

# Solving the Home Network Management Challenge

Consolidated Communications saves money and time with streamlined device management and customer support tools.

EXECUTIVE SUMMARY	
<b>Customer Name:</b> Consolidated Communications®	
<b>Industry:</b> Service Provider	
<b>Location:</b> Illinois, USA (headquarters)	
<b>Number of Employees:</b> Approximately 1700	
<b>CHALLENGE</b>	
<ul style="list-style-type: none"> <li>• Simplify management of 100,000 DSL residential gateways already deployed</li> <li>• Reduce overall operating expenses while improving customer satisfaction</li> </ul>	
<b>SOLUTION</b>	
<ul style="list-style-type: none"> <li>• Deployed remote management solution for visibility into the home network</li> <li>• Automated configuration and analysis of home gateway devices and customizable device interaction</li> <li>• Created intelligent reports to facilitate migrations, upgrades, and asset management</li> </ul>	
<b>RESULTS</b>	
<ul style="list-style-type: none"> <li>• Fast, easy troubleshooting and bulk management, in one case avoiding US\$30,000 in outage costs</li> <li>• Automated, faster, and more frequent device upgrades with savings of 80-100 hours per upgrade</li> <li>• Time to on-board new gateway vendor models cut in half</li> </ul>	

## Challenge

Consolidated Communications is one of the largest independent local telephone companies in the United States, providing advanced communications services to residential and business customers in California, Illinois, Kansas, Missouri, Pennsylvania, and Texas. The company offers a wide range of services, including IP-based digital and high-definition television, high-speed Internet, voice over IP, carrier access, directory publishing, and local and long-distance service.

Consolidated High-Speed Internet service includes a digital subscriber line (DSL) Internet service, and the company provides free home networking equipment to all of their residential customers. The company sought to improve the overall manageability and supportability of the approximately 100,000 DSL residential gateways in customers' homes. Consolidated has six different gateway models in service, each of which is configured differently and can connect to multiple Internet-capable TVs, laptops, gaming consoles, smartphones, Internet cameras, and other networked devices.

Standard tasks such as updating device configurations (Wi-Fi, port forwards, and more) as well as firmware across the six different gateway models were consuming an inordinate amount of developer time and required a skilled technician to perform them. For each gateway type, a developer would need to manually push specialized commands to upgrade it or make a device configuration or firmware change, an extremely manual and time-consuming process.

Consolidated relied on an internal system that automatically logs into all of the company's residential gateways but provides no visibility into any devices that lay behind that gateway. For the support agent, even determining the manufacturer and model of the home gateway that Consolidated provided to the customer was not a simple task. Consolidated needed better tools to help it more easily troubleshoot issues in the home network.

## Solution

After extensive evaluation, Consolidated Communications chose to deploy Cisco Prime™ Home (formerly a ClearAccess solution), a standards-based remote management and provisioning solution that provides visibility into the home network based on the Broadband Forum's TR-069 standard.

For Consolidated Communications, the ability to customize device interaction using the Java-script SDK from Cisco Prime Home has been invaluable, because it allows the company to pull configurations from devices and develop custom workflows. Cisco Prime Home provides an API that presents one standard interface, removing the need for Consolidated Communications' engineers to learn the TR-069 data model of all six device types under management. Cisco Prime Home provides simplified, common device manipulation and management across all gateway types, allowing Consolidated to save time and effort developing tools and helping enable technical support to push configuration changes easily and quickly. New devices are able to be on-boarded quickly; with Cisco Prime Home drivers, once a device is added in, the engineers can manipulate it in the same way they do for all other devices. This capability helped Consolidated's "run book" automation practice, which indirectly helped drive down support call handle time. Consolidated now is able to see all gateways and any connected devices in a single view; this also helps shorten call handle time for advanced home network configuration tasks such as enabling port forwards through the router firewall.

