

**EXHIBIT V to Amendment No. 60**  
Addendum 6 to Appendix 9 to Schedule 3.3 to the  
Comprehensive Infrastructure Agreement  
Statement of Technical Approach

**ADDENDUM 6 TO APPENDIX 9 TO SCHEDULE 3.3  
TO THE  
COMPREHENSIVE INFRASTRUCTURE AGREEMENT  
STATEMENT OF TECHNICAL APPROACH**

## **Statement of Technical Approach for Voice and Video Telco Services**

Northrop Grumman will [REDACTED] and reduce the burden of maintenance and configuration management for voice and video telecom services.

In addition to [REDACTED] voice services, Verizon Business, as an exclusive partner to Northrop Grumman, is delivering the long-distance PSTN services, calling cards, and inbound toll-free (dedicated and switched) calling.

As the business cases dictate, Northrop Grumman will migrate voice and video services to its [REDACTED] Northrop Grumman will reduce the need for [REDACTED].

Northrop Grumman will deliver a voice and video telecom service that will continue to support existing service offerings [REDACTED], and based on business case, migrate to IP-based solutions to provide savings and operational simplicity and flexibility.

Northrop Grumman will provide IP voice services through two service offerings [REDACTED]

[REDACTED] These services support the Commonwealth's goals for reducing cost through the use of IP telephony services. [REDACTED]

### **Detailed Solution for Managed End-to-End Service**

To deliver enterprise services and flexible service applications, Northrop Grumman will deliver a managed end-to-end service. As shown in **Exhibit 1**, Northrop Grumman's service approach integrates [REDACTED]

[REDACTED]. VITA's network will support QoS to provide the necessary end-to-end SLA requirements (especially jitter) essential for VoIP communications.

The Northrop Grumman [REDACTED] network solution also supports the quality of service (QoS) to support video across Northrop Grumman's IP-based solution.

Northrop Grumman's VoIP and video over IP can communicate securely through its Internet Secure Gateway to extranets outside the Commonwealth of Virginia. Northrop Grumman's managed VoIP and video over IP solution are part of its managed, consolidated service architecture.

**Exhibit 1 REDACTED**

## **IP Voice Services**

Enterprise IP Voice Services are available to Commonwealth agencies through three products [REDACTED] VoIP service, however [REDACTED] provides a foundation for the addition of new services to support broad agency needs. As shown in **Exhibit 2**, Northrop Grumman's service approach for [REDACTED] services provides a common, secure platform for VoIP. [REDACTED]

**Exhibit 2 REDACTED**

[REDACTED] design and features provides a solution allowing the Commonwealth:

- To leverage the MPLS network investment
- An opportunity for Statewide coverage not restricted to local telephone carriers
- To [REDACTED] allowing incremental growth of the core system spreading the investment across many agencies and sites versus the purchase and installation [REDACTED]
- To lower Long Distance expenses
- Phone service redundancy, providing service in the event MPLS connection is lost
- To incrementally invest in a high quality IP based voice infrastructure where new services can be added on demand to meet the Commonwealth's business needs, these include contact center / call center, rich media conferencing, and unified presence

Key benefits of [REDACTED] to the Commonwealth:

- [REDACTED] Carrier-grade reliability using [REDACTED]
- Easily-scalable service allowing capacity to be added as the user population grows
- Common voice service across agencies for all agencies on MPLS
- Ability for agencies on end-of-life phone systems to migrate to a monthly RU based service model avoiding upfront capital and one-time installation charges

## **Current Voice and Video Telco Services and Migration Scenarios**

Northrop Grumman understands the voice contracts available to VITA and the voice and video services for VITA. Northrop Grumman will continue to operate voice and video services using those contracts.

In Contract Year Four, Commonwealth agencies primarily use [REDACTED]. Although [REDACTED] has proven to be a reliable service for phone equipment, voice network, voice messaging, and directory listing services; the technology cannot be upgraded to offer agencies key new services which can be leveraged to lower business cost and improve citizen services (e.g. call centers / contact centers).

Northrop Grumman will continue to operate the legacy services [REDACTED] through the existing contracts. Upon execution of Amendment No. 60, the Commonwealth will adopt [REDACTED] as the Voice Services Standard for all agencies. Through planned migration of voice, Northrop Grumman will provide [REDACTED].

The initial target population for IP Voice Services is 35,000 phones consisting of [REDACTED]. As shown in Exhibit 3 the target population is comprised of agencies currently supported by legacy services such as [REDACTED]. Northrop Grumman has identified 11 target agencies as candidates for new [REDACTED] based on several factors, including cost reductions, retiring of aging phone systems and availability of MPLS network connection. Northrop Grumman's current understanding is the target agency sites and ramp-up schedules provided in Exhibit 3 and 4 do not use IVR or call center services. The deployment plan is based historical information provided by staff familiar with the Commonwealth's telephony infrastructure.

