

**Solicitation Number: RFQ**  
**Attachment C: Statement of Work**

## **1 Scope**

The Contractor shall conduct all necessary work to prepare and provide Infrastructure as a Service (IaaS) offerings in accordance with Section 4. All work and services shall be performed in accordance with the terms and conditions of the contractor's Federal Supply Service (FSS) Schedule 70 General Purpose Commercial Information Technology Equipment, Software, and Services contract hereinafter referred to as FSS Schedule 70, and the resulting BPA.

## **2 Background/Objective**

Cloud computing is a major feature of the President's initiative to modernize Information Technology (IT). Cloud computing has the capability to reduce the cost of IT infrastructure by utilizing commercially available technology that is based on virtualization of servers, databases and applications to allow for capital cost savings. The General Services Administration (GSA) focuses on implementing projects that increase efficiencies by optimizing common services and solutions across enterprise and utilizing market innovations such as cloud computing services. For the purposes of this solicitation, GSA has adopted the definition of Cloud Computing found in Draft National Institute of Standards and Technology (NIST) Working Definition of Cloud Computing, dated 1 June 2009. Cloud computing is a model for enabling available, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services). The idea is that these resources can be rapidly provisioned and released with minimal management effort or service provider interaction. Additional information can be found at <http://csrc.nist.gov/groups/SNS/cloud-computing/index.html>.

The scope of this RFQ focuses on IaaS service offerings available within a public cloud deployment model. The implementation is a Low Impact System as defined in National Institute of Science and Technology (NIST) Federal Information Processing Standard (FIPS) Publication 199 (see Appendix A – Security Requirements).

The objective of this RFQ is to offer three key service offerings through IaaS providers for ordering activities. The requirements have been divided into three distinct Lots:

- Lot 1: Cloud Storage Services (Section 4.3.1)
- Lot 2: Virtual Machines (Section 4.3.2)
- Lot 3: Cloud Web Hosting (Section 4.3.3)

Contractors shall provide any or all of the three service Lots.

## **3 Federal Cloud Computing Initiative**

The Federal Cloud Computing initiative is a services oriented approach, whereby common infrastructure, information, and solutions can be shared/reused across the Government. The overall objective is to create a more agile Federal enterprise – where services can be reused and provisioned on demand to meet business needs.

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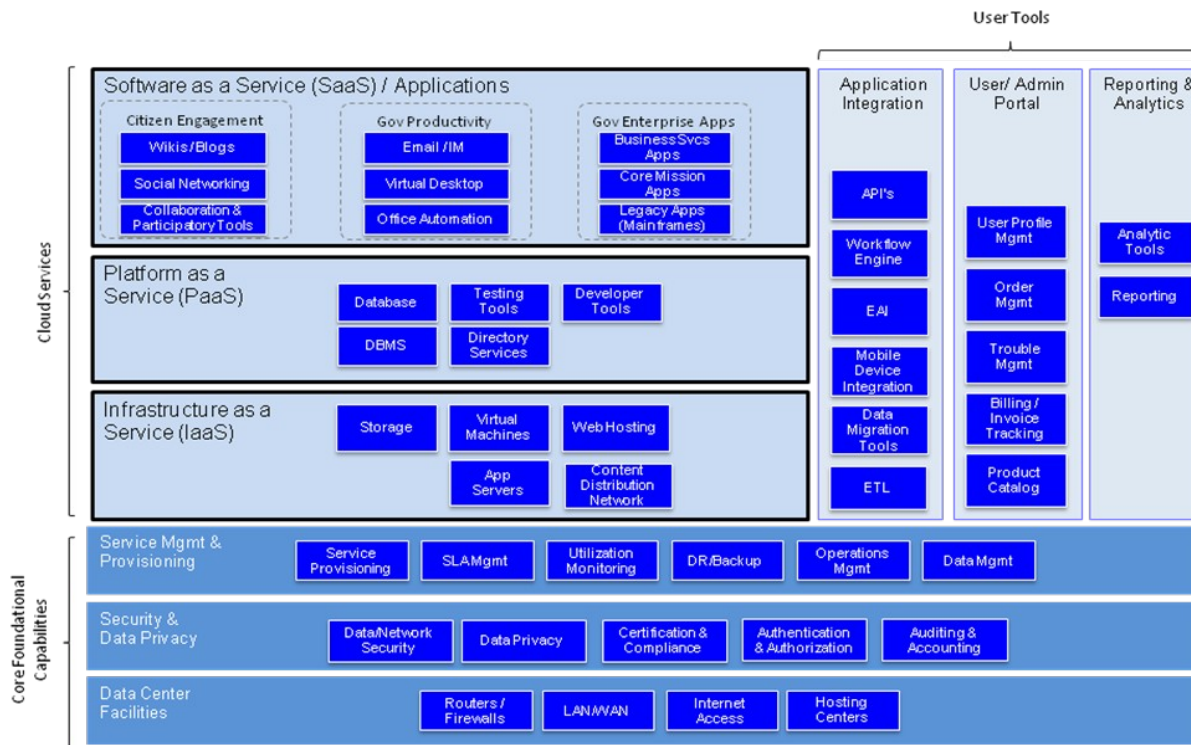
This following section describes the service framework and how the services will be available for purchase.

