset.</p> <p>PCMG identifies and implements best practices in IT to develop a systematic approach to creating a service-oriented culture and practice for IT service management. We rely on our ISO 9001-2008 certified quality management system to ensure the products and services we deliver meet customer expectations and business mission needs.</p> <p>Our approach includes evaluating system, mission and business environments and requirements to identify and use process models (e.g., Yourdon/DeMarco, Hatley- Pirbhai, Gane & Sarson) improvements in information flow, systems design, service delivery, and other IT-related activities. This approach ensures effective and efficient use of computing and communications resources; provides support to enterprise resource planning; controls</p>

Ref#	Category	Question	Supplier Response
			<p>costs through compliance and use of best practices; and, fully engages senior management and stakeholders in process.</p> <p>We develop methods to measure the effectiveness of IT systems and services that include customer satisfaction, system performance (availability, throughput, etc.), adherence to guidelines and regulations, measurable improvements in business operations, etc. Our methods improve return on IT investment by controlling costs, and ensures all systems comply with state and federal regulations.</p>
Q2.	Server/Storage	What does the Supplier recommend for the length of the contract for Server, Storage, and Data Center Services? Please describe benefits and trade-offs.	<p>From an IT Managed Service Provider (MSP) perspective, PCMG recommends a 36 or 60-month agreement. The reason for this is staffing. Longer-term agreements allow the MSP to retain staff levels and ensure that the necessary technologies are sufficiently managed.</p> <p>A shorter agreement introduces more rapid changes in the budget cycle, which burdens the organization and leads to higher prices.</p> <p>A longer agreement (over 60 months) would be difficult to forecast future-state operational costs. This becomes a factor with the Consumer Pricing Index (CPI) for cost-of-living increases.</p> <p>From a customer perspective, a 60-month agreement yields the best possible pricing for these services.</p>
Q3.	Data Center	What do you recommend for the length of the contract for the Data Center Facility for this type of environment?	<p>PCMG recommends a contract term of 60-120 months. As previously stated, longer term agreements aid in employee retention, as well as ensuring continuity of services through preserving</p>

Ref#	Category	Question	Supplier Response
			<p>the embedded knowledge base. In addition, longer term contracts provide cost savings by spreading contractor sunk costs (e.g., contract transition, employee ramp-up, tools, etc.) across an extended time period.</p> <p>A longer contract term also provides more opportunities to “fix” systems and problems rather than replace equipment or abandon initiatives. This is supported by our approach to technology refresh cycles, as addressed in Q4.</p>
Q4.	Server/Storage	What does the Supplier recommend for technology refresh rate for the different types of Devices in VITA’s environment? Is there an impact on the length of the services contract?	<p>Technology refresh across industries varies by business cycles such as funding and need for system availability. Mission essential systems with high usage and demand may require shorter replacement intervals. Upgrade and trade-in programs may make a refresh cycle more or less attractive based on cost or timeframe. Our technology refresh program and recommendations are base on a 60-120 month contract term as discussed in Q3.</p> <p>We determine technology refresh cycles based on several criteria. The key drivers for technology refresh are:</p> <ul style="list-style-type: none"> • Aging/obsolete technology • Out-of-support technology • Skill set shortage • Compliance • Cost reduction • Standardization • Innovation • Vendor stability <p>Typical technology refresh cycles are as follows></p> <ul style="list-style-type: none"> • Server Hardware: 4 Years

Ref#	Category	Question	Supplier Response
			<ul style="list-style-type: none"> • Storage Array: 5 Years • Network (Switch, Router, Firewall): 5 Years
Q5.	Server/Storage	<p>The Commonwealth is interested in a separate hardware charge in the Server RUs to account for the initial capital outlay for physical servers. Is there a better way to represent the cost differences and hardware refresh cycle in the Server RU structure?</p>	<p>There are many strategies in place for budgeting and charge-back. Obviously with virtualization and cloud workloads, the use of a physical RU in any cost analysis for data center services is not very representative of the use. One 1RU server could host a single operating system, vs another 1RU server that hosts hundreds of VMs. Our recommendation is to identify a meaningful common denominator that closely aligns with scalability. This is a methodology we have successfully implemented for more than 200 customers with systems ranging from 20-30 VMs to large enterprise environments consisting of thousands of VMs.</p> <p>There are many approaches for this and the likely answer is to look into the computing and storage resources being allocated per OS (vCPU, RAM & Storage) to determine a meaningful value.</p> <p>Another approach follows the Green Grid's PUE (Power usage effectiveness) calculator. This is a tool to help identify energy efficiency in data centers, but can be helpful in identifying and reducing costs.</p>
Q6.	Server/Storage	<p>The Commonwealth is proposing tiering of services for Server and Storage in an attempt to align costs with availability and performance. Based on your experience, do these tiers of service have any challenges in developing a solution? Do you have experience with these service tiering model? Do you have any recommendations or enhancements for the Commonwealth to consider?</p>	<p>We have successfully used tiers internally for more than a decade. For all hosting services, we have a Services Catalog, which includes the use of technology in modular 'building blocks' to collectively provide tiered levels of service (as further discussed in Q8). The identification of these modular services (the costs, processes, etc.) is a time-consuming process, but necessary to provide this model.</p>

Ref#	Category	Question	Supplier Response
			<p>Our approach focuses on basic components first and then creating standards to meet customer business and mission needs (number of users, availability, cost analysis, trade studies, etc.). An example is a 'Standard Class' Virtual Server. Rather than offering the 'Standard Class' with any CPU/RAM configuration, we offer 8-10 different CPU/RAM configurations to keep the variables contained.</p>
Q7.	Server/Storage	<p>The Commonwealth currently spreads costs across a very simple RU model. Do you have an enhanced RU model that could offer a larger variety of services while minimizing the RUs and their complexity?</p>	<p>We offer several alternatives to the current simple RU model. A more enhanced model can contain the physical attributes, as well as service entitlements (backup, monitoring, etc) that may be more difficult to report. However, the additional data points offer greater insight into the costing/budgeting of an environment.</p>
Q8.	Server/Storage	<p>The Commonwealth is including Bronze thru Platinum service levels for Server as examples of service categories. What would be required to implement this model in the Commonwealth?</p>	<p>Focus on an acceptable management foundation (ITIL or Six Sigma are the obvious choices). We recommend building service levels around the inclusion of different management responsibilities in the selected model. PCMG uses the ITIL foundation to define our three different service levels (Essential, andPremier). The process to implement this model for the Commonwealth is the creation of a Service Catalog. Example: Defining the parameters around Event Management for a Server Operation System, Defining the parameters around Configuration Management, Incident Management, Performance Reporting, etc. Once all of these are defined can you then look at creating tiers of service.</p> <p>Our Managed Services Tiers include:</p>