Northrop Grumman recognizes the business needs of an agency site using IVR or call center services require additional features beyond the initial set of standard [REDACTED] service offerings. Northrop Grumman will develop additional [REDACTED] Resource Units as needed by the Commonwealth based upon agency specific requirements.

Upon execution of Amendment 60, Northrop Grumman will brief VITA telecommunications staff on the [REDACTED] architecture, [REDACTED] service offerings, and the basis of the selected target agencies, sites, and ramp-up schedule. Work sessions with VITA will result in refinements to the schedule based on Commonwealth business priorities. VITA and Northrop Grumman will develop and execute a plan to introduce and promote the services to agencies. Work sessions with each target agency will be scheduled to solicit and obtain their acceptance and commitment to adopt and schedule the installation of [REDACTED]. Upon Agency acceptance of the schedule Northrop Grumman will collect the information needed to configure the phones for each user and schedule the work. Northrop Grumman will procure and build the core infrastructure, stand-up required back office systems needed to provision, manage and invoice [REDACTED] Service, and proceed with deployment of the phones and infrastructure to the sites.

The target deployment plan for [REDACTED] begins on July 1, 2010 with the finalization of the [REDACTED] core infrastructure requirements, design and procurement. The plan includes a [REDACTED] window to complete the installation and testing of the core infrastructure and ready agencies for

deployment of the UCaaS service commencing in January 2011 and running through August 2012 as shown in Exhibit 4.

**Exhibit 3 REDACTED**

**Exhibit 4 REDACTED**

**UCaaS Service Offerings**

Northrop Grumman will initially offer four classes of [REDACTED] service described in the following table.

<b>Basic Service</b>	Service includes a phone and a direct dial number. The phone included with this service is a single line phone (no speakerphone).
<b>Basic Service Option</b>	Basic Service without the phone; service is for an existing [REDACTED] phone where existing phone is reused for [REDACTED]
<b>Standard Service</b>	Service includes a phone, a direct dial number and voice-mail. The phone included with this service is a two-line speakerphone.
<b>Standard Service Option</b>	Standard Service without the phone; service is for an existing [REDACTED] phone where existing phone is reused for [REDACTED]
<b>Enhanced</b>	Service includes a phone, a direct dial number and voice-mail. The phone included with this service is a six-line speakerphone.
<b>Enhanced Option</b>	Enhanced Service without the phone; service is for an existing [REDACTED] phone where existing phone is reused for [REDACTED]
<b>Receptionist</b>	Service includes a receptionist phone with two sidecars, and voice-mail. The service and phone included allow a receptionist to monitor up to 30 lines.
<b>Receptionist Option</b>	Receptionist Service without the phone; service is for an existing [REDACTED] phone where existing phone is reused for [REDACTED]
<b>Conference</b>	Service includes a conference "spider" phone.
<b>Conference Option</b>	Conference Service without the phone; service is for an existing [REDACTED] phone where existing phone is reused for [REDACTED]

<b>IMAC - Over Network Change</b>	IMAC change provisioned over the network
<b>IMAC - On-Site Change</b>	IMAC change requiring provision on-site by a technician

**Exhibit 5 IP Voice Services – Service Description**

**UCaaS network Based Features**

offers outbound calling features which can be tailored to the Commonwealth’s enterprise standard. These features require line identification are available only to locations in which the local phone carrier supports line identification service. The following table summarizes the features available to each Service.

Feature	Description	UCaaS Service
<b>Attended Call Transfer</b>	Allows a user to announce a caller or consult with a third party before transferring the call. This feature is also known as “Call Transfer with 3 <sup>rd</sup> Party Consultation”.	Basic Standard Enhanced Receptionist Conference
<b>Call Blast–Personal</b>	Enables multiple phones to ring simultaneously. For example, calls to a user’s desk phone could also ring the user’s mobile phone. The first phone to be answered is connected. When already on a call, users can choose whether other simultaneous devices ring.	Basic Standard Enhanced Receptionist Conference
<b>Call Forwarding</b>	Enables phone service to be set to forward the call to a user selected phone number.	Basic Standard Enhanced Receptionist Conference
<b>Call Return</b>	Enables a user to call the last party that called, whether or not the call was answered, by dialing a feature code. The system stores the number of the last party to call, and connects the user to that party. Users can also execute call return via the Communications Manager.	Basic Standard Enhanced Receptionist Conference
<b>Calling Line ID Blocking</b>	Enables a user to block delivery of his/her Calling Line ID when making outbound calls.	Basic Standard Enhanced Receptionist Conference
<b>Calling Line ID Delivery</b>	Enables the delivery of inbound CLID or phone number.	Basic Standard Enhanced Receptionist Conference
<b>Consultation Hold</b>	When the call is answered, the user can consult with the add-on party. To drop the add-on party and reconnect to the original party, the user depresses the flash hook twice.	Basic Standard Enhanced Receptionist

