How Content Networking Delivers Executive Messaging in Europe

Cisco ACNS enables executives in Europe and Africa to deliver timely video messages to employees without WAN overload.

Cisco IT Case Study / Application Networking Services / Enterprise Content Networking in Europe : This case study describes Cisco IT's internal deployment of a video messaging service using ACNS Software within the Cisco EMEA network. The Cisco network is a leading-edge enterprise environment that is one of the largest and most complex in the world. Cisco customers can draw on Cisco IT's real-world experience in this area to help support similar enterprise needs.

BACKGROUND

Exchanging information is critical for an organization like Cisco Systems® to stay at the forefront of a fast-moving competitive market. Two aspects of information exchange demand special attention:

- The speed of information delivery
- The efficiency of the message

The former is crucial to make sure that information can be adopted before the fast-changing environment makes it irrelevant. The latter ensures that the intended audience is effectively reached, providing the information that's needed in the shortest time. Efficiency also means flexibility in managing the granularity of information distribution, allowing targeted messaging to specific audiences without spillover to nontargeted groups.

The Executive team of the Cisco® Europe, Middle East, and Africa (EMEA) region, consisting of vice presidents and higher management in various internal organizations, sends out two or three messages per week to specific EMEA clients. These are video messages, either live or on-demand, with audio and often with slides and other information that provides a summary and links for more in-depth information.

This case study describes how these messages are delivered, the challenges of getting the information across to the audience, and what benefits are derived from using Cisco technology in conjunction with support from a local application service provider (ASP).

CHALLENGE

The team responsible in EMEA for internal communications is charged with setting up and maintaining a model for distribution of messages from the Executive team. The requirements are for targeted fast-turnaround rich media messages from the Cisco EMEA Executive team combining video from different team members, with summaries of important points and with links to more resources. Typical turnaround time is two to three days, but some messages must be dispatched within half a working day.

The Cisco EMEA IT Infrastructure team had the challenge of translating these requirements into an architecture that would support the anticipated business model.

The specific IT challenges around unsolicited rich media distribution can be summarized as follows:

- The ability to transparently deliver video objects (video files with additional material) to all Cisco employees at an equal service level without degrading the overall network infrastructure

- Scalability to accommodate the scenario where thousands of users request identical rich media content within a short time
- Security concerns around the integration with a separate ASP
- Cost efficiency in terms of minimizing the hardware and software requirements to provide this service
- Flexibility where stopgap solutions are to be avoided and IT is ready to address future solutions with similar requirements
- Manageability and supportability by aiming at convergence within the intelligent network is an absolute requirement

Specifically for the EMEA infrastructure, remote sites are on links as slow as 256 kbps, whereas the average video file is about 5 MB in size.

The following section describes how the distributed architecture of Cisco EMEA's Application and Content Networking System (ACNS) Software elegantly addresses all these challenges.

SOLUTION

Blueprint Architecture

When Cisco IT was analyzing the requirements for the Executive Communication solution, the Cisco IT Infrastructure team was deploying a global ACNS. One of its four main functions is to support distribution of video content in various formats: live streaming video (like television), on-demand streaming video, and video files pushed to the desktop. The other three functions are more closely related to applications than content:

- Delivery of software distribution, including antivirus files and urgent OS patches
- Application acceleration through caching of HTTP static content at the edge
- HTTP worm and virus blocking locally, at Internet points of presence, and at lab gateways

Content engines are installed in each of the 68 office locations throughout EMEA. They have the intelligence to support intelligent multicasts of live streaming video and to provide video files to laptops quickly from a local device, saving employees the time of downloading these large files over the WAN.

The global Cisco IT ACNS network has a three-tiered architecture, with the core systems in San Jose, California, and Research Triangle Park, North Carolina. Hub content engines are located in the three EMEA core sites and edge content engines are in each of the 68 field sales offices (Figures 1 and 2).

