



# Network Services Programs Lessons Learned Report

General Services Administration

Office of Integrated Technology Services

Office of Network Services Programs

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# 1 Executive Summary

The General Services Administration (GSA), Federal Acquisition Service, Integrated Technology Services, Network Services Program (NSP) establishes and manages a range of acquisition programs to meet the needs of Federal agencies for telecommunications and networking services and associated support. Responsibility for these programs is divided between the NSP National Office, which manages programs focused primarily on agency enterprise-level Wide Area Network (WAN) needs, and the eleven NSP Regional Offices, which manage programs focused primarily on agency local and regional needs and local voice services. The NSP is a strategic program that provides some service to almost every Federal agency and provides a benefit to almost every Federal agency. In the civilian agencies, there aren't clear substitute programs to manage the acquisition of network services across multiple agencies, and the program also serves many defense customers. The NSP provides strategic sourcing for the Federal Government by aggregating agency requirements and providing a "single stop shop" for all network services.

The Networkx program, based on 10-year contracts awarded in 2007, is the largest of the National Office programs and the largest of all NSP programs. FTS2001 is the predecessor program to Networkx, and the two programs combined have annual revenues exceeding \$1B. With the end of the transition process from FTS2001 to Networkx approaching, NSP has taken the opportunity to execute a comprehensive review for the purpose of identifying lessons learned that can drive planning of program improvements and the strategy for the next generation of programs, known as Network Services 2020 (NS2020). The goal of NS2020 is to become the Federal government's strategic sourcing center for network-based and network-enabled services.

NSP obtained and reviewed recommendations from internal and external program stakeholders to deduce lessons learned. Similar lessons learned were categorized under overarching themes to drive clear conclusions and action plans. This document summarizes the most significant findings of that review.

The following overarching themes capture the most important aspects of the more detailed findings contained herein:

- **Acquisition Efficiency** – The ability to reduce the total acquisition time, cost, and risk of NSP's agency customers.
- **Tailored Customer Service** – The quality of support GSA provides its customers.
- **Operational Efficiency** – Maximizing efficiency of organizational structure, delivery models, contracts inventory, supporting systems, business processes and costs of NSP operations.
- **Customer Partnership** – The forging of effective relationships between GSA and other agency and government stakeholders. This includes other Federal agencies (who are GSA's customers), Congress, and the Office of Management and Budget (OMB).
- **Aggregated Requirements** – The aggregation of requirements to leverage the buying power of the government, which has been an integral component of the NSP's mission and cornerstone of its strategy.

The creation of Networkx and agency transition from FTS2001 was a major accomplishment. Networkx revenue is estimated to be \$1.3B in FY2012, of which

\$800M will be technologically advanced IP-centric services. Network prices are more than 50% lower than commercial rates. As shown in Figure 1, it is estimated that over the period FY2002 through FT2012, the Network Services Program will have amassed an estimated \$7.0 Billion in cost avoidance.

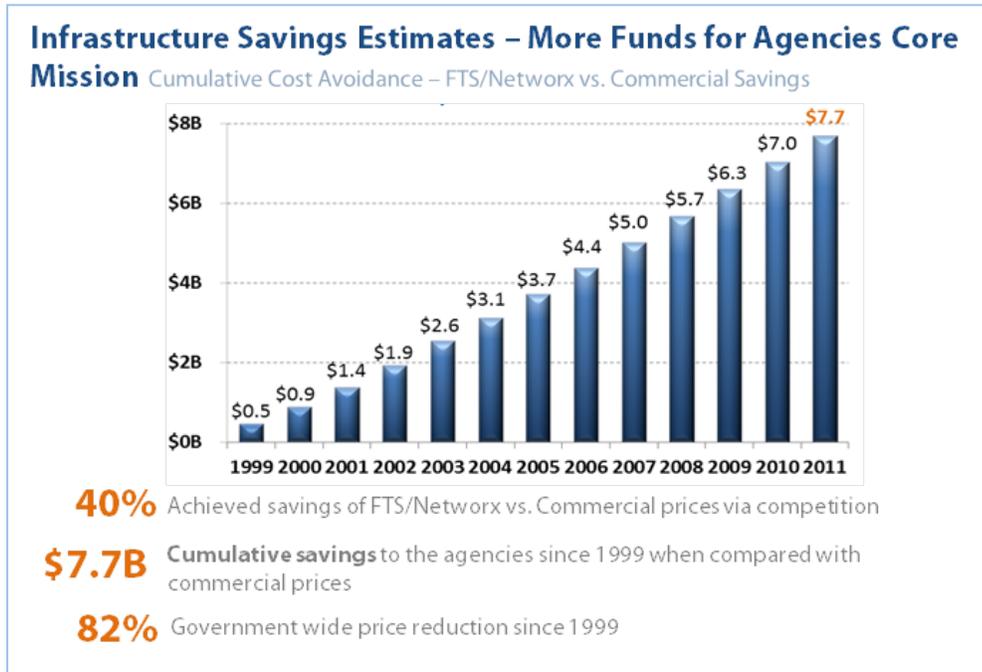


Figure 1: Infrastructure Cost Savings

Despite this accomplishment, the transition of existing services from the FTS2001 contract to Networkx and use of the Networkx contracts have fallen behind both expectations of GSA and the suppliers who have been awarded these contracts. Transition of essential networking services is inherently complex. For FTS2001, this meant transitioning over 5.1 million individual services. Networkx has thousands of contract line items and millions of service permutations across eight contracts and two acquisitions. Over 50 services were initially defined by GSA and bid by the suppliers, but only six services account for over 80% of the business volume. Thus, it is no surprise that agencies indicate the Networkx program is too complex to use easily; suppliers have noted the significant investment to meet the requirements of Networkx, and the NSP has been consumed with transition for over half a decade. Through FY2011, four years after award, business volume on Networkx was only 64% of the peak FTS2001 business volume while FTS2001 remained at 53% of its peak. As a result, the greatest potential benefit to government—cost savings—has not been fully realized.

The Networkx program would have been considerably more successful (higher rate of adoption) if several key assumptions had proven true. First, agency buying methods were not as anticipated. The program intention that extensive use of specified contract line item numbers (CLINS) would allow many agency needs to be met without contract modifications was not fully achieved; many agencies decided to pursue individual customized statements of work (SOWs) for unique requirements instead. This became

a major source of contract complexity that added time and expense to the ordering agencies, NSP, and the service providers.

Secondly, agencies had a greater need for transition assistance than GSA had prepared to provide. Planning for transition support assumed an agency "self help" model as originally agreed to by GSA and with the agencies' representative body, the Interagency Management Council (IMC). It was determined that agencies would take more responsibility for their own transitions than they did during the FTS2001 transition, and that GSA would provide guidance rather than in-depth assistance to agencies. In reality, more GSA support for inventory validation, Fair Opportunity decisions, and ordering would have greatly accelerated transition. GSA provided this assistance but not until after transition delays and challenges became significant and agencies reached out for help. This also highlights another significant lesson learned: senior leadership involvement from agencies, including Chief Information Officers, Chief Financial Officers and Chief Acquisition Officers is imperative and critical in the planning, execution and implementation phases of the program.

The "self help" model adopted for Networx could be contrasted with the approach taken in the Regional Program. Regional local services programs employ a business model that provides considerable customer support. The local contracts offer flexibility, speed and pre-competed services, which avoids delays due to customers needing to make Fair Opportunity decisions. The Regions' strong relationships with local telecommunications providers facilitate prompt service delivery on local contracts, and GSA personnel will get actively involved to resolve any issues. This model produces a high degree of customer satisfaction and strong customer relations, but also results in a higher fee structure than the National Programs. Furthermore, the regional contracts in general do not achieve the same price efficiencies as Networx, which is primarily due to the telecommunications industry consolidation for local services. Lastly, it should be noted the Regional program suffers from deteriorating revenue due to the migration from traditional dial-tone voice service to Voice over Internet Protocol (VoIP) and from local to enterprise solutions, so the current Regional operating model may not be sustainable.

## 2 Introduction

### 2.1 Purpose

This document is one of a series of documents that combine to review lessons learned and apply them to formulate a better future strategy. It summarizes the key findings resulting from a program wide review of lessons learned from existing GSA FAS ITS network services programs and operations. These findings will serve as a foundational element in the planning for the next generation of network services programs, known as NS2020. Specifically, these findings serve as the starting point for identifying the strengths, areas for improvement and challenges identified by NSP stakeholders. The findings contained in this document will be shared with NSP stakeholders for discussion and concurrence before being used to establish a series of objectives to guide subsequent strategic planning and program development activities for the future NS2020 program.

The findings address both the National and Regional network services programs, and will be used to establish an integrated set of objectives for both. The follow-on documents will address the forward-looking strategy and portfolio of services.

### 2.2 Methodology

The methodology for GSA's lesson's learned study includes identifying a broad set of key stakeholders, developing tailored questionnaires and surveys, conducting direct in-person and phone interviews, performing qualitative and quantitative analysis of data followed by consolidation of lessons learned along relevant themes and capturing the associated recommendations for improvement of future programs.

#### **Stakeholders:**

As shown in Table 2-1, stakeholder groups were categorized into six areas that collectively form a comprehensive account of stakeholders associated with the program's lifecycle. The categories include Networkx and Regional customers, Network Services Program (NSP) and Regional personnel, management, and directors, and the GSA partners and vendors.

*Table 2-1: Stakeholder Categories*

Stakeholder Group	Potential Data Points
<b>Networkx Customers</b>	Represents the perspective of IMC, CIO, and telecommunications manager stakeholder groups. This group reflects agency buyers that rely on GSA for telecommunications services via Networkx.

Stakeholder Group	Potential Data Points
<b>Regional Customers</b>	Represents the perspective of customers across the eleven GSA Regions. This group reflects agency buyers that rely on GSA Regions for telecommunications services, as well as Networx.
<b>GSA</b>	Represents the perspective of GSA Personnel from FAS, ITS, and NSP, not including Regional Directors. This group reflects a body of internal program practitioners and subject matter experts (SMEs).
<b>Regional Directors</b>	Represents the perspective of the Telecommunications Directors of the eleven GSA Regions.
<b>OMB and Partners</b>	Represents the perspective of the OMB's E-Government & Information Technology representatives, contractor personnel that manage NSP's business support systems, and other external SMEs.
<b>Telecommunication Carriers</b>	Represents the perspective of the Networx telecommunications carriers, which includes the largest telecommunications service providers in the U.S. This group reflects the industry service providers that provide GSA with the telecommunications services it uses to support its customers.

**Data Acquisition:**

GSA developed tailored survey questions for each stakeholder group and conducted in-person and phone interviews to collect the best possible data from all aspects of the program under study. Interviews were scheduled via email and phone. GSA contacted 93% of the identified stakeholders and successfully performed 92 interviews (i.e., 58% of the identified stakeholders), which entailed interviewing well over 100 people since there were often multiple attendees at each meeting. The primary interviewees are listed in Appendix E.

**Analysis:**

GSA aggregated the interview data in an online survey tool to support the analysis of both qualitative and quantitative information and to develop the key themes and associated lessons learned. The data obtained through the aforementioned interviews was supplemented by additional subject matter expert input, such as the technology, market and service trends. Key themes were deduced to better characterize and convey the myriad of findings, and recommendations developed. Some recommendations were drawn directly from the interviewee responses and others developed during the analysis phase.

## 2.3 Background

GSA currently offers telecommunications products and services to the Federal Government through a broad portfolio of national and regional contracts, the largest of which are FTS2001 and its successor, Networx. FTS2001 contracts expire in May/June 2012. To replace FTS2001, GSA awarded two Networx contract vehicles in 2007. The first, Networx Universal, includes three service providers: AT&T, Verizon,

and CenturyLink. The second, Networkx Enterprise, includes the three Networkx Universal providers as well as Sprint and Level 3. The Networkx Programs offer comprehensive and competitively priced telecommunications services allowing agencies to focus their resources on building seamless, secure operating environments while providing access to the latest telecommunications and networking technologies available.

The Networkx Program has achieved the goal of providing a broad array of competitively priced telecommunications services. However, significant changes have taken place in the telecommunications marketplace in terms of the technologies and services that are now available and the types of providers that can deliver those services. This document addresses those challenges and identifies areas for improvement across the NSP portfolio.

In response to the changing environment, GSA is currently developing a comprehensive framework and acquisition strategy (Network Services 2020 Strategy) for the NSP to meet future Federal telecommunications needs. The goal of NS2020 is to become the Federal government's strategic sourcing center for network-based and network-enabled services. Understanding telecommunications technology and markets, including regional, national, and worldwide markets, is the key to identifying an integrated portfolio of services as part of the Network Services 2020 strategy.

The transition from FTS2001 to Networkx was subject to significant delays described in subsequent sections of this document. Originally, GSA estimated transition to Networkx to complete by April 2010. As of May 4th, 2012 overall transition progress is 98.85% completed and is expected to be fully completed by March 2013. Delays have necessitated multiple extensions to the FTS2001 contracts that will now expire in March 2013 subjecting the program to criticism and decreased customer satisfaction levels.

## **2.4 Overview of Office of Integrated Technology Services (ITS)**

The Office of Integrated Technology Services (ITS) within the Federal Acquisition Service (FAS) is responsible for providing access to best-value information technology (IT) and telecommunications products, services, and solutions to Federal, state, local, and tribal government organizations, and provides national program leadership across the 11 regional Network Services organizations. ITS' contract vehicles help reduce or remove the need for government agencies to duplicate acquisition efforts so that they can focus on their core missions. ITS programs are designed to speed up the acquisition cycle and harness the government's buying power to reduce the prices that customer agencies have to pay.

The organizational structure of the Office of Integrated Technology Services is shown in Figure 2.

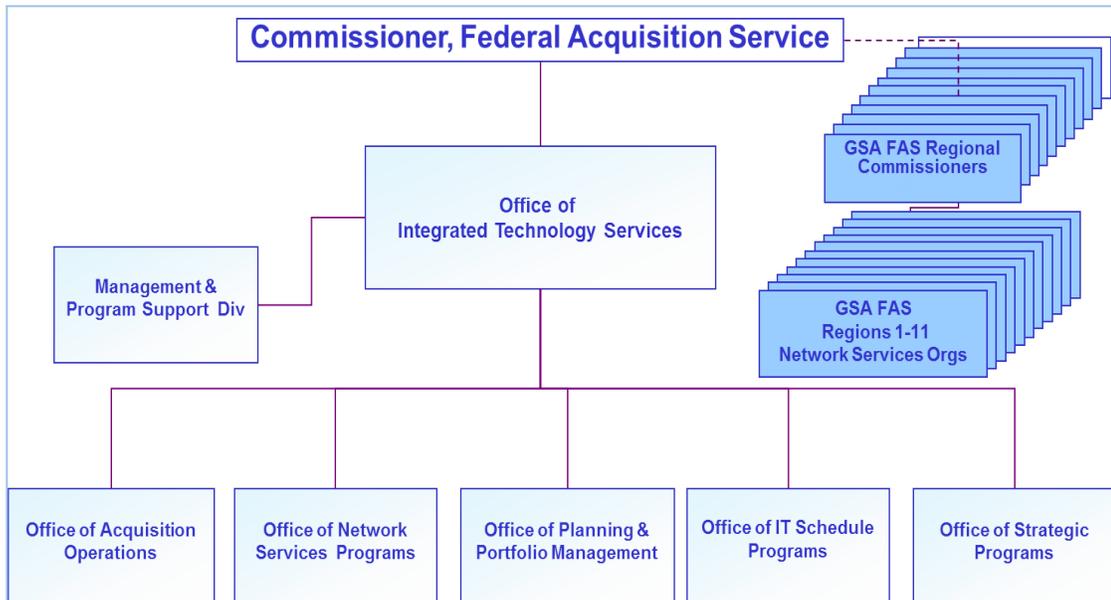


Figure 2: ITS Organizational Chart.

ITS manages the largest government contract vehicle in the world – IT Schedule 70 – and is the executive agent for several strategic and good-for-government IT acquisition programs, including Government-Wide Acquisition Contracts (GWACs), SmartBUY, and Federal Relay.

Schedule 70 makes up the largest segment of the organization’s revenue with volume of \$16.16B in FY11, followed by the GWAC programs at \$3.47B, and the Wide Area Network (WAN) \$1.36B (representing the sum of Networkx and FTS2001 programs). The Regional Telecom, Commodity Buy, and Strategic Solutions & Security Services make up a fraction of the total \$21.54B annual ITS volume.

## 2.5 Overview of Network Services Programs (NSP)

The Office of Network Services Program (NSP) serves Federal civilian and military agencies, which rely on GSA for telecommunications, network services, and support including network transport services, equipment, and solutions. NSP develops and manages programs, which deliver cost effective administrative and technical support for services and solutions. The current approach to provide cost savings to customers is aggregating volume to drive down prices for the overall government. This approach encourages competition and increases GSA’s ability to offer available telecommunications services and solutions at an overall low price.

NSP currently offers the following contracts to support its customers:

- **Networkx:** A replacement for the FTS2001 and crossover contracts, which provides two broad contracts for comprehensive telecommunication services
- **Local Telecommunications Services Contracts:** A full range of local (first mile/last mile) services and solutions provided by the GSA Regions
- **SATCOM II / Future COMSATCOM Services Acquisition (FCSA):** A full range of commercial satellite services

- **CONNECTIONS / CONNECTIONS-II:** Provides equipment, support services, or customized solutions for any office building, campus, or base environments
- **Federal Relay:** Provides telephonically and Internet-based communication access for Federal employees who are deaf, hard of hearing and speech disabled
- **Wireless Telecommunications Expense Management Services (TEMS):** Provides a single-source for ordering and managing wireless devices and service from regional carriers
- **Wireless Federal Strategic Sourcing Initiative (FSSI):** Blanket Purchase Agreement (BPA) for wireless devices and services. To be awarded in 2012

Figure 3 shows the FY11 revenue per program. The WAN services (FTS2001 & Networkx combined) make up 63% of the overall NSP revenue, the Regions represent about 26%, Connections<sup>1</sup> and SATCOM represent 8% and 3%, respectively. Federal Relay constitutes nearly 0.2% of the total portfolio revenue.<sup>2</sup>

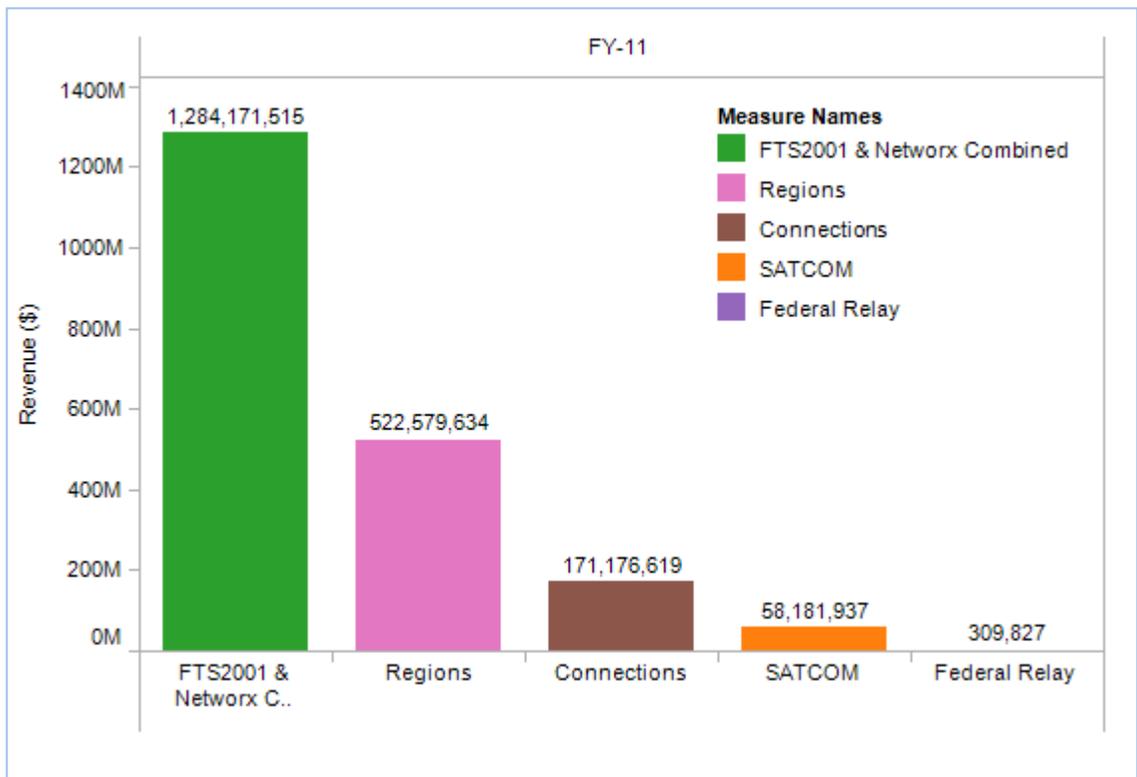


Figure 3: NSP Annual Revenue per Program (FY11)

**Collectively, these contracts provide the following services:**

- Voice services, including Local, Long Distance, Combined Local/Long Distance, and Toll Free services
- Voice over IP (VoIP) services, including VoIP Transport, IP Telephony, VoIP with Managed LAN, and LAN/building/campus VoIP solutions

<sup>1</sup> Connections program was replaced with Connections II in FY12.

<sup>2</sup> Wireless FSSI was started in FY12 and is therefore not included in FY11 data.

- Legacy data services including Circuit Switched Data, Frame Relay and Asynchronous Transfer Mode services
- Dedicated transmission services, including Private Line, Synchronous Optical Network (SONET), Dark Fiber, and Optical Wavelength services
- Internet access services, including Internet Protocol Service and Managed Trusted Internet Protocol Service (MTIPS) services
- IP/MPLS-based Virtual Private Network (VPN) and associated services, including Ethernet, Premises-Based IP VPN, Network-Based IP VPN, and Layer 2 VPN services
- Conferencing services including Video, Audio, Web and Telepresence services
- Managed network and security services
- Secure networking services, including Managed Firewall Service, Intrusion Detection and Prevention, Vulnerability Scanning, Anti-Virus Management, Incident Response, Managed E-Authentication, Secure Managed E-Mail and National Security/Emergency Preparedness (NS/EP) services
- Customer contact center services
- Hosting services including both dedicated and collocated services
- Satellite services including Fixed, Mobile, Broadcast services and custom end-to-end satellite solutions
- Wireless voice and data services
- Network access services, including wireline, wireless and satellite access services
- Equipment (hardware and software) required to complete or deliver network services
- Professional and technical services relevant to network services, including analysis, planning, design, specification, implementation, integration and management of network services and equipment, building/campus facility preparation, and Operations Administration and Management (OA&M), customer service, and technical support services.

**Other agency support services provided by NSP include:**

- Acquisition support
- Vendor and contract management
- Transition support
- Centralized billing and bill verification services
- Technology subject matter expertise and new service development

By providing customers with an array of contracts for telecommunications services and solutions, NSP is able to serve and support each agency's telecommunication needs. As the program prepares for the future, the lessons learned from the current regional and national programs and contracts will be used to inform strategic and tactical planning.

### **2.5.1 The National Programs**

The National Programs, also referred to as the Wide Area Network (WAN) Services Program, refers to those contracts managed centrally, including the Networx contract that is designed to offer comprehensive and competitively priced telecommunications services contributing to a more efficient and effective Federal Government. The program enables agencies to build seamless, secure operating environments while providing access to the latest telecommunications and networking technologies available.

## Networkx Goals

The goals for Networkx were established by GSA and the Interagency Management Council (IMC). The IMC consists of senior executives from fourteen Cabinet-level departments and the Small Business Council. Ultimately, the IMC serves as an advisory body for the development, coordination, and oversight of GSA's telecommunications programs. The IMC also provides GSA with recommendations and advice for managing telecommunications contracts.

As part of the design of Networkx, the IMC developed the following eight goals (stated in original form):

- **Service continuity:** Agencies request that in structuring the follow-on contract, GSA defines and includes all services that are currently provided on the FTS2001 contract. The realization of this goal will facilitate a smooth transition of all services from FTS2001 to the new contract.
- **Highly competitive prices:** Agencies aggregate their requirements on a single contract in order to achieve better prices than they could negotiate individually. Given the volume of services on the FTS contract, agencies desire and expect that prices will continue to be better than prices available elsewhere in the telecommunications marketplace.
- **High-quality service:** Agencies request high-quality telecommunications providers provide the services on Networkx. Furthermore, agencies request that Networkx include enforceable agreements that will ensure that high-quality service is delivered throughout the term of the contracts.
- **Full service vendors:** Agencies request that telecommunications carriers awarded contracts on Networkx provide a broad array of services and be able to provide follow-on service where desired to avoid costly duplication of administration and contracting processes and procedures.
- **Alternative sources:** Agencies request continuing competition among a greater number of telecommunications carriers on new Enhanced services and emerging technologies in order to ensure best value throughout the life of the program.
- **Operations support:** Agencies request that GSA provide fully integrated ordering, billing and inventory management to improve management and control costs of agency telecommunications programs.
- **Transition assistance and support:** Agencies request that the contracts include provisions that facilitate transition coordination and support to ensure that transitions occur timely and efficiently.
- **Performance-based contracts:** Agencies request that GSA provide performance based contracts with Service Level Agreements (SLA's) to the extent possible.

The IMC goals guided the Networkx acquisition process, which supports an agency's need to receive high quality telecommunications services. While Networkx achieves GSA's desired result of providing a broad array of competitively-priced telecommunications services, several opportunities for improvement have been identified and are addressed in detail throughout this document.

## 2.5.2 The Regional Program

GSA delivers local telecommunications services through 11 GSA regional offices and over 40 field offices. Regional offices award and administer local service contracts and are responsible for day-to-day operations, customer service and cost recovery.

