Customer Case Study

Cisco ScanSafe and AVC Support Cloud Intelligent Network

Cloud-based applications and pervasive video communication create bandwidth demands and security challenges for Cisco IT.

EXECUTIVE SUMMARY

Customer Name: Cisco Systems®, IT

Industry: Internet equipment and services

Location: Headquartered in San Jose, California; 470 remote sites include campuses, branch offices, manufacturing and partner facilities worldwide

Number of network users: 137,000 total: 72,000 employees plus 65,000 contractors, partners and vendors; 88 percent of users telework on a regular basis

BUSINESS CHALLENGE

- Migrating global employee services applications from in-house data center to cloud
- Migrating entire company from voice-based to video-based IP communication
- More and more users accessing consumer Internet services such as Salesforce, YouTube, Facebook, and Pandora for both personal and work use
- Better security to address bring your own device (BYOD) challenges

NETWORK SOLUTION

- Cisco ScanSafe security service on Cisco Integrated Service Router (ISR) G2 protects employee devices and access to cloud applications
- Cisco Application Visibility and Control (AVC) and Cisco Prime management provide in-depth traffic application visibility

ANTICIPATED BUSINESS RESULTS

- Contain Internet bandwidth and telecommunication costs even as traffic increases
- Help ensure that critical business video traffic flows across network
- Protect user desktops from security-related events that lower employee productivity and increase IT overhead

Business Challenge

Brian Christensen, senior director of IT at Cisco®, and his staff are responsible for supporting the company by protecting Cisco intellectual property, prioritizing bandwidth on a minute-by minute basis, planning for adequate future bandwidth, and doing it securely, effectively, and efficiently.

“Our number-one goal is to make sure that all Cisco business functions and processes, from ordering to manufacturing to the supply chain, work seamlessly, says Christensen. “But, our second goal is to drive productivity by staying on the leading edge of the Cisco IT technology innovation that we sell to our customers.”

During the past few years, while Cisco has been extolling the benefits of cloud networking and virtualization solutions to simplify operations, reduce costs, and achieve business agility, the company has been actively migrating its own major business functions to the cloud.

In a two-year project that was completed last year, Cisco moved on-premise third-party enterprise resource planning (ERP), sales force management (SFA), and customer relationship management (CRM) applications to a private cloud, along with leveraging public cloud software as a service (SaaS). The move quickly produced significant total cost of ownership and agility benefits.

This next phase of the Cisco cloud migration involves two major efforts:

- Moving server- or device-based employee services applications and file storage for telecommuter and branch office users to cloud-based streaming applications and storage.
- Supporting the company's move to a "pervasive video" unified communications platform for all users.

Both initiatives will have a major impact on the Cisco enterprise network bandwidth demands and traffic patterns.

Network Solution

To address the effects of these initiatives, Christensen and his team are devising new ways to secure and route traffic, and to better monitor and manage bandwidth.

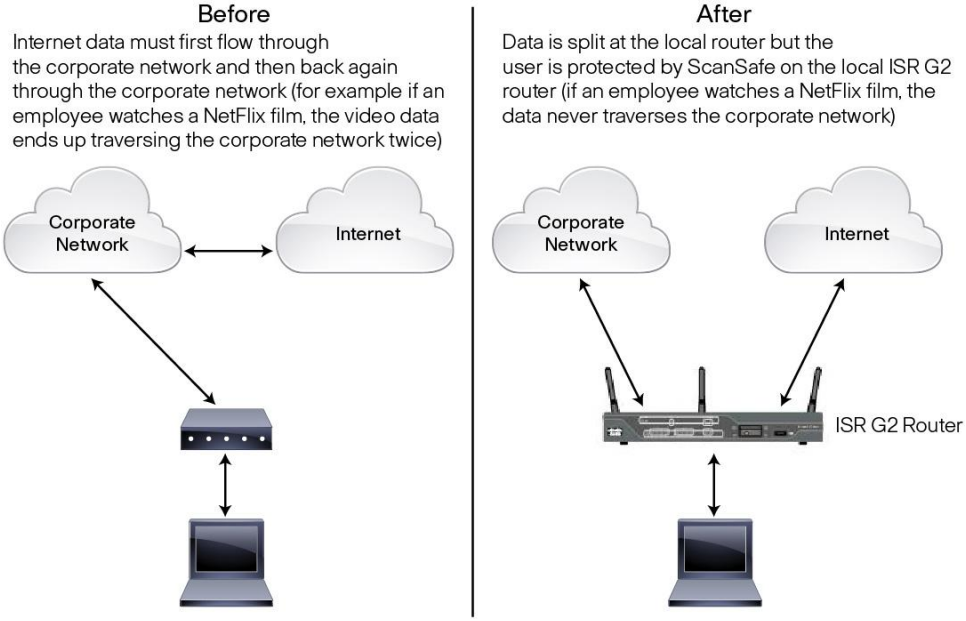
ScanScafe Security Protects Cloud Traffic and Web Users

Today, traffic from remote Cisco sites and telecommuters returns back to Cisco data centers for centralized security policy application before being redirected to third-party cloud-based application servers. But a new local direct access design will securely send traffic destined to the Internet directly to its destination and securely send internal traffic to the Cisco data center.