Ref#	Category	Question	Supplier Response
Q9.	Server/Storage	Do you see a better way to bundle or spilt the services we are requesting, in order to more effectively integrate with other towers (including MSI), and obtain more flexibility in the Commonwealth’s IT environment while maintaining appropriate Governance and security?	We recommend focusing first on identifying and establishing requirements around Governance and Security, and including those functions in all defined service levels. Defining how systems fit within, and support corporate governance facilitates effective and prudent management decisions that deliver the

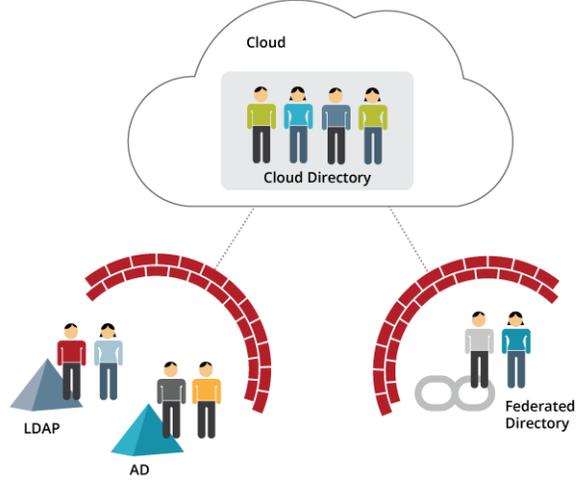
Ref#	Category	Question	Supplier Response
			<p>long-term success of data center services. Security defines access at the information and physical level. Compliance with State and Federal security policies, directives and guidelines must be validate to ensure the integrity of personal information; accessibility of public information; and the safeguarding of assets (theft, intrusion, etc.).</p> <p>In the PCM data center environment, everything is modular. We layer in tiered services upon other tiers of services. Because we support all industries and such a wide range of technology, it is the only way for us to internally budget resources and meet our customer needs. The resource allocation and budgeting process is one of the most powerful and important stages of customer support planning, especially data center services. Resource allocation within the data center provides the basis for maintenance and support staffing; space and equipment allocation; performance monitoring tools; training; and, cost allocation and charge back. Having everything modular allows us to budget our resources appropriately to support different customer missions and needs. Budgeting implies the more detailed determination of precisely how these resources are best used.</p>
Q10.	Server/Storage	<p>Are their new Storage offerings, like Object Based Storage or predictive storage, that the Commonwealth should include in storage or enhanced services? How do you offer and charge for virtual storage?</p>	<p>There are new storage offerings introduced regularly. Not all of them are introducing materially beneficial capabilities, but always worthwhile to understand and evaluate for a specific customer. Two examples are All-flash storage and hyperconvergence. All-flash storage arrays may differ on capacity, drive type, networking options and storage-savings features, but the one thing they all do is improve performance. However, performance numbers can</p>

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			<p>be tricky to compare. Vendors use differing configurations, workloads and block sizes to test their products. <u>Price comparisons</u> are also present difficulties. Prices per gigabyte vary among vendors based on their products' configurations and whether or not they <u>factor in data reduction technologies</u>, such as <u>deduplication</u> and compression.</p> <p>Hyperconvergence, too presents many advantages and challenges in a given environment. The trade off for the between a predesigned and configured system that allows rapid deployment and relatively high reliability is linear resource scalability. That is, when additional nodes are added to a hyperconverged environment, additional storage, RAM, compute, and network throughput are added even if you just need some extra storage capacity.</p> <p>For most use-cases, though, the basic concepts still apply. You still need space and performance presented to an operating system. Our recommendation is to follow your application requirements/recommendations to provide optimal performance, capacity, redundancy and availability to support your production applications.</p> <p>As for our Cloud Storage, we offer a variety of storage systems available sold on a per GB basis. For customer environments that leverage 100% solid state disk, we do offer this at a higher price per 1GB.</p> <p>We leverage automation within the storage system to shift workloads between performance levels [solid-state / high-performance / archive] based on usage. From a pricing perspective, we do not charge a premium for this tiered approach.</p>

Ref#	Category	Question	Supplier Response
			<p>For in-memory database, such as SAP HANA workloads, we provide dedicated host servers to run these databases.</p>
Q11.	Server/Storage	<p>The Commonwealth is interested in ensuring it provides optimal storage performance and availability for VITA and VITA's Customers. How do you propose to provide and measure this performance?</p>	<p>The first step is to establish real, attainable metrics through well-defined Service Level Agreements (SLAs). The SLA defines what services VITA expects (quality, availability, responsibilities) including performance parameters such as mean time between failures (MTBF), mean time to repair or mean time to recovery (MTTR), disk speeds, redundancy in design and storage network performance.</p> <p>The SLA also defines how and when service performance is measured. Also of importance is ensuring metrics are meaningful. That is, all services measured should lead to, or aid in process or service improvements.</p> <p>To successfully measure performance, we establish Key Performance Indicators (KPIs). KPIs typically fall into three categories: service delivery effectiveness, service or performance efficiency and agility (responding to change).</p> <p>For service delivery effectiveness and efficiency, we measure throughput (the number of transactions or measure of computing work); response time (time needed to complete a transaction including infrastructure elements such as servers, networking, and storage); utilization (amount of physical or virtual computing resources or capacity used compared to total capacity); and, uptime (percentage of time that an application or system is running).</p>