**3.1 Federal Cloud Computing Framework**

The Cloud Computing Framework, illustrated below, provides a high-level overview of the key functional components for cloud computing services for the Government. The Cloud Computing Framework is neither an architecture nor an operating model. The Framework is a functional view of the key capabilities required to enable Cloud Computing. As depicted in the Figure 1 below, the framework consists of three major categories including:

- Cloud Service Delivery Capabilities - Core capabilities required to deliver Cloud Services
- Cloud Services – Services delivered by the Cloud
- Cloud User Tools – Tools or capabilities that enable users to procure, manage, and use the Cloud services

**Figure 1: Federal Cloud Computing Framework**

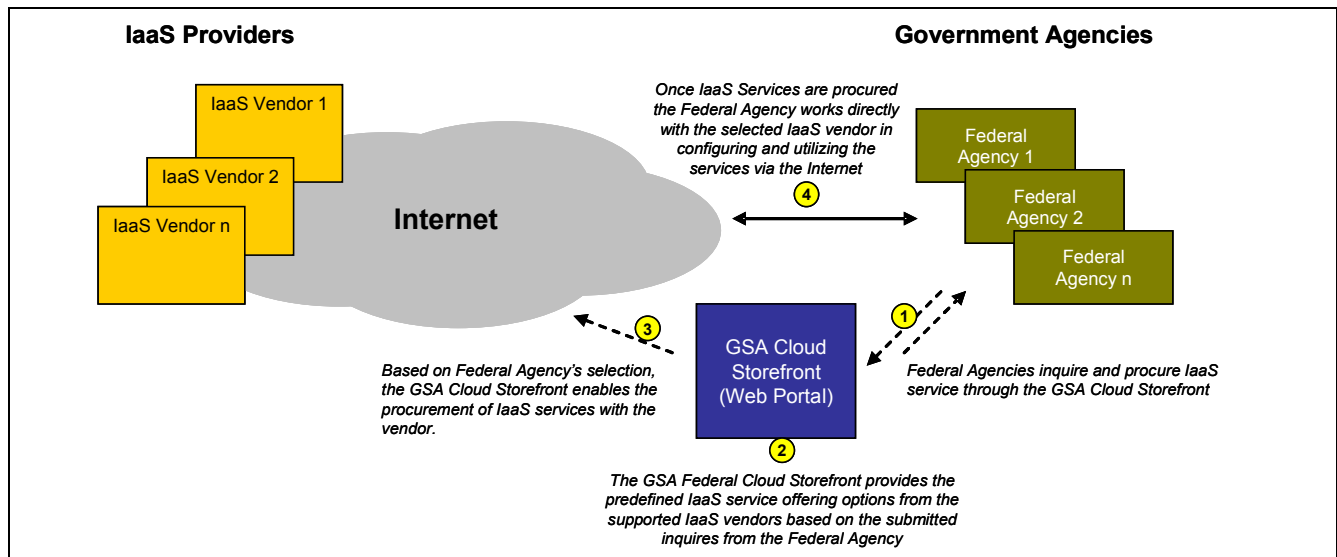


The Horizontal functional areas represent the core “computing” capabilities that enable different levels of Cloud Computing, while the vertical functional areas illustrate the management and business capabilities needed to wrap-around the core components to enable business processes with Cloud Computing. For example, Reporting and Analytics offer the ability to perform key reporting and business intelligence analytics and therefore are not core Cloud Computing components; however, analytics offer significant business capabilities that can harness the power of the data that will reside within the Cloud Computing environment.

### 3.2 GSA Cloud Computing Storefront

The initial acquisition of these services will be facilitated by GSA through the GSA Cloud Computing Storefront Site – which will enable Government purchasers to buy (using a credit card or other acceptable payment option) IaaS service offerings as needed through a common Web Portal, called the Cloud Computing Storefront, which will be managed and maintained by GSA.

Figure 2: GSA Cloud Computing Storefront



#### 3.2.1 Submission of Electronic Contract Data for Cloud Computing Storefront

BPA awardees must submit electronic catalog data containing awarded BPA products and pricing using the same method employed for submitting FSS Schedule 70 contract data for posting on GSA Advantage! (i.e., GSA's Schedule Input Program (SIP) software, Electronic Data Interchange (EDI), or third party). Since bundles offered under this BPA are not configured under your current FSS Schedule 70 contract, you must submit these bundles (CLINS). For instructions on how to submit:

Go to <https://vsc.gsa.gov/>

Click on "Getting on Advantage!" > "Cloud Computing Documentation"

## 4 Requirements

The requirements focus on IaaS service offerings, specifically for Storage Services, Virtual Machines (VM), and Cloud Web hosting. Requirements have been established for each of the IaaS functional components within the Federal Cloud Framework described above as required (mandatory).

The Government retains ownership of any user created/loaded data and applications hosted on vendor’s infrastructure, and maintains the right to request full copies of these at any time.

The requirements are divided into three categories as follows:

- General Cloud Computing Requirements – specifies general requirements for cloud services.
- IaaS Offering (Lot 1, 2, and 3) Requirements – specifies the requirements for service offerings along with their attributes and the purchase units.
- IaaS Technical Requirements – specifies the technical requirements for enabling the IaaS service offerings.

