



Application Note

Getting the Most Value from Business Video

Most enterprises understand clearly why video is the next best thing to being there, and often better. It conveys much of the intimacy and immediacy of seeing someone or something in person, without the expense of travel—and it can let the viewer control the time and place. Video has proven itself the best way for executives to communicate corporate strategies and achievements to employees, departments to deliver sales and product training, and organizations to ensure and track that employees receive training required for regulatory compliance. Into

Video often has not been a low-cost solution, however. Large companies may make hundreds of tape or DVD copies of a program and express-mail them to offices or departments all over the world. Or they may transmit the program by satellite to regional headends for distribution over the enterprise WAN, at a high cost in WAN bandwidth. The first technique entails sharing and tracking the video; the second, slow downloading for locations whose WAN connections run at T1 speeds or lower, especially if each employee downloads the video individually. Moreover, when DVDs or tapes with proprietary information are released to mail or packaged services, their security is no longer assured, and it is not easy to recall them if information needs to be changed.

There is an easier way: Video programs can be transmitted to each location over the WAN at night or when the first user requests one during the day, and all viewers from then on receive the program from local storage over their LAN. The program goes over the WAN once; viewers see it at LAN speeds, meaning they can receive full-screen video rather than a small, unsatisfactory window. Content can be updated as often as desired, even the next day. And the cost is minimal in both distribution and bandwidth.

Many organizations have realized large savings in time, travel, production costs, and bandwidth using caching technology in the form of the Cisco® Application and Content Networking System (ACNS)—in one case, the cost per viewer went from \$3.00 to 2 cents.

VIDEO—THE MOST COMPELLING WAY OF COMMUNICATING

Video, whether live or on demand, is perhaps the premier way to educate employees about organizational priorities and get them onboard: It is effective because it brings both intimacy and immediacy to the material being watched. Intimacy is inherent in video because the viewer sees the “whole picture”: participants’ expressions, emphases, and enthusiasms, as well as the details of any objects—for example, in a training video, what the human-machine interface of a product looks like and how to use it. The viewer thus acquires huge amounts of information. And video is versatile. It draws the viewer in, whether the program offers an individual talking, a panel discussion or Q&A session, a presentation that includes slides or demonstrations, or a walk-through of a sales visit. This intimacy makes it especially useful for:

- Executive communications about corporate goals, achievements, changes in direction, and new campaigns. Employees appreciate getting a sense of the person making the announcement, and the executive’s urgency, pride, and priorities come across naturally.
- Sales force and product training. Viewers can return to parts they need to watch again, training can be delivered no matter where the employee is, and the content can be updated frequently. This feature is especially valuable for technology, pharmaceutical, financial, and other industries where products change frequently.
- Employee regulatory compliance training. Again, viewers can repeat certain sections to make sure they understand them, and the video can display documents along with a talking head to clarify the information. In addition, the delivery system can monitor which employees have seen the material.
- Some universities are using video to make copies of lectures and other resources available any time as an important part of what they offer students and faculty. Podcasting lectures while they’re taking place or later for review is already becoming common.

The appeal of video is widely recognized, but its immediacy is not, and immediacy is a crucial part of its usefulness. The material must be delivered in a timely way so it is fresh and accurate: Yesterday's news loses its value. It is usually best delivered at the viewers' convenience—when it fits into their schedule and preferably at their workspace.

Video is also effective, however, when it is delivered to large groups at scheduled times in a conference room or other controlled environment when that's what the company needs—for example, to report earnings or changes in strategic direction to employees.

Whatever the content, it must be delivered in an affordable way. If new tapes or DVDs must be prepared every time the content changes, the material may not be timely; if they must then be shipped out in large numbers, the method is too costly for video to be widely used. And sending the video over the WAN to everybody who should see it can consume prohibitive amounts of bandwidth.

EASY IMPLEMENTATION

The Cisco Application and Content Networking System (ACNS), in which video programs are cached locally for retrieval and viewed over the LAN at LAN speeds, is part of the Cisco business video solution. It is a cost-effective way to deliver timely content to any or all employees wherever they work.