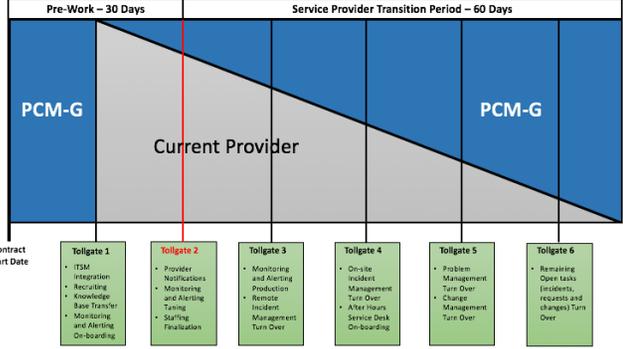
Ref#	Category	Question	Supplier Response
Q12.	Server/Storage	<p>The Commonwealth has traditional x86 virtual servers, but it is also interested in the capabilities of a private cloud. Could they be combined or left separate? Please describe how this could be accomplished most effectively.</p>	<p>The key to success here is to find a service provider that fully supports your systems, regardless of geography or system state (i.e. virtual or physical or cloud-based) with no limitations in service level. PCMG has the experience, expertise, and agility to provide these services. From our Tier III secure hosting and cloud datacenters, to our capabilities to support the mission space in VITA environments, PCMG is capable of providing the resources and expertise to support VITA growth beyond the current contemplated scope.</p> <p>NIST defines cloud computing as a set of characteristics, delivery models, and deployment models. The steps to migrating to a private cloud are varied and complex. Requirements for support such as services on-demand, database on-demand, applications on-demand, and platforms on-demand must be defined in terms of stakeholder expectations and performance metrics. Security and governance are the underlying tenets that drive how these services are delivered and supported.</p> <p>The first step is establishing a business case for private cloud computing by defining the as-is status of the existing services: data, services, and processes. Once VITA has defined its business case, we provide support identifying the to-be (private cloud) requirements such as the desired service model, associated costs, risk and mitigations strategy, deployment schedule, and resources for migration. The final step is supporting the cloud deployment: technology selection and validation; development and testing; migration and testing; and, final deployed target architecture.</p>
Q13.	Server/Storage	How does Database as a Service make sense for an Enterprise like the	It would likely make sense more as an internal

Ref#	Category	Question	Supplier Response
		Commonwealth? Do you have any recommendations for how to charge for enhanced Database services (i.e., Development DBA)?	database platforms than leveraging a 3 rd party database platform (PaaS). From a chargeback perspective, it should be based on modular components such as [QTY of] database pools, [QTY of databases] or what some cloud providers use, which is the DTU (Database Transaction Unit).
Q14.	Server/Storage	<p>The Commonwealth wants to provide cost effective solutions to VITA and the Agencies. What do you describe as the key cost and value drivers that would help the Commonwealth offer services that are not cost prohibitive to deliver? Do you see any requirements in the description of services in this RFI that would cost more to meet than the business value they provide?</p>	<p>Building a multi-tenant, private cloud environment can be a time-consuming and costly project. This can yield many benefits if properly planned, but can also be very expensive and inefficient. The primary focus however is identifying and achieving specific goals at an affordable price.</p> <p>To that end, a through project management plan is required to ensure project success: clearly identify roles and responsibilities; risk mitigation methodologies; schedule/work breakdown structure (WBS) with resources; test and acceptance plans; training requirements; operational processes; and performance metrics. Identifying and prioritizing stakeholder requirements helps control costs while delivering usable services.</p> <p>At this point, the RFI service requirements are clear and well-defined. Business value is best determined by stakeholder requirements and the willingness to pay charge-back fees for use. As a result, stakeholder buy-in to the RFI description of services is paramount in assessing value.</p>
Q15.	Security	The Commonwealth is interested in an Enterprise Key Management System for compliance and security. How do you propose the Commonwealth request Key Management services?	VITA needs to determine all of the various deployment models that will be used in this future-state (private cloud, stand-alone physical OS, public cloud, etc.) and select a Key Management platform that can extend into each of these deployment types.
Q16.	MSI	Identity and Access Management (IAM) services and the systems	Analyze Identity-as-a-Service (IDaaS) for supporting

Ref#	Category	Question	Supplier Response
		<p>supporting those functions are currently split between multiple providers. How do you propose bringing these services together to provide a single integrated service?</p>	<p>disparate networks, such as cloud and mobile app single sign-on and security.</p>  <p>The Centrify IDaaS solution offers a unique capability to choose where to store your directory: Either on-premises or in the cloud.</p>
Q17.	MSI	<p>The Commonwealth has defined the cross-functional requirements in Exhibit 2.2. Do you have any comments in the structure and handoffs identified in this document? Do you have any prior experience working with MSIs? Do you have any recommendations regarding the approach for how the MSI should interact with the other suppliers?</p>	<p>PCMG has carefully reviewed the cross-functional requirements presented in Exhibit 2.2. We understand these requirements fully and have no comments directed toward the requirements.</p>
Q18.	MSI	<p>Do you see any benefits or challenges in requiring the Data Center facility provider to also be responsible for providing common operating monitoring groups in the same solution (e.g., CMOC, ITOC, SOC, NOC)?</p>	<p>This service should be required, but requested as an optional service. The two services are mutually exclusive. VITA will not derive any benefit or cost savings from combining the two services.</p>
Q19.	MSI	<p>The Commonwealth currently has a single traditional DR solution that requires the entire backup Data Center to be failed over. There is a desire to move to a more flexible solution that allows single Agencies or even applications to be failed over individually. This process requires design, development, operations, testing, and coordination.</p>	<p>Technology will continue to improve for IT infrastructure. The capability of an environment to replicate and recover from an outage continues to improve as well. This trend will continue with more powerful platforms that will exceed any specific</p>

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		What role should VITA's MSI should play in this effort in relation with the Server Services provider?	<p>application or environmental design.</p> <p>The role of VITA should be one of establishing expectations around uptime and recoverability of a service.</p> <ul style="list-style-type: none"> • Set the definitions of expectation and the time-frame parameters that will contribute towards a vendor design. • Establish parameters around the failover environment (“failover services must operate to the same performance level as production”). • Establish geographic diversity requirements. • Define the disasters that are planned to be mitigated. A localized disaster (ex: multiple drive failure within a RAID group) calls for a different design than a widespread natural disaster. • Defining the tiers of applications or infrastructure components (and their specific uptime requirements) should be a key part of VITA's role. <p>If the focus is on the framework of expectations, the service provider can leverage the necessary technology solution to meet/exceed these requirements.</p>
Q20.	Data Center	The Commonwealth is interested in Multi-site High Availability and Disaster Recovery Services. At a high-level, what do you recommend on the number and locations of centralized Data Centers the Commonwealth should utilize for that purpose? Any tradeoffs?	Operating cost is a big part of these decisions. In a perfect world, there would be a pair of local high-availability data centers within the region that meet all of the computing needs for production. These data centers would replicate among one another in real-time with instant failover capabilities. This is considered a shared production environment. In both