### 1.1 General Cloud Computing Requirements

The Contractor shall provide a Cloud Computing solution that aligns to the following “Essential Characteristics” as defined in the Draft National Institute of Standards and Technology (NIST) Working Definition and described in Table 1 below:

**Table 1: Cloud Computing Essential Characteristics Requirements**

| Cloud Characteristic         | Definition   | General Requirement   |
|------------------------------|--|---|
| 1. On-demand self-service    | A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service’s provider. | The Contractor shall provide the capability for the ordering activity to unilaterally (i.e. without vendor review or approval) provision services.  |
| 2. Ubiquitous network access | Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).  | 2a. The Contractor shall support internet bandwidth of at least 1Gb/s<br><br>2b. The Contractor shall have a minimum of two data center facilities at two different geographic locations in the Continental United States (CONUS) and all services acquired under the BPA will be guaranteed to reside in |

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| Cloud Characteristic                     | Definition  | General Requirement  |
|--|---|--|
| 3. Location independent resource pooling | The provider's computing resources are pooled to serve all consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. The customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or datacenter). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines. | CONUS.<br>The Contractor shall support provisioning of practically unlimited storage, computing capacity, memory (e.g. at 1000 times our minimum resource unit metrics), independently from the physical location of the facilities. |
| 4. Rapid elasticity                      | Capabilities can be rapidly and elastically provisioned to quickly scale up and rapidly released to quickly scale down. To the consumer, the capabilities available for provisioning often appear to be infinite and can be purchased in any quantity at any time.  | The Contractor shall support service provisioning and de-provisioning times (scale up/down), making the service available within near real-time of ordering.   |
| 5. Measured Service                      | Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported providing transparency for both the provider and consumer of the utilized service.  | The Contractor shall offer visibility into service usage via dashboard or similar electronic means.  |

**4.2 IaaS Common Technical Requirements**

This section specifies the requirements that are applicable to all three (3) Lots as mentioned in Section 4.3. The requirements for this section are divided into the following areas: Service Management and Provisioning; User/Admin Portal; integration requirements; and data center facilities requirements.

Offerors shall provide their IT system security and security clearance process and procedures. Offerors shall provide their customer relationship procedures to include the manner and means by which they will communicate with and support the customer.

**3.1 Service Management and Provisioning Requirements**

Service Management and Provisioning requirements address the technical requirements for supporting the provisioning and service management of the IaaS Offerings described in Section 4.3 of this document. Service provisioning focuses on capabilities required to assign services to users, allocate resources, and services and the monitoring and management of these resources.

**Table 2: Service Management and Provisioning Requirements**

|  |  |
|--|--|
| <p><i>Service Provisioning</i></p>               | <ol style="list-style-type: none"> <li>1. The Contractor shall provide the ability to provision virtual machines, storage and bandwidth dynamically, as requested and as required. This shall include any traffic shaping capabilities the Contractor uses.</li> <li>2. Contractor shall support secure provisioning, de-provisioning and administering [such as Secure Sockets Layer (SSL)/Transport Layer Security (TLS) or Secure Shell (SSH)]in its service offerings.</li> <li>3. The Contractor shall support the terms of service requirement of terminating the service at any time (on-demand).</li> <li>4. The Contractor shall provide a custom webpage and associated Uniform Resource Locator (URL) that describes the following:             <ol style="list-style-type: none"> <li>a. Service Level Agreements (SLAs)</li> <li>b. Help Desk and Technical Support</li> <li>c. Resources (Documentation, Articles/Tutorials, etc)</li> </ol> </li> <li>5. The Contractor shall make the Management Reports described in Section 6.3 accessible via online interface. These reports shall be available for one year after being created.</li> </ol> |
| <p><i>Service Level Agreement Management</i></p> | <ol style="list-style-type: none"> <li>6. The Contractor shall provide a robust, fault tolerant infrastructure that allows for high availability of 99.95%.</li> <li>7. The Contractor shall document and adhere to their SLAs to include:             <ul style="list-style-type: none"> <li>• Service Availability (Measured as Total Uptime Hours / Total Hours within the Month) displayed as a percentage of availability up to one-tenth of a percent (e.g. 99.95%)</li> <li>• Within a month of a major outage occurrence resulting in greater than 1-hour of unscheduled downtime. The Contractor shall describe the outage including description of root-cause and fix.</li> <li>• Service provisioning and de-provisioning times (scale up and down) in near real-time</li> </ul> </li> </ol>  |

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|                               |   |
|-------------------------------|---|
|                               | <p>8. The Contractor shall provide Helpdesk and Technical support services to include system maintenance windows.</p>   |
| <i>Operational Management</i> | <p>9. The Contractor shall manage the network, storage, server and virtualization layer, to include performance of internal technology refresh cycles applicable to this BPA.</p> <p>10. The Contractor shall provide a secure, dual factor method of remote access which allows Government designated personnel the ability to perform duties on the hosted infrastructure.</p> <p>11. The Contractor shall perform patch management.</p> <p>12. The Contractor shall provide the artifacts, security policies and procedures demonstrating its compliance with the Certification &amp; Accreditation (C&amp;A) requirements as described in Appendix A – Security Requirements.</p> |
| <i>DR and COOP</i>            | <p>13. The Contractor shall ensure the security of the services and data hosted at their facilities by providing DR (Disaster Recovery) and COOP (Continuity of Operations) capabilities.</p> <p>14. The Contractor shall perform backup, recovery and refresh operations on a periodic basis.</p>  |
| <i>Data Management</i>        | <p>15. The Contractor shall manage data isolation in a multi-tenant environment.</p> <p>16. The Contractor shall transfer data back in-house either on demand or in case of contract or order termination for any reason.</p> <p>17. The Contractor shall manage data remanence throughout the data life cycle.</p> <p>18. The Contractor shall provide security mechanisms for handling data at rest and in transit.</p>   |