Typically, a video is created by someone in the enterprise, either at an in-house studio (which can be a specially designed room or simply a PC with a camera and extra lights) using MediaPlatform Enterprise, Microsoft Windows Media Producer, or similar tools, or at a firm that specializes in creating video content. The result is fed into an origin server, which can work in any operating system accessible by HTTP, HTTPS, FTP, Trivial File Transfer Protocol (TFTP), or Common Internet File System (CIFS)—in other words, all the major protocols.

The Cisco ACNS supports MPEG, Windows Media Technologies, RealVideo, and QuickTime Streaming Video. Microsoft's Windows Media Encoder can be used to capture a live event for distribution over Cisco ACNS for later viewing on demand.

The video enters Cisco ACNS when the origin server passes it to a Cisco Wide Area Application Engine (WAE), which serves as a root application engine and is typically located in the data center, through a streaming video hub that converts the signal from analog to digital form. (The Cisco WAE is the new name for the Cisco ACNS Content Engines.) Under the direction of a Cisco WAE serving as a content distribution manager, the root application engine can split the video stream to send it, through a router over the WAN, simultaneously to multiple recipients. Usually the first stop is an intermediate tier of regional Cisco WAEs—the bandwidth between headquarters and the regional locations is likely to be fairly high. These intermediate engines then stream the video to the user locations. The root application engine can also stream the video directly to user locations if there are only a few.

In either case, the video may be prepositioned at the user location overnight, when bandwidth demands are low, ready for the first viewer or pulled when the first viewer of the day requests it. If viewers pull the program, they can begin watching it as soon as the local Cisco WAE appliance or router integrated network module (NM-CE) has received a certain portion of it.

When the video is in the Cisco WAE, all subsequent requests from that location are satisfied from the engine over the LAN, so the burden of delivering it to large numbers of employees is removed from the WAN. Depending on the LAN speed, the bandwidth may well be enough to convey full-screen video. Depending on its purpose, the program can be delivered anytime as streaming video or at scheduled beginning times.

Users have a choice of devices on which to view the video: desktop PCs; laptops, if the LAN has wireless capabilities; kiosks, useful when employees do not have individual desks and PCs; regular television sets; or touch-screen systems, if they need to interact with the program. If a video monitor or plasma screen is used, Cisco ACNS can support both National Television System Committee (NTSC) and Phase Alternating Line (PAL) encoding.

The CDM can be programmed with policies such as the amount of WAN bandwidth that can be used for video, the priority assigned to video, the direction of certain content to specific regions or categories of viewers, and the timing for a given video to be revised or refreshed.

The Cisco Business Video solution also includes planning, implementation, and operational guides incorporating best practices for successfully creating, managing, and deploying streaming video content.

A video solution enables the enterprise to keep strict control over its intellectual assets, as the video content remains on company-owned application engines, not on DVDs or tapes distributed, in some cases, around the world.

ROI—PROVEN MANY TIMES OVER

- Enterprises using Cisco ACNS have reported savings from numerous factors:
- Reduced support costs. Servers used for video distribution can be assigned to other tasks.
- Reduced storage costs. The amount of storage saved can add up to tens of terabytes of space for a large enterprise.
- Delayed bandwidth upgrades. Taking heavy video demands off the WAN frees a lot of current capacity.
- Savings on travel. People no longer need to attend meetings and training seminars in person.
- Lower management costs. Distribution is managed centrally, and the local office essentially just plugs in the content engine.

Many enterprises have already demonstrated significant savings:

- A major U.S. retailer wanted to improve the overall profitability of its stores by implementing a performance-improvement program for its employees. Cisco ACNS enabled the company to do so without adding WAN bandwidth to every store—for an estimated annual savings of US\$3 to US\$5 million.
- A global communications company used Cisco ACNS to communicate information about a new product launch, saving on travel and remote training and enabling trainers to reach more employees. Savings from this single use—US\$4 million—paid for the Cisco ACNS investment, which will be used over and over.
- A business-to-business distributor of technology delivers training to its sales and engineering employees worldwide; savings accrue from not taking people out of the field for training—which is of better quality than formerly—and avoiding what would have been significant additional WAN bandwidth expenses.
- A U.S. retail food chain used Cisco ACNS to roll out a new internal portal designed to be its primary tool for communicating with employees. The video communications over Cisco ACNS cost the company US\$1 million less annually than previous communications applications.
- An international journalism company wanted to connect remote employees to its headquarters more cohesively with fireside chats and executive briefings. The Cisco ACNS video solution has paid for itself in 6 months by cutting bandwidth costs. The company plans to use Cisco ACNS for e-learning as well.
- A major pharmacy benefits management company has installed a far-reaching, advanced video infrastructure to help meld employees from multiple business units and acquired companies together; part of its solution includes Cisco ACNS for video streaming. The decision was made in April 2003; the Cisco ACNS network was ready in time for a major announcement in mid-May and is now used routinely for executive announcements and video-on-demand (VoD) training.
- Cisco Systems® has installed Cisco ACNS to handle business video as well as other tasks, such as software downloads, virus updates, and application acceleration. The video savings alone have been substantial: US\$3 million in storage costs and US\$61,300 on server support annually, in addition to a one-time savings of US\$1.4 million in new servers it did not have to buy—and US\$115 million annually in training costs.
- Two specific Cisco examples: Cisco created an ISO 9001 training site using streaming video, hypertext, and animation, reached through a PC browser. Training time for quality teams was reduced by 80 percent, enabling the company to roll out 7 additional sites for ISO audits in just 5 weeks, down from 3 months, with costs of just US\$16,000 per site. Cisco also set up a 2-hour live event with multiple presenters hosted by its CEO, John Chambers, for all employees. Three thousand saw it in person, 5,000 watched it live, and another 21,000 saw it through VoD within 2 weeks—more than 90 percent of the company's employees. Using VHS tapes, the cost per employee would have been \$3.00. With Cisco ACNS, the cost per employee was 2 cents.

Savings have also been realized in education:

- Fort Hays State University in Hays, Kansas, transmits videos to classrooms through Cisco ACNS, replacing a process that required a technician to go to the classroom, set up a VCR and TV, and monitor the playback. By giving faculty control over video, Cisco ACNS has enabled the university to increase the quality of its education, eliminate operating inefficiencies, and reduce the costs associated with video production.
- Given a statewide mandate to offer language instruction to kindergartners, the Fremont County, Wyoming, School District chose to deliver the instruction online, saving the cost of hiring new teachers. Cisco ACNS enabled the district to reach all its kindergarten students without buying additional WAN bandwidth, expanding facilities, and purchasing traditional educational materials such as workbooks.

A RESOURCE WITH MULTIPLE APPLICATIONS

As these and many other enterprises have found, business video delivered by Cisco ACNS is highly successful and cost-effective in conveying corporate messages, improving employee skills and performance, and bringing people in widespread organizations closer together. Its benefits do not stop there, however. Its flexibility encourages companies to use video in innovative ways, further improving communications within the organization and with suppliers, partners, and customers. Business video is so easy to use that one individual can create and distribute programming. Content can remain in circulation for as long or short a time as desired, and it can be changed at any time—even daily.

Moreover, Cisco ACNS can be a shared resource. When installed, the system can also distribute software, accelerate the response times of Web-based applications, and accelerate security updates—it can send out antivirus signatures in near real-time, if desired. The system easily pays for itself installed for any of these uses; adding others simply magnifies the return on investment—a compelling reason to buy.

Getting started is easy, because Cisco ACNS rides over the existing enterprise IP network and requires only several types of Cisco WAEs for data center, intermediate tier, and remote locations. Best-practice guidelines are available from Cisco that cover designing an installation from conception to pilot to full-scale implementation, and, of course, Cisco Technical Assistance Center (TAC) staff is available to help. To learn more about business video over Cisco ACNS and other Cisco ACNS solutions, visit <http://www.cisco.com/go/acns>.

THE CISCO ACNS SOLUTION FOR BUSINESS VIDEO

The following products comprise the Cisco ACNS solution for business video:

- **Cisco Content Engine Network Module (NM-CE)**—The network module provides integrated branch services in a small deployment.
- **Cisco WAE-511 Wide-Area Application Engine**—The WAE-511 is a dedicated appliance for edge deployment in small or medium-sized networks.
- **Cisco WAE-611 Wide-Area Application Engine**—The WAE-611 is a dedicated appliance for edge or core deployment in medium-sized to large networks.
- **Cisco WAE 7326 Wide-Area Application Engine**—The WAE-7326 is a dedicated appliance for large enterprise edge or core deployment.

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