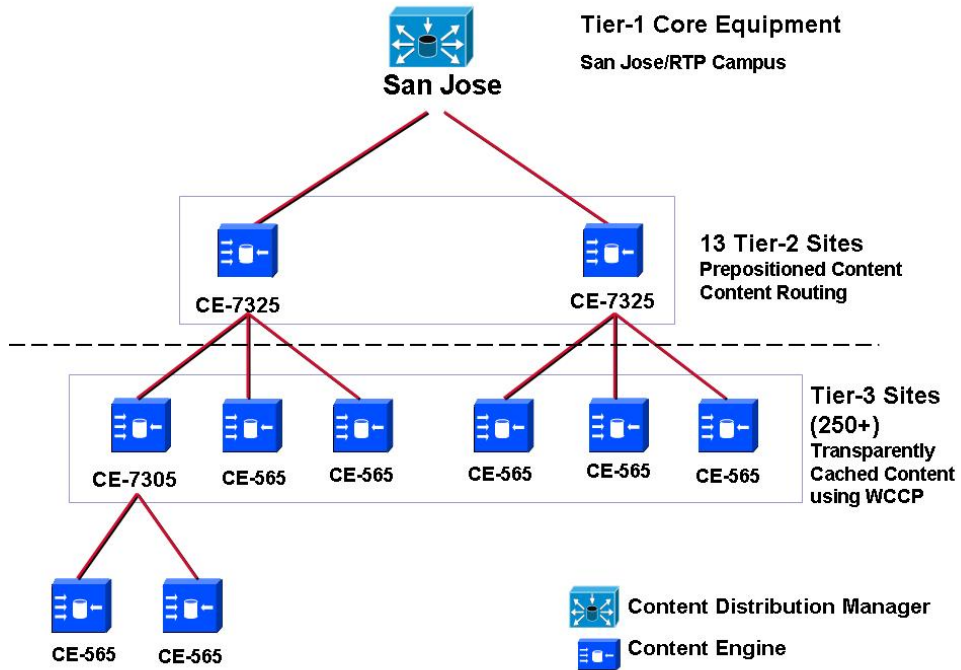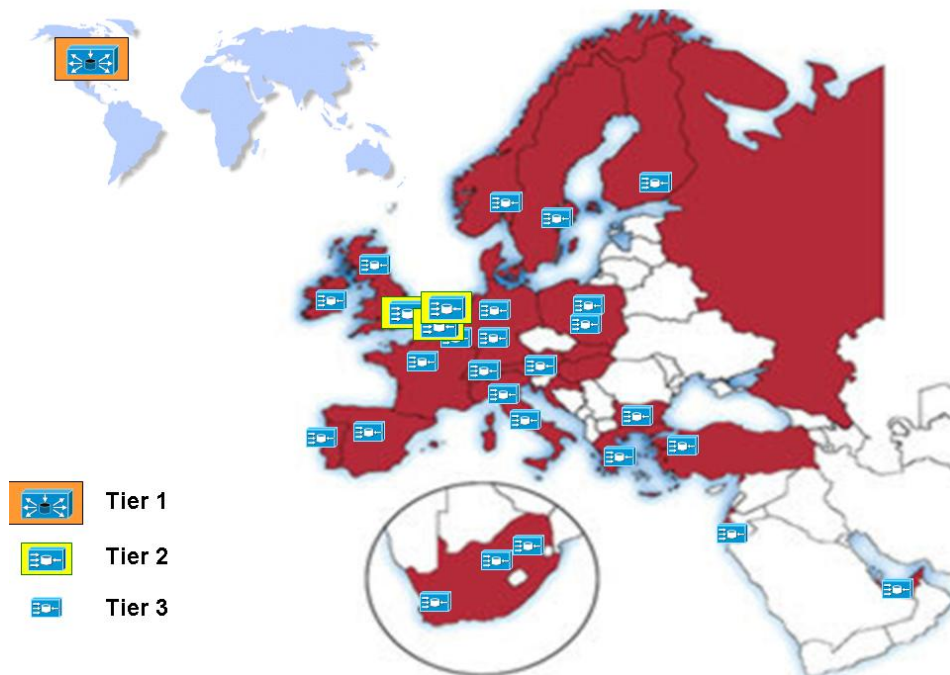**Figure 1.** Global Architecture of ACNS Network

Figure 2. European Deployment of ACNS Network

Performance

The current Cisco IT ACNS meets the challenges of the Executive Communication team. It enables the delivery of messages with an average size of 4 to 5 MB to a potential population of more than 5000 clients. If these files were streamed or downloaded from their source directly to each of these clients, they would consume huge amounts of bandwidth on the EMEA WAN. Either the bandwidth load would become unacceptable or the throughput would no longer meet reasonable client expectations. The distributed ACNS service, running on a WAN that supports multicast technology, spreads the load such that any specific content engine never serves more than 1000 clients.

One of Cisco IT's primary goals is to converge all content-related network services onto a single infrastructure. The Cisco ACNS-based content network supports this goal, as it not only delivers video but also forms the basis for corporate software distribution, antivirus update file distribution, HTTP worm and virus filtering, and caching of static and streaming media. This convergence turns the ACNS solution into a flexible, manageable, and supportable element of Cisco IT's core infrastructure.

Application Service Provider Model

Cisco IT developed a working arrangement with a local ASP to overcome the security risks associated with content ownership. Cisco IT wanted to take advantage of the ASP's experience with video packaging and delivery, quality control, and service management, but needed to keep the content of the videos within Cisco. The agreed-upon solution has Cisco IT recording the video and providing the related presentation or document files and links, and the ASP providing the packaging and service management.

The process of packaging begins with Cisco generating announcements consisting of text, graphics, and video. The textual objects (including the main message) are compiled into a proprietary format and posted on the external ASP server. The graphical objects (such as pictures of the presenter or the video file) are posted on an internal server. Graphical objects are linked into the textual wrapper (the main object) by using content-routable URLs. Subsequently, the Cisco ACNS network acquires both the textual and the graphical objects and distributes all objects over the internal network.

The ASP integration is required to provide all subsequent message services (such as surveys, feedback, tracking, and changing the client). Sensitive information such as video files never leaves the Cisco network. After a video message is recorded, the ASP ensures that the content, including the video, text, and graphics, is wrapped for delivery. The message wrapper, the embedded video URL, and the feedback and reporting are processed by the ASP.