**3.2 User/Admin Portal Requirements**

Table 3 below describes User/Admin management requirements:

**Table 3: User/Admin Portal Requirements**

|                         |  |
|-------------------------|--|
| <i>Order Management</i> | <p>19. The Contractor shall enable Order Management via customizable online portal/interface (tools).</p> <p>20. The Contractor shall enable Order Management via Application Programming Interface (API).</p> |
|-------------------------|--|

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|                                 |  |
|---------------------------------|--|
| <i>Billing/Invoice Tracking</i> | <p>21. The Contractor shall provide on-line billing capability that will allow customers to see the status of their bills (updated weekly).</p> <p>22. The Contractor shall provide the ability for the customer agency to track the status of their invoices.</p> <p>23. With the individual task orders issued under this BPA the Contractor will receive a not-to-exceed monthly dollar limitation. When 80% of this dollar limit has been reached, the Contractor shall notify the user, by email and by posting that notification to the website, that the contractor is approaching the 80% threshold for the order. The Contractor shall not bill beyond the approved monthly dollar threshold.</p> |
| <i>Utilization Monitoring</i>   | <p>24. The Contractor shall provide automatic monitoring of resource utilization and other events such as failure of service, degraded service, etc. via service dashboard or other electronic means.</p>  |
| <i>Trouble Management</i>       | <p>25. The Contractor shall provide Trouble Ticketing via customizable online portal/interface (tools).</p> <p>26. The Contractor shall provide Trouble Ticketing via API.</p>   |
| <i>User Profile Management</i>  | <p>27. The Contractor shall maintain user profiles and present the user with his/her profile at the time of login.</p>   |

**3.3 Integration Requirements**

Table 4 describes Integration requirements for cloud services:

**Table 4: Integration Requirements**

|  |  |
|--|--|
| <i>Application Programming Interfaces (APIs)</i> | <p>28. The Contractor shall provide support to all API's it develops/provides.</p> |
|--|--|

**3.4 Data Center Facilities Requirements**

Table 5 describes Data Center Facilities requirements:

**Table 5: Data Center Facilities Requirements**

|                        |   |
|------------------------|---|
| <i>Internet Access</i> | <p>29. The Contractor shall identify Tier 1 Internet providers it is peered with, and where this peering occurs. The Contractor shall provide its Autonomous Number System</p>  |
| <i>Firewalls</i>       | <p>30. The Contractor shall implement a firewall policy that allows the Government to administer it remotely, or the Contractor shall administer a firewall policy in accordance with the Government's direction, allowing the Government to have read-only access to inspect the firewall configuration.</p> |

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|                                      |  |
|--------------------------------------|--|
| <p><i>LAN/WAN</i></p>                | <p>31. The Contractor shall provide Local Area Network (LAN) that does not impede data transmission.</p> <p>32. The Contractor shall provide a Wide Area Network (WAN), with a minimum of two data center facilities at two different geographic locations in the Continental United States (CONUS) and all services acquired under the BPA will be guaranteed to reside in CONUS. The Contractor shall provide Internet bandwidth at the minimum of 1 GB.</p> <p>33. IP Addressing: 1) The Contractor shall provide IP address assignment, and if capable, include Dynamic Host Configuration Protocol (DHCP). 2) The Contractor shall provide IP address and IP port assignment on external network interfaces. 3) The Contractor should provide dedicated virtual private network (VPN) connectivity between customer and the vendor. 4) The Contractor should map IP addresses to domains owned by the Government, allowing websites or other applications operating in the cloud to be viewed externally as Government URLs and services. 5) The Contractor shall provide an infrastructure that is IPv6 capable.</p> |
| <p><i>Data Center Facilities</i></p> | <p>34. The Contractor shall provide data center facilities including space, power, physical infrastructure (hardware). Upon request from the Government, the hosting Contractor shall provide access to the hosting facility for inspection.</p> <p>35. The Contractor shall provide data center facilities and the physical and virtual hardware that are located within the Continental United States of America (CONUS).</p>  |

**4.3 Lot Specific Technical Requirements and Past Performance**

The IaaS Offering Requirements have been divided into three distinct Lots:

- Lot 1: Cloud Storage Services (Section 4.3.1)
- Lot 2: Virtual Machines (Section 4.3.2)
- Lot 3: Cloud Web Hosting (Section 4.3.3)

The following sections describe the service, service options, service attributes, and service units for the three Lots.