The Regional Program currently offers the following contracts to support its customers:

- **Local Service Agreements (LSAs):** State-wide or locality based contracts serving 500+ telecommunications systems throughout the country
- **Washington Interagency Telecommunications System (WITS):** Largest of the LSAs, WITS provides a full suite of voice solutions, from basic local and long distance service to VoIP, cable installation, satellite, teleconferencing and audiovisual services, and technical support for the Baltimore-Washington Metropolitan Area

## 2.5.3 State of NS Programs

The National network services programs generated approximately \$1.3B in revenues in FY11, \$1.1B of which was generated by the FTS2001/Network program, making it the largest single component of the NSP portfolio. The WITS3 program serving the Washington, DC metropolitan area generated approximately \$271 Million of revenue in FY11, making it the largest single component of the \$523 Million Regional programs. Overall, NSP revenues have continued to increase 7% per year despite declining prices for many services on the NSP contracts.

NSP has shown success in its ability to support the growth and modernization of Federal government telecommunications while achieving significant value for its users. As changes in technology, new government mandates, initiatives and budget constraints continue to take place, the network services programs are presented with both challenges and opportunities in meeting agency needs.

Since the award of the Network contracts in 2007, Federal agencies have been slow to transition successfully from the expiring FTS2001 contracts. This has necessitated a longer than anticipated set of FTS2001 bridge contracts to ensure continuity of Federal government communications during the transition period. It has also produced dissatisfaction and concern among Network stakeholders and increased overall costs to the government.

The Regional NS program's business model has traditionally been based on labor-intensive management of local switched voice services. Switched voice technology is being replaced by Voice-over-Internet Protocol (VoIP) and related technologies, raising concerns about the future financial viability of the regional program and how to best adapt its traditional strengths to better serve customer agencies. Upcoming NS2020 documents will detail GSA's strategy to address these and other Regional challenges and opportunities.

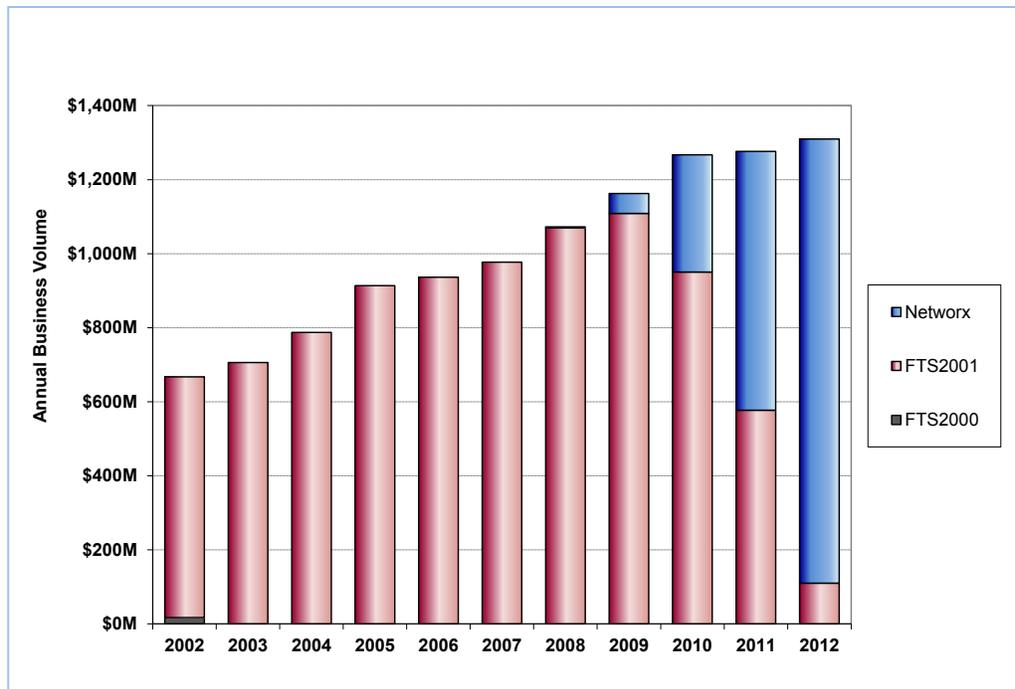
### FTS/Network Business Volume has doubled since FY2002

Across all programs, the NSP has shown steady growth over the past decade, as shown in Table 1. Since FY2004, the Federal IT market has grown at a compound annual growth rate of approximately 5%; the NSP has had a compound annual growth rate of 7.4%.

*Table 2-2: Network Services Programs Financial Summary*

Acquisition (\$000)	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
FTS2001 - 4 Major Vendor	\$787,229	\$904,291	\$928,781	\$962,490	\$1,048,204	\$1,100,477	\$947,221	\$579,835
SBC & Verizon "Crossover"	\$4	\$2,077	\$4,334	\$6,843	\$5,438	\$4,393	\$3,176	\$240
Networkx	\$0	\$0	\$0	\$0	\$2,936	\$53,655	\$316,361	\$701,774
FTS2001/Networkx	\$787,233	\$906,368	\$933,115	\$969,334	\$1,056,578	\$1,158,525	\$1,266,757	\$1,281,848
Growth Rate		15.1%	3.0%	3.9%	9.0%	9.6%	9.3%	
SATCOM	\$0	\$85,433	\$52,596	\$41,152	\$45,438	\$48,366	\$43,125	\$58,182
Wireless	\$26,995	\$10,817	\$9,415	\$12,616	\$15,839	\$3,997	\$178	\$0
Federal Relay	\$0	\$0	\$1,531	\$9,780	\$7,276	\$2,347	\$1,043	\$266
Connection II								
Total	\$814,229	\$1,002,618	\$996,657	\$1,032,882	\$1,125,131	\$1,213,235	\$1,311,103	\$1,340,297

Despite significant contract price reductions, FTS2001/Networkx Business Volume has increased from \$650 million in 2002 to \$1.3 billion in 2012, as shown in Figure 4. As of July 2011, Networkx billing represented over 60% of the total Business Volume. This portion will continue on into FY12 as the billing process catches up with actual transition. Note that the transition to Networkx is expected to complete in FY12; however, in the early months of FY12, some FTS2001 billing is expected to remain which is reflected in red portion of the FY12 bar in Figure 4.



*Figure 4: Growth of FTS2001/Networkx Business Volume*

These figures also illustrate the effect of FTS2001 to Networkx transition delays. To date, with over 40% of the Networkx acquisition duration

elapsed, the program has not reached the business volume of the FTS2001 program at its peak, as shown in Figure 5. Also, the total use of the contract through 4.5 years has not matched the peak single year use on FTS2001.

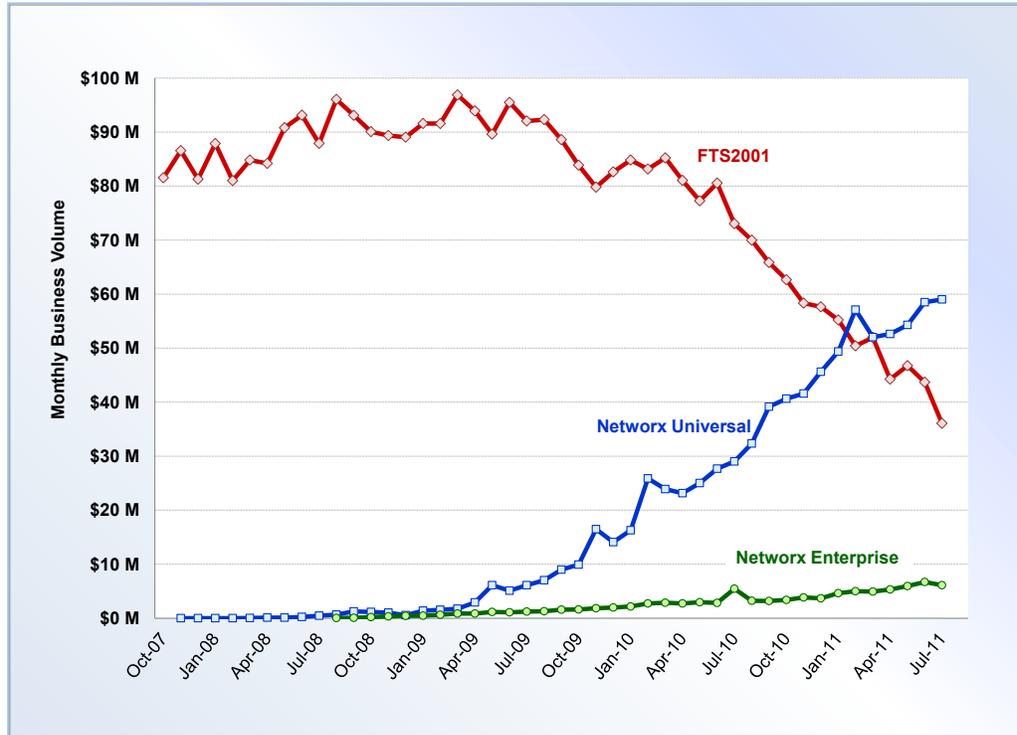
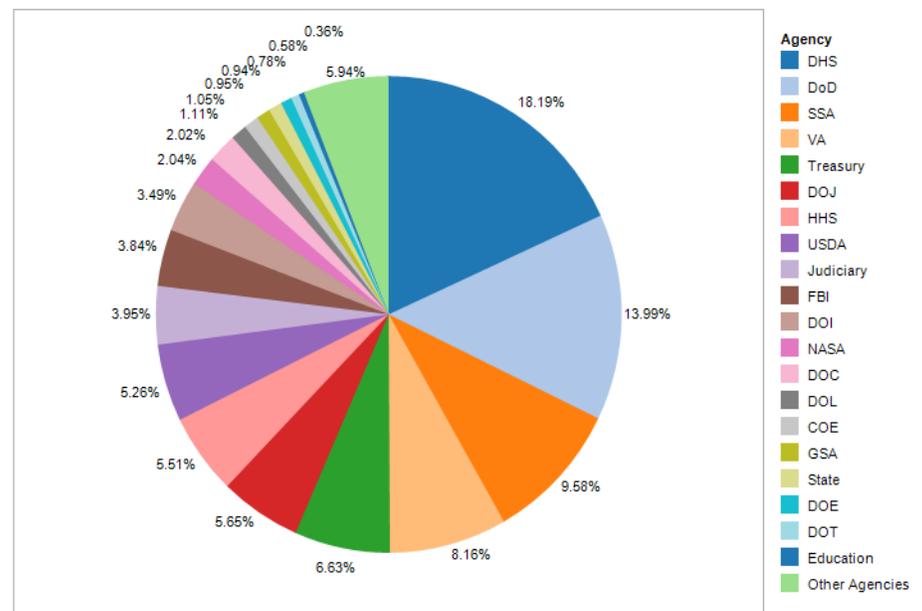


Figure 5: Business Volume by Contract by Month

Although there are over 60 distinct agency customers for FTS2001/Networx, the majority of the volume lies with a much smaller set of large agencies. In fact, four agencies (DHS, DoD, SSA, and VA) make up 50% of the volume in FY11, and the top 10 agencies make up more than 80% of the volume. Table 2 and the associated pie chart illustrate customer concentration in terms of volume and identify GSA’s strategic customers. The large concentration of revenue through few agencies contribute to the overall program risks and opportunities and brings about strategic concerns that will be considered in subsequent strategy documents. In short, GSA must provide services that meet the needs of its strategic customers while remaining sensitive to the needs of other smaller agencies.

Table 2-3: FTS2001/Networx Volume by Agency, FY11

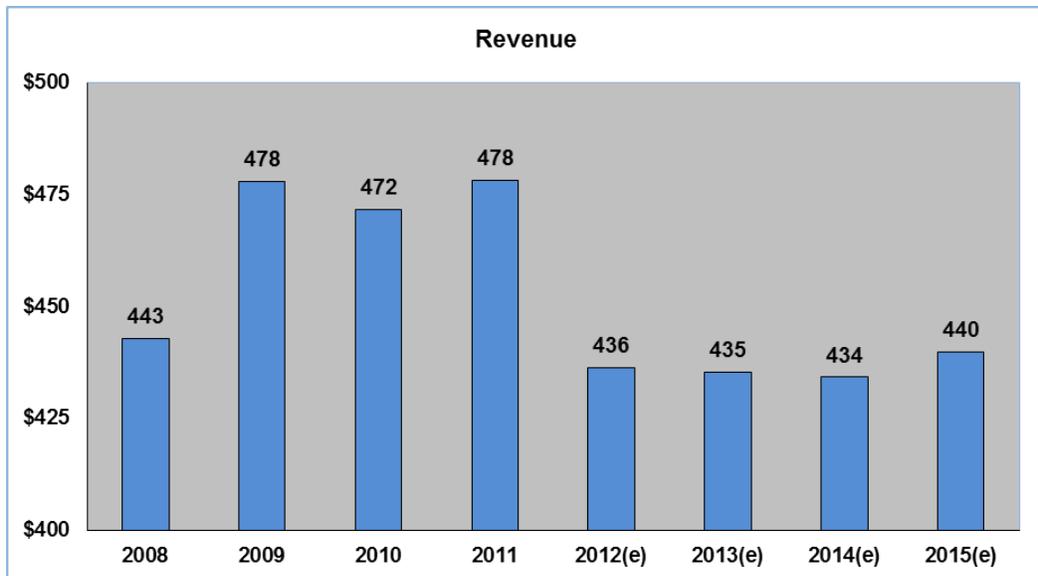
Agency	Volume (000s)
DHS	\$230,675
DOD	\$165,093
SSA	\$120,806
Justice	\$120,006
VA	\$109,516
Treasury	\$97,602
USDA	\$67,090
HHS	\$58,141
Interior	\$44,308
Commerce	\$23,656
NASA	\$22,645
State	\$13,967
Labor	\$12,859
Energy	\$11,011
GSA	\$10,076
Transportation	\$8,267
EPA	\$4,748
Education	\$3,369
HUD	\$1,601
Other Agencies	\$156,173
<b>Total</b>	<b>\$1,281,609</b>



FTS2001/Networx Volume Percent by Agency

### Regional Network Services' revenue expected to decline in the out-years

During the past decade, the traditional public switched telecommunications network has been increasingly replaced by Internet Protocol (IP) fiber-based data networks. This new technology offers Federal agencies an array of choices to meet their local service and enterprise communications needs. Specifically, traditional local switched voice service is being replaced by Voice-over-Internet Protocol (VoIP) and related technologies. The widespread adoption of VoIP is projected to have a significant impact on the Regional NSP environment. Costs to deliver VoIP are significantly lower than traditional technology services, require less technical support, and can be purchased directly by the customer. As shown in Figure 6, revenues are expected to decline in the next few years. Actual business volume is represented through FY2011, and forecasted business volume is projected from FY2012-2015.



*Figure 6: Regional Telecommunications Program Business Volume, with projects for 2012 and beyond.*

Furthermore, the United States telecommunications market has seen considerable consolidation among the service providers. As a result, three large service providers now account for over 80% of the GSA local service business and higher prices on recently-awarded local service contracts reflect the resultant lack of competition in the local services environment.

As illustrated in Figure 7, the National Capital Region (NCR) represents approximately half of the Regional Program revenue. NCR, which is also referred to as Region 11, has continued to post strong performance, while business in other regions continues to fluctuate.

The revenue from Regions can be categorized into two types, the Traditional Telecom services (primarily “dial-tone” business that are generally recurring on monthly basis) and the Project-Related services (that are non-recurring). The majority of the Traditional Telecom revenue is generated by PBX and Centrex services, whereas the Project-Related revenue is generated through other expanded services. This may change as more VoIP services are assigned to or replace the traditional services.

Traditional Telecom services offered by Regions generally pay for themselves and may be revenue neutral or positive; however, the non-traditional/project work is generally lower margin and often does not cover its costs. Some Regions may be better positioned than others to expand non-traditional telecommunications business; in particular, Regions 4 and 7 generate considerable project-related revenue. This may indicate strong customer relationships and can benefit from good coordination with GSA’s Assisted Acquisition Service.

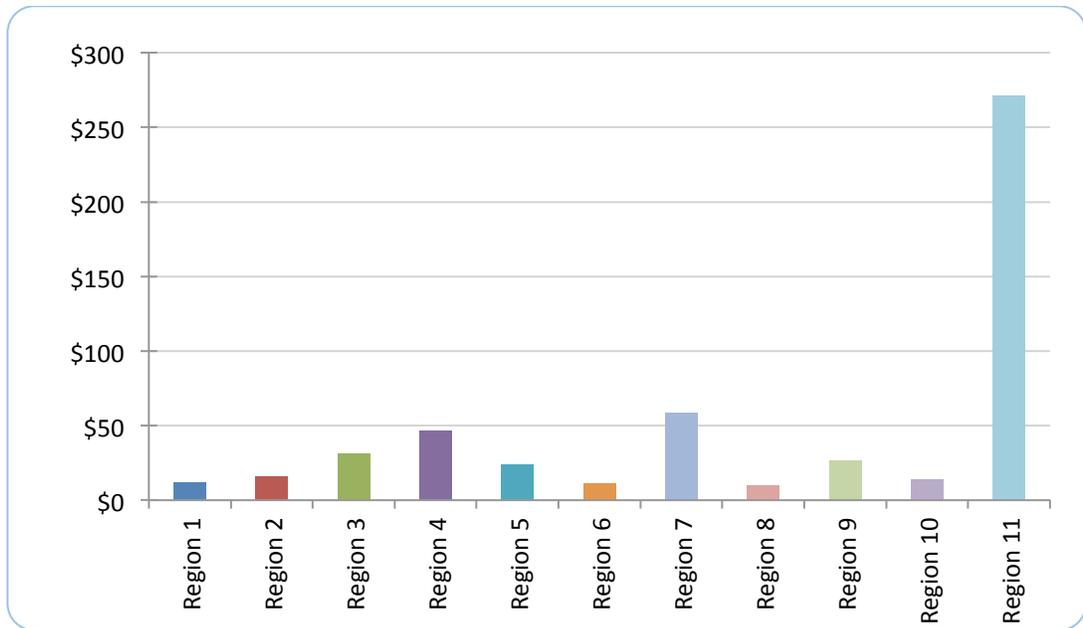


Figure 7: Regional Revenue for FY11 (\$M)

Clearly the landscape for Regional services is undergoing fundamental change and therefore the associated business model must adapt. Future strategy documents will visit and address these issues.

### 3 Findings/Strategic Themes

NSP obtained and reviewed recommendations from internal and external program stakeholders to deduce lessons learned. Similar lessons learned were categorized under overarching themes to drive clear conclusions and action plans. The findings and associated recommendations can be organized into five strategic themes, which are summarized as follows:

- **Acquisition Efficiency (AE)** – The ability to reduce the total acquisition time, cost, and risk of NSP's agency customers.
- **Tailored Customer Service (TCS)** – The quality of support GSA provides its customers.
- **Operational Efficiency (OE)** – Maximizing efficiency of organizational structure, delivery models, contracts inventory, supporting systems, business processes and costs of NSP operations.
- **Customer Partnership (CP)** – The forging of effective relationships between GSA and other agency and government stakeholders. This includes other Federal agencies (who are GSA's customers), Congress, and the OMB.
- **Aggregated Requirements (AR)** – The aggregation of requirements to leverage the buying power of the government, which has been an integral component of the NSP's mission and cornerstone of its strategy.

## 3.1 Acquisition Efficiency (AE)

The following Lessons learned are associated with the Acquisition Efficiency theme.

### AE.1 Current NSP programs deliver a broad spectrum of desired services

The NSP programs in general, and the Networx program in particular, provides a broad spectrum of the telecommunications and networking services needed and desired by agency users. The contracts also have broad scopes that can accommodate new technology.

The NSP portfolio of acquisition programs delivers a wide range of telecommunications and networking services along with related hardware, software and support services. With the addition of the recently-awarded Connections II and FCSA contracts and the pending Wireless FSSI contracts, the NSP provides options for agency buyers from the LAN/building/campus level up through the enterprise backbone. The WITS3 and other Regional contracts likewise provide a range of services that have proven popular with agency customers.

In terms of suppliers, every major U.S.-based telecommunications supplier can be accessed through these contracts. New technologies or new pricing methodologies can be accommodated through a contract modification rather than the development of a new acquisition. For example, the emergence of cloud computing services, like unified communications as a service, is easily accommodated within Networx. And, maturing services, like Voice over Internet Protocol (VoIP), are already on Networx and can be modified to account for advances in the technology.

Although the Networx program in particular has been criticized for a “one size fits all approach,” Networx customers expressed great satisfaction with the variety of services Networx provides to meet most customer needs (they were very satisfied that there was sufficient breadth of services).<sup>3</sup> The program serves as a “one-stop-shop” for enterprise-level networking and communications needs and network-centric applications. The encompassment of a variety of services under one contract facilitates the acquisition of telecommunications and networking services for customers, who do not want to have to go through multiple vehicles to obtain services. Use of comprehensive contracts reduces agency acquisition and contract management workloads, freeing up resources for other activities. However, actual Networx buying patterns indicate that most agencies are splitting their telecommunications requirements into multiple acquisitions (e.g. one for voice services, one for data services, and one for SATCOM services).

Any strategy that forces additional work on agency buyers to integrate purchases across multiple GSA contracts may not be well-received. This does not necessarily imply monolithic omnibus contracts, since GSA could undertake the role of a contract integrator and assemble solutions from multiple contracts. Or a portfolio approach could be followed that matches customer buying patterns. By offering a comprehensive range of services, coupled with related support services such as billing and inventory, GSA’s NSP

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<sup>3</sup> See Appendix E: Interviewee Registry

could still provide “one-stop-shopping.” Regarding new technologies, in order to avoid the costly and time-consuming development of new contracts, it is important to have contracts with broad scopes to account for changes in technology and pricing methods.

Regarding the NSP Regional Offices, local service contracts have been found to be too limited in scope to easily address changes in technology and the marketplace. Most NSP Regional Office offerings are oriented to Centrex and PBX technologies, which are becoming obsolescent with the introduction of IP-centric technologies such as VoIP.

Appendix A details trends in the IT communications technology, services, and market. Most of these trends, such as IP becoming the standard communications protocol for all network services, are not new, but their impact is accelerating. The expected adoption of wireless technologies and shared services is particularly pronounced.

### **Recommendations**

- AE.1.1 The ability for agencies to buy comprehensive network solutions from a single source (GSA) should remain an important one in planning for NS2020
- AE.1.2 Contracts should have broad enough scopes to account for changes in technology and pricing methods
- AE.1.3 The range of NSP Regional Offices services offered should be broadened in order to better fulfill customers’ needs and to move on from the current business model
- AE.1.4 The NS2020 portfolio of service offerings should facilitate customers’ adoption of emerging technology trends, such as the proliferation of cloud services and wireless network access
- AE.1.5 Enable access to solutions through the entire ITS portfolio of services and capabilities
- AE.1.6 Establish an integrated portfolio of contract vehicles to serve the full range of agency needs
- AE.1.7 Establish complementary contracts matching agency buying patterns to market segments

### **AE.2 Federal policy compliance incorporated in services and solutions**

By doing the work to ensure that NSP service offerings deliver built-in compliance with relevant government policies, mandates and directives, also known as “safe harbor” solutions, NSP reduced the amount of time and expense agencies needed to spend to achieve that compliance individually. Examples of this included the requirements for socioeconomic participation, Section 508 compliance, National Security/Emergency Preparedness compliance, Davis-Bacon requirements, Service Contracting Act, Trade Agreement Act (TAA), and Federal Information Security and Management Act (FISMA) compliance.

The Managed Trusted Internet Protocol Service (MTIPS) is an example of a shared service that directly assisted agencies to meet Federal policy objectives. MTIPS facilitated the reduction of the number of Internet connections in government networks and provides standard security services to all government users. The service was designed to allow departments and agencies to meet the Office of Management and Budget (OMB) guidance for a Trusted Internet Connection (TIC) and fully implements the requirements of Office of Management and Budget memo [M-08-16](#)

MTIPS took considerable effort to establish but did not result in rapid early adoption for a number of reasons beyond the control of GSA. The revenue for calendar year 2011 was only \$3.7M. The superficial conclusion may be that MTIPS is unsuccessful; however, there are strong indications that this service will be utilized moving forward. Already, 27 out of the 89 potential agencies/bureaus have subscribed to the program. The rate of adoption is increasing, but is hindered by TIC being an unfunded mandate.

Another example is GSA's current participation in DHS' mobile security reference architecture initiative. MTIPS security will be a major consideration where GSA can add value to the overall mobile security challenge.

More recently, the integration of sustainability ("Green IT") has become a necessity for all future Federal IT contracts and should be included in any new NS program requirements. The recent Connections-II (CNX-II) acquisition added such sustainability requirements, as well as those for Supply Chain Risk Management (SCRM). For CNX-II, every vendor was required to submit Sustainability and SCRM plans, which were evaluated as part of the acquisition. The use of IT to reduce overall government costs, minimize energy consumption and greenhouse gas emissions, and improve environmental sustainability has become an important goal for the Federal government. Within the likely scope of NSP offerings, cloud services, teleworking and substitution of conferencing for travel are significant topics, as well as incorporation of emerging sustainability standards and practices into network services requirements definition. NSP programs already offer teleworking and conferencing services, such as the new TelePresence service.

## **Recommendations**

- AE.2.1 The practice of delivering built-in compliance with relevant government policies, mandates and directives should be continued and expanded to include emerging requirements, such as those related to Green IT and "cloud first" IT acquisition.
- AE.2.2 Since some of these Federal policies may constitute government-specific requirements for telecommunications and converged IT networking services and solutions, future service offerings should be pre-negotiated to ensure compliance with such requirements.
- AE.2.3 Cloud services, such as Infrastructure-as-a-Service, which offers tremendous potential for Green IT benefits and on-demand services, should be considered as a particularly good fit for NSP programs.

### **AE.3 Service transition from FTS2001 to Networx was too slow**

Despite the aforementioned benefits, the overwhelming stakeholder sentiment is dominated by concerns about the prolonged transition from FTS2001 to Networx. For the first two years after award of Networx, use of the expiring FTS2001 contract grew at an annual growth rate of 7%. In FY2011, four years after the Networx awards, business volume on the FTS2001 contracts remained at \$500M compared to \$700M in Networx business volume.

As of May 4th, 2012 (5 years after the start of the Networx program) the overall transition from FTS2001 is nearly complete (at 98.85%) and is expected to be fully completed by March 2013.