Mike Anderson, manager, IT network design at Cisco, says, "To support this new cloud computing design, we needed to put the right security monitoring and capabilities in the right place, so traffic and the computing environment are secure from the Internet's very real threats. That means moving from centralized policy enforcement to distributed policy enforcement."

As shown in Figure 1, instead of remote traffic heading back to the data center for analysis and security policy enforcement, IT will employ the Cisco ScanSafe security and filtering service. The service protects remote users by routing Internet traffic through its high performance infrastructure, which filters out websites that might be infected with malicious malware.

Figure 1. Cisco ScanSafe Web Security



Thanks to ScanSafe, the IT staff can build and implement granular global policies down the group or user level for all Cisco users in real time. ScanCenter web-based interface also integrates all management and reporting capabilities across the enterprise and will continuously supply the Cisco IT team with ongoing graphical trending data and forensic audits.

> "Now we will have the tools to make better informed short-term prioritization decisions as well as more informed capacity planning decisions."
> **— Brian Christensen, senior director, IT infrastructure at Cisco Systems**

Cisco AVC and Cisco Prime Analyze and Control Bandwidth

The move to pervasive video is just as aggressive. Today, Cisco employees, contractors, and vendors primarily communicate using voice over IP (VoIP), which requires approximately 80 kilobits/second of bandwidth per user. Delivering a high-quality, high-definition end-user video experience will require 2 megabits/second of bandwidth per user, 25 times the bandwidth used now. This requirement is multiplied by 137,000 users.

This enormous surge makes it imperative that Cisco IT be able to better identify and control IP traffic. As Christensen says, "We know we have bandwidth problems, but it's unclear whether they stem from business or personal use, because we didn't really know what was running on the network."

PRODUCT LIST

Routing and Switching Hardware

- Branch offices: Cisco ISRG2 881Ws
- Gateway edge router for telecommuter traffic: Cisco ASR 1000 Series Integrated Services Routers

Software

- Cisco Prime Assurance Manager
- Cisco Application Visibility and Control (AVC)

Cloud Services

- Cisco ScanSafe Cloud Web Security services

However, with the powerful deep-packet inspection capabilities of Cisco Network-Based Application Recognition 2 (NBAR2) in Cisco AVC, Christensen and his team can now identify traffic at the application level and take action to stop or limit personal or unauthorized bandwidth. This next-generation technology significantly enhances application visibility in the network and enables many networking services (QoS, routing, filtering, security, reporting, among others) to be application-aware. AVC runs on Cisco ISR G2 platforms in Cisco branch offices and the Cisco ASR 1000 Series aggregation routers at Cisco headquarter sites.

Christensen and his IT staff plan to couple AVC with Cisco Prime Assurance management real-time analytics, security, and QoS capabilities to stay ahead of bandwidth issues. Cisco Prime Assurance Manager graphically displays the results generated by AVC to produce clear, intelligent, actionable information. Historically, the IT staff has had to create its own, less effective, applications. But with Cisco Prime and AVC, they now have readily available tools, saving staff development and training time.

Cisco IT is currently piloting the ScanSafe, AVC, and with Prime management solutions at 8 offices and over 1000 employees within the company production network, with plans to deploy to 400 locations starting in the summer 2012.

Anticipated Business Results

Although the project is still in beta test, Christensen and his IT team are confident that they can achieve the following results:

Security without the (traffic) snarl. Cisco ScanSafe cloud service enables the Cisco IT staff to extend the protection that corporate network users now enjoy to teleworkers and branch offices, while eliminating the need for traffic to loop back to the data center.

Bandwidth and cost savings. By shifting telecommuter and branch office traffic onto the cloud, Cisco can maintain Internet bandwidth and telecommunication costs at existing levels, even as traffic increases.

High availability and scalability. Because Cisco AVC looks much deeper into the kinds of traffic, the IT staff gains greater control over application-specific use and abuse of the network and can take steps to help ensure that critical business video traffic flows across the network.

In addition, ScanSafe's highly parallel processing, high-speed network providers and extensive built-in redundancy combine to provide the "five-nine" uptime assurance that Cisco IT requires. Using the cloud service also helps ensure that security coverage will scale smoothly as new users and sites come online.

Better capacity planning and telecom budgeting. Cisco ScanSafe and Cisco Prime proactive alerts and detailed real-time reports help them better understand and address bandwidth issues. As Christensen says, "Now we will have the tools to make better informed short-term prioritization decisions as well as more informed capacity planning decisions. And I have the information I need to invest my telecom budget wisely."

For More Information

- To find out more about Cisco ISRG2 go to: http://www.cisco.com/go/isrg2.
- To find out more about Cisco ASR 1000 Series go to: http://www.cisco.com/go/asr.
- To find out more about Cisco ScanSafe, go to: http://www.cisco.com/go/scansafe.
- To find out more about Cisco AVC, go to: http://www.cisco.com/go/avc.
- To find out more about Cisco Prime Management, go to: http://www.cisco.com/go/prime.

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