Ref#	Category	Question	Supplier Response
			<p>sites, there would be a minimum of N+1 component redundancy, multiple power grids and full SONET access.</p> <p>There would be a 3rd facility (>150 miles from production) that can serve as a disaster recovery facility.</p> <p>The scenario described above will meet most organizational requirements, but not all budget requirements. There are many degrees of compromise from this scenario to find a careful balance between uptime requirements and budget satisfaction.</p> <p>Defining application uptime tiers will help contributed towards an acceptable balance.</p>
Q21.	Migration	<p>Suppliers will be required to provide an implantation plan to specify how they will take over responsibility for the existing environment. The Commonwealth is also interested in recommendations with regard to how the Commonwealth could migrate or transform to new Service offerings. What do you recommend for this migration plan?</p>	<p>Most suppliers will have a formal on-boarding plan for taking on new environments. This will be a process that involves data mining, installation of software tools, remediation, expectations, (internal and customer) training, and cutover.</p> <p>Similar to managing (normal) IT Operations, there should be an acceptable framework that meets the expectations of VITA. PCMG leverages a process from Six Sigma for on-boarding. The process we use has (6) tollgates for phasing over the responsibilities from the current service provider to PCMG:</p>

Ref#	Category	Question	Supplier Response
			 <p>Part of the process should be some expectation around time-frame for the transition period. It is important to set expectations with the legacy organization as part of their exit plan. If there is a single entity providing services today (that are replaced with this MSI), you should consider their process time-frames as part of this equation.</p>
Q22.	Enhanced Services	<p>The Commonwealth is interested in receiving proposals to include new enhanced services, (e.g., Cloud, Analytics, Managed File Transfer) Can you recommend any other such enhanced services the Commonwealth should also consider including at the moment? How would you recommend these services be delivered?</p>	<p>PCMG recommends including the following enhancements to achieve VITA service goals:</p> <p>Database as a Service (DBaaS) Private Cloud as a Service (PCaaS) – might also be described as ‘dedicated host’</p>
Q23.	Enhanced Services	<p>As the technology landscape changes in the Commonwealth’s environment, could you describe other enhanced services that VITA and VITA Customers should consider in the future?</p>	<p>Not at this time. However, as with all technology areas, the future of data centers is ever evolving. Legacy systems become obsolete faster, and equipment and software enhancements of push refresh cycles into shorter intervals.</p> <p>Examples of other considerations include optimizing I/O paths possibly leaving room additional motherboard or other server optimization and for better local area network connectivity in data centers. Also, Ethernet performance is being</p>

Ref#	Category	Question	Supplier Response
			<p>improved through the addition of RDMA capabilities.</p> <p>Also as discussed in Q10, the convergence or hyper-convergence of servers and storage into a single box is a consideration. Driving this is the availability of super-fast non-volatile memory express (NVMe) solid-state drives (SSD), which saturate their hosts with as few as six drives.</p> <p>We identify most future enhancements through the course of grooming and optimization activities, and reassessing VITA business on mission needs through customer collaboration. If we identify possible data center performance enhancements we perform a requirements analysis and cost trade. If new technologies insertion is feasible (cost-effective, timely, mission critical, etc.) we propose the changes for an upcoming technology refresh.</p>
Q24.	Enhanced Services	<p>What would you propose as a good business case for virtualizing the desktop (offering VDI)?</p>	<p>VDI looks very appealing on paper. The standardizing of the desktop OS, all of the variables within the end-user device, the single 'gold image' OS for patching. In reality, it is a very complex, highly sensitive environment that requires specialized software licensing to maintain compliance.</p> <p>A good business case for VDI would involve a large collection of end-users in the same building or campus. The end-user computing devices would ideally be older and the network infrastructure would be very high-speed (1gbps to the desktop, in a perfect world). The collection of applications is less significant than these (above) factors.</p> <p>There are two primary factors with VDI that lead to a 'deal breaker' either technically or financially:</p> <ol style="list-style-type: none"> 1. Latency & Bandwidth: If the VDI is located

Ref#	Category	Question	Supplier Response
			<p>within the same facility as the data center, you can expect that it will be an acceptable performance level. If not, a dark fiber connection is recommended. If that is not available, a very high-speed connection is needed and a full proof of concept is recommended before making any material investment.</p> <p>2. Software Licensing: Virtualization and Microsoft licensing, to be specific. This can be a very costly combination of licenses – above all existing product licenses. The VDI software itself is not inexpensive (even for large organizations). On top of that, Microsoft requires an annual subscription on a per virtual desktop basis, which can eliminate any cost savings.</p> <p>If these two factors are not an issue for The Commonwealth, then it is worthwhile to consider VDI as a way to simplify desktop computing.</p>
Q25.	Data Center LAN	What do you recommend as the best demarcation point between the Data Center LAN and the Network or WAN? The Commonwealth wants to make the cleanest scope separation for a future WAN Network RFP.	The (customer or) carrier-provided edge device is typically considered the demarcation point. The edge device can be either a Router or Switch, depending on the circuit type. This device typically sits in a separate telecom ‘meet-me’ area within an environment and is cross-connect into the Data Center LAN.
Q26.	Data Center LAN	In the current RFI, the Commonwealth has bundled Data Center LAN services (e.g., switching, routing, load balancing and firewall) with Server and Storage services. Do you find any challenges, issues, or concerns with this approach and why? Any recommendations?	<p>Following the theme from the answers to Q6, Q9 & Q13, modularity (i.e. separation of these services) will provide the best model for flexibility to VITA.</p> <p>The challenge with bundling Data Center LAN services with Server and Storage services is that it inherently restricts you to a specific service model. If the Commonwealth gains cost efficiencies of</p>

Ref#	Category	Question	Supplier Response
			<p>performance benefits out of a specific Server and Storage solution, it should be adopted. If there are inherent challenges to the network services (restrictions on IP subnet or firewall customization or firewall multi-tenancy), the Commonwealth should reconsider this as a requirement.</p> <p>PCMG offers a wide range of cloud services, which follow a very specific architecture standard. We also offer a dedicated host server option (Private Cloud as a Service), which leverages similar hardware but is not part of the same multi-tenant environment. We also offer Co-Location services (bring-your-own hardware, etc). Our network services are available in any of these service models, so our customer can consume the service that makes the most sense for their needs.</p> <p>Many of our customers will leverage private WAN circuits, for example. We also have customers that provide their own firewall infrastructure. We 'hand' them an unprotected internet circuit and it will terminate into their firewall. From this point, it is 100% customer-provided LAN infrastructure. These are merely two examples of common situations where a customer would leverage service-provider Server and Storage, but no (or very little) Data Center LAN services.</p>
Q27.	Data Center LAN	The Commonwealth did not bundle Data Center LAN services (e.g., switching, routing, load balancing and firewall) with the Data Center Facility services (e.g., HVAC, power, raised floor). Do you believe this is the correct approach? Do you have any recommendations?	PCMG agrees with this separation, per the response provided for Q26.
Q28.	Data Center LAN	The Commonwealth is considering decoupling the Data Center Facility services from the Server, Storage, and Data Center LAN services. What do you think of this approach? What do you think are the advantages, disadvantages and tradeoffs of splitting the facility services out versus	<p>PCMG recommends keeping these services as separate line items. Each service has its own performance characteristics:</p> <ul style="list-style-type: none"> • Power and cooling have uptime SLAs (100%