Even with advanced planning, lower prices, financial incentives agreed to by the IMC in the form of "credits" and support from GSA, transition extended three years beyond original projections. Various factors contributed to this transition delay as discussed below.

Planning for the Networx transition began in 2003 with a Lessons Learned analysis of the earlier FTS2001 transition. Explicit agency involvement in the planning and execution of the transition process also began in 2003 with the formation of the IMC Transition Working Group (TWG). The lessons learned were approved by the TWG for publication in August, 2005 and were incorporated into the subsequent Transition Strategy and Management Plan and Risk Management Plan. Virtually every GSA decision regarding transition has been made in consultation with the TWG, which has met more than 120 times since 2004, and the IMC Networx Steering Committee, which has met approximately 30 times since 2004.

Regarding financial incentives, the pricing on Networx is significantly lower than the pricing on FTS2001, and this has been well publicized to the agencies. If the most common service purchased from Networx, Network Based Internet Protocol Virtual Private Networks, was purchased from FTS2001, the government would have expended an additional \$150M in FY2011. In addition to these price incentives to use Networx, GSA offered approximately \$150M in transition credits to meet certain transition deadlines. GSA went to extraordinary lengths to provide this transition funding by extending deadlines to avoid damaging customer goodwill. It should be noted that although the use of transition credits may not have incited expeditious transition, the lack of such funding may have further impeded transition. Also, in cases where expeditious service ordering is more important than price—since Networx can be too slow to use—agency contracting officers may opt for other vehicles even though Networx provides a better price.

Regarding transition support, planning for transition support assumed an agency "self help" model as directed by GSA leadership and agreed with the IMC/TWG. For example, the initial transition cost estimate prepared in 2004 included an estimate of \$70M for contractor transition support. The TWG determined that agencies would take more responsibility for their own transitions than they did during the FTS2001 transition, and that GSA would provide guidance rather than in-depth assistance to agencies. The estimate for contractor costs was subsequently reduced to \$35M. Inventory validation, Fair Opportunity (FO) decisions, and ordering were clearly identified as the responsibilities of the agencies with guidance from GSA but no individual

agency support. GSA responsibilities included review of agency SOWs for in-scope determination, processing of contract modifications, and transition tracking. GSA also gave agencies considerable guidance on how to transition. Since the contract's award, GSA has operated a "Transition Coordination Center" to assist agencies in performing transition. Guides, inventories, and checklists have been provided to the agencies to assist in their transition.

Customers had a generally negative perspective on how well GSA supported the transition. They wished for more direct, accountable involvement from GSA during the transition. In a series of interviews, nearly one-third of customers indicated the implementation of Fair Opportunity created a burden that slowed transition. The guidance for Fair Opportunity and other matters was at times confusing and conflicting. Customers did not know where to begin after the award of the contract. For example, price is a mandatory component of making a Fair Opportunity decision, but many customers found the pricing tools to be too complicated. There are many components to the price of a service and each solution has multiple contract line items that must be priced. Agency ordering officials had to know what they were buying and how Networx pricing worked. And although GAO outlined the tenets of a successful transition, many agencies were not equipped to handle these. In fact, even GSA's Chief Information Office was unable to execute GSA's transition in a timely manner.

The FO process was arguably the primary reason for delay in transition, as it brought to halt the other downstream steps in the procurement lifecycle. This process took nearly two and half years to get resolved. Prior to completion of the FO process, a GSA Region could not transition circuits behind a GSA switch because it was unknown which agencies would choose which carrier. The GSA Region could not perform the necessary technical review for determining the target system requirements, and thus could not determine the type and number of trunk groups and services to order. The option of GSA placing an estimated order was considered, but was deemed unviable because many of the systems operated at capacity and could not accommodate additional dedicated circuits. (GSA could have ordered additional dedicated circuits for some switches in advance, but GSA would have had to bear the additional cost. In retrospect, the benefit of reduced transition delay would have outweighed these costs. GSA could have also been more proactive in grooming the circuits to prepare for transition. Circuit grooming is a process that optimizes capacity in a transport system.) Since the FO process provided the end user agency with the option to select the best value vendor, agencies were disinclined to GSA making this decision for them. Therefore, GSA could not have performed the FO process for the agencies in advance; it could only provide assistance to the agencies on an as-needed basis. Ultimately, the delays caused by the lengthy FO process prevented the Regions from being able to schedule the transition in a timely manner.

The first GAO tenet of a successful transition was having an accurate service inventory. GSA, with input and oversight from the TWG, created a Transition Baseline Inventory (TBI) database in 2005-2006 to serve as the basis of the more detailed inventories that agencies would need to complete to execute their transitions. This drew on all available sources, including FTS2001 billing records, contractor inventory data, agency input, and the FTS2001 location database. This was made available to agencies for their validation in January 2007, but agencies were able to validate the TBI only in December 2007 after

being given two schedule extensions and the support of an Inventory Assistance Team created by GSA. One contributing factor was that FTS2001 service providers often used Custom Design Documents (CDDs) to develop custom solutions for some agencies. The CDDs usually contained bundled pricing and did not provide sufficient transparency to allow identification or resolution of billing issues or maintenance of an accurate service inventory.

An example of a major delay factor that was beyond GSA control includes a large agency customer that could not determine its sub-agency customers or POCs for long distance lines. Ultimately, GSA worked collaboratively with the agency to develop an agency-specific Agency Hierarchy Code (AHC) that enabled the Regions to proceed with transitioning the accounts under the GSA AHC until the sub-agencies responsible for paying the long-distance bills could be identified. This process delayed transition not only to the above agency, but also to other agencies that shared the same dedicated system.

Another factor that may have contributed to the overall transition delay was the natural tendency of some agencies to first address the “low-hanging fruit” or relatively easy-to-transition items early in the process and then addressing the long-lead items such as data networks and international services. This method of approach was encouraged both by the commercial and the Federal side. The carriers favored this behavior because it would give them revenue earlier, and agencies had incentive to do the easier transition items first because they could demonstrate progress sooner. However, it ultimately resulted in prolonging the overall transition because the long-lead items—which also often represented the largest budget items—were often ordered last.

Also, the IMC set eight goals for the NSP. However, the goal related to transition delegated the speed of the transition to the suppliers, even though suppliers, GSA, and, especially, the agencies all have a role in making transitions speedy. Anticipating early transition, carriers were positioned and resourced at contract award. However, due to transition delays, this did not match with agency readiness or transition plans. Subsequently, later in the process, as agencies finally began to order and transition, carrier resources were no longer available, which resulted in yet additional delays. Proactive communications and planning between GSA and all contract partners may minimize such issues in the future.

These and other lessons learned that directly contributed to the prolonged transition are further detailed in the ensuing sections.

## **Recommendations**

- AE.3.1 The Federal communications market is largely inelastic, and good pricing is insufficient to realize cost saving or to incent transition. Therefore, ease of use and speed of purchase must be considered in future acquisitions.
- AE.3.2 GSA’s award of an overall contract followed by agency award of individual “Fair Opportunity” decisions may have delayed transition. GSA should consider making Fair Opportunity decisions for some agencies as part of the original award.
- AE.3.3 GSA should directly involve its major customers with requirements development and vendor evaluation.

- AE.3.4 Simplicity in contract structure, pricing, communication will speed transition.
- AE.3.5 GSA must execute their own transition as an example to other agencies.
- AE.3.6 GSA should expect to perform FO process for Micro agencies.
- AE.3.7 GSA should minimize the FO process delays in the future by developing easy-to-understand and easy-to-price portfolio of services for the agencies to use.
- AE.3.8 GSA should explore with agencies ways to stagger or phase transition.
- AE.3.9 Consideration should be given to transitioning long-lead items and those representing the greatest savings first.
- AE.3.10 GSA should facilitate effective and proactive communications and planning between customers and service providers.
- AE.3.11 To prepare for transition, GSA should proactively prepare GSA switches, including grooming and ordering excess trunk line capacity where needed and possible.

#### **AE.4 Network complexity did not meet ease of use expectations**

The complexity of the Networkx contracts and CLIN structure did not meet stakeholder ease of use expectations. The telecommunications and networking services offered under the Networkx program are inherently complex. Major drivers of contract and tool (Networkx Pricer and Vendor Operational Support Systems) complexity include the breadth of services offered (previously identified as a program strength), commercial practices that vary prices based on physical location and bandwidth, and the short product life cycles of communications equipment. This complexity leads not only to a number of different potential technical solutions for any given requirement, but also to a large number of cost elements that must be addressed in pricing out any but the simplest cases. The contracts and associated support tools necessarily reflect this complexity.

Pricing for the services was based on fixed-price with orderable items represented by CLINs. The CLIN structures were based on extensive analysis of commercial pricing practices in use when the RFPs were under development. Wherever possible, standard commercial pricing structures were used; in instances where commercial practices varied among offerors, a generic pricing structure was developed with the intent of ensuring like-for-like cost comparisons while avoiding favoring any one vendor. Core network services were specified at the "port" level, i.e., without regard to the location of the port. Features or capabilities that were optional in commercial practice were typically specified as optional in the requirements. Since pricing for network access was (and remains) variable with transmission speed as well as physical location (e.g., serving wire center and building), CLINs of this type were priced accordingly. As a result, the same orderable CLIN can be represented by thousands of "unit prices" depending on where the ordered circuit is physically located. The original contracts included slightly more than 4800 defined CLINs for services and slightly more than 300 defined CLINs for Service Enabling Devices (SEDs, representing orderable equipment). As of

June 2011, the total number of defined CLINs has increased to approximately 13,400. The increase of approximately 8300 CLINs consists of about 4700 CLINs for new SEDs and about 3600 CLINs for new services, agency customizations, and contractor-proposed service enhancements.

The end result was that there are millions of service permutations across eight Networkx contracts. The fact that the terminology of the Networkx contracts differed from both FTS2001 and in some cases standard commercial terminology created additional problems for agency managers as they tried to identify services they could obtain through Networkx. It should be noted that the Networkx terminology attempted to enable better offering comparison between different vendors, and it may be one of the factors that led to lower prices. All of this taxed agency managers who lacked both program managers and qualified contracting officers to manage a contract of this magnitude and this complexity. It is not surprising that many customers and some NSP respondents found that the Networkx contracts were too complex for them to understand and use easily.

Appendix B offers additional analysis and rationale for Networkx's technical and pricing complexity.

The current CLIN structure requires a degree of technical telecommunications knowledge that is scarce among the customer end-users who order the services. This makes it difficult for customers to document their requirements and structure their orders, which in turn makes it harder for the vendors to understand the services sought. Specific customer comments identified the complexity, level of detail, naming conventions, and lack of bundling capabilities of the Networkx CLIN structure to be problematic. Concerns exist among both customers and providers regarding the large number of CLINs required to process some routine orders.

As noted above, pricing often varies with the physical location. This is true for many data services as well as local dial tone rates, which vary with region and locality and are a function of the negotiated rates in each locality and the overhead applied. To simplify ordering, some regions have adopted flat rate pricing for services such as Primary Rate Interface (PRI) circuits, and some agencies have likewise asked for flat rate pricing on Networkx for similar services. However, the Networkx contracts do not currently support this.

Ease-of-use concerns are somewhat asymmetric. Large agencies' concerns are more likely to be based on the difficulty of packaging complex custom solutions. Small agencies' concerns are more likely to be based on having too many poorly understood choices.

It is possible that technological trends and the retirement of legacy services will provide opportunities to reduce program complexity. However, there is no indication that the technological complexity of new services will decrease over time, or that the additional complexity driven by agency requirements customization will not continue to be a factor. In fact, the availability of wideband wireless communications options, and the convergence of basic telecommunications services with value-added services is likely to continue the trend toward more options and increased complexity.

Successfully addressing this finding will require trade-offs between potentially conflicting concerns. For example, agencies desire contracts that are comprehensive, up-to-date, and aggressively priced on the one hand, and

simple to understand and use on the other. Simplification and standardization are effective ways to reduce complexity, improve ease of use, and capture the economies of shared services solutions, but this also limits agency choices and directly conflicts with the desires of many agencies to create customized solutions. Bundling of complex elements into more simply-described custom solutions has the potential to reduce complexity but also to reduce agency and GSA visibility into what is being delivered (inventory) and how it is being priced, with possible negative downstream consequences including vendor lock-in, inability to negotiate better prices, and inability to specify requirements for recompetition. Creation of simple-to-use tools can greatly increase ease of use by unskilled individuals, but this might need to be balanced against the advisability of authorizing government staff to obligate millions of dollars to order services they do not understand as well as the cost of developing such tools. All of these potential issues imply a greater likelihood that ease of use will need to be improved by managing complexity more than by eliminating it.

Resolution of these inherent trade-offs will require significant creativity and innovation. Fortunately, a number of complementary options also exist, and are provided in the following recommendations. Furthermore, efforts to address this finding should not be postponed until the NS2020 program. Rather, opportunities to begin implementing improvements in current programs should be identified and considered.

### **Recommendations**

- AE.4.1 GSA should simplify contract requirements and CLIN structures where possible.
- AE.4.2 GSA should strengthen support for customers, including appropriate outreach and training.
- AE.4.3 GSA should develop more user-friendly automated tools to support service planning, ordering, and implementation.
- AE.4.4 GSA must develop contracts that match the abilities, skills and traits of the program managers and contracting officers within the agencies.
- AE.4.5 GSA should focus on contract terms and service definition stability to limit the user learning curve and improve the transition ease for customer agencies.
- AE.4.6 GSA should consider evaluating Flat Rate Pricing within its portfolio of services.
- AE.4.7 GSA to consider inclusion of POTS type contract vehicle with readymade/priced solutions that can be ordered and delivered quickly.

### **AE.5 Contract and support structures should be designed to match preferred agency buying methods**

Networx customers and vendors find the Networx contracts inflexible, restricting service delivery speed and slowing adoption of new technologies and services.

The program intention that extensive use of specified CLINS would allow many agency needs to be met without contract modifications was not fully achieved; many agencies decided to pursue individual customized SOWs for unique requirements instead. Through December 2011, approximately 250 statements of work had been submitted to carriers. This became another major source of contract complexity that added time and expense to both NSP and service provider operations.

As previously mentioned, because it reflects complicated pricing structures in the telecommunications marketplace, the Networkx CLIN structure is complicated. Each service may require several CLINs. The price is dependent on the location and a myriad of technical features. At considerable expense, GSA developed an online pricing tool to price these thousands of CLINS. In an ideal circumstance, an agency would have used this tool to make purchase decisions. As it turns out, it was unrealistic to expect customers to buy large networks through a pricer. When pricing a network across an entire agency, it is too complicated and takes too long to price each component. The Networkx pricing tool is adequate for simple purchases but not large networks.

NSP Networkx and Regional Offices contracts and service offerings are viewed as restrictive and not well aligned with respect to market segmentation, both in terms of customer needs as well as provider capabilities. The Networkx contract structure includes fixed price and individual case basis (ICB) CLINs, a limited set of standard and service-specific Service Level Agreements (SLAs), and extensive Operations, Administration and Management (OA&M) requirements, including web-based ordering, capture of inventory data, maintenance of a catalogue of offerings, among others, that apply to all services. This structure was intended to reflect agency requirements as agreed with the Interagency Management Council (IMC), and proved useful for obtaining and maintaining excellent contract prices and transparency for core services. However, in practice it has been found to be restrictive because it adds complexity and cost to vendor efforts to incorporate new services or improvements in existing services, especially when commercial pricing conventions or agency expectations are not consistent with Networkx pricing structures.

The Networkx contracts do not have specific provisions to allow the vendors to design, price and deliver customized agency-specific solutions as a single integrated package, or to easily modify the Networkx contracts to add them on that basis. The Networkx vendors want GSA to consider a policy on customer-specific pricing for more common CLINs or discounts for large buys. Some participants recommend the use of an approach similar to FTS2001 Custom Design Documents to alleviate some of the burden associated with complex modifications. However, as previously noted, CDDs did not provide sufficient transparency to allow identification or resolution of billing issues or maintenance of an accurate service inventory. Furthermore, allowing the vendors latitude in customizing their service definitions could cause vendor "lock-in," as customers could not get an "apples-to-apples" comparison of their customized solution.

While the Networkx contract has many priced CLINs, GSA took a different approach with Connections-II (CNX-II). CNX-II has "un-priced CLINs," which are similar to Other Direct Costs (ODCs) but have greater flexibility. The cost associated with these un-priced CLINs is task order-specific and does not

require a modification to the umbrella contract. Verifying Fair & Reasonable pricing is the responsibility of the ordering Contracting Officer.

One possibility for a future strategy is the addition of a “task order” approach used on GWACs, similar to GSA Alliant. In this approach no contract modifications are necessary for orders that are within the scope of the basic contract. In Addition, carriers could become responsible for reporting inventory to GSA as orders are received.

In summary, the need for greater contracting flexibility represents a significant area of potential innovation for NSP, with implications for contract refreshment, future contract planning, coordination between the Regional and National Offices, new service development, agency support activities, and NSP systems and processes. Both agencies and service providers see the current structure as adding time and cost to their efforts to deploy solutions. However, it is not clear to what extent agencies would be willing to see CLIN prices rise or to lose other program attributes such as transparency and inventory tracking simply to achieve flexibility.

### **Recommendations**

AE.5.1 The means should be found to increase contracting flexibility while maintaining other program strengths, and any tradeoffs should be identified and resolved with stakeholder input.

AE.5.2 Future NSP contracts should facilitate an agency’s use of customized statements of work within the scope of the broader contract rather than relying on a customer’s ability to build a solution from pre-priced Contract Line Item Number (CLIN) tables.

## **AE.6 Multiple GSA contracts for the same services created confusion with customers and added cost for GSA and suppliers**

There are two Networx contract vehicles—Universal and Enterprise—which created confusion with customers and added administrative cost for GSA and suppliers. The Universal-Enterprise acquisition strategy grew out of the program goals agreed between NSP and the Interagency Management Council (IMC). In particular, three goals proved incompatible in a single acquisition: agencies wanted all legacy and new services available in a single contract vehicle (*Service continuity* and *Full-service offerings* goals) but also saw the value in having access to more than just the largest interexchange providers (*Alternative sources* goal). Thus the primary purpose of the strategy was to broaden the pool of providers who could successfully compete by offering a more limited set of services aligned with their commercial offerings. In this regard, the strategy was not as successful as had been envisioned. Two of the five Enterprise contracts were awarded to competitors who could not meet the comprehensive agency requirements in Universal, but by the time of contract award, industry consolidation had already significantly reduced the pool of potential Enterprise competitors.

Since award, agencies have chosen the Universal contracts for most of their needs. As depicted in Table 3, Universal has received 91% of the business volume. Furthermore, although there are five suppliers—three of which have

contracts on both Universal and Enterprise—through FY2011 two of the suppliers, Verizon and AT&T, have received 85% of the business volume across both contracts. The dual contract structure is regarded as a continuous source of program inefficiencies by agencies, providers and other stakeholders. Customers have to first determine which acquisition to use, Universal or Enterprise, and then conduct their Fair Opportunity. This was a layer of added complexity to an acquisition process already complicated by Fair Opportunity. The parallel contracts essentially double NSP management and support responsibilities without providing significant value to GSA’s customers or significant revenues to the two additional providers. The service providers have requested that the Universal and Enterprise contracts be combined into a single vehicle, but short of a recompetition, there is no legal means to do that.

*Table 3-1: Networkx Supplier Business Volume Mix*

Vendor	FY11 (in thousands)	FY2011 Share
Universal		
Verizon	\$305,664	47.7%
AT&T	\$271,639	42.4%
Qwest	\$63,269	9.9%
Subtotal	\$640,573	91.0%
Enterprise		
Verizon	\$15,996	25.3%
AT&T	\$12,411	19.7%
Sprint	\$21,483	34.0%
Qwest	\$11,060	17.5%
Level 3	\$2,192	3.5%
Subtotal	\$63,142	9.0%
Total	\$703,714	

In addition to the complexity of the two Networkx acquisitions, significant overlap exists in the two contracts. For example, one can purchase Voice over Internet Protocol (VoIP) solutions from multiple GSA contracts. These include Alliant, Alliant SB, Connections, Schedule 70, Networkx Enterprise, Networkx Universal, and WITS. Even within the NSP, there are two contracts, Enterprise and Universal, for largely the same things and awarded to mostly the same suppliers. Studies in generalized consumer behavior indicate that too many choices inhibit sales—the customers may simply be walking away from the plethora of choices to develop their own acquisition. If this is true for some NSP customers, then the many contract options may have inhibited their use of any GSA contract.

Although there is agreement that the Universal/Enterprise construct should not be repeated in the follow-on NS2020 program, some of the issues that it addressed remain. For example, there is likely to be an ongoing and natural tension between agency requirements for comprehensive solutions providers

and access to alternative competitors with the potential to provide high-value services and solutions in a more limited space. The more comprehensive an agency's network infrastructure requirements, the smaller the potential pool of providers able to serve the need. However, the smaller the pool of eligible providers on a single contract, the harder it becomes to take advantage of the full innovation available in the marketplace. Thus, it is likely that the NS2020 portfolio will continue to utilize a number of contracts. Note that this could include re-use of existing contracts, so it would not necessarily entail development of all new contracts. An ensuing portfolio strategy document will explore and evaluate the above and other alternatives and provide direction on the future offerings and associated strategies.

## **Recommendations**

- AE.6.1 The market conditions that drove the dual contract strategy no longer exist and the Universal/Enterprise construct should not be repeated.
- AE.6.2 GSA must differentiate between acquisitions capable of buying the same service. Fewer acquisitions for the same technology may be more effective for both GSA and agencies.
- AE.6.3 Since there may still be some instances where contract overlap is justified, the rationale should be clear, and contract offerings and services provided with the program need to be presented clearly to the customer.
- AE.6.4 Before establishing new programs for the latest emerging technology or even more mature technologies, consideration should be given to how the technology could be purchased from existing contract vehicles. In some cases, customer education around a technology is sufficient to buy the technology, which is preferable to developing new acquisitions for every new technology.

## **AE.7 Contracts must be flexible enough to keep pace with technology**

One of the root causes of the slow transition mentioned previously is the complexity and inflexibility of the contract to accommodate changes in price, technology, or complexity of enterprise networks. Although GSA knew that new technologies would emerge and pricing on existing technologies would become lower as they mature, the Networkx contract structure could not quickly accommodate these new technologies and new prices. This is also particularly troublesome in the case of technology areas such as wireless services, where the cycle for introduction of new devices and pricing plans is rapid. NSP's new Wireless FSSI program was designed to address these and other concerns.

A contract modification is required to add a new technology to most of NSP's acquisitions, which is unlike the GSA-run Alliant and Alliant Small Business acquisitions. Since Networkx award, over 3,000 modifications to the contract have been made, including nearly 500 in the first four months of FY2012. This equates to about 12 contract modifications per week. The need for modifications is due to the emergence of new technologies, changes in prices on existing technologies, or large statements of work designed to accommodate bundles of complex services. This many contract modifications

has negatively affected customer perception of the contract because it slows their transition and increases their transaction cost to wait for these modifications.

Some NSP contract vehicles other than Networkx and other parts of GSA have been able to flexibly accommodate complex, enterprise wide purchases of information technology. The Alliant and Alliant Small Business contracts accommodate task orders for many kinds of network services without contract modification since the contracts are based on the Federal and DoD Enterprise Architectures. This means that new services, like cloud computing, can be purchased and customized to each agency's need. For example, GSA used Alliant for its cloud email and collaboration tools requirement even though cloud services are not specifically mentioned in the Alliant contract. As previously noted, the CNX-II contracts allow task order-specific CLINs that do not require a modification to the umbrella contract. A similar approach has been adopted for the NSP's Custom SATCOM Solutions (CS2) and Custom SATCOM Solutions—Small Business (CS2-SB) acquisitions, which were specifically designed to accommodate agency-specific solutions.

In the regional program, the WITS-3 acquisition was able to combine the professional services, including labor, and equipment with traditional telecommunications services, (e.g., bandwidth) allowing more flexibly than Networkx. Nearly 25% of all WITS-3 purchases are either equipment or labor (See Figure 8). In the Networkx acquisition, professional services, which are usually necessary to implement network services, cannot be purchased as labor but must be bundled with another telecommunications service. Similarly, equipment must be purchased as a “service enabling device” and must be tied to a purchase of bandwidth. In Networkx, these are tied into service categories and must be modified for each individual implementation.

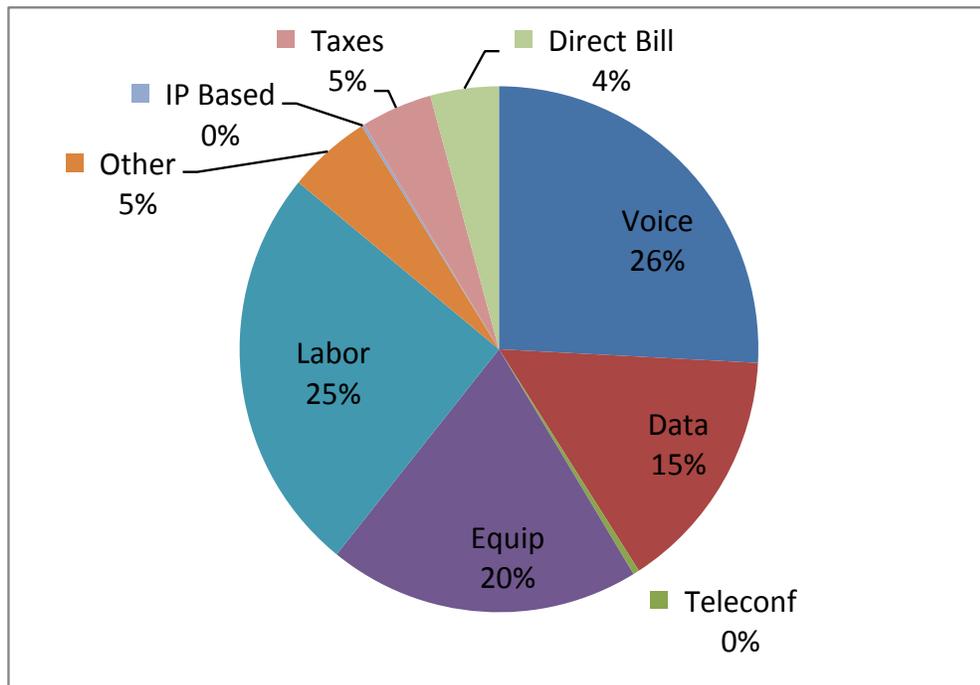


Figure 8: WITS Purchase Category Mix

## Recommendations

- AE.7.1 Rigid structures may work well when lowering the price is of primary concern. But, given the inelasticity of the Federal communications market, the pace of technological change, and the inherent complexity of buying networks, future NSP contracts should accommodate price and technology changes that do not create bottlenecks for speedy customer purchases.
- AE.7.2 GSA should accommodate changes in pricing, technologies, and agency use when developing systems, processes, and solicitations. For services that are more mature and stable, pre-defined and pre-priced line items may be appropriate and used to effectively manage cost without sacrificing efficiency. Conversely, a broader scoped solicitation with less itemization may be more appropriate for emerging or custom services.