**1.1 LOT 1: CLOUD STORAGE SERVICES**

**4.3.1.1 Cloud Storage Service Requirements**

**Cloud Storage Services shall consist of the following REQUIRED Services, Service Options, Service Attributes and Service Units.**

The service shall be available online, on-demand, and dynamically scalable up or down per request for service from the end users via Internet through a web browser. Table 7 below provides a description of the service requirements for Cloud Storage Services. This table describes the

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requirements for the following:

- **Service** – Provides a high-level description of the functionality of the Cloud Storage Services
- **Service Options** – The service shall support both storage of files and storage of data objects options described in Table 7. The service shall also support PUT, POST, GET, HEAD,

DELETE, COPY, LIST requests/operations on Containers/Buckets and Objects/Files as described in Table 6.

**Table 6: Command/Request Definitions**

| <b>Request/Operation</b>  | <b>Container/Bucket</b>  | <b>Object/File</b>  |
|---|--|---|
| PUT   | PUT operations performed against Container/Bucket are used to create that container  | PUT operations against an Object are used add object to the bucket/container and write, overwrite, an object's metadata and content |
| GET   | GET operations performed against Container/Bucket lists information about objects within that container/bucket                                       | GET operations against an Object are used to retrieve objects and the objects' data from the container/bucket                       |
| HEAD  | HEAD operations against a storage Container are used to determine the number of Objects, and the total bytes of all Objects stored in the Container. | HEAD operations against an Object are used to retrieve object's metadata and other HTTP headers                                     |
| DELETE  | DELETE operations performed against Container/Bucket deletes the container/bucket.   | DELETE operations against an Object are used to permanently delete the specified object   |
| POST<br>POST is an alternate form of PUT that enables browser-based uploads | The POST request operation adds an object to a container/bucket using HTML forms.  | POST operations against an Object name are used to set and overwrite arbitrary key/value metadata                                   |
| COPY  | The COPY operation creates a new, uniquely named copy of an container/bucket that is already stored.   | The COPY operation creates a uniquely name copy of an object/file that is already stored.   |
| LIST  | The LIST operation displays the information of a current Container/Bucket.   | The LIST operation displays the current objects/files, including metadata.  |

- **Service Attributes** – All the Service Attributes described in Table 7 shall be provided for all service options as either standalone subservices within the Service or as one or more bundled Service Attributes.
- **Service Units** – Provides the requirements for the minimum purchasable units of the Service Attributes. These Service Units may be purchased at the minimum or in multiples of the minimum. The customer shall be billed for the actual service units used.

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**Table 7: Cloud Storage Service Requirements**

| <b>Service Description</b>  | <b>Service Options</b>  | <b>Service Attributes</b><br>(key subservices that can be applied to the Service Options)   | <b>Service Units</b><br>(purchasable units of service attributes) |
|---|---|---|---|
| <b>Cloud Storage Service –</b> <ul style="list-style-type: none"> <li>Service shall provide scalable, redundant, dynamic Web-based storage</li> <li>Service shall provide users with the ability to procure and use data and file storage capabilities remotely via the Internet</li> <li>Service shall provide file and object data storage capabilities on-demand, dynamically scalable per request and via the Internet</li> </ul> | <b>Storage for files –</b> ability to store, access and modify computer files within the Cloud infrastructure via the Internet<br><br><b>Storage for Data Objects –</b> ability to store, access and modify data objects within the Cloud infrastructure via the Internet<br><br><b>Storage Commands / Requests-</b> Performing commands regarding files/objects within the Storage service including: PUT, COPY, POST, LIST, GET, DELETE, HEAD | <b>Storage Space:</b><br><br>Online, on-demand virtual storage for files / objects supporting a single file/object sizes of up to 5GB   | GB (gigabyte) of storage used/month                               |
|   |   | <b>Data Transfer Bandwidth:</b><br><br>Bandwidth utilized to transfer files/objects in/out of the providers infrastructure supporting a minimum of 100GB of data transferred (in and out) via the Internet. | GB (gigabyte) of Data Transfer Bandwidth (In, Out) used/month     |

**4.3.1.2 Storage and Bandwidth Tiers**

The Contractor shall provide the following pricing tiers for storage (Table 8) and data transfer bandwidth (In, Out) (Table 9). The customer shall be billed only for actual service units used per month. Units shall be measured in Terabytes (TB). Refer to Appendix C – Pricing Template.

**Table 8: Storage Tiers**

|  | <b>Tier 1</b>            | <b>Tier 2</b>             | <b>Tier 3</b>              | <b>Tier 4</b>            |
|--|--------------------------|---------------------------|----------------------------|--------------------------|
|  | <b>First 50 TB/month</b> | <b>51 to 100 TB/month</b> | <b>101 to 300 TB/month</b> | <b>Over 300 TB/month</b> |

**Table 9: Data Transfer Bandwidth Tiers**

|  | <b>Tier 1</b> | <b>Tier 2</b> | <b>Tier 3</b> | <b>Tier 4</b> |
|--|---------------|---------------|---------------|---------------|
|  |               |               |               |               |

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|  |                             |                              |                               |                              |
|--|-----------------------------|------------------------------|-------------------------------|------------------------------|
|  |                             |                              |                               |                              |
|  | <b>0 to 10<br/>TB/month</b> | <b>11 to 50<br/>TB/month</b> | <b>51 to 150<br/>TB/month</b> | <b>Over 150<br/>TB/month</b> |

