Telephone Company Increases Capacity to Support New Services

Consolidated Communications deploys Carrier Ethernet to enable new revenue-generating services.

EXECUTIVE SUMMARY

CONSOLIDATED COMMUNICATIONS

- Industry: Service Provider
- Location: Illinois, USA
- Number of Employees: Approximately 1000

BUSINESS CHALLENGE

- Reduce operational expenses while improving customer experiences
- Maintain service resiliency while simplifying network architecture and preparing for the widespread implementation of IPv6
- Deploy network that can offer new, enhanced, revenue-generating services quickly and easily

NETWORK SOLUTION

- Upgrade network with Cisco ASR 9000 and ME3800X routers
- Interconnect existing regional networks with new 10GE backbone, future 100GE
- Intercity transport with ONS 15454 DWDM and ASR 9000 IPoDWDM

BUSINESS RESULTS

- Significantly increased capacity to support new consumer and business services
- Faster deployment of new services across all markets on common infrastructure
- Network infrastructure ready for transition to IPv6

Business Challenge

Consolidated Communications is one of the largest independent local telephone companies in the United States, providing advanced communications services to both residential and business customers in Illinois, Texas and Pennsylvania. The company offers a wide range of services over its advanced IP-based network, including local and long distance telephone, digital phone, high-speed Internet access, and digital television.

Consolidated Communications sought to upgrade its network to meet several critical requirements.

The first was to meet the bandwidth demand of consumers being driven by more high-definition channels, greater video on-demand options, and faster Internet access. Over-the-top applications are also consuming more capacity, and Consolidated needed to optimize the usage of its Internet peering links to Tier 1 providers in all three of its markets. The company also saw an increased demand from its business customers for Carrier Ethernet services.

All of these demands had to be met while at the same time reducing operational expenses; however, the network architecture presented a challenge. The existing Consolidated Communications network was actually three separate networks or “islands.” Each network was operated independently, making it more time consuming to deploy new services common across all customers’ markets. It also meant that some equipment, such as video head-ends, had to be duplicated to help ensure resiliency.

Network Solution

After extensive evaluation, Consolidated Communications chose to deploy a Cisco® IP Next-Generation Network (NGN) Carrier Ethernet System. The selection of the system approach provides the company with benefits that go beyond the performance of the individual platforms that make up the system. The Cisco Carrier Ethernet System is a pre-tested, validated, end-to-end network solution for service providers, and includes the network management tools to operate it and the full backing of the Cisco services team, if needed, to bring it all together. This support minimizes the amount of time and technical resources required to test and validate the performance of the network, and reduces the risk of any required capabilities not being available. Instead Consolidated could

leverage the Carrier Ethernet System Design and Implementation Guide that provided a “check list” for service deployment, along with performance and scaling parameters for the end-end network.

Consolidated Communications implemented an inter-market IP backbone, interconnecting its three markets. This one network provided identical features and services across all markets. This approach meant that, instead of having two active video head-ends, one head-end could now serve as a backup. Now customers can enjoy higher service resiliency without the need for the operator to invest in additional video equipment.

> “With Cisco, we’re able to spend our time on turning up customers, not building the network, and we’ve gained over 20 percent more IPTV subscribers in the past year.”
> **– Tom White, VP of Engineering and Network Operations, Consolidated Communications**

The Cisco ASR 9000 series was chosen as the foundational platform due to its scalability to 100GE, multicast performance for efficient video distribution, and high availability with the Cisco IOS-XR operating system. The end-to-end quality of service (QoS) performance of the Cisco IP NGN Carrier Ethernet System helps ensure that the one network can deliver a mix of consumer voice, video, and data traffic, along with mission-critical business services.

For some smaller locations, the Cisco ME3800X was deployed due to its compact size combined with 10G capability. Intercity transport leverages the ASR 9000’s IP over dense wavelength-division multiplexing (DWDM) capabilities and Cisco ONS 15454 reconfigurable optical add-drop multiplexer (ROADMs) to minimize the use of transponders. For network management, Cisco Active Network Abstraction (ANA) was chosen for end-to-end provisioning and fault monitoring.

When it comes to being ready to support widespread adoption of IPv6 due to the exhaustion of IPv4 addresses, Consolidated Communications is fully prepared. The Cisco Carrier Ethernet System offers the industry’s widest selection of IPv6 features. Essential capabilities such as dual stack, IPv4-over-IPv6, and IPv6-over-IPv4 tunneling technologies work in conjunction with large-scale Network Address Translation (NAT) capabilities to facilitate the migration to an all-IPv6 network. This capability helps ensure that the company’s network investment is protected and that it can offer new IPv6-based services at a time of its choosing.

Business Results

In terms of network architecture, Consolidated Communications will go from having three separate operations to one single integrated network. Services can now be launched faster into each market because they immediately become available to all at the same time. Furthermore, this new IP network has enabled Consolidated Communications to improve its video and data offering in very competitive markets.

Video, voice, and data are now transported across the intermarket and intramarket backbones while still providing redundancy for key services, consolidating key resources, and reducing operational costs. A further benefit of the new network is a reduction in the number of expensive connections to Tier 1 ISPs providers for Internet peering. For business customers, Consolidated Communications is now able to offer advanced Carrier Ethernet Services to more business customers, and able to increase its fastest connections available to 10GE.

Already the new network is positively affecting the bottom line. With its increased capacity, high performance, quality of service, and efficient video broadcast capabilities, Consolidated Communications can offer more high definition and on demand to its residential customers. “With Cisco, we’re able to spend our time on turning up customers, not building the network, and we’ve gained over 20 percent more IPTV subscribers in the past year” said Tom White, VP of Engineering and Network Operations.

Beyond the increased profitability, reduced operational expenses, and improved time to revenue, the new network has a strategic benefit to the company, because as new regions are launched (due to acquisitions), they have the common network to easily integrate these regions.

PRODUCT LIST

Routing, Switching, and Optical

- Cisco ASR 9000 Series
- Cisco ME 3800X Series
- Cisco ONS 15454 MSTP

Network Management

- Cisco Active Network Abstraction for network management

For More Information

To find out more about the Cisco IP NGN Carrier Ethernet System, go to: http://www.cisco.com/go/ce.

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