

#### 1.5.9 Storage Services (SS) [C.2.11.10]

Agencies will have uninterrupted access to its data through a high-quality, high-availability Storage Service (SS) providing reliable, flexible solutions from tape backup and restore all the way to turnkey managed storage services. SS fully complies with the Government's requirements and provides Agencies a low-risk service.

# 1.5.9.1 Technical Approach to Management and Applications Service Delivery [L.34.1.5.1]

#### 1.5.9.1.a Approach to Service Delivery

(a) Analyze the service requirements specified in this solicitation and describe the approaches to service delivery for each service.

Agencies subscribing to AT&T's Storage Service (SS) can choose from a portfolio of managed offers that will give Agencies the flexibility to choose among a rich feature set of data storage solutions, from simple backup to constant storage or custom-designed SS. The solutions include data mirroring, tape backup and restore, and business continuity and recovery services that integrate with AT&T's globally reaching network. **Figure 1.5.9.1-1** displays these solutions in the overall SS architecture as well as detailing other elements in the service.

Agencies will have a *one-stop shop* for integrated storage networking and secure, reliable, and disaster-tolerant SS services, which are fully compliant with the Government's requirement. **Table 1.5.9.1-1** discusses the approach to service delivery of SS solutions.

Agencies are provided with a high availability and secure storage environment. AT&T delivers integrated networked storage solutions, which offers proactive and correlated management across geographically dispersed locations and applications.



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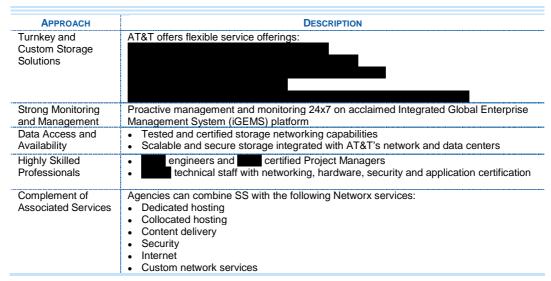
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Figure 1.5.9.1-1: SS Architecture. Agencies can take advantage of the multiple service offerings to create highly flexible, custom SS solutions.





**Table 1.5.9.1-1: Approach to Service Delivery.** Agencies can subscribe to an SS offering flexibility through a number of storage options, allowing them to custom design and implement a solution based on specific requirements.

#### 1.5.9.1.b Benefits to Technical Approach

(b) Describe the expected benefits of the offeror's technical approach, to include how the services offered will facilitate Federal Enterprise Architecture objectives (see http://www.whitehouse.gov/omb/egov/a-1-fea.html).

AT&T's Networx services, in general, and SS, in particular, support the Government's vision of transformation through the use of the Federal Enterprise Architecture (FEA) by providing the technologies that contribute to the Agency's mission objectives. **Table 1.5.9.1-2** describes each service in relation to FEA, summarizes its contribution, and/or provides an example of how it facilitates FEA implementation.

| SERVICE DELIVERY APPROACH                  | BENEFITS   | FEA FACILITATION   |
|--|--|--|
| Turnkey and<br>Custom Storage<br>Solutions | Agencies can select SS solutions and service offerings that will meet their specific storage requirements. | As a component of Technical Reference Manual (TRM)/service platform and infrastructure/database/storage, Agencies can tailor specific storage solutions, by having an SS designed to an Agency based on their unique requirements. |
| Strong Monitoring and Management           | Agencies can offload management of their storage network and concentrate on their core business.           | As a component of TRM/component framework/data management, Agencies can reduce total cost of ownership, by offloading monitoring and management of the SS environment.   |
| Data Access and<br>Availability            | Agencies benefit from knowing their storage needs will be met by a service                                 | As a component of TRM/service access and delivery/database/storage, Agencies can reduce  |



| SERVICE DELIVERY APPROACH               | BENEFITS  | FEA FACILITATION   |
|---|---|--|
|   | provider with certified storage<br>networking capabilities and a scalable<br>SS, allowing Agencies to easily scale<br>their storage solutions, based on<br>capacity requirements. | budgetary waste by contracting to capacity, as<br>needed, instead of being forced to purchase<br>more capacity than needed.  |
| Highly Skilled<br>Professionals         | Agencies can save on manpower and effort by deferring to the service provider to design and support their SS.   | As a component of TRM/service access and delivery/service transport, Agencies will have superior SS designed and maintained by AT&T providing end users and constituents a straightforward storage experience. |
| Complement of<br>Associated<br>Services | Agencies can combine their SS with associated services to meet Agency specific requirements.  | As a component of TRM/delivery servers,<br>Agencies will be able to expand their services<br>outside SS, enhancing services offered to their<br>end users and constituents.                                    |

**Table 1.5.9.1-2: Agency Benefits and FEA Facilitation. Agencies** can receive products and services components that are easily integrated, commonly manageable, and aligned to support FEA objectives and meet FEA guidelines.