## AE.8 NSP business support systems improve order, billing, and inventory management across all of government, but they also require improvement

The lessons learned regarding NSP's business support systems are mixed. It is generally agreed that the systems for order, billing and inventory management have improved from previous contracts. However, the support tools did not meet ease of use expectations, and the capabilities provided were insufficient. Many stakeholders identified areas for improvement in NSP tools and system support. Training is felt to be subpar in enabling users to understand and successfully use the NSP tools offered to support the contracts. Regional Directors find that overly complex operational support tools (e.g., Telecommunications Ordering and Pricing System) drive data integrity concerns.

The NSP manages two business support systems—Telecommunications Ordering and Pricing System (TOPS), for regional programs, and EMORRIS, for the Networx program—plus the Network Services Programs Hosting Center (NHC), which includes the Networx Pricer. Inventory management, which is a key component of timely transitions from one contract to another, has improved over FTS2001.

To minimize the probability of a repeat of the inventory problems seen in FTS2001, GSA established contract requirements for the Networx vendors to maintain accurate agency inventories using defined Networx Inventory Codes and also implemented an approach to allow contractors and agencies to capture better, more consistent inventory data. Specifically, GSA wrote requirements for the contractors to forward the Service Order Confirmation Notices (SOCNs) that are created when provisioning is complete and the ordered service is in operation. SOCNs are captured and maintained in the EMORRIS database that is intended to be available to agencies for their own inventory management. Furthermore, FTS2001 was developed with voice as the primary requirement. As a result, complex data-oriented networks were not easily accounted for in the MORRIS system used for FTS2001. EMORRIS, the enhanced business support system for the Networx program, is enabled

to handle more advanced networking services. However, EMORRIS does not currently adequately support task order-based ordering. For example, it does not maintain the relationship between multiple billing items that collectively comprise a task order.

The Networx Pricer was identified as another tool requiring improvement. It was found to be too complex by many users. This tool was introduced by GSA as an aid to users in developing Networx price and cost data for their requirements. The Pricer reflects the complexity of the Networx contracts, and was designed for use by individuals who already had basic familiarity with both telecommunications technologies and pricing structures in general and the Networx contracts in particular. It was not intended to be a requirements planning tool. In practice, users lacking the necessary knowledge became confused and frustrated.

Appendix C provides an overview of the Networx operations, which elaborates upon these and other related issues and successes.

In addition to the NSP-provided tools, the Networx service providers are required to maintain Operations Support Systems (OSS) portals that, among other functions, agencies can use to price and order services and view bills and service inventory. Since many agency customers of Networx procure services from multiple Networx vendors, customers have expressed dissatisfaction with the need to learn and navigate multiple portals. Furthermore, very few services are directly ordered by agencies using the vendor OSS portals in a self-serve mode. In most cases the agency coordinates with the service provider—often by email—and the vendor staff enters the order in the portal.

The WITS-3 contract is the one Regional contract with similar portal capabilities as Networx. The GSA Regional telecommunications managers like the self-service capability provided by the WITS-3 portals. However, as with Networx, few services are directly ordered by agencies using these portals. This reflects a general telecommunications industry trend. Self-service portals are effective and a good investment for ordering simple services, such as those found in the consumer space (e.g. cellular devices and plans). However, the complexity of corporate telecommunications services makes this less viable for business customers.

Regarding Regional operations, TOPS is considered antiquated, cumbersome, and in need of major changes to satisfy current customer needs. While GSA personnel and Regional customers who work with TOPS frequently are able to use the system, the majority of the Regional customers who were interviewed either have no experience with any of the tools or find them to be difficult to use, unreliable, and inaccurate.

Customers expect NSP to consider the skill sets of their users in the development of any program tools. There is a need to provide customers with tools that can be used to quickly and easily order telecommunications services and products. This is not an easy task as the Government is felt to be facing a downtrend in the telecommunications capabilities of its staff. Lastly, some agencies want electronic interfaces to their ordering and billing systems.

Many agencies consider consolidated billing to be a significant benefit and one of the primary reasons for using GSA. This applies to both the National and

the Regional programs. Furthermore, Networx has an SLA that requires accurate billing from the vendors with monetary penalties if the bills are incorrect (no more than 5% of errors). As a result of the systems and this SLA there are far fewer billing issues than with FTS2001.

### **Recommendations**

- AE.8.1 Billing and inventory management systems are a key component to any future acquisitions or initiatives and should be considered an integral part of the NS2020 strategy.
- AE.8.2 The development of support tools must take better account of the skills and knowledge of the intended users.
- AE.8.3 Tools development should include more attention to user interfaces and related aspects.
- AE.8.4 GSA and agencies should focus on the effective capture of inventory data over the life of the Networx program, and the approach of using Service Order Completion Notices (SOCNs) for this purpose should be verified and amended if needed.
- AE.8.5 GSA should consider establishing and operating a single Government ordering portal.
- AE.8.6 The expectation that customers will price complicated and customized networks via an online pricing tool is unrealistic; ordering tools should match buying habits.

## **3.2 Tailored Customer Service (TCS)**

The following Lessons learned are associated with the Tailored Customer Service theme.

### **TCS.1 Lack of direct GSA transition support to agencies slowed the transition from FTS2001 to Networx**

Lack of proactive and direct transition support from NSP furthered transition delays and limited the effectiveness of transition planning. NSP had identified transition lessons learned from the previous transition from FTS2000 to FTS2001 and designed actions to avoid the recurrence of these issues for the transition to Networx. NSP formed an IMC Transition Working Group to guide transition planning and to achieve agreement on the types and levels of support NSP would provide to agencies. However, NSP and its customers underestimated the level of difficulty that agency staff would encounter during transition. Some of the difficulties are attributable to the size and complexity of the Networx contracts. Once aware of the issues, NSP responded by providing additional direct support to agencies, particularly large agencies that were experiencing difficulty with FO actions. However, this action was not taken until more than two years after contract award, and the level of support was limited by NSP's internal resources and capabilities.

While some customers stated that they received excellent transition support during the planning phase prior to transition, many customers and other interviewees expressed dissatisfaction with NSP's lack of direct transition support. More specifically, customers stated that they received excellent

transition support during the planning phase prior to transition but believe support from NSP decreased drastically without warning or justification once the transition began. The general perception of dissatisfied customers is that NSP turned its focus to tools and timelines instead of customer support. Customers attributed transition delays to this shift of focus.

In effect, the transition to Networx was too complex for customers to effectively manage with the levels of support available from their internal agency sources and from NSP. Many agencies simply did not have sufficient resources (funding, staffing, knowledge, or experience) for major transitions. In addition, the transition did not become a priority for agency senior managers until OMB became involved. Some aspects of the contracts, such as FO, increased costs for the agencies and created delays in the transition process. Several agencies lacked expertise on the processes and procedures for contracts because they had previously relied on NSP to provide those services.

Two agencies, DOJ and USDA requested GSA's assistance in developing a SOW and conducting the fair opportunity process. Since final award decision was the responsibility of DOJ and USDA, and the acquisition skills and contracting "know how" was more prevalent in GSA, an understanding of roles and responsibilities was developed in the form of Memorandums of Understanding (MOUs). The MOUs specifically defined roles and responsibilities between GSA's, DOJ's, and USDA's program and contracting offices and was signed by a Senior Executive Service-level of management at each agency. Since the process of defining and awarding the work for the Managed Network Services (MNS) desired by DOJ and USDA could take from 6 to 14 months to finalize, the MOU was paramount in binding each agency to work together regardless of Full Time Employee (FTE) change-out and resource limitations. The MOU memorialized a working partnership that very much eliminated "finger-pointing" and contributed to efficient and timely MNS awards.

Regarding lessons learned related to working with Tribes, Small/Micro Agencies and Tribes make up a small portion of the FTS2001/Networx volume. The Tribes were not making a lot of progress in the transition efforts on their own. A process was created with Small/Micro Agencies and Tribal Organizations in mind—since these agencies typically do not possess sufficient technical expertise and contracting specialists in-house to fully understand their organization's telecommunications needs and to fulfill the requirements established under the Networx contract. This process allowed GSA to fulfill the roles of the DAR, provide the technical expertise of reviewing the agencies inventories, provide Networx pricing, and assist the Agency/Tribe with the FO process requirements.

Some tribes were found to be non-responsive, and GSA Technical Service Managers (TSMs) identified that these tribes had moved to other vendors without submitting disconnects to the vendor or to GSA. Since the Tribal Organization structure does not include a CIO (or equivalent) role, it is important to have an updated list of contact names for IT people as well as Tribal Leaders and council members to assist in effective correspondence.

It is also important to initiate dialogue with the tribes early in the process and to proactively maintain the dialogue on regular basis. To avoid such issues in the future, obtaining a list of Tribes that have no billing/usage for an

extended period of time (e.g., six months) was found to be a practical approach to confirm whether a Tribe is an active customer.

## **Recommendations**

TCS.1.1 GSA should anticipate agency customers to increasingly require NSP to:

- Provide significant support to facilitate transitions, and/or
- Structure the contracts and transition processes to ease agency workloads

TCS.1.2 GSA should provide a means for agencies to obtain third party acquisition assistance either directly through the NSP or through a partnership between NSP and other GSA service.

## **TCS.2 The decline of network services expertise across government created challenges**

There has been an ongoing downtrend in technical telecommunications knowledge within NSP and across the government. This caused many problems during the transition from FTS2001 to Networx, and NSP did not respond effectively. NSP's regional and national customers perceive and are concerned about a decreasing level of telecommunications and networking specialization throughout the government. They predict a worsening resource shortage in Telecommunications Specialists across all agencies because many of the experienced workers are nearing retirement and there are few or no replacements. Customers think their agencies have not been proactive in training younger workers. In consequence, the customers believe the preponderance of specialized telecommunications knowledge resides with the telecommunications vendors, which puts government agencies at a disadvantage.

The situation has been exacerbated by changes in the FO process which have increased demands on both NSP and agency telecommunications staff. NSP did not fully comprehend the extent of the overall problem until its seriousness was revealed during Networx transition. In addition, NSP did not anticipate the extent to which large agencies would insist on unique and customized Networx services to meet their needs. Once aware of the issues, NSP responded by providing additional support to agencies, particularly large agencies that were experiencing difficulty with FO actions. This support took the form of assistance in requirements development, RFQ preparation, and proposal evaluation. These stopgap actions, while effective in moving specific transition actions forward, were neither intended to nor capable of addressing the underlying problems.

Some likely changes in telecommunications technologies and markets may provide limited relief, such as by introducing simplified or postalized pricing (i.e., prices that do not vary by distance) for certain services. Overall, however, it is expected that this will be counteracted by the increasingly rapid rate of technological and marketplace change.

If the downtrend in technical telecommunications knowledge continues, it is likely to have significant negative impacts on the quality and cost of government telecommunications, irrespective of whether these are provided

through NSP contracts or other vehicles, as agencies are caught in a conflict between their perceived need for unique and customized solutions on one hand and their limited technical capabilities to achieve those solutions in a timely and cost-effective manner on the other. Rapid technology cycles and the structure of the aging government workforce will tend to worsen the situation. While NSP should strive to support an improvement in agency levels of telecommunications expertise, resource limitations will constrain its impact. Therefore, NSP's abilities in this area must be evaluated and initiatives formulated that will maximize the impact of the resources available. This may present an opportunity for NSP's regional programs if National-Regional coordination improved and the regional staff possess the needed knowledge and expertise.

### **Recommendation**

TCS.2.1 Future NSP program initiatives must be explicitly developed and evaluated in light of the customer agencies' probable levels of telecommunications expertise.

## **TCS.3 NSP must better communicate its value to customers**

Agency users of NSP programs are aware that program fees are higher than for other government contract programs, but generally cannot explain why. Most government wide contract programs have fees below 1%. This is true for GSA programs (e.g., Alliant, Alliant SB, IT Schedule 70) as well as non-GSA programs (e.g., SEWP IV). NSP programs tend to have higher fees. For example, the Networx fee is 7%, and fees for Regional programs tend to be even higher. The primary reason for higher NSP fees is the nature of what is provided in exchange. The primary value provided by low-fee programs is access to a contract vehicle that the agency can use to compete its requirements. A greater percentage of the NSP fees enable GSA to provide a robust set of services well beyond contract access. For example, of the 7% fee collected for the Networx program, 1½ % is set aside in a Transition Reserve Fund for disbursement back to agencies to support their transition expenses. Another 1-2% is used to maintain the billing and inventory systems, provide centralized billing support and bill verification, and maintain security compliance of the Networx service providers' operating support systems. The remainder is used for establishment and maintenance of highly-competitive fixed prices, contract and vendor management, assured compliance with Federal policy directives, technical and acquisition experts and GSA-provided contractor resources to the agency customers. Similar Regional program fees typically cover labor-intensive direct support to customers.

NSP has not clearly communicated to its customers the services provided for the fees. Many customers express comments like "I don't know where the seven percent goes, I just pay it" or "I don't know why we're paying the fee when we don't use any of the GSA services." Customers doubt the value of the 7% fee, especially when the fee is compared to other GSA and non-GSA contract fees. However, most still believe that Networx prices are the best available to them, even with the 7% fee included.

NSP customers operate in an increasingly cost-conscious environment, where agency managers are expected to exercise extreme scrutiny in all

procurement decisions. Similarly, customers are seeing a trend of increasing program and cost transparency. Thus, customers want more transparency with regard to the NSP fees, the services provided, and any additional fee components.

### **Recommendation**

TCS.3.1 Since better communication of and transparency into the value provided for the fees charged could improve customer satisfaction, NSP should develop clear and compelling explanations of its fee strategies and value propositions for regular communication to stakeholders.

## **TCS.4 NSP Regional Offices programs deliver valuable customer support**

Regional Programs have strong customer knowledge and deliver quality customer support services. Regional local services programs employ a business model that provides considerable customer support. This model produces a high degree of customer satisfaction and strong customer relations, but also results in a higher fee structure.

During the transition to Networx, Regional Office customers were able to leverage the Regional Offices to collect inventory, resolve issues, and order services. The Regional customers who had completed transition had frequent conversations with Regional Office representatives and felt supported through the process.

The local contracts provide benefits to customers beyond breadth of services and price. When compared to the larger national Networx, the major benefits of the Regional contracts highlighted by the interviewees include: flexibility, speed, and customer ease of use. For example, Regional Offices take full responsibility for customer Fair Opportunity decisions, facilitating timely awards while reducing customer workload.

Local contracts allow flexibility for customers by providing services from numerous local telecommunications providers, direct order billing, and pre-competed services. The Regions' strong relationships with local telecommunications providers facilitate prompt service delivery on local contracts. Those services were then offered across the Region at standard pre-negotiated prices. Local contracts also typically employ a streamlined contract modification process. The Regional Directors stated local contract modifications are awarded in as little as 1 to 5 days after order.

While these benefits and characteristics of Regional NS programs are real, it must be noted that the majority of regional services provided are related to local telephone service, a relatively simple service which Regional NS personnel have decades of experience delivering. Maintaining comparable Regional Office success as they move to delivery of IP-based data- and network-centric services could require significant retraining of Regional Office staff and retooling of Regional Office systems and processes.

## **Recommendation**

TCS.4.1 GSA should carefully examine the Regional Office support model to determine which elements can be adopted more broadly throughout NSP without excessively raising costs. In particular, the viability of expanding this model to providing turn-key shared IT services should be considered.

## **TCS.5 Customers were dissatisfied with NSP support for the Networx Fair Opportunity process**

Absence of clear and standardized interpretations and policies for FO promoted delays, inconsistencies, and protest fears. By agreement between NSP and the IMC, Networx FO decisions are an agency responsibility and NSP's role is to provide guidance and support. The Networx FO process is modeled to adhere strictly to the FO provisions of the Federal Acquisition Regulations (FAR). However, within that process, many details may vary. For example, it is possible to make an FO decision with or without the use of a SOW. Execution of the FO process also was impacted by the passage of the Defense Authorization Act of 2008, which set new, lower thresholds for bidders wishing to file award protests, and it permitted the protest of in-scope task orders. The overall Federal Government trend of vendors protesting FO awards is expected to continue in the future. According to the GAO's bid protest annual report to Congress, the number of bid protests filed with the GAO has markedly increased every year from FY2007-2011. (Note, however, that the number of protested actions is still a small percentage compared to total annual contract actions.)

In general, agencies were unclear as to how to proceed with FO after award, particularly in light of the change in protest regulations. Protests were made in a number of cases and this, coupled with general confusion over FO, caused at least some agencies to completely rethink their FO plans. Multiple Regional customers identified higher protest risks as a significant driver of the lengthy transition.

Since contract award, customers say they have received mixed guidance from NSP Contracting Officers (COs) and program management staff regarding FO. They want clear policies and standard procedures from NSP to guide them through the FO process, and NSP interviewees acknowledge there have been varying interpretations of the details of the FO process communicated from NSP COs and Program staff. Customers understand that NSP has limited control of the overall execution of the FO process, and express empathy toward NSP on this issue. However, problems have persisted into the fifth year of the program, and customers feel that NSP should and could have improved planning, communication, and implementation of the revised guidance much earlier. For example, while the change to the FAR was beyond the NSP's control and unexpected by the Networx program, NSP's perceived lack of leadership and outreach to agencies did little to improve the situation.

Stakeholders felt that lack of NSP support for the FO process burdened them by increasing the transition time between vehicles and increasing contract costs. Although NSP did provide some guidance toward writing SOWs and the

FO process, many users would have liked more comprehensive guidance prior to award, including process options, templates, and best practices.

### **Recommendations**

TCS.5.1 Innovative approaches to minimize the FO impact to agency customers should be sought. Examples of approaches to be considered include GSA making some FO decisions during initial contract award and offering pre-awarded, "turn-key" services, which would be similar to many current regional operations.

TCS.5.2 GSA should anticipate customers to want more extensive and continuous support from NSP for complex FO decisions.

TCS.5.3 GSA should provide more proactive NSP responses to unexpected issues as they arise, not after they have already resulted in significant negative consequences.

TCS.5.4 GSA should strive for more effective collaboration among NSP program staff and COs, as well as more effective coordination with external stakeholders.

### **TCS.6 Vendor performance management did not meet customer expectations**

To enable vendor performance management, the Networx contract defines Service Level Agreements (SLAs) that require the contractors to provide a service at a performance level that meets or exceeds the specified performance objective(s). The Networx program uses both service-independent (i.e., apply to every service) and service-specific SLAs. Only one of the SLAs (billing accuracy) is monitored by GSA NSP. Although the SLAs are contractually between GSA and the contractor, all others SLAs are monitored by agencies. Agencies are supposed to receive individual monthly SLA performance reports for all of their services, while NSP receives aggregated reports by vendor. Agencies are responsible for identifying and reporting SLA violations and requesting credits from the vendors, while NSP is responsible for overall vendor management and support for unresolved issues escalated from the agencies. Agencies would prefer GSA to be more actively involved with tracking SLAs, but NSP has little visibility into agency SLA management activities and limited resources assigned to SLA enforcement.

Networx customers are finding it difficult to enforce the SLAs. They feel that the SLAs in Networx are an improvement from those in the FTS2001 contracts, but are still insufficient to allow for proper performance management. The onus to act upon SLAs was on the customer rather than the supplier. The terms and conditions of the contracts require that customers request SLA reports, credits, and explanations. If these are not requested, the suppliers are not obligated to provide them. In fact, the first request for credit from an agency came in January 2011, over three years after award of Networx. Unfortunately, many customers were not aware what actions were required.

Some customers consider the quality of service provided by Networx vendors to be low, and believe this to be a direct result of a lack of commitment and effort by NSP to enforce the contractual SLAs. Regional customers in

particular consider NSP the liaison between themselves and vendors, and express their frustrations about NSP's weak enforcement of contract requirements. Customers have noted that GSA can be unwilling to get sufficiently involved in disputes between suppliers and customers. In addition, customers would prefer higher levels of incentives and penalties to promote timely and efficient compliance. The SLAs as currently structured are not sufficient to incentivize performance.

Another common perception among customers and vendors is that the defined Networkx SLAs do not adequately address individual agency needs for customization. For example, law enforcement, emergency management and health and safety-related customers believe they lack access to unique SLAs that take the critical nature of their missions into consideration. Although Networkx SLAs are defined for both "routine" and "critical" levels of performance at levels agreed with the IMC, in practice these are being found inadequate. Vendors, while acknowledging agency desires for custom SLAs, report that such customization adds to their costs.

### **Recommendations**

TCS.6.1 Future service level agreements must be better defined and assign responsibility and accountability for performance with the suppliers.

TCS.6.2 Cost of measurement and enforceability must be considered when developing SLAs.

TCS.6.3 Future contracts should consider increased use of performance requirements with sufficient penalties at the base contract level rather than performance monitoring at only the order level.

TCS.6.4 GSA needs to better enforce vendor compliance in context of terms and conditions and area of assigned responsibility. GSA may want to consider assuming broader tracking and enforcement of SLAs and should use the performance information as part of past performance evaluation criteria in future acquisitions.

TCS.6.5 Although it would be tempting to discourage customization of SLAs as it raises the cost, GSA needs to anticipate that agencies involved in law enforcement, public safety, and healthcare may have different requirements. GSA needs to have mechanisms to accommodate these non-standard requirements quickly.

TCS.6.6 Where viable, GSA should consider enforcement of SLAs to be part of a customer service done on behalf of the agencies.

### **TCS.7 There is no single responsible party for customer service within the NSP**

Representatives from across GSA's Federal Acquisition Services often interact with NSP customers about requirements, existing orders and or issues. These include: GSA's Customer Accounts & Research (CAR) in Regions 1-11, Network Services Program personnel in Regions 1-11, Technology Service Managers, Program Managers and Contracting Officers from each NSP program—Networkx Enterprise, Universal, FCSA, Wireless FSSI, Connections-II, FedRelay, and program managers for other GSA programs outside of NSP, including IT Schedules, GWACs, and Strategic Programs like Cloud

Computing. Despite all of these programs, there is not a single individual responsible for specific agencies.

The situation can be particularly confusing when national and regional coordination is needed. The NSP regional telecommunications managers, the NSP technology service managers, the NSP contracting officers, the NSP program officials, and transition support officials can all independently contact an agency about NSP programs without a clear single point of responsibility for customer service. In one region, Networx does not have a point of contact for customer interaction and the Regional Office provides the day-to-day support for the customer. Sometimes, Regional Office programs provide help desk services to the customers when there is an issue, but in the majority of the regions, customers are instructed to call NSP when there is an issue rather than talking directly to the telecommunications vendors. These comments imply that national and regional operations and customer support services are not adequately integrated and coordinated. The inconsistent customer experiences that result lead to confusion and eventually will reduce customer satisfaction levels.

Within the more focused programs like Connections II or regional programs like WITS-3, there are program managers who have clear responsibility for both the customer service and supplier management. In Networx, the responsibility is divided within the program. As a result, customer service is muddled. Customers have complained about inconsistent messages between program managers and contracting officers. Because responsibility is shared between so many organizations, action can be uncoordinated and entire organizations can be neglected.

### **Recommendation**

TCS.7.1 GSA should improve customer account management, including developing a concept of operations defining specific roles and responsibilities for managing customer relationships and clearly define who has responsibility for customer satisfaction, regardless of Network Service acquisition, being used.

TCS.7.2 Every program should have a program manager.

## **3.3 Operational Efficiency (OE)**

The following Lessons learned are associated with the Operational Efficiency theme.

### **OE.1 Organization alignment of the regional and national programs could be improved to facilitate portfolio management and enhance customer service**

The Network Services National and Regional programs work on the basis of cost recovery. However, the fees associated with cost recovery are not formally shared between the two program groups; they each have separate Profit and Loss (P&L) statements. For example, the fees collected from the Networx contracts are not shared with the regional program, nor are the fees collected from each of the regional contracts shared with the national program. So, in many cases there is no incentive beyond goodwill and public stewardship for the Regional program to promote or support a national

contract like Networx, and vice versa. There may even be a disincentive for cross-program support where the service set and customer base overlaps, as is the case with some Networx and WITS-3 service offerings. However, despite these disincentives, both the national and regional personnel supporting the FTS2001 to Networx transition worked in a cooperative and concerted manner to serve customers' needs. There are nearly 200 full time employees across all 11 GSA regions, who are dedicated to supporting the NSP and serving customers at the regional level. The NSP headquarters organization has an active, working relationship with the regional telecommunications directors. However, each regional telecommunications director reports within the management structure of each region. NSP headquarters has a team of less than 20 technology service managers located in northern Virginia dedicated to serving customers at the national level.

The transition from FTS2001 to Networx presented a situation requiring careful coordination between the National and Regional offices. From a Regional perspective, service installations and cutovers cannot be effectively managed (at the national level) without local involvement—these services require active local management of all stakeholders including agency equipment vendors, agency Departmental Account Representative (DAR), GSA contractors and GSA Public Building Services (PBS) if building access issues exist. The workload on Regions is extensive and includes reconciling inventories, Telecommunications Ordering and Pricing System (TOPS) entries, issuing purchase orders, disconnecting services, and resolving problems with carriers. Therefore transitions (when viewed from the Region's perspective) are not just a "paper transition" and can have a profound impact on the workload.

