IP Migration Simplified for Government Professionals

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Step Three
Two key concerns are raised whenever a substantial new application, such as CA, is to be implemented on an existing IP network. The first concern is whether the network has sufficient capacity to support the new application. Is there enough bandwidth between company locations to support the additional load created by conferencing? The second concern is the impact of this new load on applications currently using the IP infrastructure. Will the introduction of CA slow down mission-critical applications and make them hard to use or even render them inoperable? This step of the planning process answers these questions.

Network Review
Demand
Create a demand spreadsheet that predicts the bandwidth required between each geographic location at the peak hours of utilization. This spreadsheet is created by determining the number of endpoints, calling patterns expected from those endpoints (times, length and to what location), and call bandwidth.

By reviewing the existing network a determination can be made as to its ability to support IP-based CA. The review includes WAN link bandwidths, router devices, router OS levels and QoS capabilities in routers and switches. Endpoint connections are examined to determine if endpoints have dedicated switched connections or are on shared media.

The second step of the network review is to determine current utilization levels on key WAN links during the busiest hours. This step helps determine the impact on existing applications of CA’s introduction. Key business applications and the approximate number of users are identified for modeling purposes.

A good first step to accomplish this task is a network review and test that reviews and tests a subset of the network environment. This review is intended to accomplish two goals:

1. Test a designated portion of the network
2. Expose network engineers to the process so they can determine the best way to proceed with the rest of the network validation

Network Modeling
The information collected in these steps is combined with predicted demand to determine the network’s conferencing capacity. A model of key inter-campus links must be built to determine CA’s impact on existing data applications. The results of this stage show the trade-off between network upgrades if they are required, and the number of simultaneous CA sessions that can be achieved. At this stage of the process a plan can be formulated on how to proceed with some combination of network upgrades and planned introduction of IP-based CA to different sites.

Network Verification
Once any network upgrades have been accomplished, or it has been determined that the network already has sufficient capability, the network must be tested with synthetic traffic. Test tools must be introduced to the network to create traffic that simulates the CA load. This traffic is measured against SLA requirements for bandwidth, packet loss and jitter. Issues discovered during this phase are reviewed with the networking group. The problems are isolated and a plan put in place to correct any issues. This testing phase often finds issues that are otherwise overlooked, and insures that the network is clean and operational when the CA equipment is first installed.

Network Verification Tools:
- Net IQ’s Chariot™ Product
  www.netiq.com/products/chr/default.asp
- H.323 Beacon tool
  www.itecohio.org/beacon