Ref#	Category	Question	Supplier Response
		coupling these services with Server, Storage, Data Center LAN?	<p>in most modern facilities)</p> <ul style="list-style-type: none"> • Server/Storage/LAN have their own uptime and performance characteristics <p>If you separate these services, the benefit is establishing and defining design criteria around each individual service. The chargeback reporting process is also simplified.</p>
Q29.	Data Center LAN	Supplier is expected to provide centralized Data Center LAN services. Should LANs in non-centralized Data Centers be part of the scope for Data Center LAN services or bid as part of Network/WAN in a future procurement? What would be the pros/cons and tradeoffs?	LAN Services will be required regardless of whether the facility is centralized or non-centralized. With this in mind, it makes sense to include these for non-centralized Data Centers and not be part of the future Network/WAN procurement. As long as they (LAN Services) are not bundled along with other supplier services (e.g. Server/Storage), you will only benefit from including them in the scope.
Q30.	Data Center LAN	If the solution includes new Data Centers, who should provision and manage the network connections between the Data Center locations? Should it be the Network Provider, the Data Center Provider or the Server, Storage, Data Center LAN Provider?	The demarcation identifies the responsible party for this. If the network provider provides the edge device, they are responsible for provisioning and management of the network connection. Coordination is required to physically install new equipment into the Data Center. The coordination of this, along with the logical configuration and ongoing management, is the responsibility of the network provider.
Q31.	Data Center	How does the Supplier propose to migrate Server, Storage, Data Center LAN services out of the CESC datacenter by June 2019 or earlier? Describe how the Supplier would seamlessly migrate out of CESC like-for-like, transform to new services, or a combination of the two? What are the recommended approaches?	<p>There are many platforms available for migration of server and storage data that can be leveraged. Each of these software platforms has pros and cons. PCMG has been providing Data Center hosting services for close to 20 years. As such, we have regularly exercised a wide range of strategies towards Data Center migration.</p> <p>The seamless migration out of CESC like-for-like will require planning, employment of replication software</p>

Ref#	Category	Question	Supplier Response
			<p>and User-Acceptance Testing (UAT). Each of our software platforms used are determined based on the current-state environment characteristics (virtualization, OS version and available bandwidth are the three biggest variables). Once those are identified, we can create a project plan around the migration.</p>
Q32.	Cloud Services	<p>The Commonwealth is interested in a solution that integrates traditional hosting services with new private, community, and public cloud offerings. How do you propose integrating these services?</p>	<p>PCMG believes that this is the direction of the majority of our customers. Our Managed Services are available in every one of these scenarios without any limitation of capability. This is achievable by developing and installing a combination of toolsets in disparate environments, and aggregating full visibility and control to a selected group with privileged access.</p> <p>The promise of cloud services (private, community, public) offers enormous benefit in scalability, simplicity, and speed. What is typically missed is the concept of a single system of record (CMDB). Today, the PCMG managed services portal site (Unified Services Portal) enables our customers to orchestrate new workloads into a wide range of computing platforms:</p> <ul style="list-style-type: none"> • Private Cloud: VMware (ESXi, vCenter) • Public Cloud (AWS, Azure, VMWare vCloud Director) <p>By allowing our customers to consolidate the orchestration, we are enabling our customers to leverage these cloud platforms, yet maintain and enforce IT security and IT operational standards. Any cloud workload that is orchestrated through the PCMG USP can follow budgetary scrutiny and operational approvals, but most importantly, automatically go into the CMDB for full integration</p>

Ref#	Category	Question	Supplier Response
			<p>across all services.</p> <p>Disclaimer: The use of PCMG's Unified Services Portal is included as part of the PCMG Managed Services. The orchestration is an optional capability and only passes API calls to the destination cloud provider. The Commonwealth (or any VIA Customers) can still maintain their own cloud portal account.</p>
Q33.	Cloud Services	<p>What would be the best practice with regard to Suppliers owning the cloud contracts and potentially transferring that contract to the Commonwealth? Should the Commonwealth own that contract outright? Are there any other alternatives to be considered?</p>	<p>Economy of scale yields a much better discount structure, so it would be financially beneficial to consolidate.</p> <p>If PCMG provides the majority of public cloud services, it might be beneficial to purchase through that that contract. In many cases, their purchase level will be higher than the Commonwealth, thus the discount will be greater.</p>
Q34.	Cloud Services	<p>When the Commonwealth buys cloud services offerings how do you propose to identify where the data and services are located?</p>	<p>The decision on data location should be one of the many factors that determine the appropriate cloud platform.</p> <p>PCMG currently provides a variety of cloud and data center services from one of its three SSAA 16 Data Centers, Integrated Operation Centers, and ISO 9001-2008 Distribution and Configuration Centers. These services are co-located in El Segundo, CA, Atlanta, GA, and Columbus, OH.</p>
B. Financial/Server Storage			
Q35.	Pricing Structure	<p>The Commonwealth is interested in creating the best possible pricing structure for the Services. In light of that fact, Supplier is invited to both comment on the structure described in Exhibit 4.1 and 4.2, and to propose an alternate pricing structure if they believe that it will better serve the interests of both parties. The Commonwealth will contemplate any proposed pricing structure along five dimensions:</p>	<ol style="list-style-type: none"> 1. Predictable: To the greatest extent possible, customers should be able to forecast charges ahead of time; changes in pricing that occur over time should not be a surprise. 2. Manageable: The pricing should not be so complex that it is needlessly difficult to