AT&T's development of net-centric technologies supports solutions based on service oriented architecture (SOA), which uses standardized, web-adapted components. Our approach follows the criteria listed below:

- Technical Reference Model (TRM) capabilities are fully met and linked to the Service Component Reference Model (SRM) and Data Reference Model (DRM).
- These links are structured to support Business Reference Model (BRM) functions and provide line-of-sight linkage to mission performance and ultimate accomplishment per the Performance Reference Model (PRM)
- AT&T operates as an innovative partner through Networx to help achieve the vision of the FEA to enhance mission performance.

In addition to the benefits and FEA facilitations cited earlier, AT&T will assist specific departments and Agencies to meet mission and business objectives through a comprehensive SS offering.

#### 1.5.9.1.c Major Issue to Service Delivery

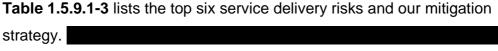
(c) Describe the problems that could be encountered in meeting individual service requirements, and propose solutions to any foreseen problems.

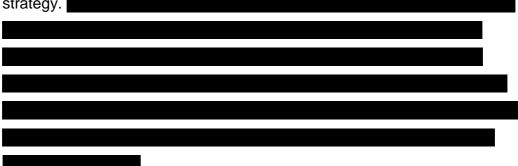
In transitioning into any new service delivery model, whether it be task-based or fully outsourced, unforeseen issues can always arise. Therefore, it is





important that GSA selects a service provider, such as AT&T, which brings the depth and background that minimize an Agency's risk during transition. Our experience has enabled us to develop proven methods, processes, and procedures applicable to the simplest or the most complex projects.





| RISKS  | RISK DESCRIPTION   | RISK MITIGATION |
|--|--|-----------------|
| Product<br>instability/Lack of<br>commitment | Agencies need to rely on service provider who is committed to supplying solvent storage service that will be profitable and continue to be offered for term of contract.                   |                 |
| Poor transition<br>planning                  | Important issue is seamless transition of services in case of network failure. Agencies will request service provider support with installation, configuration, testing, and turnup of SS. |                 |
| Lack of<br>implementation<br>support         | In certain implementations, requirements can go undefined; inadequate staffing and delivery dates might be missed.   |                 |





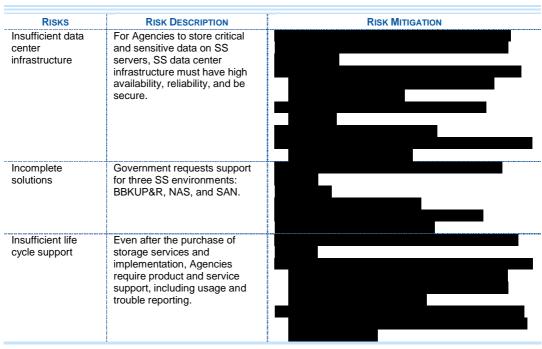


Table 1.5.9.1-3: AT&T Service Delivery Lessons Learned and Risk Mitigation Strategies. Agencies benefit from lessons learned and experience implementing SS, which ultimately minimize service delivery risks.

AT&T has taken steps to identify risk and provide risk mitigation associated with delivering SS. AT&T is committed to service excellence and will work with the Agency to identify and resolve potential problems that might occur during service delivery.

# 1.5.9.2 Satisfaction of Management and Applications Performance Requirements [L.34.1.5.2]

#### 1.5.9.2.a Service Quality and Performance

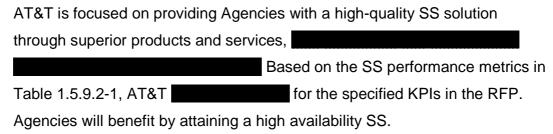
(a) Describe the quality of the services with respect to the performance metrics specified in Section C.2 Technical Requirements for each service.