**1.2 LOT 2: VIRTUAL MACHINE**

**4.3.2.1 Virtual Machine Requirements**

**The Virtual Machine Service shall consist of the following REQUIRED Services, Service Options, Service Attributes, and Service Units**

The service shall be available online, on-demand and dynamically scalable up or down per request for service from the end users via Internet through a web browser. Table 10 below provides a description of the service requirements for Virtual Machines. This table describes the requirements for the following:

- **Service** – Provides a high-level description of the functionality of the Virtual Machine Service
- **Service Options** – The service shall support the Central Processing Unit (CPU) and Operating System options described in Table 10.
- **Service Attributes** – The service shall support all the service attributes described in Table 10. The Service Attributes shall be provided as either standalone subservices within the Service or as one or more bundled Service Attributes.
- **Service Units** – The service shall provide the capability to purchase the service attributes in the units described below at a minimum. These Service Units may be purchased at the minimum or in multiples of the minimum.

**Table 10: Virtual Machine Service Requirements**

| <b>Service Description</b> | <b>Service Options</b> | <b>Service Attributes</b><br>(key subservices that can be applied to the Service Options) | <b>Service Units</b><br>(purchasable units of service attributes) |
|----------------------------|------------------------|---|---|
|                            |                        |   |   |

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|---|---|---|--|
| <p><b>Virtual Machines-</b></p> <ul style="list-style-type: none"> <li>• Service shall provide scalable, redundant, dynamic computing capabilities or virtual machines.</li> <li>• Service shall allow Government users to procure and provision computing services or virtual machine instances online via the Internet.</li> <li>• Service shall allow users to remotely load applications and data onto the computing or virtual machine instance from the Internet.</li> <li>• Configuration and Management of the Operating System shall be enabled via a Web browser over the Internet</li> </ul> | <p><b>CPU (Central Processing Unit) - CPU options shall be provided as follows:</b></p> <ul style="list-style-type: none"> <li>• A minimum equivalent CPU processor speed of 1.1GHz shall be provided. Additional options for CPU Processor Speed may be provided, however it is not required.</li> <li>• The CPU shall support 32-bit and 64-bit operations</li> </ul> | <p><b>RAM (Random Access Memory):</b></p> <p>Physical memory (RAM) reserved for virtual machine instance or Computing supporting a minimum of 1GB of RAM.</p> | <ul style="list-style-type: none"> <li>• Per hour usage</li> </ul> |
|   | <p><b>Operating System (OS)</b><br/>– Service shall support Windows and LINUX OS's at a minimum. Additional OS options may be provide or supported; however, this is not required.</p>  | <p><b>Disk Space</b></p> <p>Disk Space allocated for virtual machine supporting a minimum of 40GB.</p>  |  |
|   | <p><b>Data Transfer Bandwidth:</b></p> <p>Bandwidth utilized to transfer data in/out of the provider's infrastructure supporting a minimum of 400GB of data transferred (in and out) via the Internet.</p>  | <p>GB (gigabyte) of Data Transfer Bandwidth (In, Out)/month</p>   |  |

**2.2.2 Bundling of Virtual Machine Service Attributes**

The Contractor shall provide bundles of Virtual Machine service attributes as described in Table 11. The Contractor shall provide the data transfer bandwidth pricing tiers as described in Table 12. Additional usage (overage) of Disk Space within a month shall be charged by per GB of disk space usage per hour. Refer to Appendix C – Pricing Template.

**Table 11: Virtual Machine Bundles**

| Service Attribute | 1GB Bundle   | 2Gb Bundle   | 4 GB Bundle | 8 GB Bundle | 15.5 GB Bundle  |
|-------------------|--------------|--------------|-------------|-------------|-----------------|
| <b>RAM</b>        | 1024 MB/1 GB | 2048 MB/2 GB | 4096MB/4GB  | 8192MB/8GB  | 15872MB/15.5 GB |
| <b>Disk Space</b> | 40 GB        | 80 GB        | 160 GB      | 320 GB      | 620 GB          |

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**Table 12: Data Transfer Bandwidth Tiers**

|  | <b>Tier 1</b>               | <b>Tier 2</b>                | <b>Tier 3</b>                 | <b>Tier 4</b>                |
|--|-----------------------------|------------------------------|-------------------------------|------------------------------|
|  | <b>0 to 10<br/>TB/month</b> | <b>11 to 50<br/>TB/month</b> | <b>51 to 150<br/>TB/month</b> | <b>Over 150<br/>TB/month</b> |

**2.2.3 Virtual Machine Technical Requirements**

The Government retains ownership of all virtual machines, templates, clones, and scripts/applications created with individual task orders issued under this BPA as well as maintaining the right to request full copies of these virtual machines at any time.

The Government (customer) retains ownership of customer loaded software installed on virtual machines and any application or product that is developed under orders against this BPA.

The Contractor shall:

1. Provide virtualization services for the customer to be able to spawn on-demand virtual server instances.
2. Support a secure administration interface - such as SSL/TLS or SSH - for the Government designated personnel to remotely administer their virtual instance.
3. Provide the capability to dynamically reallocate virtual machines based on load, with no service interruption.
4. Provide the capability to copy or clone virtual machines for archiving, troubleshooting, and testing.