Ref#	Category	Question	Supplier Response
		<ol style="list-style-type: none"> 1. Predictable: To the greatest extent possible, customers should be able to forecast charges ahead of time; changes in pricing that occur over time should not be a surprise. 2. Manageable: The pricing should not be so complex that it is needlessly difficult to administer. If quantities of work or equipment in the environment must be measured, then those quantities should be as easy and transparent as possible to measure. 3. Fair: The service pricing must be a reasonable proxy for a services provider's underlying costs and should adequately recover those costs. Additionally, to the extent possible, the party that causes any incremental cost should bear that cost. 4. Incentives: All pricing structures will incentivize certain behaviors and discourage others. The goals of the sourcing program must be kept in mind when considering the behaviors that might be driven by a pricing structure. For example, a goal to encourage server consolidation might include reduced cost at a centralized data center. 5. Flexible: As consumption moves up and down, the charges should also adjust. Technology is an evolving industry, and the ability to turn down an old service to turn up a new service is one of the benefits of an efficient IT sourcing agreement. Such adjustments may include minor volume changes month to month, significant scope additions, reductions, or terminations, and ability of large service providers to re-deploy investments. 	<p>administer. If quantities of work or equipment in the environment must be measured, then those quantities should be as easy and transparent as possible to measure.</p> <ol style="list-style-type: none"> 3. Fair: The service pricing must be a reasonable proxy for a Supplier's underlying costs and should adequately recover those costs. Additionally, to the extent possible, the party that causes any incremental cost should bear that cost. Customizable invoicing and invoice reporting should be able to provide this identification. 4. Incentives: All pricing structures will incentivize certain behaviors and discourage others. The goals of the sourcing program must be kept in mind when considering the behaviors that might be driven by a pricing structure. For example, a goal to encourage server consolidation might include reduced cost at a centralized data center. The reduction of costs should reflect a total discount, not just the individual services that reach qualified levels. 5. Flexible: As consumption moves up and down, the charges should also adjust. Technology is an evolving industry, and the ability to turn down an old service to turn up a new service is one of the benefits of an efficient IT sourcing agreement. Such adjustments may include minor volume changes month to month, significant scope additions, reductions, or terminations, and ability of large Suppliers to re-deploy investments. The

Ref#	Category	Question	Supplier Response
			<p>modification of quantities should not require written/signed approval, but handled operationally with a quarterly true-up (or true-down) process. This will allow operations to continue without being restricted due to administrative processes.</p>
Q36.	Inventory and Volume Collection	<p>The Commonwealth is interested in introducing new Resource Units that do not exist in the current contract; in order to fairly compensate Supplier for service delivered, and support the other goals described in question 36, Supplier is asked to describe their experience and approach to collecting and verifying volumes both before and after contract signing, and the approaches they use to adjusting financials in the event that the initial count is incorrect. For example, today database support is provided by the Supplier, but is not separately billable. The Commonwealth sees an advantage to separating out database support and making it a separate chargeable unit, how would the service provider collect and verify the volumes to support this chargeable unit?</p>	<p>In order to provide a mutually-sustainable agreement, the separation of services (down to the lowest common denominator) should be a priority.</p> <p>To this point, our Managed Services separates out database support from OS support. We also split database support into two separate, distinct service offerings – each priced based on their own criteria:</p> <p>Database support: The management, administration, performance and capacity monitoring, incident management, problem management, patch management, change management, capacity planning, continuity management, etc of the database server. This is billable by the number of database servers supported</p> <p>Database Administration (DBA Services): The administration of the databases themselves, which involves operational development services. This optional service is billable by the quantity of databases contained within the database server. With each of these services split into their own ‘SKU’, the proper attention is focused on all of the appropriate requirements, operating expectations and supplier-performance characteristics.</p>
Q37.	Asset Ownership	<p>The Commonwealth consumes certain services today which are underpinned by a set of assets (servers, firewalls, etc.). The Commonwealth (or their designee) has the right to acquire these assets. The Commonwealth has a desire to consume services; rather</p>	<p>The transfer of asset ownership can be very difficult and in many cases, forbidden by the manufacturer. Due diligence on asset supportability must be completed prior to the asset transfer. Careful</p>

Ref#	Category	Question	Supplier Response
		<p>than own assets, and envisions Supplier acquiring these assets and using them to provide services back to the commonwealth. Please describe experiences acquiring assets from an incumbent, and also describe your recommend financial treatment of their cost recovery for these assets.</p>	<p>planning, including transitioning operations and maintenance support, technology refresh cycles and licensing are included in the due diligence process. In addition, systems interoperability and performance (availability) are considerations. An example of this would be Cisco Systems. The router (or switch or firewall) can be physically sold to another entity, but the software image (IOS) may not be transferred. The process to transfer the IOS license is often equivalent to purchasing a net-new device.</p> <p>Unless the asset meets one of these criteria: (1) It is under some type of long-term contract/commitment with the current supplier, or (2) it is recent investment and has several remaining years of good use, or (3) it is proprietary in nature, or (4) it is extremely low-cost compared to new acquisition, our recommendation would be to focus on the migration of the logical 'system' to new supplier-owned assets.</p>
<p>C. Managed Security</p>			
<p>Q38.</p>	<p>Security</p>	<p>The Commonwealth's Managed Security description of services includes all the required scope bundled for a single experienced Security Supplier. Do you see any challenges or issues with this bundled model?</p>	<p>The primary challenges with this approach are around the scalability, the stability (financial or technical) and ongoing improvement of a single supplier. As a subsidiary of a corporation with close to \$2.5B in annual revenue, 42 locations across the United States, and over 1,100 engineers and thousands of industry technical certifications in virtually every discipline, we can scale from commodities to bundled strategic services.</p> <p>When there are competing entities to provide contract services, VITA benefits by leveraging the successful supplier's strengths thereby decreasing</p>

Ref#	Category	Question	Supplier Response
			<p>the risk of any long-term impact due to scalability or stability (financial or technical). As one of the largest providers of IT equipment and services to both Government and Fortune 100 companies, we have substantial investment in ISO-certified facilities, support centers, data centers, and integration centers, allowing VITA to gain both economies and scaling capabilities through our assets.</p> <p>The trick to this approach is to find a standard framework for modeling your security requirements. PCMG’s strategic, high level relationships with major technology OEMs will bring new capabilities to VITA: From ongoing technology roadmaps with forward-notice product changes and refreshes, PCMG has dedicated teams responsible for bringing a detailed view of each OEM’s technology and product lifecycle directly to our customers.</p>
Q39.	Security	Do have any concerns or recommendations regarding how to scale Managed Security Services to organizations of the size and complexity of the Commonwealth?	<p>PCMG recognizes the biggest challenge to scaling Managed Security Services is the increasing complexity of effectively dealing with cyber security risks and complex regulations. Effectively addressing this challenge depends on selecting a security platform supplier such as PCMG to enable a profitable business model.</p> <p>Controlling costs and increasing scale and flexibility, arguably plays a key role in outsourcing Managed Security Services. Industry average cost savings as large as 85 percent are “in line” with consolidating data center and Managed Security Services into a bundled service outsourced to a qualified vendor such as PCMG.</p> <p>PCMG’s approach to scaling Managed Security</p>