Agencies will access the highest quality service offered and sets the industry standards for performance and quality. AT&T will meet the performance levels and acceptable quality level (AQL) of key performance indicators (KPIs) for SS for routine and critical users, as presented in the RFP and **Table 1.5.9.2-1**.



| KEY PERFORMANCE INDICATOR (KPI)   | SERVICE LEVEL    | PERFORMANCE STANDARD (THRESHOLD) | PROPOSED SERVICE QUALITY LEVEL |
|-----------------------------------|------------------|----------------------------------|--------------------------------|
|                                   | Backup ar        | nd Restore                       |                                |
| Av (SS/BBKUP&R)                   | Routine          | 99.9%                            |                                |
| Grade of Service (Restore Time)   | Routine          | 30 min                           |                                |
|                                   | N                | 48                               |                                |
| Av (SS/NAS) (single server)       | Routine          | 99.9%                            |                                |
| Av (SS/NAS) (clustered servers)   | Routine          | 99.99%                           |                                |
| Av (SS/NAS) (mirrored servers)    | Routine          | 99.999%                          |                                |
| EN                                | Routine          | 8 hr/month                       |                                |
| (Total Scheduled Downtime)        | Critical         | 8 hr/year                        |                                |
| SAN                               |                  |                                  |                                |
| Av (SS/SAN) (Single connectivity) | Routine          | 99.95%                           |                                |
| Av (SS/SAN) (Dual connectivity)   | Routine          | 99.999%                          |                                |
| Time to Restore (TTR)             | Without Dispatch | 4 hr                             |                                |
|                                   | With Dispatch    | 8 hr                             |                                |

**Table 1.5.9.2-1: Storage Service Performance Parameters.** Agencies will be positioned to better manage storage services through performance-based contracts that deliver the quality of service (QoS) required to meet Agency performance objectives.



#### 1.5.9.2.b Approach to Monitoring and Measuring Performance

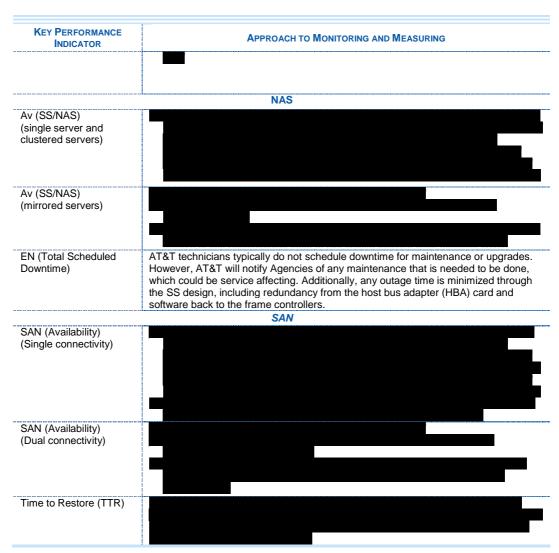
(b) Describe the approach for monitoring and measuring the Key Performance Indicators (KPIs) and Acceptable Quality Levels (AQLs) that will ensure the services delivered are meeting the performance requirements.

Complying with Government stipulated KPIs are as important as the methods by which the KPIs are captured, measured, and monitored. To provide Agencies an accurate representation of service performance, AT&T has created an approach (**Table 1.5.9.2-2**) for measuring and monitoring each KPI.

| KEY PERFORMANCE INDICATOR          | APPROACH TO MONITORING AND MEASURING  |  |  |
|------------------------------------|---|--|--|
|                                    | Backup and Restore  |  |  |
| Av (SS/BBKUP&R)                    | <ul> <li>Measurement - Daily system logs measure BBKUP&amp;R system availability and restore metrics. Daily and archive backup metrics are measured by daily NetBackup logs. Backup success status is available on the AT&amp;T-managed services portal on AT&amp;T BusinessDirect<sup>®</sup>.</li> <li>Backups - As part of AT&amp;T BBKUP&amp;R service, Agency data is backed up daily with a schedule of one full backup and six incremental backups each week.</li> </ul> |  |  |
| Grade of Service<br>(Restore Time) |   |  |  |







**Table 1.5.9.2-2: Approach to Monitoring and Measuring Performance.** Agencies will meet KPI requirements based on tried and true methodologies for monitoring and measuring performance.

Agencies will benefit from AT&T's approach to monitoring and measuring the SS KPIs by having comprehensive methods and procedures for monitoring and measuring KPIs. The approach to monitoring and measuring the specific KPIs will provide Agencies with a clear delineation of service performance.