If the current service offerings and operational model remain unchanged, the NSP regional program runs the risk of becoming outdated. Most of the \$500M in annual business volume from this program comes from traditional voice communications. This equates to approximately 1.5 million "telephone lines," of which approximately 800,000 are in Region 11 (the National Capital Region). To provide these services, the regional program owns and maintains over 250 traditional private branch exchanges (PBX) that will become obsolete over the next 10 years. In addition, new technologies like VoIP will continue to replace the need for separate voice purchases. Without a plan for a new business model that does not incentivize the use of certain contracts, the national and regional programs will remain tied to their particular contracts. In addition, regionally-based solutions are being replaced with agency-developed national solutions, further making the regional program untenable. (Similarly, all of the major carriers are seeing revenue declines in their wireline business, especially voice, as VoIP and wireless access become more prevalent.) Currently, regional services are being provided on approximately 95 local service contracts that have been established by over 30 acquisition actions. This makes consolidation, volume based pricing, and ease of use across national enterprises difficult using regional contracts.

The impact of the current alignment on customer service has already been noted in the section about Tailored Customer Service. The NSP regional telecommunications managers, the NSP technology service managers, the NSP contracting officers, the NSP program officials, and transition support officials can all independently contact an agency about NSP programs without a clear single point of responsibility for customer service, which will inevitably adversely impact customer service.

Administration of current regional contracts is more expensive than comparable activities for WAN contracts. This is mostly due to lack of automation for administration of local service agreements and is further exacerbated due to large numbers of local services agreements with the same vendor.

## **Recommendations**

- OE.1.1 Ultimately, both the National and Regional Office programs must ensure that future contracts and support services satisfy agency mission requirements with excellent value. The NSP national and regional offices should cooperatively plan the future program portfolio that addresses the variable needs of agency headquarters and field units using an appropriate mix of national and regional contracts.
- OE.1.2 The regional business model, including service offerings, should be adjusted to account for changes in technology.
- OE.1.3 Any structural disincentives to collaboration, such as variable revenue recognition across NSP contracts, should be identified and addressed.
- OE.1.4 Proper incentives for NSP national and regional programs to work together should be formalized. This includes regions working with each other.
- OE.1.5 Clear definition of account ownership – who is the directly responsible individual – for each account’s satisfaction should be defined.

## **OE.2 Inconsistent practices within and across NSP programs should be standardized**

Lack of standard operating procedures across NSP Regional and National Office programs promotes inconsistent customer experiences. Furthermore, business processes are not fully documented or not necessarily followed where documented. Process documentation and standardization are prerequisites for process automation, which can enable operational efficiency.

Interviews with agency customers and managers produced widely varying responses in terms of the satisfaction expressed with contracts and services. While any large body of customers will likely have differing experiences depending on their individual situations, there has undoubtedly been an unevenness of approach. The wide variation in experiences and perceptions of NS programs implies a need for more centralized and standardized approach to outreach and customer relations, including both program and contracting elements.

Interviews reveal inconsistencies in customer service received from both the Regional Offices compared with the National Office. Customers think NSP Contracting Officers are not accountable or aligned correctly to NSP program management, which contributes to the confusion.

## **Recommendation**

OE.2.1 NSP should take a centralized and standardized approach for developing, documenting and implementing business processes for contract operations and management, transition management, and vendor relationship management.

## **OE.3 Inadequate processes for cross-program operations**

There is a need to update tools and business processes to fully recognize cross program initiatives so that the activities and results can be properly aligned with investments. This can be especially critical if a portfolio approach leveraging multiple existing contract vehicles (e.g. IT Schedule 70 and Alliant) is adopted. GSA's financial and procurement systems do not adequately address this need. For example, NSP does not have visibility to the portion of the FCSA business volume and services acquired through Schedule 70. This can lead to inability to accurately evaluate program effectiveness and can lead to suboptimal business decisions.

The NSP's plan to promote Regional use of the Networx contract provides another example of the limitations caused by GSA's accounting systems. In FY10, the NSP proposed to rebate the 7-percent Networx fee to the Regional Programs. However, the Office of the Controller advised that the accounting system could not implement the proposed fee rebate plan. In lieu of rebating the Networx fee, the NSP directed the National Programs to fund one fulltime equivalent employee (FTE) per Region for work related to technical marketing of Networx solutions. This resulted in a suboptimal arrangement that was harder to manage and likely less effective than the proposed fee rebate.

Improving the efficiency and effectiveness of GSA's programs require portfolio optimization, increased use of cross-program operations, visibility to accurate and timely data, and effective management and collaboration across various elements of the Agency. Therefore, the need for an enterprise financial system that can enable cross-program accounting is paramount.

## **Recommendation**

OE.3.1 GSA should enable its financial management system to better support portfolio and cross-program operations.

## **OE.4 Billing and Operations Support Systems (B/OSS) modernization can add efficiency**

The Billing and Operations Support Systems (B/OSS) for the NSP include EMORRIS, TOPS, NHC, and each Networx and WITS-3 vendor's Operations Support System (OSS). These systems have all been developed independently and without enterprise architecture. Such lack of organization-wide B/OSS integration can result not only in process inefficiencies, but also impede access to timely and accurate operational and business intelligence data.

Some systems have evolved over decades and are in need of significant modernization. System interfaces require manual operations, which take

extra effort, lengthen the process time, and can lead to data inaccuracy. These issues are particularly manifested at the Regional level where bills for local service contracts are almost all received as paper invoices. The Atlanta Financial Service Center (FSC) currently manually receives, processes, and manipulates invoice data for over 4000 paper invoices per month. Inventory validation and reconciliation (including error corrections and dispute resolution) to certify bill payment are a manual and recurring process, resulting in process inefficiencies, increased probability of error, and increased costs. The average processing cost per invoice for Atlanta is \$82.24, whereas the average processing cost per invoice in Kansas City, where invoices for the FTS2001 and Networx contracts are all received electronically and processed, is \$6.91.

Thus, there is a lot of improvement to be had by moving to a well-integrated and standardized electronic invoice submission and validation process. As an immediate measure, new local service agreements going forward contain a provision requiring electronic submission of invoices. To reduce the number of invoices, vendors may be encouraged to submit a single consolidated invoice per month.

For regional administration, inventory management (via TOPS) is critically important for requirements planning, billing, contractor monitoring, and wide area network (Networx) transition planning/execution; particularly, since inventory is managed locally. TOPS needs to be continually improved and maintained, as long as it is the primary ordering and billing system. The TOPS system needs significant improvement to make it more user-friendly. There are multiple tables in TOPS, for example, where the same information is entered manually, resulting in duplicating work and possible data integrity issues.

The regional programs also use the IT-Solutions Shop (ITSS) application to manage their project-related business. From a Regional perspective, demand for cabling projects between \$1K and \$100K is strong and requires contracting vehicles that are easy and quick to use at the local level. Procurements of this type are typically put through ITSS. At the present time, ITSS is not integrated with the GSA's financial management system, Pegasys. Such integration would better enable the Regional program managers to streamline procurement processes, improve responsiveness to customer needs, and allow for efficient and accurate electronic billing to customers.

Although EMORRIS, the billing system for Networx, is more modern and automated than TOPS, it does not provide the functionality of processing service orders. That functionality is provided by each Networx vendor's Operations Support System (OSS). These vendors have claimed that extensive OSS requirements require significant investments and restrict their ability to leverage individual vendor commercial practices and tools. An overview of the OSS impact on the FTS2001 to Networx transition can be found in Appendix C, which provides an overview of findings related to Networx operations.

Traditional telecommunications providers have spent years and hundreds of millions of dollars to develop OSS systems and processes. These providers state that many of their commercial clients require customization, reporting, and security requirements at par or higher than those of Federal customers, and they believe it would be logical and efficient for them to leverage

investments in existing systems and technology. These providers believe they were not able to leverage existing OSS systems fully, and were required to create new tools and systems for Networkx customers, incurring additional effort and investment.

Vendors state that their inability to utilize the industry-proven commercial systems directly affected complexity of vendor tools and cost of service. Similarly, vendor representatives highlight difficulty in obtaining support from their leadership to approve another large investment in future OSS systems without a sufficient revenue guarantee. The scale of OSS requirements acts as a barrier to entry for smaller telecommunications providers and telecommunications providers with niche products and services. Many smaller telecommunications providers do not have the funding flexibility or technical means to invest in the development of OSS systems to satisfy Networkx requirements.

However, at the same time, incumbent vendors also state that they encourage NSP to avoid migrating too far from the current OSS due to the large investments already made. Thus it appears that incumbents would be comfortable with either commercial equivalent OSS or a continuation of current Networkx OSS.

Vendors stated at the 2011 ITS Network Services Conference that they are tasked with meeting a myriad of customization needs at each agency, requiring additional investment, time, and resources to satisfy. It is important to note that the vendors have all expressed a willingness to tailor systems to meet emerging customization requests.

While it is true that NSP has required development of OSSs that were different from commercial norms, the Government has legal, regulatory and other requirements that are different from those of commercial entities. The vendors imply that there are significant savings to be realized with little loss of functionality if NSP were to base its OSS approach on commercial practice, but the validity of any claims that commercial OSSs are capable of effectively meeting both essential and highly desirable Government requirements would need to be validated.

## **Recommendations**

- OE.4.1 NSP should collaborate with industry to identify ways to meet the operations and OSS requirements without excessive cost to either party.
- OE.4.2 NSP should consider defining standard interfaces using XML or similar protocols with vendor OSSs rather than levying extensive requirements on the vendor systems.
- OE.4.3 NSP should evaluate the feasibility of consolidating EMORRIS, TOPS and NHC functionality into fewer platforms.
- OE.4.4 The B/OSS environment should be architected to require FISMA certification and accreditation (C&A) of NSP systems, while minimizing any C&A requirement of vendor systems.
- OE.4.5 Promote or require electronic invoice submission and processing for local service agreements.

OE.4.6 Require consolidated monthly invoices for services rendered by the same provider.

## **OE.5 Contract development and acquisition durations were too long**

Over the course of the development of the Networx acquisitions, significant changes in the market affected the usefulness of the contract after award. The development of the Networx contract began in 2001 and the award of the contract was 6 years later in 2007. (Appendix D provides a timeline for the establishment of the Networx contracts.) Many things in the market changed during that six year period. First, customer networks changed and grew. Some agencies added large and complex networks in the last years of the FTS2001 contract. These agencies may have been reluctant to begin transition to a new contract after having spent considerable effort procuring the networks on FTS2001. Second, prices got lower as technologies matured and service provider infrastructure expanded with these new technologies. For example, in 2003 many suppliers did not yet have widely deployed fiber to customer locations. As a result, negotiated prices for high capacity services were done on an "individual case basis," unlike those of lower-priced, more commonly available services. Once agencies were ready to use these new services, contracts had to be modified to account for these price changes. And we can expect in the later years of this 10 year contract that the pricing mechanisms may change to more usage based models. Third, new technologies emerged. In 2001, fourth generation long term evolution (4GLTE) wireless networks didn't exist. By 2007, smart phones were becoming more common and GSA did not have an easy way to accommodate these technologies and associated pricing models into their existing portfolio of contracts.

GSA attempted to have a broad range of services on Networx. Over 50 services were initially defined by GSA and bid by the suppliers, but only six services account for over 80% of the business volume. Table 4 illustrates the predominance of these services. Approximately 17 of the service categories account for less than one percent of the business volume combined. Twelve services have not been used since the award of the Networx contract. Overall, approximately 55 percent of the services on Networx generate are either not used or used very sparingly. Contract development could have been quicker by not having to define and price so many services up front.

*Table 3-2: Most Common Service Categories used on the Networx Contract*

Service	FY08	FY09	FY10	FY11	Total Sales Since Award	Total Mix Since Award	Cumulative Total Service Mix
Network-Based IP VPN	\$ 1,030,099	\$ 19,842,851	\$ 160,744,527	\$ 328,553,526	\$ 510,171,002	47.5%	47.5%
Toll-Free	\$ 87,040	\$ 2,204,323	\$ 15,846,319	\$ 82,312,448	\$ 100,450,131	9.3%	56.8%
DTS/Private Line	\$ 218,317	\$ 5,159,459	\$ 30,289,428	\$ 63,085,188	\$ 98,752,392	9.2%	66.00%
Outbound	\$ 462,836	\$ 4,911,319	\$ 19,658,608	\$ 40,173,238	\$ 65,206,000	6.1%	72.06%
MNS (Managed Network Services)	\$ 52,547	\$ 1,962,023	\$ 8,973,289	\$ 35,843,104	\$ 46,830,964	4.4%	76.42%
IPS	\$ 362,652	\$ 3,254,819	\$ 13,391,282	\$ 23,182,032	\$ 40,190,785	3.7%	80.16%

Connections-II (CNX-II) and the Future COMSATCOM Services Acquisition (FCSA) took a different approach. Unlike its predecessor (Connections), CNX-II does not have a mandatory equipment requirement. Vendor equipment catalogs are based on task order activity. This is expected to reduce the administrative cost and time for both GSA and the vendors of putting customer premise equipment (CPE) that is never ordered on contract. FCSA's Custom SATCOM Solutions (CS2) and CS2-Small Business contract vehicles also do not have CLIN requirements for specific services and equipment. This way the government avoids needing to evaluate many items that would probably never be ordered.

FCSA also took a portfolio approach to meeting the Federal Government's commercial SATCOM needs. Rather than a single acquisition vehicle, like the omnibus nature of the Networx program, FCSA took what the Defense Information Systems Agency (DISA) called a "targeted acquisition" approach. FCSA is comprised of three service areas: Transponded Bandwidth; Subscription Services; and Custom Solutions. The Custom Solutions area was further divided into separate vehicles for full and open competition and small businesses. These service areas were consistent with the sales profile of GSA's previous satellite services program (SATCOM II) and DISA's market research. Each of these service areas addressed different customer needs and targeted a distinct vendor community. Two of the service areas—Transponded Bandwidth and Subscription Services—leveraged the existing Federal Supply Schedule 70 (Schedule 70) contract vehicle rather than creating new contracts. Through the coordinated use of different types of vehicles—ID/IQ and Federal Supply Schedules—FCSA took advantage of the benefits of each.

FCSA's portfolio approach not only helped NSP meet its customer's SATCOM needs, it also expedited acquisition and transition from DISA's expiring contracts. NSP and DISA were able to effectively segment and synchronize parallel acquisition efforts for each service area. Furthermore, they prioritized the Schedule 70 modifications and vendor evaluation in order to expedite those awards because the majority of the service on DISA's expiring contracts would transition to those service areas. As a result of this strategy and efforts, NSP and DISA were able to meet a very aggressive acquisition schedule.

Unlike CNX-II, FTS2001 and Networx, most Regional Local Services Agreement contracts are five years in duration. From the perspective of

Regional operations, short-term procurements represent a significant recurring effort and longer term contracts (i.e. 7 years) may be more cost-effective.

## Recommendations

- OE.5.1 GSA should consider adopting a portfolio approach by segmenting the breadth of IT communications services into multiple contract vehicles or functional areas. However, this must be balanced with the potential reduction in buying power and cost of administering multiple programs.
- OE.5.2 Existing contract vehicles should be leveraged where viable.
- OE.5.3 GSA should consider a smaller subset of networking services in the original solicitation, rather than attempting a complete portfolio of networking services.
- OE.5.4 GSA should accommodate changes in pricing, technologies, and agency use when developing systems, processes, and solicitations. For services that are pre-defined and pre-priced, a smaller, more focused, service requirement in the solicitation may take less time to develop and less time for suppliers to bid, whereas for services that are custom, a broader scope may be more effective (e.g. Alliant).
- OE.5.5 Since neither the carriers nor GSA can estimate price erosion or service adoption over 10 years, GSA should explore acquisition strategies to avoid negotiating 10 years of services.
- OE.5.6 GSA should explore ways to achieve appropriate base contract duration while still maintaining competition and the ability to adjust to changes in the market.
- OE.5.7 As part of future acquisition development, a break-even business volume analysis should be conducted prior to launching future programs.

## 3.4 Customer Partnership (CP)

The following lessons learned are associated with the Customer Partnership theme.

### CP.1 NSP needs a stronger and more effective shared governance approach

The alignment between NSP, OMB, and agencies (e.g., the Federal CIO Council) needs to be strengthened. The overwhelming perception among agency customers (See Appendix E) is that the level of attention devoted by Government managers to telecommunications has been declining, particularly at the Chief Information Officer (CIO) level. This has adversely affected the progress of the FTS2001-to-Networx transition and the rate of adoption of newer services on Networx. The governance of the NSP was at too low a level to affect change within agencies. The average member of the Interagency Management Council (IMC) is not a member of the Senior Executive Service and the IMC did not have authority to represent agency CIOs. Furthermore, the IMC members were not organizationally aligned to or

even communicating with agency financial or acquisition organizations in many cases.

Customers and other stakeholders also perceive a need to achieve and maintain buy-in from OMB earlier in the NSP program planning process. Customers believe OMB was not adequately included in the development of the Networkx acquisition strategy, which prevented NSP from capturing buy-in as early as possible from key stakeholders. Customers and other stakeholders believe securing OMB support is essential to achieve consensus on program goals and requirements across agencies and to drive agencies to transition to new NSP contracts in the future.

This insufficient governance model directly contributed to FTS2001-Networkx transition delays. Adhering to strict guidance on contract scoping from the IMC did not work, nor did relying on the IMC to coordinate complex contracting or acquisition issues related to NSP programs.

## **Recommendations**

- CP.1.1 GSA's stakeholder outreach efforts should be extended and strengthened to increase the early involvement and buy-in of higher-level Federal managers such as CIOs and their immediate representatives, as well as OMB's Resource Management Office (RMO) and Office of E-Government & Information Technology.
- CP.1.2 GSA should establish an outreach and governance model that recognizes the perspectives of finance, acquisition, and information technology, and promotes coordination between senior executives in these organizations.
- CP.1.3 NSP should propose the integration of the IMC into the Federal Chief Information Officer Council (CIO Council), given the similar missions and synergies of the two governance boards. This will ensure top-level attention to infrastructure activities.

## **CP.2 GSA has existing customer relationships both regionally and nationally**

The NSP program has strong existing relationships with Federal Government agencies at multiple levels. Historically, relationships with top level Agency Executives had been maintained by the NSP. The strength of these relationships has varied with GSA executive focus. In the last year, a major initiative has been to strengthen GSA-Agency Executive relationships through focused meetings with top agencies where current operations such as transition and also future agency telecommunications and IT strategy are discussed. Executive engagement in 2011 and 2012 has been highly effective in supporting NSP's final transition activities with agencies. Working with OMB and agency executives, NSP is successfully completing transition. Had stronger executive relationships been in effect throughout the Networkx contract, transition may have progressed more quickly. Executive meetings are leading the way to improved account management and better alignment of GSA services to Agency needs.

The day-to-day operations and tactical support and GSA's communications interface is through assigned Technology Service Managers (TSMs) at the

national level and Area Telecommunications Managers (ATMs) at the regional level dispersed across the United States. TSMs support most Federal agencies, encompassing over 200 distinct customers. ATMs deal directly with all aspects of customer telecommunications requirements and other related needs. Both TSMs and ATMs have developed strong customer relationships in most cases.

### **Recommendations**

- CP.2.1 Existing customer relationships should continue with a focus on account ownership and with defined roles and responsibilities.
- CP.2.2 NSP should continue building Executive level relationships with its clients, and continue to expand the focus to encompass smaller agencies through a planned account strategy.
- CP.2.3 NSP should continue to work across GSA to implement improved account management tools and techniques that better integrate National and Regional account management. Expanded insight into customer operations, needs, and plans will allow better integration of the portfolio of GSA offerings.

### **CP.3 GSA's more specialized programs have strong partnerships with key agencies and communities**

GSA has more specialized programs that are held in high regard overall by GSA's customers. These include the Future Commercial Satellite Communications (COMSATCOM) Services Acquisition (FCSA) for satellite communications, FedRelay for services for the hearing impaired, the forthcoming Wireless Federal Strategic Sourcing Initiative (FSSI) and Wireless Telecommunications and Expense Management Services (TEMS) for wireless services, and Connections-II (CNX-II) for customer premise networking services. Although more focused and smaller than Networx, all of these programs are still important and some are potentially large in terms of business volume.

The FCSA program offers several positive lessons learned related to customer partnership. Primary agency partners became members of the GSA acquisition team. DISA is the primary Government COMSATCOM customer, and other primary users such as Government Education and Training Network and Blue Force Tracking program offices were consulted for anticipated requirements. The contracting team was identified and engaged early and often. Primary user requirements were incorporated in the Statement of Works. Efforts were taken to learn how they buy services and how they will buy services in the future. Their priorities were identified, and they were invited to participate in evaluation teams where possible. No products (e.g., SOW, Acquisition Plan) were delivered to Contracting Officers for action without their prior participation in the process. As a result, those agency partners were instilled with a "sense of ownership" of the acquisition and resulting contracts. An Advisory Council including DISA decision makers was incorporated, and DISA has remained committed to the success of the program throughout acquisition and initial operational phases. The senior executive commitment brought forth a superior technical and program

management staff from both DoD and GSA teams and helped resolve many issues of key importance to program success.

FCSA incorporated a successful shared acquisition strategy with industry that included open presentations, website communications and updates, one-on-one meetings, and RFIs for feedback on certain topics. The program explored the possibility of Blanket Purchase Agreements (BPAs) for commonly purchased core items and incorporated the use of Multiple Award Schedules for “commodity-like” items. Creation and operation of a dedicated Schedule 70 contracting team was essential for program and pricing consistency. The industry generally responded positively to GSA-DISA partnership, stating the “decision to join forces makes sense.” Industry stakeholders were pleased by program adherence to program objectives and schedule. Consistency and fairness in acquisition operations overcame initial resistance to use of Schedules.

While it is too early to measure the success or capture lessons learned, the Wireless FSSI program is following a similar model. The Wireless FSSI program is establishing a Blanket Purchase Agreement (BPA) using IT Schedule 70. The BPA requirements were drafted collaboratively with several other agencies, including DHS, USDA and DOJ, and the source selection teams also include members from these agencies. Early indications are that this will foster a similar “sense of ownership” and adoption as with FCSA.

Like Networx, each of these programs was developed with key customers. Unlike Networx, there is a single program manager responsible for the success of the program. The Networx program has a group responsible for performance of the suppliers under one manager, a group responsible for new services and pricing under another, and a group responsible for relationships with the customers under a third manager. By default, the program manager for Networx ends up being the senior executive responsible for the NSP. Conversely, the responsibility for the Future Commercial Satellite Acquisitions (FCSA) falls under a single program manager. This person is responsible for all supplier and customer relationships as well as the overall success of the program. Furthermore, although this program is available to all agencies, it was developed with key customers who strongly influenced the program structure. Conversely, Networx requirements and program structure were developed in conjunction with the IMC participating agencies. As previously depicted in Table 2, a few large agencies comprise most of the sales volume.

## **Recommendations**

CP.3.1 The business model of defined partnerships with key user communities and clear program ownership should be continued.

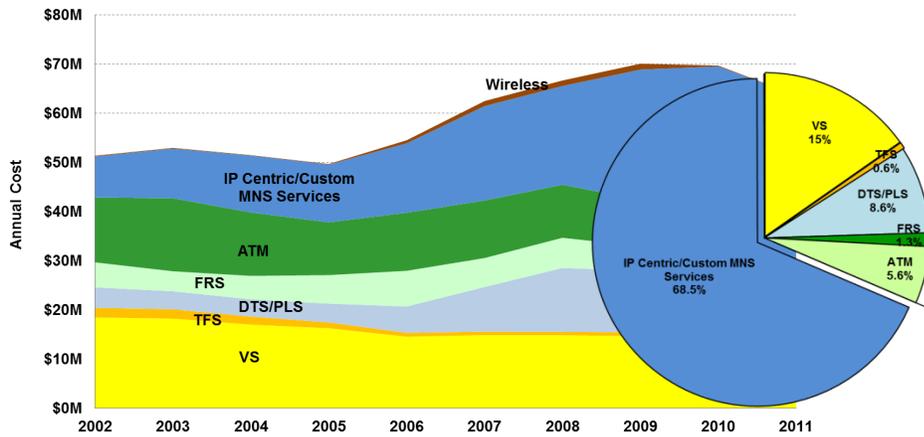
CP.3.2 GSA to consider assigning a Program Manager for each Program.

## **CP.4 GSA systems, processes, and data on agency buying patterns aids better decisions**

Unlike many acquisitions, GSA’s NSP programs have detailed sales information for each agency. NSP collects and monitors data on related agency service transactions, which provides executives with accurate and up-to-date business intelligence to assess the effectiveness of their initiatives. For example, the success of an initiative to consolidate voice and data could

be judged based on declines in voice services acquired. An agency's overall bandwidth demand could similarly be estimated. Figure 9 and Figure 10 provide examples of the data analysis enabled by these capabilities. From GSA's perspective, these systems and processes allow the success of an offering to be gauged. The NSP can determine if a new offering is being used by agencies and can determine trends in Federal telecommunications services. For example, because of GSA's detailed sales information, we know the traditional long distance services have a compound annual growth rate of -12.1%. This sort of data can enable GSA to adjust future offerings based on trends in the market. A similar capability exists for the Regional Programs; however, it is less developed because of the older TOPS system architecture and lack of data standardization across Local Service Agreements (LSAs).