The Contractor should:

5. Provide multiple processor virtual machines.
6. Manage processor isolation in a multi-tenant environment.
7. Perform Live migrations (ability to move running VM's) from one host to another.
8. Provide a hypervisor which supports security features such as role-based access controls and auditing of administrative actions.
9. Provide a hypervisor which supports hardware-assisted memory virtualization.

**2.3 LOT 3: CLOUD WEB HOSTING**

**4.3.3.1 Cloud Web hosting requirements**

The Cloud Web Hosting Service shall consist of the following REQUIRED Services, Service Options,

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Service Attributes and Service Units.

The service shall be an available online, on-demand and dynamically scalable up or down per request for service from the end users via Internet through a Web browser. Table 13 provides a description of the service requirements for Cloud Web Hosting Service. This table describes the requirements for the following:

- **Service** – Provides a high-level description of the functionality of the Cloud Web Hosting Service.
- **Service Options** – The service shall support the Central Processing Unit (CPU) and Operating Systems options described in the Table 13.
- **Service Attributes** – The service shall provide the service attributes described in the Table 13 for all of the Service Options. The Service Attributes shall be provided as either standalone subservices within the Service or as one or more bundled Service Attributes.
- **Service Units** – The service shall provide the capability to purchase the service attributes in the units described below at a minimum. These Service Units may be purchased at the minimum or in multiples of the minimum.

**Table 13: Cloud Web Hosting Requirements**

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| Service Description  | Service Options   | Service Attributes<br>(key subservices that can be applied to the Service Options)   | Service Units<br>(purchasable units of service attributes) |
|--|---|--|--|
| <p><b>Cloud Web Hosting –</b></p> <ul style="list-style-type: none"> <li>Cloud Web hosting shall provide Web application hosting services in the cloud enabling scalable, redundant, dynamic web hosting services.</li> <li>Cloud Web Hosting shall allow Government users to procure and provision Web Hosting services online via the Internet.</li> <li>Cloud Web hosting shall allow users to securely load applications and data onto the provider’s service remotely from the Internet.</li> <li>Configuration of Cloud Web Hosting shall be enabled via a Web browser over the Internet.</li> </ul> | <p><b>CPU (Central Processor Unit) - CPU options shall be provided as follows:</b></p> <ul style="list-style-type: none"> <li>A minimum equivalent CPU processor speed of 1.1GHz shall be provided. Additional options for CPU Processor Speed may be provided, however it is not required.</li> <li>The CPU environment shall support 32-bit and 64-bit operations</li> </ul> <p><b>Operating System (OS)</b><br/>– Service shall support Windows and LINUX OS’s at a minimum. Additional OS options may be provide or supported; however, this is not required.</p> <p><b>Required website software includes:</b></p> <ul style="list-style-type: none"> <li>Database instances (e.g. MSSQL, MySQL, Oracle, MS Access, or DB2)</li> <li>Web Server software (e.g. Apache, IIS)</li> <li>DNS (Domain Name System)</li> <li>DNS Sec (Domain Name System Security Extensions)</li> <li>The Contractor shall operate any additional software</li> </ul> | <p><b>Disk Space</b></p> <p>Disk Space allocated shall be a minimum of 10GB.</p>   | <p>GB of Disk Space per month</p>                          |
|  |   | <p><b>Data Transfer Bandwidth:</b></p> <p>Bandwidth utilized to transfer data in/out of the provider’s infrastructure shall support a minimum of 300GB of data transferred via the Internet.</p> <p>The Contractor shall support Content Delivery Network (CDN) capabilities</p> | <p>GB (gigabyte) of Bandwidth per month (In, Out)</p>      |

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**2.3.2 Bundling of Cloud Web Hosting Service Attributes**

The Contractor shall provide the following bundles of Cloud Web Hosting service attributes. The service shall be charged monthly. Additional usage (overage) of service attributes within a month shall be charged by the service units mentioned above.

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**Table 14: Cloud Web Hosting Bundling**

| <b>Service Attribute</b>                      | <b>10GB Bundle</b> | <b>50GB Bundle</b> | <b>150 GB Bundle</b> |
|---|--------------------|--------------------|----------------------|
| <b>Storage</b>                                | 10 GB              | 50 GB              | 150 GB               |
| <b>Data Transfer Bandwidth (In, Out, CDN)</b> | 300 GB             | 500GB              | 1500 GB              |

## **5 Compliance Requirements**

### **5.1 Section 508**

Consistent with the offeror's FSS Schedule 70, all electronic and information technology (EIT) procured through any resultant BPA must meet the applicable accessibility standards at 36 CFR 1194, unless an agency exception to this requirement exists. The 36 CFR 1194 implements Section 508 of the Rehabilitation Act of 1973, as amended.

### **5.2 Information Technology Systems Security Requirements**

The Office of Management and Budget (OMB) Circular A-130, Management of Federal Information Resources, requires Federal agencies to plan for security. The following security requirements apply to services that may be provided in individual task orders issued under this BPA.

The Government and the Contractor will work in good faith to establish an Interconnection Security Agreement (ISA) and/or a Memorandum of Understanding (MOU) as provided in the National Institute of Standards and Technology (NIST) Special Publication 800-47, Security Guide for Interconnecting Information Technology Systems, Appendix A – Security Requirements and Appendix B – Personnel Security. The Government's intent is to accept the Contractor's commercial information security practices that are functionally equivalent to those provided by NIST Special Publication 800-53, Recommended Security Controls for Federal Information Systems, for low impact systems.

