

**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 consolidate voice, video and data on a single multi-service IP network. Through the use of voice and video over IP, Northrop Grumman will reduce additional Centrex costs, reduce Install, Move, Add, and Change (IMAC) costs, and reduce the burden of maintenance and configuration management for voice and video telecom services.

In addition to the Centrex voice services, MCI, as an exclusive partner to Northrop Grumman, is delivering the long-distance PSTN services, calling cards, and inbound toll-free (dedicating and switched) calling.

As the business cases dictate, Northrop Grumman will migrate voice and video services to its single multi-service network. Northrop Grumman will reduce the need for additional access lines because the voice and video services will be integrated on the single multi-service network.

Northrop Grumman will deliver a voice and video telecom service that will continue to support existing service offerings (such as Centrex voice), and based on business case, migrate to IP-based solutions to provide savings and operational simplicity and flexibility.

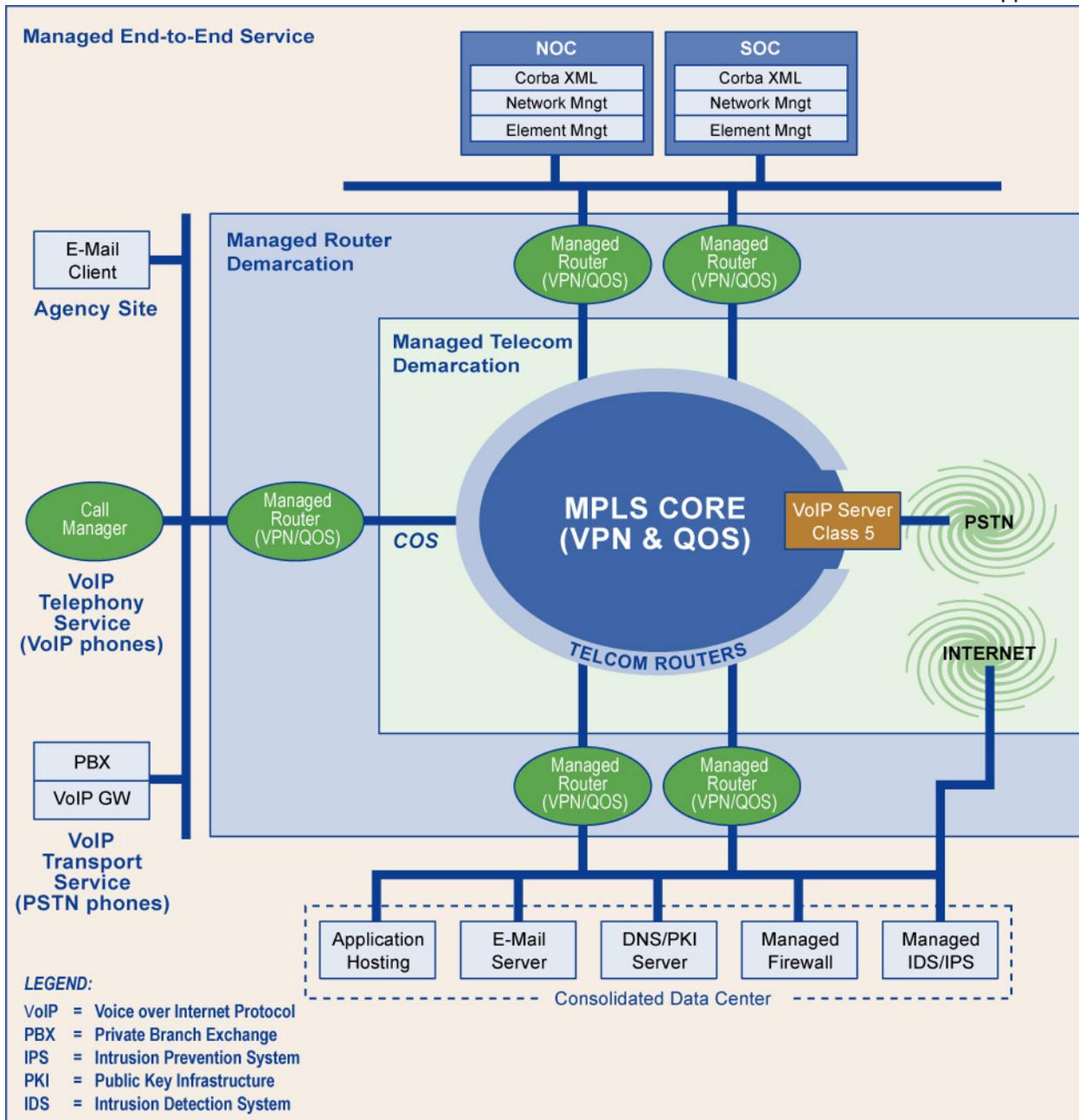
### **Detailed Solution for Managed End-to-End Service**

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 secure e-mail and VoIP telephony on a single multi-service network that incorporates end-to-end QoS to meet the diverse SLAs.

Northrop Grumman will integrate VoIP call managers with MCI's VoIP network gateway service, which communicate with traditional voice services such as Centrex and the PSTN network. VITA's network will support QoS to provide the necessary end-to-end SLA requirements (especially jitter) essential for VoIP communications.

The Northrop Grumman multiservice network solution also supports the stringent jitter requirements for high definition television (HDTV) quality video across Northrop Grumman's IP-based solution. These same video requirements are supported through the QoS provided from Northrop Grumman's LAN 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.



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**Exhibit 1 Managed Secure E-Mail and VoIP**

### 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.

VITA's primary voice communication is through Verizon's Centrex, which supplies customer phone equipment, voice network, voice messaging, and directory listing services. In addition to the Centrex voice services, MCI, as an exclusive partner to Northrop Grumman, supplies long-distance voice service, calling cards, and inbound toll-free (dedicated and switched) service.

Northrop Grumman will continue to operate the legacy services through the existing contracts. As the business case dictates, Northrop Grumman will focus initially on migrating agencies and sites to VoIP with a solution that interoperates with the PSTN and Centrex services. Through a planned migration of voice, Northrop Grumman will work to reduce voice costs associated with maintenance of legacy services and enable the same service delivery across the agencies independently if their solution is VoIP or Centrex.

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.

MCI offers video teleconferencing as part of its contract with VITA. Northrop Grumman will offer the same video teleconferencing services with the same Service Levels Agreements as exist in the MCI contract with VITA, as outlined in Appendix 9 Schedule 3.3 (Voice and Video).

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 MCI 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.

### **Technology Refresh**

Northrop Grumman's technology refresh for centrex PSTN phones involves implementation of VoIP call managers and phones in year 5 of the contract. Northrop Grumman will refresh the VoIP call managers in year 10.