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Feature	Description	UCaaS Service
		Conference
<b>Direct Inward/ Outward Dialing</b>	Users are assigned a 10-digit directory number that can be used to place or receive calls directly, without forcing access via a central number.	Basic Standard Enhanced Receptionist Conference
<b>Do Not Disturb</b>	Allows users to set their extension as unavailable so that incoming calls are given a busy treatment.	Basic Standard Enhanced Receptionist Conference
<b>Extension Dialing</b>	Enables users to dial other members of the group using extension numbers.	Basic Standard Enhanced Receptionist Conference
<b>Flash Call Hold</b>	Provides call hold functionality from any phone. It enables users to hold a call for any length of time by flashing the switch-hook on their phone and dialing the respective feature code. Parties are reconnected again when the switch-hook is flashed and the feature code is dialed again.	Basic Standard Enhanced Receptionist Conference
<b>Last Number Redial</b>	Enables users to redial the last number they called by clicking the 'Redial' button on the Communications Manager screen or by dialing a feature code.	Basic Standard Enhanced Receptionist Conference

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Feature	Description	UCaaS Service
<b>Inbound Caller ID</b>	Users can choose to take a call when they see the caller's identity via the ██████ Communication Manager and phone (if capable). Information delivered includes the caller's phone number. The information is delivered only if the information is available and has not been blocked by the caller.	Basic Standard Enhanced Receptionist Conference
<b>Outbound Caller ID</b>	The originating location sends the Billing Telephone Number (BTN) of the caller when making outbound calls. Currently, station level (ANI) is not available.	Basic Standard Enhanced Receptionist Conference
<b>Phone List – Personal</b>	Each user can add, delete, edit and re-order numbers in their Personal Phone List, which serves as a personal speed dial list. Users can add multiple numbers to this list by uploading them from a file. Users can dial frequently called numbers by selecting from a searchable list of names in the ██████ Communications Manager.	Basic Standard Enhanced Receptionist Conference
<b>Phone List – Call Log</b>	The call log is accessed through the ██████ Communications Manager and includes the most recent numbers registered for each category, as well as the respective call times and dates. The Call Log enables users to view and dial from the following lists of stored numbers: missed, received, and dialed.	Basic Standard Enhanced Receptionist Conference
<b>Speed Dial</b>	Users can program frequently called numbers.	Basic Standard Enhanced Receptionist Conference
<b>Voice Mail</b>	One of the most powerful features of the ██████ is its network-based voice mail service. Features include distribution lists across geographically dispersed offices and a variety of retrieval options, such as phone, pager, or e-mail. Mailboxes can be accessed either via a telephone through DTMF tones. ██████ Voice Mail offers traditional features with new capabilities based on IP functionality: <ul style="list-style-type: none"> <li>• Access and security</li> <li>• Distribution lists</li> <li>• Easy commands</li> <li>• Greetings options</li> <li>• Message notification</li> <li>• Message Recording</li> <li>• Voice Mail system settings</li> </ul>	Standard Enhanced Receptionist

**Exhibit 6 IP Voice Services – ██████ Call Features**

**Video & Teleconferencing Services**

Northrop Grumman will support the current video services for those agencies' mission-critical video conferencing applications. Northrop Grumman will also begin to deploy video over IP capabilities that will enable the Commonwealth to extend the use of video across the agencies. Northrop Grumman will work with VITA in marketing video solutions over its IP infrastructure that improves the business processes and mission-critical needs for the Commonwealth.

Verizon Business offers video teleconferencing as part of its contract with VITA. Northrop Grumman will take over the management of these services as exist through manual mechanisms and improve on the management to be part of our centralized services through its single network services of MPLS. Northrop Grumman will work with VITA and the corresponding agencies to understand their equipment and management solution and improve upon its capabilities through consolidated of all services through a single network service of MPLS with dynamic QOS and VPNs.

Northrop Grumman will meet with the Commonwealth on video teleconferencing requirements. Northrop Grumman, through its partnership with MCI, has designed and is delivering an advance MPLS solution that supports end-to-end dynamic QOS and VPNs on a per packet basis through its network service switches based on the applications.

Northrop Grumman will deliver each application with the required jitter, loss, and throughput that is required based on the port bandwidth that an agency procures. In addition, Northrop Grumman will monitor from Verizon Business centralized telecommunications Network Operations Centers and from Northrop Grumman's centralized enterprise Network Operations Center the utilization of bandwidth per quality of service. This per packet quality of service that is available to VITA and its agencies is unique and advanced in industry standard network services in supporting their applications. Thus, Northrop Grumman will deliver critical data applications and also latency and jitter sensitive voice and video application through its single port MPLS network services with QOS and VPN support.

In terms of video over IP, Northrop Grumman will provide a QOS that meets the jitter and loss requirements in its highest QOS level to communicate real-time video conferencing over its MPLS network services.