Ref#	Category	Question	Supplier Response
			Services reduces capital investments and ongoing maintenance costs and improves technology assets more rapidly through the efficient applications of our security personnel, processes, and technologies by delivering visibility, governance, and protection for cloud applications.
Q40.	Security	Can you provide examples of comparable environments where you offer security services similar to those required by the Commonwealth?	We are happy to provide customer references during the RFP stage. For further discussion on our capabilities and areas of expertise, please see Q41.
Q41.	Security	Have you supported Managed Security services in distributed environments - both physical and virtual including on premise and off premise implementations?	<p>Yes. PCMG enables comprehensive end-to-end security solutions from industry leading security hardware, software, and service providers. Security is at the core of everything we do.</p> <p>We perform end-to-end security to include data security; network security; endpoint & mobile security; penetration testing; proxy/content filtering; security compliance assessments and gap analysis; and, Public Key Infrastructure design and implementation.</p> <p>Our solutions are focused on serving our customers' data center, client computing, unified communications, network infrastructure, enterprise security, enterprise server and storage, software licensing and procurement needs.</p> <p>As a part of these solutions and services we provide data center infrastructure security and compliance; data backup & recovery; cloud services; and, virtualization technologies.</p>
Q42.	Security	Do you offer solutions supporting geographically diverse locations (e.g., remote location with satellite)?	Yes. PCMG's parent PCM is a publicly held corporation with close to \$2.5B in annual revenue and 42 locations across the United States. Headquartered in El Segundo, California PCM maintains two ISO 9001 distribution/configuration

Ref#	Category	Question	Supplier Response
			<p>centers, in addition to a virtual network of distribution partnerships with over 25 additional U.S. locations. In addition, PCM owns and operates three SSAE 16 Data Centers and two Integrated Operations Centers. As a subsidiary, PCMG, headquartered in Chantilly, Virginia, has direct access to all the corporate assets and resources necessary to support operations with geographically diverse locations.</p>
Q43.	Security	<p>How have you implemented solutions similar to those in the Commonwealth making use of a centralized federated environment?</p>	<p>We operate solely in a centrally federated environment today. Our security organization is a separate entity, serving our internal organization as well as our collective customer base. In order to be successful in this model, the alignment of business needs and service performance (SLAs) must be clearly defined in a Service Catalog. For VITA, this requires coordination with the supplier (leveraging some of their Service Catalog performance and operational metrics) and collaboration with customer stakeholders to ensure organizational business needs are addressed.</p>
Q44.	Security	<p>What do you consider to be the key challenges and tradeoffs for the implementation of Managed Security Services in an environment similar to the Commonwealth?</p>	<p>Providing customizable services at a reasonable price is challenging in a centrally federated environment. With the consolidation of all Customers, the service may not meet everyone's budget or performance needs.</p> <p>Risk to on-going operations is always at the forefront of changing support contractors or upgrading systems and services. Careful planning and collaboration with VITA is key to any successful data center, IT or security initiative. As discussed in Q45, a detailed risk identification and mitigation plan identifies the options for addressing key challenges or implementation obstacles. This methodology drives the trade-off process by identifying things such as cost/benefit analysis; impact on current and future</p>

Ref#	Category	Question	Supplier Response
			operations (resources, space, processes); and impact on refresh cycles.
Q45.	Security	What do propose at a high level to be the key strategies and implementation elements of any typical security services solution migration?	<p>Define tiers of support services that align with your business-specific needs.</p> <p>In addition, a detailed transition plan identifying a schedule with specific milestones, resources, and constraints aids in VITA's ability to lower transition risk. The Supplier must also identify transition risk and a mitigation approach to ensure continuity of operations during the transition. Additional items for discussion should include work-around plans to mitigate schedule slip due to unforeseen circumstances (weather or other catastrophic events); changes in VITA funding or priorities; or technology enhancements to name a few).</p>
Q46.	Security	Can you recommend additional Managed Security Services that are not currently included or considered in the scope of described services?	No. Given the information provided in the RFI, PCMG has not identified any additional Managed Security Services requirements to achieve VITA performance specifications. However, as a part of our solution design, we perform a security assessment to ensure the customer's operation environment is in full compliance with all applicable security regulations and guidelines. We recommend additional services or operational procedures at that time.
Q47.	Security	Based in your experience, what are the key challenges with regard to the regulatory requirements included in the scope of services? Do you have any recommendations based on your experience?	Clearly defining the governance and standard operating procedures is important, especially as it pertains to IT Security. Many suppliers follow a framework of operational processes that is not directly modeled after specific regulatory governance standard, but meets all of the criteria to satisfy one. Eliminating suppliers for their lack of certification in one regulation/accreditation may limit the pool of otherwise qualified vendors. PCMG suggests this approach may not provide the best service or pricing options for VITA.

Ref#	Category	Question	Supplier Response
Q48.	Security	Do you have any guidelines or best practices regarding whether the various Managed Security Services are better off being remotely hosted or on premise?	<p>General best practices would tell you to keep Security Operations separated from IT Operations. This is a classic security method to manage conflict of interest, the appearance of conflict of interest, and fraud. PCMG recommends the requirement for an information flow diagram for every function within each area of the organization, to ensure security and IT initiatives don't impact VITA's on-going business mission. PCMG operates its security practice in this way.</p> <p>There is really no technical need to be physically on-site to perform a Managed Security Service (vs operating off-site). The down-side to being on-premise is two-fold:</p> <ul style="list-style-type: none"> - Higher cost per resource - Higher operational cost (employee workspace)
Q49.	Security	Do you think you would be able to provide all the described Managed Security Services yourselves or will you require to subcontract any services to other third parties?	For security, we leverage a separate organization exclusively. That organization only focuses on IT Security. We define all offered services in our Service Catalog.
Q50.	Scope Demarcation	VITA is interested in identifying the most efficient demarcation or bundling of these services between RFPs. For example, perhaps it would be more efficient to separate the Data Center facilities from the other Server services; or perhaps it would be better to include some or all of the Security services with the Server RFP. Please provide any further experience or suggestions regarding scope demarcation between potential RFPs.	<p>We recommend bundling the RFP for IT Operations and Managed Security Services together.</p> <p>Data Center services should be a separate RFP and would involve facilities (co-location), as well as Server/Storage/Network services.</p>
D. Financial/Managed Security			
Q51.	Pricing Structure	The Commonwealth is interested in creating the best possible pricing structure for the Services. In light of that fact, Supplier is invited to both comment on the structure described in Exhibit 4.1 and 4.2, and to propose an alternate pricing structure if they believe that it will better serve the interests of both parties.	<p>6.</p> <p>The VITA pricing provides the ability for customers to predict annual or one time usage based on a fixed price offering. Total annual charges may vary if services are ordered or provided on a per incident</p>