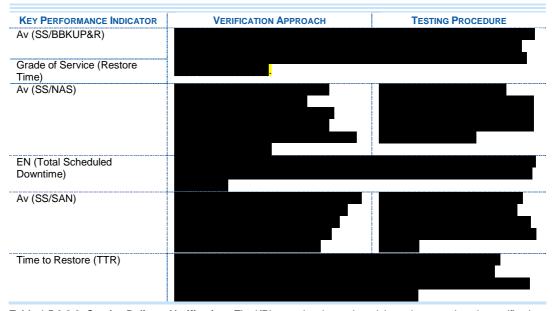
#### 1.5.9.2.c Approach to Perform Service Delivery Verification

(c) Describe the offeror's approach to perform verification of individual services delivered under the contract, in particular the testing procedures to verify acceptable performance and Key Performance Indicator (KPI)/Acceptable Quality Level (AQL) compliance.





The first time the service is provided through the Networx contract, the service performance must be verified; KPIs will be monitored to certify that the service performance complies with the AQL. **Table 1.5.9.2-3** summarizes the verification and testing procedures for the SS KPIs.



**Table 1.5.9.2-3: Service Delivery Verification.** The KPIs are closely monitored through comprehensive verification approaches and testing procedures that certify the service performance achieves or exceeds the AQLs.

The service verification process is presented in greater detail in Section 1.3.2.d, Approach to Perform Service Delivery Verification.

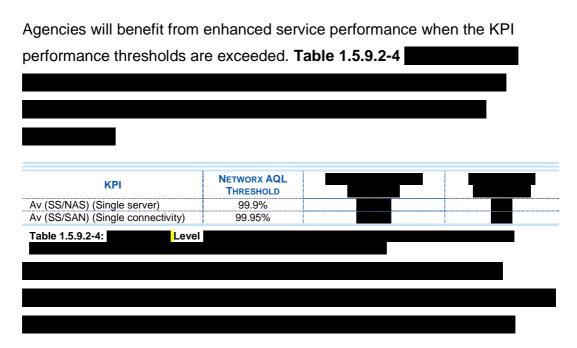
Agencies will benefit from a comprehensive verification process by receiving absolute data that supports the readiness and functionality of AT&T's SS. AT&T follows procedures to verify SS, thus making sure that the service performance complies with the stated AQLs.

#### 1.5.9.2.d Performance Level Improvements

(d) If the offeror proposes to exceed the Acceptable Quality Levels (AQLs) in the Key Performance Indicators (KPIs) required by the RFP, describe the performance improvements.







#### 1.5.9.2.e Approach and Benefits for Additional Performance Metrics

(e) Describe the benefits of, and measurement approach for any additional performance metrics proposed.

The KPIs defined by the Government for SS will provide a comprehensive assessment for service verification and service performance monitoring.

# 1.5.9.3 Satisfaction of Management and Applications Service Specifications [L.34.1.5.3]

#### 1.5.9.3.a Service Requirements Description

(a) Provide a technical description of how the service requirements (e.g., capabilities, features, interfaces) are satisfied.

AT&T's SS portfolio of services exceeds the Government requirements. The Government requests support for backup and restore (BBKUP&R), network attached storage (NAS), and storage area networks (SAN).



**Table 1.5.9.3-1** depicts these different service options within AT&T's portfolio of storage solutions.

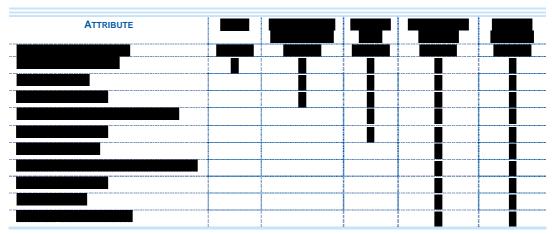


Table 1.5.9.3-1: Mission and Business Continuity for Agency Critical Information. Agencies will receive maximum uptime and protection for critical information through a full spectrum of backup and restore and data replication services complemented with associated Internet, hosting, and content delivery services all from one storage solution provider.

As stated in the table above, Agencies have several service options within SS to choose from, based on their specific networking and storage requirements. The elements of the service options are discussed in detail in **Table 1.5.9.3-2**, along with the associated benefits Agencies should expect.