### Modernizing the Way Your Agency Communicates

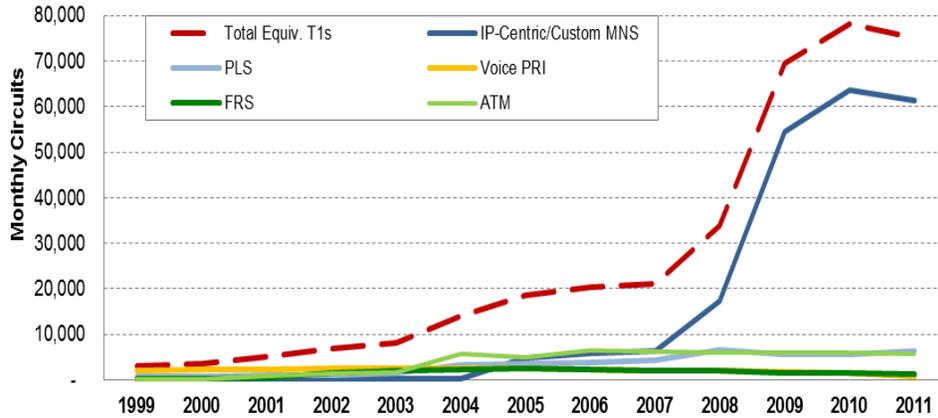


Between 2002 and 2011 there has been a clear shift from Legacy to IP-centric services

IP-centric services now account for **68.5%** of the total service cost distribution, with continued growth expected

Figure 9: Purchase patterns of major agency

Meeting Higher Bandwidth Demands  
Traffic Volume in Terms of Equivalent T1



Migration from Low to High Speed  
Transport Circuits and Data Services Volume Summary by Bandwidth

Bandwidth	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
< T1	3,509	3,783	4,383	3,379	3,850	3,162	3,209	2,489	2,247	2,040	1,755	1,573	1,170
T1	2,844	3,174	3,728	4,182	4,582	5,021	5,989	5,811	5,938	6,396	5,881	7,294	6,438
FT3/T3	-	-	29	82	117	178	318	352	377	725	761	887	717
OC-3	-	-	1	1	2	4	11	23	27	75	70	84	64
OC-12	-	-	-	-	-	9	9	9	9	18	21	22	24
OC-48	-	-	-	-	-	-	-	-	-	-	2	2	2
OC-192	-	-	-	-	-	-	-	-	-	-	5	5	5
1Gb	-	-	-	-	-	-	-	-	-	-	-	2	2

**31%** average traffic growth since 1999

Modernization requires new applications, which in turn create increased demand on bandwidth for the agency

Figure 10: Increasing data bandwidth demands of major agency

**Recommendation**

CP.4.1 The systems and processes to collect and analyze business volume and types of services purchased should continue and be enhanced. In particular, system enhancements and cross-program standardization would offer an opportunity to improve the data analytic capabilities of the Regional Program.

## 3.5 Aggregated Requirements (AR)

The following Lessons learned are associated with the Aggregate Requirements theme.

### AR.1 Competitive pricing remains a program strength

Networkx provides services at competitive prices. Pricing available on the Networkx contract vehicle is considered highly competitive, aggressive, and better than what agencies can achieve individually and generally better than prices available to even the largest commercial customers. The primary goal for NSP in delivering services through the Networkx contracts has been to negotiate the lowest possible prices available for its customers. Customers acknowledge that they cannot achieve equal prices through individual negotiations. This success is largely attributable to NSP's ability to aggregate Government-wide traffic and negotiate prices, via competition, with a community of telecommunications providers. This FTS2000/FTS2001/Networkx strategy of aggregating Government business volumes to achieve effective competition and low prices has been highly effective.

Although the oligarchic nature of the telecommunications industry, particularly in respect of wide-area telecommunications, might be expected to reduce vigorous competition, repeated experience has shown that acquisition strategies can be crafted that result in very low prices and state-of-the-art services. The core element of these strategies has been the recognition that telecommunications is an industry with high fixed costs (facilities), low variable costs, and significant economies of scale. For example, a fiber optic line can carry much more traffic than a copper line, but it is not much more expensive to install and operate. Additionally, the marginal cost of carrying additional traffic is close to zero if spare capacity exists. The economies of scale can be harnessed by offering large volumes of business. In the case of the Networkx program and its predecessors, successes have been based on vigorous outreach to user communities to determine their needs and preferences and to assemble very large committed volumes, together with careful examination of industry dynamics and motivations, deep understanding of the technologies involved, and painstaking analysis of the likely effectiveness of various alternate acquisition strategies. These successes are illustrated in the following paragraphs.

Concurrent with increases in traffic, contract prices were reduced in both the FTS2001 contract (1999) and in the follow-on Networkx contract (2007) negotiations, enabling the Government to be in the position to purchase additional bandwidth without significantly impacting its overall costs. Shown in Figure 11 are the price reductions negotiated for the FTS2001 contract (left graph; compared to its predecessor FTS2000) and the Networkx contract (right graph; compared to its predecessor FTS2001). The overall price decrease for FTS2001 vs. FTS2000 reached 75% before leveling off during the bridge contract years FY2007 – FY2012. The overall price decrease for Networkx vs. FTS2001 is 38% in its 1st year (FY2008) with continual decreases reaching 49% total decrease by FY2017.

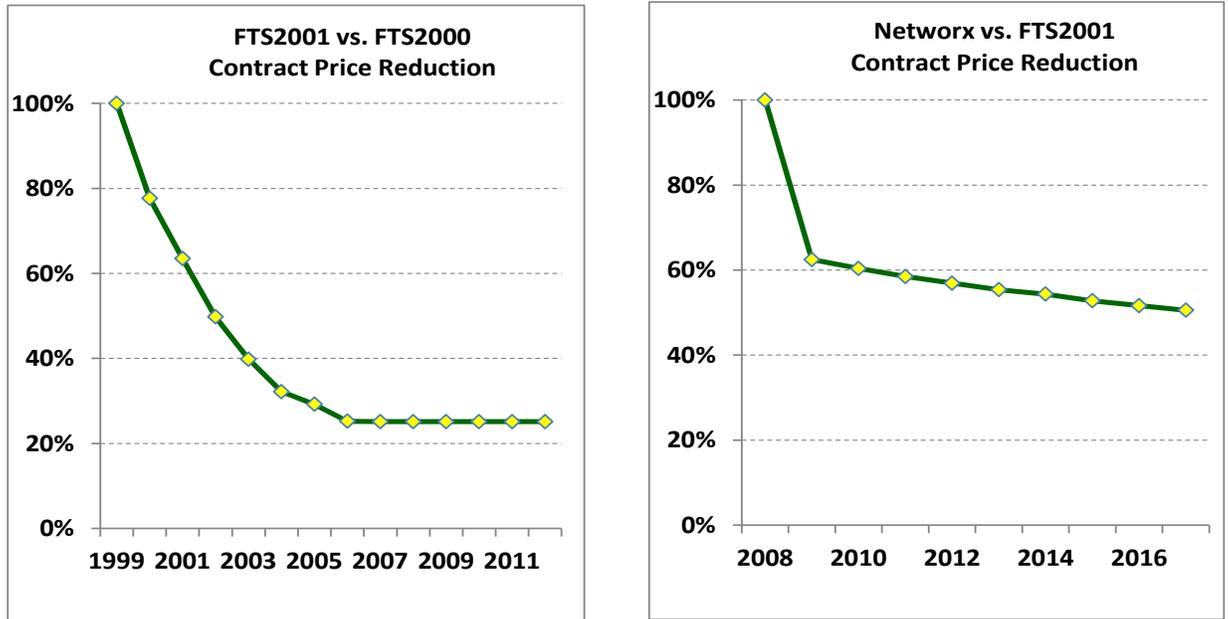


Figure 11: Overall Price Reductions-FTS2001/FTS2000 (left); FTS2001/Networx (right)

Note that the price change data in Figure 11 is based upon calculation of contract prices against a representative traffic set.

A comparison of prices for selected services and bandwidths within services is shown in Table 5. Price reductions for legacy services have been relatively less and price reductions for core IP services such as the MPLS Network Based IP Virtual Private Network Service have been relatively more.

Table 3-3: Unit Price Comparison, Selected Prices – Networx vs. FTS2001

Service	Unit	FY11 FTS2001 Price	FY11 Networx Price	Change Nx/FTS
Voice-Long Distance	Per minute	\$0.0134	\$0.0100	(25)%
Voice-Toll Free	Per minute	\$0.0133	\$0.0109	(19)%
Private Line	T1 circuit	\$477	\$424	(11)%
	T3 circuit	\$6,893	\$4,147	(40)%
ATM	T1 port	\$454	\$226	(50)%
	T3 port	\$1,409	\$1,372	(3)%
FRS	T1 port	\$289	\$197	(32)%
	T3 port	\$3,929	\$1,864	(53)%
IPS	T1 port	\$293	\$190	(35)%
	T3 port	\$6,026	\$1,731	(71)%
MNS/NBIP-VPN	OC-3c circuit	\$9,309	\$4,712	(49)%
	OC-12c circuit	\$21,379	\$11,847	(45)%
	T1 circuit	\$414	\$191	(54)%
	T3 circuit	\$6,408	\$1,747	(73)%

Figure 12 contains a comparison of prices for the FTS2001, Network Universal, and Network Enterprise contracts to estimated best commercial prices in recent years. Representative commercial prices are derived by selecting the best prices among publicly available prices from commercial tariffs, contract options, and industry sources.

The comparison to commercial prices demonstrates that agency users of the FTS/Network contracts continue to pay significantly less for telecommunications and networking services than large commercial enterprises because of the government-wide sourcing approach reflected in those programs. Future year prices for the Network contracts reflect those already established in the contracts. These prices cannot rise but the Program’s experience to date indicates a high likelihood that additional price reductions will continue to be incorporated by contract modification in future years.

**Cumulative Program Cost Avoidance vs. Best Commercial Rates**

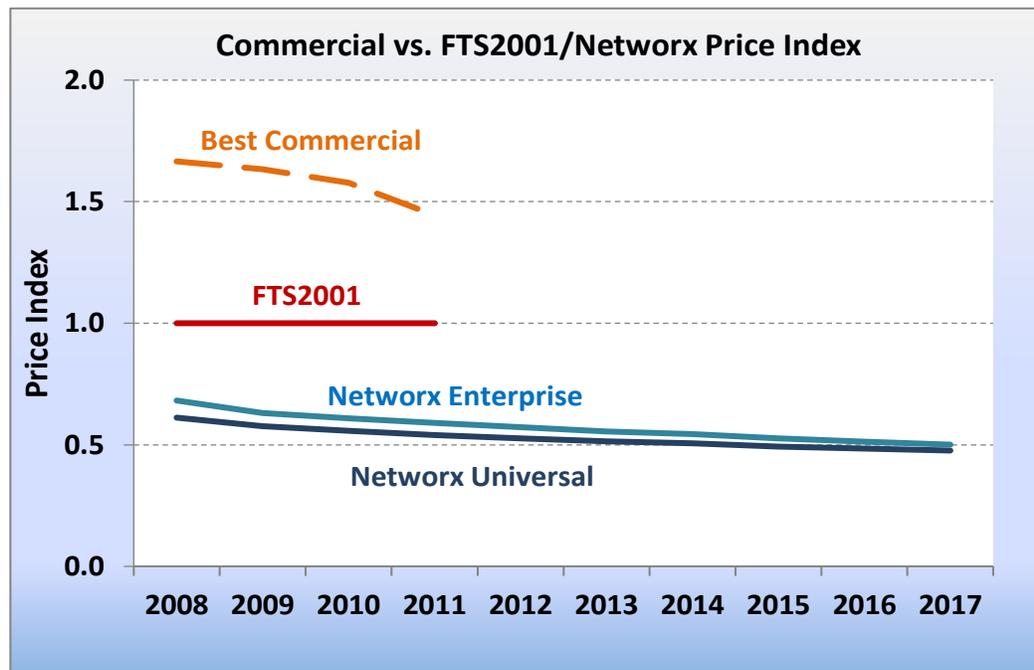


Figure 12: Comparison of FTS2001/Network Prices to Best Commercial Prices

Cost avoidance for the Network Services program is the estimated amount of costs avoided by agencies as a result of purchasing their telecommunications services through the FTS/Network contracts instead of through individually negotiated commercial contracts offered by telecom service providers.

As shown in Figure 13, over the period from FY2002 through FY2012, the Network Services program will have amassed an estimated \$7.0B in cost avoidance.

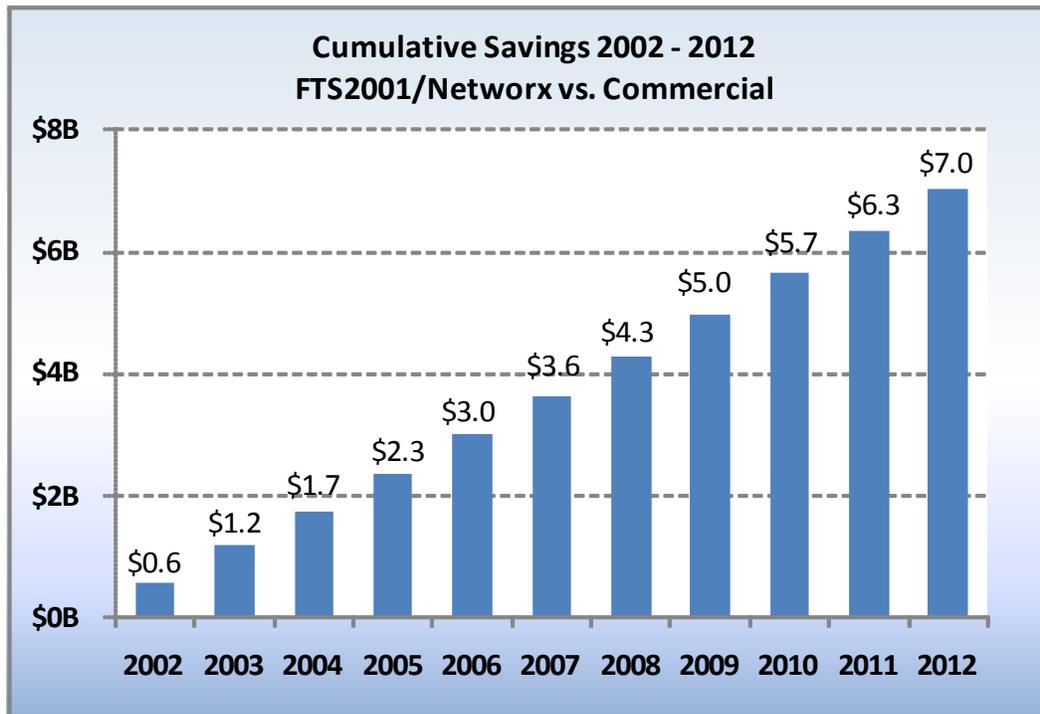


Figure 13: Program Cost Avoidance vs. Best Commercial Rates

Cost avoidance is calculated by comparing the sum of the product of best commercial prices times a representative traffic set to the sum of the product of Network Services contract prices times the same representative traffic set for any given fiscal year.

Competitive pricing can only be obtained through effective competitions between the leading companies in the marketplace. There are two implications stemming from this. First, effective competition requires a high level of committed agency support, in terms of offering the large traffic volumes required to motivate the providers. Future agency support will depend on a strong outreach effort in the strategy and requirements development process and on customer satisfaction levels with NSP's current services. Second, the nature of the telecommunications marketplace is changing, and new providers of traditional and new services are entering, especially in value-added services areas such as cloud services.

### Recommendations

- AR.1.1 NSP should endeavor to maintain its position as the market leader in competitive pricing for network services purchased by the Government.
- AR.1.2 NSP should seek to secure a high level of agency commitment in order to aggregate the government's buying power.
- AR.1.3 NSP should be prepared to craft acquisition vehicles and strategies that will entice these new providers to enter strongly into competition with the old-line telecom providers. Since most of the new entrants

are higher up the value-added chain, NSP should include a strong portfolio of value-added offerings going forward.

**AR.2 GSA has existing systems and methods to successfully promote price competition**

On the Networkx program, GSA makes the current year pricing, by contract line number, available publicly. Suppliers can see what their competition is charging by line number. This appears to lower pricing on common services. For example, one of the faster growing services for synchronous optical networking, OC-3, has shown dramatic, continuous price improvement over a four year period. As illustrated in Figure 14, high priced suppliers lowered their monthly per port pricing from approximately \$12,000 to less than half that original offer.

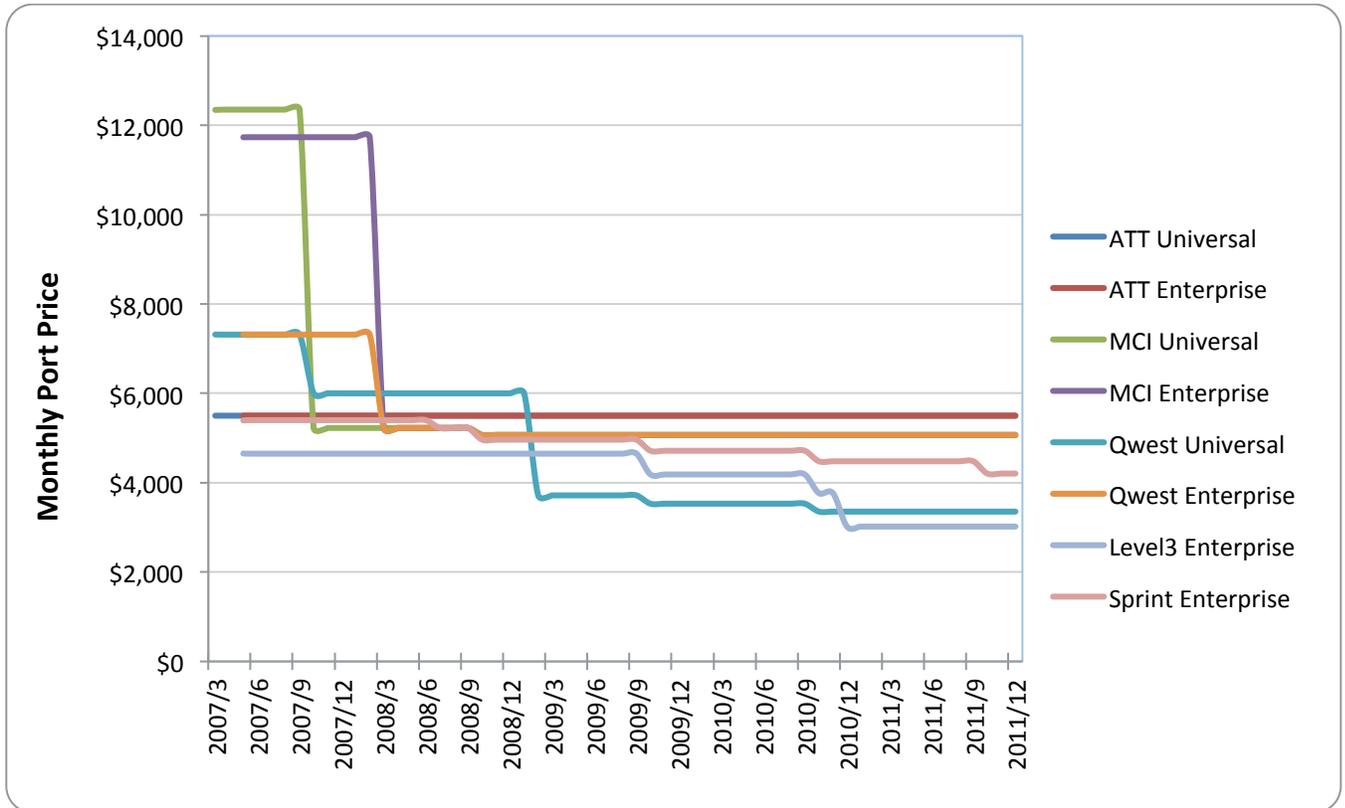


Figure 14: Optical Carrier Level 3 (OC-3) port drop from Mar 2007 to Dec 2011

The Networkx Pricer is the tool that provides the aforementioned price transparency. NSP developed the Networkx Pricer tool to allow customers to review and compare prices for Networkx services across all vendors. It is hosted by NSP at the Network Services Hosting Center (NHC), and contains a database of all past, present, and committed future prices for all CLINs for all vendors, together with a user interface. There is a private version of the tool, available only to Government staff and support contractors who have been

cleared for access, that provides pricing across all contract years. There is also a public version that provides only current year pricing.

### **Recommendation**

AR.2.1 NSP should continue to provide easy access to available price information tends to promote competition and lower the price of services for government.

## **AR.3 Standardization of government requirements places limits on service providers**

Telecommunications vendors state the inability to differentiate Networkx package offerings does not accommodate individual vendor strengths and service nuances. They state their discontent with NSP's practice of restricting differentiation in the service package offerings based on individual pricing strategies, business models, and core competencies. They believe that NSP's desire to achieve a like-to-like comparison of telecommunications vendors and services offered hinders their individual pricing and offering strengths. Additionally, they state that the contract structure does not allow telecommunications vendors to offer full-service solutions that meet the needs of agencies easily.

During the 2011 ITS Network Services Conference at the GSA Expo one of the Networkx carrier partners stated that forcing the telecommunications vendors to push their services into like-for-like offerings is in direct conflict with allowing them to package and provide services using commercial practices and models. The vendor continued to share, while gaining support from other vendor representatives, that the "Big Five" (Verizon, AT&T, Sprint, Level 3, and CenturyLink) all do business differently and have different strengths, cost structures, and abilities.

Additionally, telecommunications vendors state that by requiring the telecommunications vendors to provide offerings that are outside of the company's skill sets in order to meet the Networkx requirements, NSP is actually causing an increased price for services. This is because when the "Big Five" lack the competencies to meet a requirement they purchase those competencies from a smaller provider and pass the added cost to the customers. For instance, under Networkx a vendor that does not own the infrastructure needed to access a location is forced to acquire the access from a company that is most likely a competitor. This problem is particularly acute for the Networkx Enterprise vendors with more limited physical presence in the "last mile" markets. However, since the current Networkx vendors have already invested heavily in Networkx, most also express that they are likely to offer an expanded array of offerings through the Networkx follow-on contracts to meet growing customer demand.

This finding highlights the inherent potential for differences between what the government wants to buy (requirements) and what industry wants to sell (branded offerings). Providers naturally wish to showcase their strengths, and in the commercial marketplace they use product and pricing differentiation to gain competitive advantages. Standardization of government requirements limits providers' abilities to leverage these practices, and does not accommodate the highlighting of individual provider

strengths and service nuances. However, these limitations should be balanced against the following offsetting advantages for the Government, which are most applicable for mature—rather than emerging—services:

- Allows easy and more defensible comparison of vendors under Fair Opportunity
- Makes it difficult for vendors to lock customers in by encouraging them to commit to unique, non-standard characteristics of the vendor's offering
- Facilitates greater use of shared services across government with corresponding economies
- Allows agencies to procure comprehensive solutions through a single contract

In addition, it is not clear that separate purchase from smaller providers where the "Big Five" lack the competency would be cheaper for the Government, given the additional contract management and coordination effort involved, and the need for the government to provide or procure integration expertise to combine disparate parts from multiple sources into a single solution.

## **Recommendations**

AR.3.1 GSA should remain aware of the service providers' perspectives and communicate with Industry during formulation of the NS2020 strategy.

AR.3.2 To decrease overall acquisition costs and maximize utilization of advanced and efficient technologies, GSA should first consider procuring services similar to what the carriers offer to their commercial customers and minimize required changes. However, this should not preclude the ability to enable like-for-like price comparisons.

## 4 Conclusion and Recommendations

The Network Services Program provides valuable services to Federal agencies and provides an efficient distribution channel for telecommunications and network service providers. However, the effectiveness of the Network Services Program has been questioned by some due to the complexity of the program as well as the extended length of and challenges associated with transition from FTS2001. These acquisitions have been too complex to use, too inflexible to accommodate rapid change, and lacked the tools necessary to ensure high levels of customer satisfaction. The inherent complexity of the acquisition delayed contract award and significantly delayed transition from the legacy FTS2001 contract. GSA needs to ensure that future acquisitions, service delivery models, customer engagement efforts, and support systems balance the need for pricing that reflects the buying power of government with ease of access to the desired Network Services.

Despite its shortcomings, the creation of Networx and agency transition from FTS2001 was a major accomplishment. Networx revenue is estimated to be \$1.3B in FY2012, of which \$800M will be technologically advanced IP-centric services. Networx prices are more than 50% lower than commercial rates. It is estimated that over the period FY2002 through FT2012, the Network Services program will have amassed an estimated \$7.0B in cost avoidance through reduction of overall government acquisition duplication and leveraging shared services and significant economies of scale and skill.

This Lessons Learned document provides valuable account of program background, implementation methodology, key issues, discussions, and stakeholders' recommendations and observations from GSA customers, vendors, management, and staff. It identifies and categorizes target improvement areas, and provides recommendations on how GSA can further improve its present and future service offerings. Furthermore, this document is a key contributor to GSA's strategy development process. It will form the basis for follow-on NS2020 strategy documents. Those upcoming strategy documents are intended to provide a comprehensive plan for future programs and service offerings that leverage the insight and knowledge gained from the lessons learned analysis and help GSA through its continuous strive for improvement and development of the future portfolio of service offerings that can support client needs against rapidly changing technology market and challenging budgetary restrictions.

The following table provides a listing of the key recommendations detailed in this document:

*Table 4-1: List of Recommendations per Strategic Theme*

Theme	Rec. Code	Recommendation
Acquisition Efficiency	AE.1.1	The ability for agencies to buy comprehensive network solutions from a single source (GSA) should remain an important one in planning for NS2020
Acquisition Efficiency	AE.1.2	Contracts should have broad enough scopes to account for changes in technology and pricing methods

Theme	Rec. Code	Recommendation
Acquisition Efficiency	AE.1.3	The range of NSP Regional Offices services offered should be broadened in order to better fulfill customers' needs and to move on from the current business model
Acquisition Efficiency	AE.1.4	The NS2020 portfolio of service offerings should facilitate customers' adoption of emerging technology trends, such as the proliferation of cloud services and wireless network access
Acquisition Efficiency	AE.1.5	Enable access to solutions through the entire ITS portfolio of services and capabilities
Acquisition Efficiency	AE.1.6	Establish an integrated portfolio of contract vehicles to serve the full range of agency needs
Acquisition Efficiency	AE.1.7	Establish complementary contracts matching agency buying patterns to market segments
Acquisition Efficiency	AE.2.1	The practice of delivering built-in compliance with relevant government policies, mandates and directives should be continued and expanded to include emerging requirements, such as those related to Green IT and "cloud first" IT acquisition.
Acquisition Efficiency	AE.2.2	Since some of these Federal policies may constitute government-specific requirements for telecommunications and converged IT networking services and solutions, future service offerings should be pre-negotiated to ensure compliance with such requirements.
Acquisition Efficiency	AE.2.3	Cloud services, such as Infrastructure-as-a-Service, which offers tremendous potential for Green IT benefits and on-demand services, should be considered as a particularly good fit for NSP programs.
Acquisition Efficiency	AE.3.1	The Federal communications market is largely inelastic, and good pricing is insufficient to realize cost saving or to incent transition. Therefore, ease of use and speed of purchase must be considered in future acquisitions.
Acquisition Efficiency	AE.3.2	GSA's award of an overall contract followed by agency award of individual "Fair Opportunity" decisions may have delayed transition. GSA should consider making Fair Opportunity decisions for some agencies as part of the original award.
Acquisition Efficiency	AE.3.3	GSA should directly involve its major customers with requirements development and vendor evaluation.
Acquisition Efficiency	AE.3.4	Simplicity in contract structure, pricing, communication will speed transition.
Acquisition Efficiency	AE.3.5	GSA must execute their own transition as an example to other agencies.
Acquisition Efficiency	AE.3.6	GSA should expect to perform FO process for Micro agencies.
Acquisition Efficiency	AE.3.7	GSA should minimize the FO process delays in the future by developing easy-to-understand and easy-to-price portfolio of services for the agencies to use.