Ref#	Category	Question	Supplier Response
		<p>The Commonwealth will contemplate any proposed pricing structure along five dimensions:</p> <ol style="list-style-type: none"> 1. Predictable: To the greatest extent possible, customers should be able to forecast charges ahead of time; changes in pricing that occur over time should not be a surprise. 2. Manageable: The pricing should not be so complex that it is needlessly difficult to administer. If quantities of work or equipment in the environment must be measured, then those quantities should be as easy and transparent as possible to measure. 3. Fair: The service pricing must be a reasonable proxy for a services provider’s underlying costs and should adequately recover those costs. Additionally, to the extent possible, the party that causes any incremental cost should bear that cost. 4. Incentives: All pricing structures will incentivize certain behaviors and discourage others. The goals of the sourcing program must be kept in mind when considering the behaviors that might be driven by a pricing structure. For example, a goal to encourage server consolidation might include reduced cost at a centralized data center. 5. Flexible: As consumption moves up and down, the charges should also adjust. Technology is an evolving industry, and the ability to turn down an old service to turn up a new service is one of the benefits of an efficient IT sourcing agreement. Such adjustments may include minor volume changes month to month, significant scope additions, reductions, or terminations, and ability of large service providers to re-deploy investments. 	<p>(usage) basis.</p> <p>The ability to manage costs is determined by two factors: do the services offered include all labor, equipment, tools, and performance measures required to deliver the service; and, will customers adhere to their usage forecasts? If both of these criteria are met, the customer more easily manages costs.</p> <p>PCMG recommends basing VITA pricing on vendor GSA Schedule pricing or the vendor’s published prices with discounts identified and applied. Also, customizable invoicing and invoice reporting should provide this identification.</p> <p>PCMG recommends cost reductions reflect a total discount, not just the individual services that reach qualified levels. PCMG recommends the modification of quantities should not require written/signed approval, but handled operationally with a quarterly true-up (or true-down) process. This allows operations to continue without being restricted due to administrative processes.</p>
Q52.	Inventory and Volume Collection	The Commonwealth is interested in introducing new Resource Units that do not exist in the current contract; in order to fairly compensate Supplier for service delivered, and support the other goals described in question 36, Supplier is asked to describe their experience and	If the services are broken out into individual ‘SKUs’ as was recommended, this issue is resolved. The use of modular services, combined with a true-up process allows flexibility for The Commonwealth, as well as

Ref#	Category	Question	Supplier Response
		approach to collecting and verifying volumes both before and after contract signing, and the approaches they use to adjusting financials in the event that the initial count is incorrect. For example, today database support is provided by the Supplier, but is not separately billable. The Commonwealth sees an advantage to separating out database support and making it a separate chargeable unit, how would the service provider collect and verify the volumes to support this chargeable unit?	provides a structured model to allow the Supplier to be compensated for changing environments.
Q53.	Asset Ownership	The Commonwealth consumes certain services today which are underpinned by a set of assets (servers, firewalls, etc.). The Commonwealth (or their designee) has the right to acquire these assets. The Commonwealth has a desire to consume services; rather than own assets, and envisions Supplier acquiring these assets and using them to provide services back to the commonwealth. Please describe experiences acquiring assets from an incumbent, and also describe your recommend financial treatment of their cost recovery for these assets.	See above answer to Q37.

6. FEEDBACK REGARDING RFI DOCUMENTS

Please use the table below to provide commentary regarding specific documents included within this RFI, adding rows as necessary.

Ref#	Document/Section	Supplier Commentary						
C1.		<p>If server availability is the only factor for Platinum vs Gold vs Silver vs Bronze, we recommend the State provide additional server design data to enable aligning bidder solution criteria system performance requirements and VITA business needs. Aligning server design criteria adds clarity to bidder solutions; helps define performance metrics (equipment and supplier); and allowing bidders to lower cost and service delivery risk. Below is the calculation of potential downtime based on the Availability metrics outlined in the RFI. Our experience is that these Availability levels are easily achievable in any modern cloud environment. There may not be a level below “Gold” in the current market.</p> <table border="1"> <thead> <tr> <th>Proposed Offering</th> <th>Potential downtime/unavailability</th> </tr> </thead> <tbody> <tr> <td>Platinum (99.99%)</td> <td>Monthly: 4m 23.0s</td> </tr> <tr> <td>Gold (99.95%)</td> <td>Monthly: 21m 54.9s</td> </tr> </tbody> </table>	Proposed Offering	Potential downtime/unavailability	Platinum (99.99%)	Monthly: 4m 23.0s	Gold (99.95%)	Monthly: 21m 54.9s
Proposed Offering	Potential downtime/unavailability							
Platinum (99.99%)	Monthly: 4m 23.0s							
Gold (99.95%)	Monthly: 21m 54.9s							

Ref#	Document/Section	Supplier Commentary	
		Silver (99.90%)	Monthly: 43m 49.7s
		Bronze (99.50%)	Monthly: 3h 39m 8.7s
		<p>One way to improve this description would be to add some consideration to how a server is deployed:</p> <p>For example: The Platinum server is deployed in local high-availability (automatic failover) with an off-site replicated copy to a de-centralized data center facility.</p> <p>The Gold server (in this example) is deployed in local high-availability (manual failover) with an off-site replicated copy to a de-centralized Data Center facility.</p> <p>The Silver server would be running local high-availability only.</p> <p>The Bronze server would be running a single instance in the production facility.</p>	
C2.			
C3.			
C4.			
C5.			
C6.			
C7.			
C8.			
C9.			
C10.			