| SERVICE<br>REQUIREMENTS                 | DESCRIPTION   | BENEFITS TO AGENCY   |
|---|---|--|
| DASD                                    |   |  |
| Tape Backup<br>and Restore<br>(BBKUP&R) | Service that provides full management of the client's data backup process for individual files, file systems, and database (offline or online) applications.  AT&T's Tape Backup and Restore service uses NetBackup as the main tool to provide Agencies with storage of their data.  | The service provides automated tape backup of Agency-defined file systems and database files.  |
| NAS                                     | Primary hard disk storage located in an external site, such as an AT&T Internet Data Center (IDC) that the Agency accesses on their network, where the storage device bypasses the server and is directly attached to the network. Characteristics include:  Use of IP and Ethernet technology  Dedicated file server attached to the network that: | NAS provides a fast, efficient way to add basic storage capacity that works well for file and print servers, and is excellent for disk-to-disk online backups. |



| SERVICE<br>REQUIREMENTS | DESCRIPTION  | BENEFITS TO AGENCY  |
|-------------------------|--|---|
|                         | Manages data placement     Frees application server from processing storage requests     Handles network bottlenecks and application server crashes so that they do not affect access to storage   |   |
| SAN                     | High-speed, special-purpose network that links multiple data storage devices to provide a consolidated primary enterprise storage solution. Characteristics of SAN are:  • Uses fibre channel technology, which:  • Supports data rates of up to 2 Gbps  • Is specified by the Fibre Channel Physical and Signaling standard, and related American National Standards Institute (ANSI) and International Organization for Standardization (ISO) standards  • Attaches storage volumes to specific servers, which manage data placement using existing operating systems  • Provides high availability on SAN technologies. | Redundancy within AT&T's SAN option will benefit Agencies by including dual HBAs paired with EMC's PowerPath software.  |
| Storage Plus            | Fully managed, mid-range SAN service, which includes data storage equipment, network access, and transport within a U.Sbased GIDC. The scope of the offer incorporates the following:  Primary SAN storage – if Agency selects  Network Access and Transport within GIDC  24x7 proactive monitoring and management of the storage/SAN infrastructure  AT&T's Storage Plus is shown in Figure 1.5.9.3-4.  | Fully managed Storage Plus solution offers Agencies the benefit of being able to concentrate on core business, instead of the physical and logical management of either SAN or NAS, along with their associated data storage equipment. |
| StorageConnect          |  |   |
|                         |  |   |

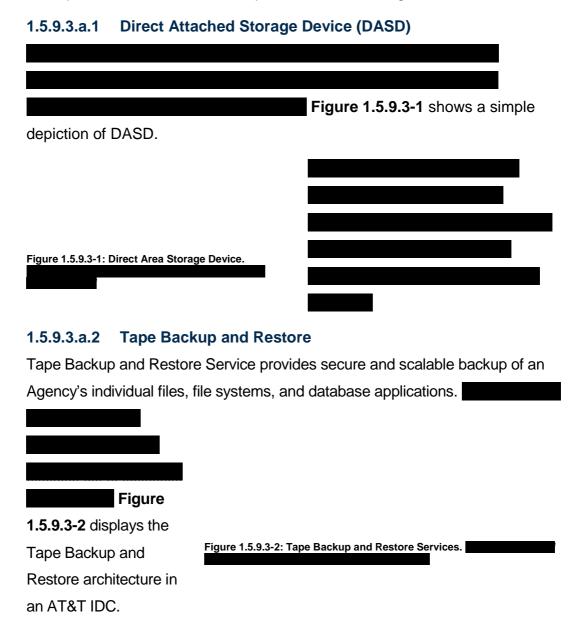
**Table 1.5.9.3-2: SS Service Description.** A broad range of SS services are available to enable Agencies to receive storage solutions that meet many needs.

As discussed, Agencies have a number of storage options to choose from, based on specific Agency requirements. Inclusive of SS are both the NAS and SAN





options, which are scalable, based on Agency requirements. Also, NAS and SAN provide storage upgrades that are transparent to Agencies, allowing the Agencies to experience full uptime during upgrades. The other SS components, discussed in the previous table, are further explained in the following sections.







| AT&T Tape Backup and Restore Service provides Agencies with a choice of         |
|---|
| backup options on infrastructure that is fully                                  |
| managed by AT&T. The service gives Agencies the flexibility to choose what      |
| they want backed up and how often, along with the ability to initiate their own |
| restore through a graphical user interface (GUI).                               |
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|   |
| Figure 1.5.9.3-2.   |
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| 1.5.9.3.a.3 Storage Plus Service  |
| For Agencies looking for a mid-range solution, AT&T offers Storage Plus         |
| Service (Figure 1.5.9.3-3). Storage Plus is                                     |
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|   |
| Figure 1.5.9.3-3: Storage Plus Service.   |