**"Before Cisco, we would perform, on average, one upgrade per device type per year, each of which required 80-100 hours of a technician's time. Now, we perform three to four times that number of upgrades, all automatically."**

— Chris Smith, Senior Manager Network Operations Center, Consolidated Communications

Consolidated Communications runs various operational reports using Cisco Prime Home to facilitate migrations, upgrades, inventories, and asset management. These fast, automated reports provide the following types of information:

- Number of devices that have been upgraded during a firmware upgrade
- Device counter information, including instances of exceeding threshold values such as device uptime
- Device count by type. Prior to deploying Cisco Prime Home, Consolidated Communications needed to run a series of scripts in their aggregation routers to determine the number of devices in service (and the count was not always accurate).
- Number of reboots over a certain time period

Periodically Consolidated engineers may view which device types (for example, iPads, iPhones, Android devices, and more) are connected to the residential gateways in customer homes. Engineers gather this information on a weekly basis and can see, for example, that a specific device (e.g., an iPad) was in the home last week but is not there today. Without Prime Home, Consolidated would not have the ability to know the device had been there previously.

Consolidated Communications also uses Cisco Prime Home bulk operations capabilities for a variety of multidevice management tasks, such as upgrades, greatly saving administrative overhead time.

## Results

### Automated, faster, more frequent device upgrades

With Cisco Prime Home, Consolidated Communications is able to push out new firmware updates on gateways automatically and during maintenance windows. Before Prime Home, they used a set of device update scripts that someone would have to monitor overnight. This task would take approximately four hours for one set of devices, and it would take one month to upgrade all 100,000 devices. Consequently, the company did not elect to perform upgrades very frequently; however, now with Cisco Prime Home, the company can perform upgrades faster and without requiring a technician to monitor the process. As a result, engineers perform more upgrades per year, requiring less work and lowering operating costs. Formerly, Consolidated would run one upgrade per device type, per year (on average); and now the company runs two to three upgrades per device type, per year and saves 80-100 hours per upgrade.

### Less developer time required to onboard new device

When Consolidated on-boards a new device type, it incurs developer time using its automation tools. With Cisco Prime Home, the time to onboard a new device is cut in half. Formerly, it would take about two weeks to enable most of the functions needed for a device; now the time required is under one week, lowering operating expenses and freeing up developers for more strategic tasks.

### Fast, easy troubleshooting

Occasionally problems arise that affect many subscribers, and individually addressing each customer through direct support is not possible. Cisco Prime Home helps Consolidated Communications alleviate this problem. In one instance, a new firmware load created major problems on a specific gateway model; when the technicians upgraded the firmware, it would reset to factory defaults, losing all subscriber settings. Initially, 30 percent of the devices were experiencing this issue, resulting in 300 calls the following day. Using Cisco Prime Home, the developers wrote a script to backup and restore the configuration of each individual home gateway, helping ensure no service impact to the customer if the problem was encountered.

PRODUCT LIST
Network Management
• Cisco Prime Home

In a worst-case scenario (without Cisco Prime Home), 30 percent of the 40,000 devices, or about 12,000 devices, would have been affected. This degree of impact would have had devastating consequences for both call center resources and the customer experience. In addition, the provider never would have wanted to

perform a firmware upgrade again for those specific gateways. Thanks to Prime Home, Consolidated Communications realized greater customer satisfaction and cost avoidance of approximately \$30,000 in customer service representative time during this single incident.

### Improved issue isolation

With Cisco Prime Home, Consolidated Communications is able to identify problems in the network faster. In one instance, customers with a certain combination of smartphone/tablet operating system and a specific gateway device type were experiencing issues (the gateways were re-booting frequently). Using Cisco Prime Home, Consolidated Communications was able to determine if there was an incompatibility issue with the wireless drivers in the router, and, after investigation, the company was able to turn off this particular wireless setting to stop the gateways from rebooting. Cisco Prime Home facilitated in-depth, fast troubleshooting and helped the service provider avoid a potential customer service disaster.

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## For More Information

To find out more about the Cisco Prime Home, go to: <http://www.cisco.com/go/prime-home>.



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