Existing laptop software such as an e-mail client and browser were considered insufficient to provide the end-to-end message delivery solution. Hence, the ASP-ACNS solution included an additional software client, which was delivered to all internal laptops over the ACNS infrastructure.

Cisco IT considered an alternative to this solution: hosting a single large content server within the data center in Amsterdam. The data center hosting would have needed to acquire the necessary hardware, commit resources to set up the hosting environment, and assess the security risk of setting up this environment outside Cisco IT's firewall. This last element added major complexity to the entire solution, which was avoided elegantly by adopting the ACNS built-in HTTPS-based acquisition mechanism.

The different steps of the process from content creation to content push to the desktop are outlined in Figure 3.

Figure 3. Content Flow Diagram with Cisco ACNS and Value Add ASP
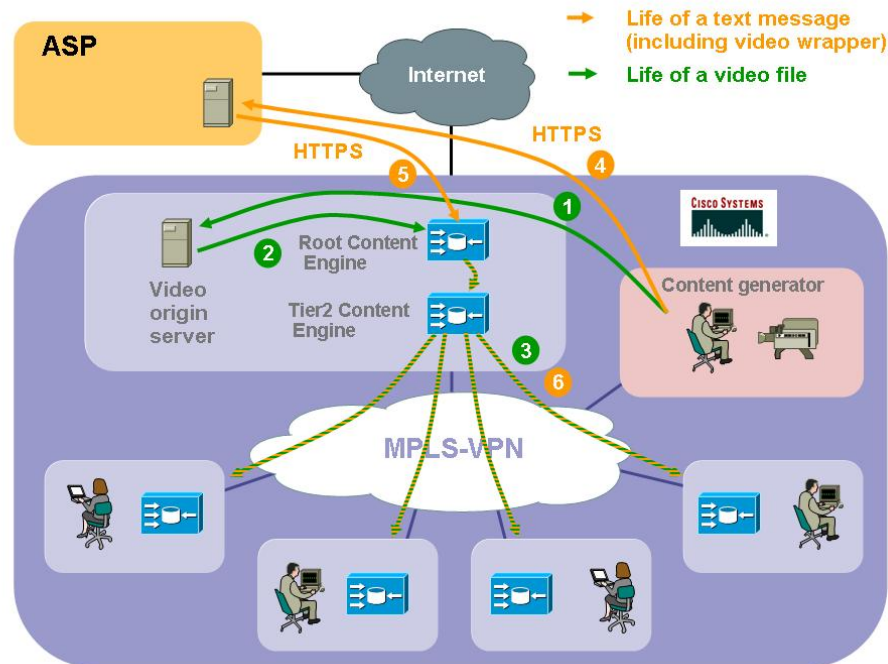
RESULTS

This solution enhances the effectiveness of the delivery of communication at reduced operating expenses and greater productivity for all teams involved. The benefits can be categorized as follows.

Speed and Quality: The video communications from Cisco EMEA's Executive team are delivered within agreed-upon service levels across EMEA. The high-profile push-media channel ensures that the most important video messages reach their intended audience rapidly. Timely, accurate, and informative content based on a user's region, job, preferences, and individual selections is delivered to the individual's desktop.

Metrics for quality are collected to make sure that service quality remains high. The ASP collects this data and reports on metrics for the communication distribution, hence reducing the need for internal staff and tools. As an example of the sort of data available, Rob Lloyd's (VP EMEA) Company Meeting message was shown to reach more than 3000 PCs in one morning. Similarly, another executive message reached 2000 users in less than four hours. From the start of this system, not counting profile prompts and duplicates, 15 messages have been sent within a month and more than 50,000 individual messages have reached users, each with an average video size of 5 MB. Overall user feedback is very good, and an increasing number of executives are using or planning to use the new Cisco IT ACNS-based messaging solution. The corporate communications teams are starting to notice differences in efficiency of messages, because the better ones get better evaluations. This feedback can be used by the Executive team to improve how they develop communications.

IT Infrastructure: After the ACNS infrastructure is in place, there is no need for additional hardware to host the video content. On the WAN side, the effect on bandwidth is negligible. There is inherent scalability in the hierarchical distributed server model. Cisco IT has created a flexible content model that can easily be extended to other content service requests. The risk of data corruption has been reduced to virtually zero through a secure architecture by safe

acquisition from the ASP portal. The acquisition from the ASP portal is made both reliable and secure by transporting all content over Secure Sockets Layer protocol. The same mechanism is used for distribution within the ACNS.

NEXT STEPS

As a next step Cisco will focus on upgrading the client application and the back-office side of the ASP model, mainly the reporting and change management procedures. With the next upgrade of the client application, planned for release in late 2004, changes to published content will become much easier. Currently after a message has been built through the Web-based console, the whole message must be rebuilt if any changes are made to the content. With the new version, changes can be done within the existing content. On the reporting side, metrics are tracked only when the user has selected OK to view the message content after the initial pop-up. Reporting will be enhanced to also track how many users from the initial pop-up select OK to view or Go Away to dismiss the message.

FOR MORE INFORMATION

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NOTE

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