Theme	Rec. Code	Recommendation
Acquisition Efficiency	AE.3.8	GSA should explore with agencies ways to stagger or phase transition.
Acquisition Efficiency	AE.3.9	Consideration should be given to transitioning long-lead items and those representing the greatest savings first.
Acquisition Efficiency	AE.3.10	GSA should facilitate effective and proactive communications and planning between customers and service providers.
Acquisition Efficiency	AE.3.11	To prepare for transition, GSA should proactively prepare GSA switches, including grooming and ordering excess trunk line capacity where needed and possible.
Acquisition Efficiency	AE.4.1	GSA should simplify contract requirements and CLIN structures where possible.
Acquisition Efficiency	AE.4.2	GSA should strengthen support for customers, including appropriate outreach and training.
Acquisition Efficiency	AE.4.3	GSA should develop more user-friendly automated tools to support service planning, ordering, and implementation.
Acquisition Efficiency	AE.4.4	GSA must develop contracts that match the abilities, skills and traits of the program managers and contracting officers within the agencies.
Acquisition Efficiency	AE.4.5	GSA should focus on contract terms and service definition stability to limit the user learning curve and improve the transition ease for customer agencies.
Acquisition Efficiency	AE.4.6	GSA should consider evaluating Flat Rate Pricing within its portfolio of services.
Acquisition Efficiency	AE.4.7	GSA to consider inclusion of POTS type contract vehicle with readymade/priced solutions that can be ordered and delivered quickly.
Acquisition Efficiency	AE.5.1	The means should be found to increase contracting flexibility while maintaining other program strengths, and any tradeoffs should be identified and resolved with stakeholder input.
Acquisition Efficiency	AE.5.2	Future NSP contracts should facilitate an agency's use of customized statements of work within the scope of the broader contract rather than relying on a customer's ability to build a solution from pre-priced Contract Line Item Number (CLIN) tables.
Acquisition Efficiency	AE.6.1	The market conditions that drove the dual contract strategy no longer exist and the Universal/Enterprise construct should not be repeated.
Acquisition Efficiency	AE.6.2	GSA must differentiate between acquisitions capable of buying the same service. Fewer acquisitions for the same technology may be more effective for both GSA and agencies.
Acquisition Efficiency	AE.6.3	Since there may still be some instances where contract overlap is justified, the rationale should be clear, and contract offerings and services provided with the program need to be presented clearly to the customer.

Theme	Rec. Code	Recommendation
Acquisition Efficiency	AE.6.4	Before establishing new programs for the latest emerging technology or even more mature technologies, consideration should be given to how the technology could be purchased from existing contract vehicles. In some cases, customer education around a technology is sufficient to buy the technology, which is preferable to developing new acquisitions for every new technology.
Acquisition Efficiency	AE.7.1	Rigid structures may work well when lowering the price is of primary concern. But, given the inelasticity of the Federal communications market, the pace of technological change, and the inherent complexity of buying networks, future NSP contracts should accommodate price and technology changes that do not create bottlenecks for speedy customer purchases.
Acquisition Efficiency	AE.7.2	GSA should accommodate changes in pricing, technologies, and agency use when developing systems, processes, and solicitations. For services that are more mature and stable, pre-defined and pre-priced line items may be appropriate and used to effectively manage cost without sacrificing efficiency. Conversely, a broader scoped solicitation with less itemization may be more appropriate for emerging or custom services.
Acquisition Efficiency	AE.8.1	Billing and inventory management systems are a key component to any future acquisitions or initiatives and should be considered an integral part of the NS2020 strategy.
Acquisition Efficiency	AE.8.2	The development of support tools must take better account of the skills and knowledge of the intended users.
Acquisition Efficiency	AE.8.3	Tools development should include more attention to user interfaces and related aspects.
Acquisition Efficiency	AE.8.4	GSA and agencies should focus on the effective capture of inventory data over the life of the Networx program, and the approach of using Service Order Completion Notices (SOCNs) for this purpose should be verified and amended if needed.
Acquisition Efficiency	AE.8.5	GSA should consider establishing and operating a single Government ordering portal.
Acquisition Efficiency	AE.8.6	The expectation that customers will price complicated and customized networks via an online pricing tool is unrealistic; ordering tools should match buying habits.
Tailored Customer Service	TCS.1.1	GSA should anticipate agency customers to increasingly require NSP to: <ul style="list-style-type: none"> <li>o Provide significant support to facilitate transitions, and/or</li> <li>o Structure the contracts and transition processes to ease agency workloads</li> </ul>
Tailored Customer Service	TCS.1.2	GSA should provide a means for agencies to obtain third party acquisition assistance either directly through the NSP or through a partnership between NSP and other GSA service.

Theme	Rec. Code	Recommendation
Tailored Customer Service	TCS.2.1	Future NSP program initiatives must be explicitly developed and evaluated in light of the customer agencies' probable levels of telecommunications expertise.
Tailored Customer Service	TCS.3.1	Since better communication of and transparency into the value provided for the fees charged could improve customer satisfaction, NSP should develop clear and compelling explanations of its fee strategies and value propositions for regular communication to stakeholders.
Tailored Customer Service	TCS.4.1	GSA should carefully examine the Regional Office support model to determine which elements can be adopted more broadly throughout NSP without excessively raising costs. In particular, the viability of expanding this model to providing turn-key shared IT services should be considered.
Tailored Customer Service	TCS.5.1	Innovative approaches to minimize the FO impact to agency customers should be sought. Examples of approaches to be considered include GSA making some FO decisions during initial contract award and offering pre-awarded, "turn-key" services, which would be similar to many current regional operations.
Tailored Customer Service	TCS.5.2	GSA should anticipate customers to want more extensive and continuous support from NSP for complex FO decisions.
Tailored Customer Service	TCS.5.3	GSA should provide more proactive NSP responses to unexpected issues as they arise, not after they have already resulted in significant negative consequences.
Tailored Customer Service	TCS.5.4	GSA should strive for more effective collaboration among NSP program staff and COs, as well as more effective coordination with external stakeholders.
Tailored Customer Service	TCS.6.1	Future service level agreements must be better defined and assign responsibility and accountability for performance with the suppliers.
Tailored Customer Service	TCS.6.2	Cost of measurement and enforceability must be considered when developing SLAs.
Tailored Customer Service	TCS.6.3	Future contracts should consider increased use of performance requirements with sufficient penalties at the base contract level rather than performance monitoring at only the order level.
Tailored Customer Service	TCS.6.4	GSA needs to better enforce vendor compliance in context of terms and conditions and area of assigned responsibility. GSA may want to consider assuming broader tracking and enforcement of SLAs and should use the performance information as part of past performance evaluation criteria in future acquisitions.

Theme	Rec. Code	Recommendation
Tailored Customer Service	TCS.6.5	Although it would be tempting to discourage customization of SLAs as it raises the cost, GSA needs to anticipate that agencies involved in law enforcement, public safety, and healthcare may have different requirements. GSA needs to have mechanisms to accommodate these non-standard requirements quickly.
Tailored Customer Service	TCS.6.6	Where viable, GSA should consider enforcement of SLAs to be part of a customer service done on behalf of the agencies.
Tailored Customer Service	TCS.7.1	GSA should improve customer account management, including developing a concept of operations defining specific roles and responsibilities for managing customer relationships and clearly define who has responsibility for customer satisfaction, regardless of Network Service acquisition, being used.
Tailored Customer Service	TCS.7.2	Every program should have a program manager.
Operational Efficiency	OE.1.1	Ultimately, both the National and Regional Office programs must ensure that future contracts and support services satisfy agency mission requirements with excellent value. The NSP national and regional offices should cooperatively plan the future program portfolio that addresses the variable needs of agency headquarters and field units using an appropriate mix of national and regional contracts.
Operational Efficiency	OE.1.2	The regional business model, including service offerings, should be adjusted to account for changes in technology.
Operational Efficiency	OE.1.3	Any structural disincentives to collaboration, such as variable revenue recognition across NSP contracts, should be identified and addressed.
Operational Efficiency	OE.1.4	Proper incentives for NSP national and regional programs to work together should be formalized. This includes regions working with each other.
Operational Efficiency	OE.1.5	Clear definition of account ownership – who is the directly responsible individual – for each account’s satisfaction should be defined.
Operational Efficiency	OE.2.1	NSP should take a centralized and standardized approach for developing, documenting and implementing business processes for contract operations and management, transition management, and vendor relationship management.
Operational Efficiency	OE.3.1	GSA should enable its financial management system to better support portfolio and cross-program operations.
Operational Efficiency	OE.4.1	NSP should collaborate with industry to identify ways to meet the operations and OSS requirements without excessive cost to either party.
Operational Efficiency	OE.4.2	NSP should consider defining standard interfaces using XML or similar protocols with vendor OSSs rather than levying extensive requirements on the vendor systems.

Theme	Rec. Code	Recommendation
Operational Efficiency	OE.4.3	NSP should evaluate the feasibility of consolidating EMORRIS, TOPS and NHC functionality into fewer platforms.
Operational Efficiency	OE.4.4	The B/OSS environment should be architected to require FISMA certification and accreditation (C&A) of NSP systems, while minimizing any C&A requirement of vendor systems.
Operational Efficiency	OE.4.5	Promote or require electronic invoice submission and processing for local service agreements.
Operational Efficiency	OE.4.6	Require consolidated monthly invoices for services rendered by the same provider.
Operational Efficiency	OE.5.1	GSA should consider adopting a portfolio approach by segmenting the breadth of IT communications services into multiple contract vehicles or functional areas. However, this must be balanced with the potential reduction in buying power and cost of administering multiple programs.
Operational Efficiency	OE.5.2	Existing contract vehicles should be leveraged where viable.
Operational Efficiency	OE.5.3	GSA should consider a smaller subset of networking services in the original solicitation, rather than attempting a complete portfolio of networking services.
Operational Efficiency	OE.5.4	GSA should accommodate changes in pricing, technologies, and agency use when developing systems, processes, and solicitations. For services that are pre-defined and pre-priced, a smaller, more focused, service requirement in the solicitation may take less time to develop and less time for suppliers to bid, whereas for services that are custom, a broader scope may be more effective (e.g. Alliant).
Operational Efficiency	OE.5.5	Since neither the carriers nor GSA can estimate price erosion or service adoption over 10 years, GSA should explore acquisition strategies to avoid negotiating 10 years of services.
Operational Efficiency	OE.5.6	GSA should explore ways to achieve appropriate base contract duration while still maintaining competition and the ability to adjust to changes in the market.
Operational Efficiency	OE.5.7	As part of future acquisition development, a break-even business volume analysis should be conducted prior to launching future programs.
Customer Partnership	CP.1.1	GSA's stakeholder outreach efforts should be extended and strengthened to increase the early involvement and buy-in of higher-level Federal managers such as CIOs and their immediate representatives, as well as OMB's Resource Management Office (RMO) and Office of E-Government & Information Technology.
Customer Partnership	CP.1.2	GSA should establish an outreach and governance model that recognizes the perspectives of finance, acquisition, and information technology, and promotes coordination between senior executives in these organizations.

Theme	Rec. Code	Recommendation
Customer Partnership	CP.1.3	NSP should propose the integration of the IMC into the Federal Chief Information Officer Council (CIOC), given the similar missions and synergies of the two governance boards. This will ensure top-level attention to infrastructure activities.
Customer Partnership	CP.2.1	Existing customer relationships should continue with a focus on account ownership and with defined roles and responsibilities.
Customer Partnership	CP.2.2	NSP should continue building Executive level relationships with its clients, and continue to expand the focus to encompass smaller agencies through a planned account strategy.
Customer Partnership	CP.2.3	NSP should continue to work across GSA to implement improved account management tools and techniques that better integrate National and Regional account management. Expanded insight into customer operations, needs, and plans will allow better integration of the portfolio of GSA offerings.
Customer Partnership	CP.3.1	The business model of defined partnerships with key user communities and clear program ownership should be continued.
Customer Partnership	CP.3.2	GSA to consider assigning a Program Manager for each Program.
Customer Partnership	CP.4.1	The systems and processes to collect and analyze business volume and types of services purchased should continue and be enhanced. In particular, system enhancements and cross-program standardization would offer an opportunity to improve the data analytic capabilities of the Regional Program.
Aggregated Requirements	AR.1.1	NSP should endeavor to maintain its position as the market leader in competitive pricing for network services purchased by the Government.
Aggregated Requirements	AR.1.2	NSP should seek to secure a high level of agency commitment in order to aggregate the government's buying power.
Aggregated Requirements	AR.1.3	NSP should be prepared to craft acquisition vehicles and strategies that will entice these new providers to enter strongly into competition with the old-line telecom providers. Since most of the new entrants are higher up the value-added chain, NSP should include a strong portfolio of value-added offerings going forward.
Aggregated Requirements	AR.2.1	NSP should continue to provide easy access to available price information tends to promote competition and lower the price of services for government.
Aggregated Requirements	AR.3.1	GSA should remain aware of the service providers' perspectives and communicate with Industry during formulation of the NS2020 strategy.

Theme	Rec. Code	Recommendation
Aggregated Requirements	AR.3.2	To decrease overall acquisition costs and maximize utilization of advanced and efficient technologies, GSA should first consider procuring services similar to what the carriers offer to their commercial customers and minimize required changes. However, this should not preclude the ability to enable like-for-like price comparisons.

## 5 Appendices

### 5.1 Appendix A - Findings: Technology, Market, and Service Trends

The pace of change in the area of technology, markets, and services continues to accelerate. New technologies enable new services and disrupt established markets. To continue to serve its customers, GSA must be agile enough to stay current with these changes.

#### 5.1.1 Optical fiber and Ethernet are transforming network access

##### Description

High speed network access capabilities are becoming ubiquitous and use of Ethernet protocol over optical fiber connections is becoming the capability of choice for non-wireless broadband access.

##### Explanation

There are many technologies in use for network access, at speeds ranging from a few kilobits per second to many Gigabits per second. These technologies use a range of physical media, from copper wire through coaxial cable to optical fiber, as well as wireless and satellite technologies. The better economics, increased bandwidth, and improved scalability of Gigabit Ethernet (GbE) over fiber are making high speed, advanced services viable and cost-effective at more and more locations. Fiber-based GbE not only provides for cheaper and higher bandwidth network connections, it also provides for a more scalable and flexible service, and may lead to utility-based pricing structures.

Previously, new access ports had to be provisioned for each incremental step up in port bandwidth; this included both hardware and logical provisioning. With GbE, the steps are much larger (1Gb, 10Gb and 100Gb ports), and every step in between can be 'soft' provisioned by a customer service agent adjusting service parameters. As a result, GbE is displacing legacy Layer 1 and Layer 2 technologies as the wireline broadband access technology of choice.

Widespread fiber deployment has had two primary impacts on the marketplace. The first is to greatly improve the bandwidth available to network users in the "last mile," where the antiquated copper architecture was traditionally a network bottleneck. The second is to introduce a number of new providers to the competitive landscape. Particularly in metro areas, competitive fiber access providers have built infrastructure that overlaps with traditional incumbent local exchange provider's infrastructure, so that two or more providers have the capability to provide local access service to a particular location.

Traditional switched (i.e. POTS) voice is on a steep and permanent decline, with the total number of access lines (residential and commercial) dropping by more than 38% in the last 4 years, and the rate of decline in access lines generally increasing in the last 6 years. The Technical Advisory Council (TAC) to the FCC told the FCC that it should “set a date” for the end of the public switched telephone network. Switched voice will become a niche technology, and may ultimately be discontinued.

### **Implications**

Wider availability of fiber-based access and GbE will support and accelerate agency adoption of advanced, higher-bandwidth services such as video, unified communications (UC) and cloud services. In addition, it will also accelerate the decline of traditional voice services, especially local voice services; less expensive, easier-to-administer network access will make it easier for agencies to use VoIP on an end-to-end basis (in the LAN as well as the enterprise backbone), with little or no need for direct connections to the local voice network at the building level.

The NS Networx and WITS3 contracts each include both Optical Fiber and Ethernet services, as well as many other access service types. Because of the nature of traditional access services and telecom provider commercial pricing paradigms, access specification and pricing has added significant complexity to those contract vehicles. In addition, at the time of award the Networx vendors had not yet widely deployed fiber and GbE commercially, so few prices had been established. As a result, most prices for higher-speed access (i.e., above 45Mbps) were priced at award on an Individual Case Basis (ICB), necessitating a contract modification for each location. This finding creates a possible opportunity to simplify agency choices among different access arrangements as well as to reduce the complexity of access prices and the need for future contract modifications.

Lastly, the emergence of smaller, fiber-based access providers with potentially disruptive prices presents a new supplier option that might be of benefit to government users.

## **5.1.2 Adoption of cloud services is accelerating**

### **Description**

Cloud services represent a new paradigm in ordering, provisioning and management of Information Technology assets that offers significant potential for cost savings, faster service delivery, and lower risk to the buyer. Adoption of the cloud-based service delivery model is accelerating in the commercial marketplace and is a centerpiece of the OMB 25-point plan to reform government IT procurement practices.

### **Explanation**

Cloud computing introduces a new service delivery model (i.e., using the Internet or other IP networks) for IT infrastructure and services that traditionally resided in data centers or were bought directly by users (e.g., applications, security, storage, computing power for the server or desktop, etc.). It is characterized by network delivery, rapid provisioning, scalable demand, and pay-for-what-you-use pricing. Cloud capabilities grew out of multiple existing technologies, including high bandwidth IP networking, virtualization and storage consolidation technologies. Cloud standards are

weak, and pricing structures are diverse. Standards around service naming, pricing structures, security, data protection, inter-cloud connectivity, and migration out of the cloud are evolving. However, Infrastructure as a Service (IaaS), Platform as a Service, and Software as a Service offerings have increased dramatically, and are becoming more varied and flexible. This is making cloud service an increasingly viable alternative to in-house storage and computing capabilities as well as a more cost-effective means of acquiring software applications and services such as email.

The National Institute of Standards and Technology (NIST) is working to establish common cloud terminology and to define standards for government use of cloud services. Cloud standards and practices will need to continue to improve for cloud adoption to gain critical mass in larger enterprises, where the savings from cloud will not justify putting critical services within multiple non-standard clouds with unknown migration paths. Pricing structures will likewise stabilize and perhaps simplify.

Increased end-to-end data speeds and use of intelligent devices are enhancing cloud user experiences and accelerating cloud adoption. The Office of Management and Budget (OMB) has established a "Cloud First" policy for future IT procurements, ensuring that government agencies will see continued pressure to move toward the cloud model.

The major wireline service providers have recognized that cloud services are becoming very important to the future of their industry and they are positioning themselves to offer their own cloud services. This is an appropriate strategy for them for two reasons. First, the mechanism to get to the cloud is either through dedicated (i.e., virtual-private network) connections, or through Internet connections, both of which are core wireline services. Second, the underlying business model for development of cloud services is up-front capital investment, recovered by recurring usage-based charges – a business model very similar to the traditional telecom one.

The market is diverging between those providers that focus on IaaS (AT&T, Verizon, Savvis, Amazon etc.), those that focus on applications, including infrastructure applications (e.g. Cisco and Salesforce.com), and those that are trying to develop strong offerings in both (e.g. Google, although it is currently weaker in IaaS).

## Implications

The primary implications of this finding are three:

- Cloud services will be an integral element of planning for both NS2020 as well as for more immediate agency needs. Many of the services currently on the Network contracts, such as Hosting Services, Storage Service, Content Delivery Network Service, and others, are moving toward cloud-based service delivery models in both the commercial and government markets. NSP will need to establish a strategy for both near term and longer term delivery of cloud services and will need to do so in the context of the larger GSA FAS portfolio of cloud offerings.
- The emergence of new cloud-based competitors who are offering alternatives to traditional network service providers' services, as well as the aggressive moves by major network service providers into the cloud service market, both indicate a likely need to rethink the traditional view of potential NS providers. This may necessitate new ways of obtaining the competition to drive best value for government users.

- The cloud model will drive greater reliance on bandwidth-, computing power-, and storage-on-demand in service offerings, and greater reliance on yet-to-be-developed SLAs. These represent potentially significant departures from the ordering, provisioning, billing and performance management paradigms traditionally used for network services. This could impact planning for NS operational support systems, contract and vendor management practices, and associate training.

### **5.1.3 Internet Protocol (IP) is becoming the standard communications protocol for all network services**

#### **Description**

Legacy communications protocols are being rendered obsolete as IP becomes the protocol-of-choice for communications between networked devices. This is true whether the underlying infrastructure is wired or wireless.

#### **Explanation**

IP-based communication offers many advantages to both users and providers. The advantages of IP include more efficient use of physical resources, simpler management, and simpler interconnection. IP is more powerful and flexible than earlier data transmission protocols. It is also more efficient than traditional circuit-switched technology because it allows multiple activities to share the transmission media (convergence), effectively making use of gaps in conversations or data streams that would be otherwise unused. The existence of common standards for IP (e.g., IPv6) as opposed to proprietary implementations allows for easier management and interconnection. The trend toward an IP base for all applications has facilitated increased integration of various UC component services.

Voice over IP (VoIP) allows voice, video and data to share a single network, with resulting efficiency and cost savings. In general, VoIP has been replacing traditional voice at a steady pace, which, coupled with wireless substitution, has limited the demand for traditional wireline voice services. As a result, revenue reductions for providers have been caused by both lower price points for VoIP as well as a shift away from wireline voice to wireless alternatives. The impact to wireline revenues has been greatest in the enterprise market, where the rate of VoIP adoption has been higher than in the consumer market. For example, from 2009 to 2010, the overall VoIP market grew 18%, while the rate of growth for the enterprise VoIP market was 31%. According to In-Stat, adoption of VoIP in the enterprise market has outpaced the residential market by a ratio of 10 to 1.

However, the convergence of all communications into IP implementations may incur security risks. The sharing of common media by multiple data streams and the use of IP-connected cloud facilities beyond the enterprise firewall may facilitate unauthorized access. In response, telecom providers are moving to expand security-related offerings.

#### **Implications**

The implications of a replacement of traditional voice services by IP based services are of particular importance to the NSP Regional Offices programs. The current Regional Offices revenue base is heavily dependent on traditional voice services such as Centrex and managed PBX. The trend to all-IP converged networks implies that the Regional NS program will need to modify

its traditional focus to better accommodate agency needs for IP based services including cloud, video, and UC.

This trend also indicates the likelihood that most legacy voice and data services will be retired in the near future. This will provide opportunities to simplify NS contracts and service offerings as older services are retired. It also has the potential to simplify interconnection of networks, to enable improved collaboration and data sharing, and to make the integration of applications into networks easier. The ubiquity of IP networking and IP-compatible devices is also a key enabler of cloud services. However, opportunities for simplification may be offset to some extent by the rapid and ongoing proliferation of IP-based applications, cloud services and devices, which could present both opportunities and challenges for NS portfolio planning, contract development and customer agency support.

The dominance of IP networking also means that NS will need to acquire and maintain expertise in IP technology and services if it is to play a leadership role in IT deployment across the government. This could impact hiring and training of NS staff as well as NS procedures and systems.

#### **5.1.4 Usage-based pricing is displacing traditional pricing structures**

##### **Description**

Traditional telecom pricing structures have included both fixed and usage based pricing. This may change with Ethernet access technology and use of cloud services to a greater reliance on bandwidth-on-demand and other usage-based structures.

##### **Explanation**

Traditional voice pricing has included both fixed charges (e.g., a monthly charge for service) and usage charges (e.g., long distance or wireless per-minute charges). Traditional data pricing has often relied on flat prices that vary by maximum transmission rate, regardless of actual usage (e.g., a fixed monthly charge for a 1.544 Mbps T1 circuit whether the full bandwidth is used or not). Existing NSP contracts have many examples of discrete flat rates depending on bandwidth and location, per current telecom commercial practices. They also include examples of bandwidth-on-demand and other usage-based pricing structures. This is a major source of complexity in NSP contracts.

The technology change to GbE referred to in Section 3.1.1 is one example that is expected to lead to price structure changes concomitant with the movement of users to more advanced, higher bandwidth services. The growing demand for cloud services, which are generally priced on a usage basis, is another example that will drive this trend.

As the majority of customers move from being low volume to high volume users it is likely that static, flat-rate pricing models common with legacy services will in many cases be replaced by more flexible and possibly more complex models. For instance, the contracted bandwidth may be bursted to a higher rate - for a fee.

## Implications

As pricing paradigms shift, NSP contracts, competition models, support systems and processes, and NS staff training will need to shift as well. This shift will produce opportunities (e.g., to simplify pricing by eliminating sub-rate fixed price CLINs) as well as potential challenges (e.g., greater complexity in performance measurement, SLA enforcement, billing verification). Modifications to NS systems such as TOPS and E-MORRIS are a likely result.

## 5.1.5 Wireless access is an increasingly viable alternative to landline access

### Description

Wireless services are expanding rapidly, with speeds, session persistence, and security that will provide a viable alternative to landline access. Wireless is already a viable alternative to landline for many residential customers and has become a key enabler of the mobile workforce. It will continue to erode, but not eliminate, dependence on traditional landline access.