| 1.5.9.3.a.4 | StorageConnect                   |
|-------------|----------------------------------|
| StorageCon  | nect ( <b>Figure 1.5.9.3-4</b> ) |
|             |                                  |
|             |                                  |
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| Figure 1.5.9.3-4: StorageConnect Service. |  |
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| 1.5.9.3.a.5 Ultravailable Storage   |
|---|
| AT&T Ultravailable Storage Service  |
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| failover capability configured on each client server, as shown in <b>Figure</b> |
| 1.5.9.3-5.  |
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| Figure 1.5.9.3-5: Ultravailable Storage.  |
| rigure 1.5.5.5-5. Oktavanable otorage.  |
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|   | Figure 1.5.9.3-6 displays |
|---|---------------------------|
| the different solutions that Agencies can shoos | o from to docian and      |

the different solutions that Agencies can choose from to design and implement a custom SS that is compliant with their requirements.

#### Figure 1.5.9.3-6: AT&T's Portfolio of Storage Solutions.

As a full service provider, AT&T offers a flexible SS with a selection of storage solutions (**Figure 1.5.9.3-6**). Agencies will be able to select from the different storage options to create and design a reliable, globally reaching SS that will be compliant with Agency-specific storage requirements.

#### 1.5.9.3.b Attributes and Values of Service Enhancements

(b) If the offeror proposes to exceed the specified service requirements (e.g., capabilities, features, interfaces), describe the attributes and value of the proposed service enhancements.





In addition to the standard services, Agencies can enhance their SS with additional features and capabilities **Table 1.5.9.3-3** highlights additional service features and capabilities available with SS. AT&T proposes the attributes in **Table 1.5.9.3-3** as service enhancements.

| SERVICE<br>ENHANCEMENT | DESCRIPTION | BENEFIT |
|------------------------|-------------|---------|
|                        |             |         |
|                        |             |         |
|                        |             |         |
|                        |             |         |
|                        |             |         |







Agencies can subscribe to a combination of the optional service enhancements. The benefits these services will bring to Agencies include remote replication, mirror imaging, and implementation services.

#### 1.5.9.3.c Service Delivery Network Modifications

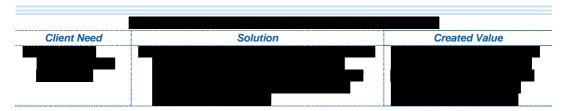
(c) Describe any modifications required to the network for delivery of the services. Assess the risk implications of these modifications.

Agencies receive a low-risk solution by being able to use AT&T's SS on Day One of the contract because there are no modifications required to the AT&T network or systems to provide SS to the Government.

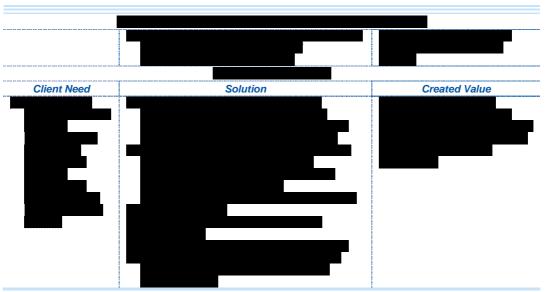
#### 1.5.9.3.d Management and Applications Services Experience

(d) Describe the offeror's experience (including major subcontractors) with delivering the mandatory Management and Applications Services described in Section C.2 Technical Requirements.

AT&T has an extensive history providing SS reaching back to the inception of AT&T's Enterprise Hosting Services, for which SS is a subset. AT&T has been offering SS since the Fall 1997. **Table 1.5.9.3-4** provides examples of AT&T's experience in delivering SS solutions.







**Table 1.5.9.3-4: Service Experience.** AT&T has an extensive history in providing hosting services to both Government Agencies as well as commercial customers.

As described in **Table 1.5.9.3-4**, AT&T has provided SS to commercial and Government entities. AT&T will be able to provide the same, high quality SS to Agencies under the Networx contract.

#### 1.5.9.3.e Approach to Network Infrastructure Management

(e) For Managed Network Services (MNS), describe the approach, process, and considerations for managing a network infrastructure (e.g., FRS, ATMS, IPS, IP-VPNs, CPE) supporting approximately 2000 users, at 25 locations across the Unites States. Based on the offeror's experience with similar projects, provide a discussion of how the offeror would investigate the requirements, design the solution, implement the plan, and deliver service that meets the Agency's performance requirements.

The approach, process and considerations for network infrastructure management are described in Section 1.5.6.3.e.

#### 1.5.9.4 Stipulated Deviations

AT&T takes neither deviation nor exception to the stipulated requirements.