



# THE CASE FOR INTEGRATED NETWORK MANAGEMENT

A well managed network consolidation improves service and saves governments money.

**MAINTAINING MULTIPLE NETWORKS** in various agencies is costly for governments. Even within agencies, governments could save money and resources by consolidating video, voice and data networks. In today's budget environment, governments are eliminating wasteful spending when a more efficient solution exists. Network consolidation allows agencies to free up funds and staff for projects that would otherwise go unfunded due to a lack of resources.

Consolidating video, voice and data networks across geographic and agency boundaries saves money on software licensing fees, hardware repair and replacements, and maintenance expenses. For instance, moving voice connectivity onto data networks saves organizations long-distance charges and makes network changes, such as moving telephone extensions, less cumbersome and costly. A converged network also helps provide the types of services and features that today's citizens and government work force have come to expect. Web-enabled citizen services, telework initiatives, always-connected field workers and executives, 311,

and unified public safety communications are just a few areas where converged networks provide benefits to government.

Although the benefits of network consolidation are evident, the challenges are also daunting. Networks capable of carrying voice communications and the advanced services that are necessary for today's government, such as video surveillance and video conferencing, require a far more robust quality of service than traditional data networks. A momentary delay delivering data from a database or Web page may go unnoticed by end-users, but a delay in delivering voice or video packets can make such communications undecipherable. Organizations also must see to it that uptime on the consolidated network is maintained at an extremely high level. A network failure, while never a good thing, will completely paralyze an organization if all communications and data services are relying on it.

To achieve success, governments are maneuvering through best practices and proven maturity models to make the transition, including assessing the existing network situation and usage, plan-

ning the consolidation and implementation, professional development for staff and end-users about the new capabilities, and managing the converged infrastructure after the consolidation is complete. After the network is deployed, it is recommended that governments develop a management approach that takes all of these factors into account. This should smooth the consolidation process and help optimize performance.

## **Network Design and Implementation**

A consolidated network capable of carrying streaming video, data and voice capabilities must be well planned and implemented. The network must give priority to streaming packets, so real-time communications are not broken up, but also avoid causing any deterioration of traditional data applications. It must be built from the latest networking technology, such as devices that support Power over Ethernet, and have enough bandwidth to support the planned services. It also needs to have redundancy built in and should be armed with a network and voice management solution that proactively monitors

for performance, utilization, quality of service and outages. Many governments are turning to solution providers for the entire implementation because these partners can supply knowledge of industry best practices and see the implementation through all phases of execution, including planning, deployment, staff education and support after deployment.

For government agencies that decide to manage their own implementations, software tools are available to assess current and historic network patterns so the information can be used to plan future needs into the network. Once the consolidated network is deployed, performance-monitoring tools can help anticipate and resolve problems before they become an issue for end-users. Fault management software is available to automatically correlate multiple events to pinpoint the actual root cause of outages and degradations. And many of the same tools can be used to plan future additions and changes, including modeling “what-if” scenarios.

### **The People Factor**

In addition to managing the technical resources, the organization must align its human resources to the needs of the consolidated network. As networks converge, staff roles and responsibilities may need to be redefined, new policies created to meet the new network’s requirements, and professional development focused on the new technology must be planned for and provided. Organizations should plan and budget for this as they move forward with the consolidation. Management tools should support these new roles and policies.

A network management solution should be capable of providing high-level dashboards and data as well as granular insight and analysis so that it’s useful to a large variety of users. Dashboards and logical network mapping can make these complex networks easy to comprehend,

and role-based reporting provides information that maps to operational engineering and personnel. If a problem occurs, for instance, the CIO may want to pull reports on whether service-level agreements are being met and which users and services are affected. This must be identified in order to determine a high-level course of action based on organizational priorities. On the other hand, network engineers might pull network-device maps and reports on network traffic and configuration data in order to correct the problems.

### **Monitoring Security and Performance**

Because today’s networks, particularly converged and consolidated networks, are incredibly complicated, tools that automatically monitor performance and troubleshoot problems are essential. Automating network monitoring and utilization management allows network managers to focus on strategic initiatives for the agency or government, rather than fighting fires. Automation increases uptime dependability and productivity for network users because automated tools help contain and remediate problems faster — usually before users are affected — than manually addressing each problem as it arises.

Network managers should deploy tools that automatically monitor network activity and alert administrators to network events that degrade or disrupt service prior to the performance being affected. For instance, if a new benefits policy causes call levels to spike in the human services call center, the monitoring technology would alert network staff that utilization is above normal behavior and when call levels will exceed capacity if left unattended.

Network-monitoring tools should also be intelligent enough to automatically correlate multiple, related events in order to avoid inundating network staff

with alerts that are all triggered from a single event. Based on historical data, industry best practices and service-management policies you can define, monitoring tools should be able to determine which events and traffic flows put the network in critical danger and which ones pose a lesser risk. When there’s a problem, tools should automatically discover the disruption’s root cause and suggest remedies or, where appropriate, fix the problem automatically.

### **Integrating With Other Functions**

Network-management tools also should support an integrated approach to managing both network devices and new real-time communication applications, such as call processing and voicemail, as well as the communications systems, such as the call server and network gateways. As networks are consolidated, various network specialists will bring their expertise to the table. Network tools should help them to easily work together and manage the network seamlessly. This requires network management tools that integrate easily, preferably out-of-the-box, and consolidate service management and alarm notification onto a single pane of glass.

This type of integration allows a help-desk ticket to be automatically generated and assigned to staff for resolution, for example, when an alert is raised for a potential network performance problem. Once closed by the help desk, the single pane of glass should reflect the fix.

Network-consolidation efforts can provide big benefits for governments, especially during an economic downturn. Governments should take care that these initiatives progress smoothly by implementing tools, policies and planning processes that address the many factors that are essential to success before, during and after the consolidation effort.



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