### Explanation

While the cellular voice market is effectively saturated, the increases in bandwidth from 3G and 4G have provided the basis for an explosion of data applications. Long Term Evolution (LTE), expected to be widely available in 2012 or 2013, will further facilitate this trend. It is expected that providers will move towards enterprise UC across multiple devices and media types, including voice over LTE. Note that revenues for voice over the internet pricing models are close to zero, which will force operators to create a new value-added proposition if they are to continue charging for voice minutes within a traditional subscription model. The most obvious option is to bundle UC and Rich Communication Suite capabilities in a single address book, enabling users to track presence, Instant Messaging, voice and video calls all with the same identifier, the mobile phone number. The ongoing rapid rate of innovation in applications and technologies for intelligent end user wireless devices will ensure a dynamic and evolving marketplace for the foreseeable future.

The wireless industry is consolidating. This trend is partly driven by the need for a larger revenue base, but also by the need to secure spectrum. As a limited resource, the availability of spectrum is a concern to the industry. Even though overall capacity can be increased by either increasing spectrum, or increasing the number of cells (i.e., cell sites) within a given area, increasing capacity by building new sites is a slow and expensive process, particularly in urban areas.

Although cellular service is available through the Networx contracts, Network Services' penetration of the Government wireless services market has been limited to date. Currently, Government purchasing of wireless services is very fragmented and inefficient. However, it is expected that NSP's Wireless Federal Strategic Sourcing Initiative (FSSI) currently underway will provide an attractive, centralized vehicle for managed high volume wireless services procurement by agencies.

## Implications

The continued growth in demand for broadband wireless services is likely to stress the capacities of wireless networks in areas with many users due to the limiting effects of available spectrum. As a result, major providers have already taken steps to limit bandwidth consumption by individual users and/or eliminate flat rate unlimited data calling plans. This can be expected to continue, making the price of wireless service both more complex and potentially more expensive.

NS has an opportunity to play a leadership role in the best value procurement of wireless services by the Federal government. However, a focus limited to the Wireless FSSI program will not be sufficient. The growing use of wireless devices increases the urgency of integrating wireless access into government network architectures, particularly with regard to network security and performance. The potential use of fixed wireless capabilities in lieu of traditional building and campus wiring creates another set of potential NS opportunities and challenges.

From an acquisition program perspective, the NS2020 program will need to incorporate the Wireless FSSI program and its lessons learned into its future portfolio planning. In addition, it will need to identify cost-effective means to assist agencies in acquiring and managing wireless capabilities within their overall communications services strategies. Wireless pricing and technology refreshment practices are far more dynamic than the corresponding practices for the fixed assets used to deliver wired access. If separate contract vehicles and/or service providers are used for wireless and wired services, a contract integration function may be needed to shield agency users from the complexities of dual contract management.

### 5.1.6 The convergence of all services onto a single network is accelerating

#### Description

Voice, video and data services are converging at an increasing pace and agencies can be expected to seek comprehensive IP networking solutions that deliver all three in an integrated manner.

#### Explanation

Convergence of voice, video and data services has been underway for well more than a decade. However, the tempo is rising, enabled in part, by the technology changes discussed above.

The convergence of voice, data, and video networks into one network is a trend that is enabled by the migration of applications, including voice, to IP-based networking capabilities, specifically including Multi-Protocol Label Switching (MPLS), that allow different types of content to coexist on a single infrastructure. The use of a single protocol has allowed a standard to be followed, which provides the foundation for interoperability and convergence that is required in the vision for converged and UC. Converged networks allow enterprises to more efficiently utilize bandwidth because bandwidth headroom only needs to be managed on one network, rather than on two or three separate networks. Bandwidth intensive applications (such as video), real time applications (such as voice), and traditional Internet protocol traffic can now coexist effectively on one network due to the ability to manage

quality of service, etc. It is expected that the use of a single network also lowers overhead and management costs.

As enterprise VoIP solutions are deployed by agencies, voice becomes just another application on the backbone network, although still somewhat different at the network edge due to specific end-user equipment, Power over Ethernet (PoE), and related infrastructure needs. In the Networx Lessons Learned interviews, several Regional NS customers identified their need for VoIP services, expressing confusion and frustration that more robust VoIP offerings were not available on Networx. Regional customers envision GSA as filling the role of leader and innovative acquisition expert.

Convergence not only allows multiple services to share the same transport network, but also to interact in the form of UC. VoIP becomes one of many elements of UC, such as video conferencing or Web conferencing that will increasingly be able to interact with other UC services, such as email and chat. VoIP voicemails will be more easily attached to emails, and phone calls will be able to be placed to computers, enabling telework. VoIP is the anchor of UC, and increased VoIP adoption will lead to both increased UC adoption and more sophisticated UC offerings as critical mass (in terms of demand) enables more focus on UC development. Though VoIP now requires a smaller portion of the bandwidth available on most enterprise networks, Service Level Agreements (SLAs) may continue to be a requirement.

### **Implications**

Service convergence in general, and the ongoing development of UC offerings in particular, have implications for new services development, contract portfolio planning, acquisition and sourcing strategies and NS customer support activities. With convergence, the differences between network services and applications are blurring. As a result, agencies may be likely to seek more rather than fewer capabilities (e.g., value-added services and transport) from a single source, implying comprehensive contract vehicles. Conversely, agencies may also seek to acquire capabilities from multiple sources and/or contracts but integrate them operationally into their enterprise network solutions. NSP may need to be prepared to address both possibilities.

## **5.1.7 Traditional NS providers are consolidating, and competitors are crossing industry lines**

### **Description**

NSP providers have traditionally been drawn from the telecommunications industry. The long term consolidation of that industry is continuing, with fewer competitors able to serve nationwide government needs. The remaining providers are entering new markets and non-traditional competitors are entering the traditional providers' market, for both nationwide and local/regional markets.

### **Explanation**

The number of providers peaked in the years after the Telecommunications Act of 1996, with hundreds of providers, including Regional Bell Operating Companies (RBOCs), independent local service providers, competitive access providers, wireless service providers, cable TV operators and long distance providers. Consolidation of the industry began in earnest in 2000 and

continues today. Recent examples include CenturyLink's acquisition of Qwest and AT&T's attempted acquisition of T-Mobile. This is a logical result of many years of vigorous competition that has produced low margins across the industry and made economies of scale more important for cost control.

To counter this, traditional long distance providers are marketing less commoditized, higher-margin services to increase revenue/margin. They are also moving aggressively into new service areas such as cloud computing that are compatible with their traditional strengths and business models, as well as into professional services. The former is stimulating consolidation in the cloud computing industry, with larger cloud service data center operators being acquired by long distance providers. Examples of this include Verizon's acquisition of Terremark and CenturyLink's acquisition of Savvis.

While highly significant, this trend is to some extent balanced by the emergence of new national competitors for value-added network services, especially cloud services. Examples include companies such as Google (which offers cloud services such as Gmail, and which also has announced its intention to build and operate a high speed fiber-optic network in a US city) and Amazon (a major cloud services provider that operates a private IP network connecting its data centers). These new entrants may initially be engaged as subcontractors, mergers or takeovers among new and old providers may happen, or the future set of competitive national long distance providers may consist of a mix of traditional and non-traditional providers.

Some of the traditional providers of local and regional network services may be acquired by or face increased competition from national competitors. Others may continue to provide good value for agency needs that do not require a national service footprint. However, increased reliance on enterprise-wide solutions by agencies may limit the ability of local/regional service providers to meet agency backbone network infrastructure requirements. Conversely, use of cloud service delivery models may allow smaller local/regional value-added services providers to serve customers nationwide over facility-based long distance networks.

### **Implications**

Ongoing evolution in the service provider and supporting industries has important implications for NSP. In the near term, the moves of current suppliers into new value-added services and especially cloud services create opportunities for technical refreshment of existing NSP contracts. In the longer term, it may be necessary to rethink who the NS competitive service providers will be and how to best approach the redefined network services market. Innovative acquisition strategies may be needed to obtain the competition that will drive future best value. In addition, the growing emphasis on higher-margin managed and value-added services by traditional transport providers may create new partnering opportunities or new competitors for them. This could result in even more comprehensive solutions available from a single source or a need for multiple contract vehicles to create agency solutions; either case could have significant implications for the scope and structure of future NSP contracts.

In an effort to offset rate erosion on basic transport services, providers can be expected to continue to emphasize managed/value-added service offerings to bolster their wireline and wireless voice revenues, and to seek ways to simplify customers' environments. Telecom Expense Management offerings,

which increasingly use a cloud computing delivery model, will continue to gain in popularity, particularly as organizations are consolidating distributed networks and seek to implement enterprise-wide solutions.

## 5.2 Appendix B - Findings: Network Technical and Price Requirements

The primary objectives in creating the Network services set and pricing structures was to maximize the availability of the full range of services needed by agencies for continuity and for future evolution while maximizing the effectiveness of the competition for contract awards and subsequent orders. Significant analysis was carried out to determine all of the services in use by agencies and to identify emerging services in the commercial marketplace. The intent was to create a program with industry-best prices that would support the evolution of Federal government communications from legacy voice and data services to secure, seamless, interoperable communications based on an IP-centric environment.

Determination of services currently in use was based on analysis of detailed agency billing records for FTS2001. Completion of this was hampered by the widespread use by major agencies of Custom Design Documents (CDDs). These were individual agreements for custom solutions negotiated by agencies with their primary vendor, rather than competed (the practice in FTS2001 was to do a single Fair Consideration to choose a vendor and then continue to order from that vendor over the life of the contract). Unfortunately, many CDDs consisted of largely-undocumented solutions with bundled prices, making it difficult to determine the actual inventory or details of the services provided, and most agencies using CDDs proved unable to provide the missing information.

Determination of the services needed to support evolution and transformation of agency networks was based on extensive analysis of technology and service trends in the telecommunications and IT industries, applying the principle that if a service was likely to be more economically competitive if delivered on a "network-centric" basis, it should be included in the service set. Significant input was provided by agencies and especially the IMC. Significant attention was also given to special government requirements, especially those involving security.

Since vendors typically try to differentiate themselves by extensive use of brand names (prohibited by the FAR), special feature names, and differing pricing schemes, it was recognized that use of standard commercial practices, which vary significantly between vendors, would make the resulting evaluation more difficult. In addition, it would add another layer of complexity to agency considerations and would require even greater technical skill on their part to ensure that they could evaluate vendor proposals on a like-for-like basis. Therefore, the service requirements were specified using generic technology and service terminology rather than standard industry brand names, and included listings of the relevant industry technical standards for further clarity. The specifications were further adapted based on consultations with IMC members and input from industry.

The resulting service set was intended to provide directly-orderable services as well as the "building blocks" that could be combined into customized agency solutions. To provide completeness and flexibility, the wide range of transport and access technologies and transmission/port rates available in the commercial marketplace and used by agencies were included. It was recognized that equipment would be needed to complete service delivery, but that almost none of it could be specified on a long term, fixed price basis. A compromise solution was developed that included specified "requirements suites" for equipment for award evaluation, with equipment

classes and specified discount rates carried forward for faster incorporation of new equipment after initial award. Including professional labor services with pre-defined labor rates to manage agency solutions was also considered, but ultimately not included as part of Networx. Such services were available via the Connections contracts.

The resulting services and requirements were described by vendors before and after award as "complete," "forward-looking," and flexible enough to allow their company to deliver "full innovation" to agencies. Only one offeror consistently asked to be allowed to deliver what it sold rather than what the Government required.

Pricing for the services was based on fixed-price, orderable items represented by Contract Line Item Numbers (CLINs). CLIN structures were based on extensive analysis of commercial pricing practices in use when the RFPs were under development. Wherever possible, standard commercial pricing structures were used; in instances where commercial practices varied among offerors, a generic pricing structure was developed with the intent of ensuring like-for-like cost comparisons while avoiding favoring any one vendor. Core network services were specified at the "port" level, i.e., without regard to the location of the port. Features or capabilities that were optional in commercial practice were typically specified as optional in the requirements. Since pricing for network access was (and remains) variable with transmission speed as well as physical location (e.g., serving wire center and building), CLINs of this type were priced accordingly. As a result, the same orderable CLIN can be represented by thousands of "unit prices" depending on where the ordered circuit is physically located. In addition, CLINs for items that were not deployed widely enough in the commercial marketplace to be priced or evaluated (most notably very-high-speed OCn optical access circuits) were defined to be priced at time of order on an Individual Case Basis (ICB).

Universal offerors were required to price access at all local exchange carrier wire centers serving known Government locations (approximately 9,600 out of more than 22,000 nationwide at the time) to ensure service continuity, while Enterprise offerors were required to price access at only the wire centers serving the largest Government locations. For future flexibility, offerors on both were required to provide prices wherever they delivered commercial services. Use of a rationalized CLIN structure and a ten-year demand (traffic) model for automated price evaluation proved very effective in achieving historically low fixed prices for the primary Networx services.

The original contracts included slightly more than 4800 defined CLINs for services and slightly more than 300 defined CLINs for Service Enabling Devices (SEDs, representing orderable equipment). As of June 2011, the total number of defined CLINs has increased to approximately 13,400. The increase of approximately 8300 CLINs consists of about 4700 CLINs for new SEDs and about 3600 CLINs for new services, agency customizations, and contractor-proposed service enhancements.

The scope of both contracts was defined very broadly to include all relevant communications and networking services and applications as well as whatever new services that might arise in the commercial marketplace to replace them over the life of the contracts. Since local services, especially voice services, were subject to widely varying regulatory conditions and could not be priced or procured effectively on a national basis, these were generally excluded from the Networx specifications but included in the contract scope. It was expected that the GSA regions would continue to provide local and regional services using other contracts and would transition to use of the Networx contracts as their customers began using IP-based solutions. In addition, exclusion of local and regional services and LAN

building/campus services from Networx helped to avoid contract overlap between Networx, regional contracts, and the Connections program.

Since award of the contracts, contract modifications have fallen primarily into five general categories: agency customization, addition of new equipment, service enhancements offered by the contractors, ICB instances, and price reductions. Three major GSA initiated new service modifications have been pursued: Managed Trusted IP Service (MTIPS), Telepresence, and Voice over IP with Managed LAN (for use by the GSA Regions).

## 5.3 Appendix C - Findings: Networx Operations

In FTS2001, billing had been the most consistent source of agency complaints; contractor ordering and billing systems had not been ready when ordering began, billing complexity was high, billing errors were frequent, and GSA never fully resolved some of the issues regarding contractor compliance with government requirements. Custom Design Documents (CDDs), used to develop custom solutions for some agencies, usually contained bundled pricing and did not provide sufficient transparency to allow identification or resolution of billing issues. Neither agencies nor the FTS2001 contractors maintained accurate inventory records. Paper-based ordering was still in use for many services.

Billing requirements for Networx were developed in conjunction with a special IMC working group. This group helped GSA to develop a common set of billing elements and a new construct, the Unique Billing Identifier (UBI), which would allow the various component billing elements to be associated with a single instance of service delivery. A flexible system of Agency Hierarchy Codes (AHCs) was required to allow agencies to receive their bills in a manner that matched their budgeting process (separate bills for agency-defined budget centers). Agencies could choose either direct billing (vendor sends bills to agency) or centralized billing (GSA provides billing management for agency).

In keeping with technology advances, ordering and billing for Networx were intended to be all-electronic, replacing paper-based ordering and billing tapes that had been the norm for FTS2001. Vendors were required to provide web-based ordering portals and electronic billing capabilities. GSA developed requirements for its own updated and enhanced billing support system for centralized billing customers, E-MORRIS, which was ready to process bills before the first bills were received from the vendors. To minimize the difficulties faced by agencies in FTS2001 because vendor ordering and billing capabilities were not fully functional at the time order placement began, GSA put in place requirements that the basic capabilities of vendor ordering and billing systems be verified before order placement could start. Further, to minimize the difficulty of the agency-specific Certification and Accreditation (C&A) activities required before agencies could use vendor OSSs, GSA agreed with the IMC that it would C&A the common elements of the vendor systems and share this with agencies for their use as the starting point for their own C&A activities.

Because the Networx vendors had difficulty preparing their OSSs for use, the contractor OSS verifications were based on a minimal set of basic operational requirements. Nevertheless, several of the vendors struggled significantly with bringing their OSSs on line, with one vendor continuing to enter orders into its system manually more than three years into the contract. This problem was exacerbated by the unexpectedly high number of complex agency customization SOWs, each of which required a series of serially-linked activities (award, contract mod, and update of GSA and contractor tools and OSSs) that added time and complexity before ordering could actually take place.

To minimize the probability of a repeat of the inventory problems seen in FTS2001, GSA established contract requirements for the Networx vendors to maintain accurate agency inventories using defined Networx Inventory Codes, but also implemented an approach to allow contractors and agencies to capture better, more consistent inventory data. Specifically, GSA wrote requirements for the contractors to forward the Service Order Confirmation Notices (SOCNs) that are created when provisioning

is complete and the ordered service is in operation. SOCNs are captured and maintained in an E-MORRIS database that is intended to be available to agencies for their own inventory management.

GSA established tools to assist agencies in managing their use of the Networkx contracts. The Transition Information Portal (TIP) provides a secure repository for agency-specific information and receives data feeds from E-MORRIS and other sources. The Networkx Hosting Center provides secure access by agencies to the unredacted Networkx contracts and the 10-year Agency Pricer. Its secure electronic proposal management capabilities are used for electronic contract management and vendor mod submissions as well as to support some large agency SOW proposal evaluations.

The Agency Pricer tool was designed to allow agencies to price anything from an individual circuit to a full network, and to compare the prices of different vendors on a like-for-like basis. It mirrors the Networkx contracts and as such reflects the complexity of the vendors' offerings under their individual contracts. It is CLIN-driven, and allows the user to identify a service's CLINs, price the service at the specific port speeds needed at each agency location, identify and price likely associated CLINs necessary to deploy the service (e.g., access circuit associated with the port), choose the optional features desired, save and compare sets of CLIN prices across vendors, etc. The Pricer uses the generic terminology of the Networkx contracts rather than the standard commercial terminology of the vendors, which can vary from vendor to vendor, in order to simplify agency comparisons between vendors. Contract modifications (mods) are integrated into the Pricer once they have been executed. The average time to complete integration of contract mods through the first 9 months of FY11 is 5.6 business days from the time the mods are received.

The Pricer was not intended to be a network design tool; rather, it was intended to be used to price agency requirements once they had been identified, either through inventory analysis or a separate network design effort. Hence it assumed some level of user familiarity with the ordered services on the presupposition that agencies would not task users to order millions of dollars of technical services unless they understood what they were ordering. GSA provided user support in the form of scheduled and on-demand Pricer training and Tier 1, 2, and 3 Help Desk services. After award, it became clear that many agency users of the Pricer were unfamiliar with either network services in general or their specific inventories of FTS2001 services. GSA added mapping of FTS2001 CLINs (known as SCIDs) to Networkx CLINs and Service Guides as Pricer enhancements after award. The Pricer Service Guides were intended to provide introductory descriptions of the Networkx services and can be accessed either from the front page of the Pricer or by click-through from individual CLINs.

## 5.4 Appendix D - Establishment of the Networkx Program

Development and execution of the Networkx Program acquisition strategy began with the establishment of an initial strategy and goals in mid-2003 and culminated in the award of two contract vehicles, Networkx Universal in March and Networkx Enterprise in May of 2007. The timeline of the activities involved is summarized below in Figure D1. The strategy was vetted first through GSA’s Network Services leadership team and then through the Interagency Management Council (IMC), which served as an advisory body for the development, coordination, and customer-driven oversight of the Networkx Program. The process also included three Congressional hearings, an RFI, two industry forums, and the release of a draft RFP. Over 4,300 comments and questions were received, captured, tracked, and either answered or otherwise addressed by GSA prior to release of the formal RFP.

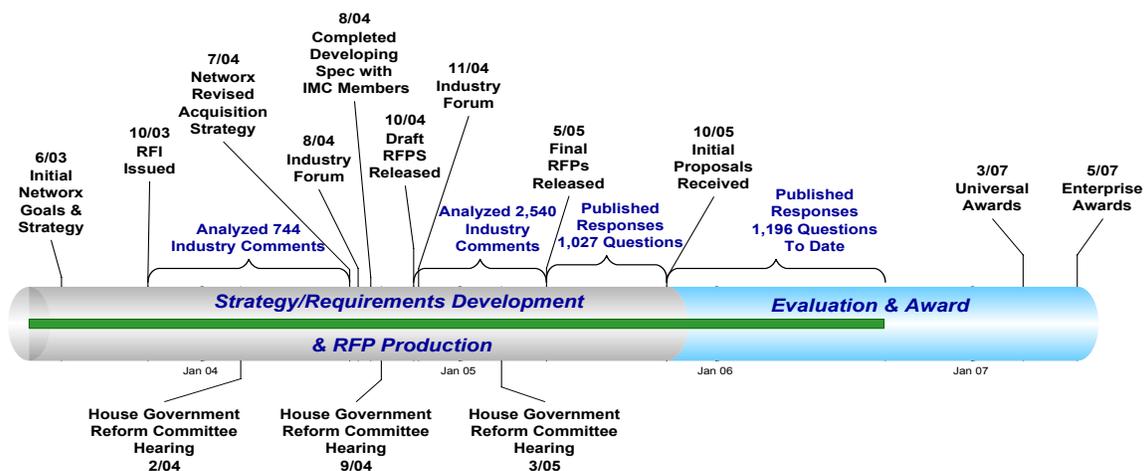


Figure D1: Timeline for the Award of Networkx Contracts

## 5.5 Appendix E - Glossary

<b>Acronym</b>	<b>Meaning</b>
1Gbps	1 Billion Bits per Second
4GLTE	Fourth Generation Long Term Evolution
AE	Acquisition Efficiency
AHC	Agency Hierarchy Code
AR	Aggregated Requirements
B/OSS	Billing and Operations Support Systems
BPA	Blanket Purchase Agreement
C&A	Certification & Accreditation
CAR	Customer Accounts & Research
CDD	Custom Design Document
CDN	Content Delivery Network
CIO	Chief Information Officer
CLIN	Contract Line Item Number
CNX-II	Connections II Acquisition
CO	Contracting Officer
CP	Customer Perspective
CPE	Customer Premise Equipment
CS2	Custom SATCOM Solutions
CS2-SB	Custom SATCOM Solutions- Small Business
DAR	Departmental Account Representative
DHS	Department of Homeland Security
DISA	Defense Information Systems Agency
DoD	Department of Defense
DoE	Department of Energy
DoJ	Department of Justice
DoS	Department of State
EA	Enterprise Architecture
EMORRIS	Enhanced Monthly Online Records and Reports of Information Technology Services
EPA	Environmental Protection Agency
FAR	Federal Acquisition Regulations
FAS	Federal Acquisition Services
FCC	Federal Communications Commission
FCSA	Future Commercial Satellite Acquisition
FedRelay	Federal Relay Services-Telecom services for hard of hearing

FISMA	Federal Information Security Management Act
FO	Fair Opportunity
FSC	Financial Service Center
FSSI	Federal Strategic Sourcing Initiative
FTE	Full Time Equivalent
FTS	Federal Telecommunication Services
FY	Fiscal Year
GAO	Government Accountability Office
GbE	Gigabit Ethernet
GSA	General Services Administration
GSM	Global System for Mobile Communications
GWAC	Governmentwide Acquisition Contracts
HHS	Health and Human Services
IaaS	Infrastructure as a Service
ICB	Individual Case Basis
IMC	Interagency Management Council
IP	Internet Protocol
IPv6	Internet Protocol version 6
IT	Information Technology
ITS	Integrated Technology Services
ITSS	Information Technology Solutions Shop
LAN	Local Area Network
LSA	Local Service Agreement
LTE	Long Term Evolution
MaaS	Malware as a Service
Mbps	100 Million Bits per Second
MNS	Managed Network Service
MOU	Memorandum of Understanding
MPLS	Multi-Protocol Label Switching
MTIPS	Managed Trusted Internet Protocol Service
NCR	National Capital Region (Region 11)
NHC	Network Services Hosting Center
NIST	National Institute of Standards and Technology
NS/EP	National Security/Emergency Preparedness
NS2020	Network Services Strategy through 2020
NSP	Network Services Programs
OA&M	Operations Administration and Management
OC-3	Optical Carrier Line (with transmission data rate of up to 155.52 Mbit/s)
ODC	Other Direct Cost
OE	Operational Efficiency
OMB	Office of Management and Budget

OSS	Operations Support Systems
P&L	Profit & Loss
PaaS	Platform as a Service
PBS	Public Building Services
PBX	Private Branch Exchange
PoE	Power over Ethernet
POTS	Plain Old Telephone Services
PRI	Primary Rate Interface
PWS	Performance Work Statement
RBOC	Regional Bell Operating Companies
RFI	Request for Information
RFP	Request for Proposal
RFQ	Request for Quote
RT	Regional Telecom
SaaS	Software as a Service/Security as a Service/Storage as a Service
SATCOM	Satellite Communications
SCRM	Supply Chain Risk Management
SED	Service Enabled Devices
SEWP	Solutions for Enterprise Wide Procurement
SLA	Service Level Agreement
SME	Subject Matter Expert
SOCN	Service Order Confirmation Notices
SONET	Synchronous Optical Network
SOO	Statement of Objectives
SOW	Scope of Work
SS&SS	Strategic Solutions & Security Services
SSA	Social Security Administration
TAA	Trade Agreement Act
TAC	Technical Advisory Council
TBI	Transition Baseline Inventory
TCS	Tailored Customer Service
TEMS	Telecom Expense Management Services
TIC	Trusted Internet Connection
TIP	Transition Information Portal
TOPS	Telecommunications Ordering and Pricing System
TSM	Technical Service Manager
TWG	Transition Working Group
UBI	Unique Billing Identifier
UC	Unified Communications
UMTS	Universal Mobile Telecommunications System
USDA	United States Department of Agriculture

VoIP	Voice over Internet Protocol
VPN	Virtual Private Network
WAN	Wide Area Network
WITS3	Washington interagency Telecommunications System
XML	Extensible Markup Language