- 1. Obtaining a full certification from GSA must be accomplished before any ordering on the BPA is permitted. Therefore, offerors should be prepared to submit the necessary artifacts and the independent verification as soon after BPA award as possible.**
- 2. The cost of providing this documentation should be factored into their prices.**
- 3. Offerors who receive an award will be given only three opportunities to submit their documentation for certification.**

**NOTE: See Appendix A – Security Requirements for additional requirements.**

### **5.3 Security Clearance (HSPD-12) Requirements**

Homeland Security Presidential Directive-12 requires that all Federal entities ensure that all Contractors have current and approved security background investigations that are equivalent to investigations performed on Federal employees.

**NOTE: See Appendix B – Personnel Security for additional requirements.**

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**5.4 Privacy Requirements**

In accordance with the Federal Acquisitions Regulations (FAR) clause 52.239-1, the Contractor shall be responsible for the following privacy and security safeguards:

- (a) The Contractor shall not publish or disclose in any manner, without the Contracting Officer's written consent, the details of any safeguards either designed or developed by the Contractor under this BPA or otherwise provided by the Government.
- (b) To the extent required to carry out a program of inspection to safeguard against threats and hazards to the security, integrity, and confidentiality of any non-public Government data collected and stored by the Contractor, the Contractor shall afford the Government access to the Contractor's facilities, installations, technical capabilities, operations, documentation, records, and databases.
- (c) If new or unanticipated threats or hazards are discovered by either the Government or the Contractor, or if existing safeguards have ceased to function, the discoverer shall immediately bring the situation to the attention of the other party.

**6. BPA Administration**

**6.1 Administrative Contracting Officer**

The Administrative Contracting Officer (ACO) has the overall responsibility for the administration of this BPA. He/she alone, without delegation, is authorized to take actions on behalf of the Ordering Activity to amend, modify or deviate from the BPA terms, conditions, requirements, specifications, details and/or delivery schedules. However, the ACO may delegate certain other responsibilities to his/her authorized representatives. This BPA will be administered by:

TBD

Telephone:

Fax:

E-mail:

**6.2 Contractor Representative for BPA Administration**

- (a) The Contractor's representative to be contacted for all administration matters:

Name

Telephone:

Address

Fax:

E-mail:

- (b) The Contractor's representative shall be responsible for all BPA and order administration issues and shall act as the central point of contact with the Government for all such issues. The

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representative shall have full authority to act for the Contractor in all contractual matters. The representative shall be able to fluently read, write, and speak the English language.

**6.3 Management Reporting Deliverables**

Deliverables listed below should be accessible via online interface not later than 10 days after the end of the calendar month and available for up to one year after creation. The information shall be available in comma separated values (CSV) file format. The Contractor shall provide non-cumulative monthly reports for the items described in the table below for:

- in aggregate (total) across all Government customers
- and broken down by organization specified by Agency and Bureau using the first four digits of the AB (Agency -Bureau) Code as the identifier.

| Report / Deliverable                 | Description  | Frequency |
|--------------------------------------|--|-----------|
| <b>Service Level Agreement (SLA)</b> | <ul style="list-style-type: none"><li>• Service Availability (Measured as Total Uptime Hours / Total Hours within the Month) displayed as a percentage of availability up to one-tenth of a percent (e.g. 99.5%)</li><li>• Text description of major outages (including description of root-cause and fix) resulting in greater than 1-hour of unscheduled downtime within a month</li></ul> | Monthly   |
| <b>Help Desk / Trouble Tickets</b>   | <ul style="list-style-type: none"><li>• Number of Help Desk/customer service requests received.</li><li>• Number of Trouble Tickets Opened</li><li>• Number of trouble tickets closed</li><li>• Average mean time to respond to Trouble Tickets (time between trouble ticket opened and the first contact with customer)</li><li>• Average mean time to resolve trouble ticket</li></ul>     | Monthly   |
| <b>Service Orders / Sales</b>        | <ul style="list-style-type: none"><li>• Quantity and Type of IaaS service orders received</li><li>• Number of service orders (and percentage of orders out of the total) which resulted in an email or contact with customer within two hours of individual task order(s) issued under this BPA being sent to vendor</li></ul>   | Monthly   |
| <b>Service Utilization</b>           | <ul style="list-style-type: none"><li>• Monthly utilization of each IaaS Service type (Lot) as defined by the Service Units for the specific Lot offered by the vendor</li></ul>   | Monthly   |
| <b>Invoicing/Billing</b>             | <ul style="list-style-type: none"><li>• Standard invoicing/billing</li></ul>   | Monthly   |

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|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

**List of Attachments**

- Appendix A – Security Requirements
- Appendix B – Personnel Security
- Appendix C – CLIN Structure/Pricing Template
- Appendix D – [Cooperative Purchasing Program](#)
- Appendix E – [Contractor Team Arrangements](#) (Uniform Resource Locator)
- Appendix F – Commercial Terms and Conditions
- Appendix G – Template for FIPS Validation
- Appendix H – Report of Sales
- Appendix J - Service Level Agreement Template