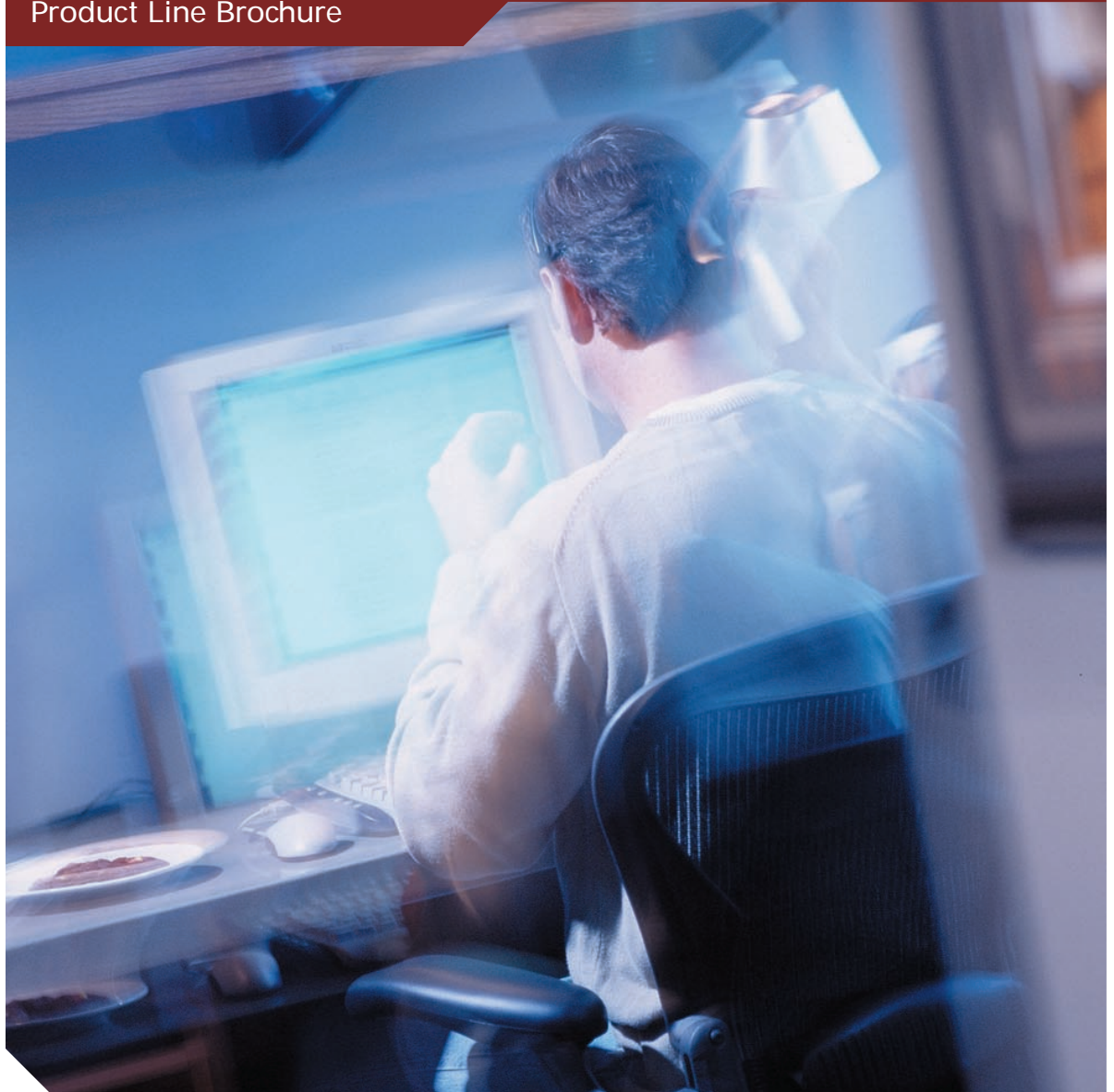


Product Line Brochure



Effective E-Communications,
E-Collaboration, and E-Learning
with Cisco Enterprise Content Delivery
Networks and IP Videoconferencing







Corporate Communication

As companies become more global, organizations are challenged to communicate effectively and efficiently across dispersed geographic regions. Successful companies recognize that real-time, consistent, and powerful communication with all employees throughout the organization is critical. A truly optimized workforce has the right information at the right time, and the ability to act on that information and be accountable for it. Developing workforce competencies and accelerating the speed at which they are acquired is the key to survival and growth.

“Cisco’s solution enabled Reuters to enhance our corporate communications infrastructure to ensure that our employees receive company information in a timely manner. Keeping our employees informed with up-to-the-minute information is extremely important during this time of unprecedented organizational change.”

—Mike Sayers
Reuters CTO



Job Corps Uses Videoconferencing to Enhance Training

Job Corps is the largest and most comprehensive residential education and job training program for at-risk youth, ages 16 to 24, in North America. Administered by the U.S. Department of Labor, Job Corps centers are located throughout the United States and Puerto Rico.

Job Corps leaders recognized that budget constraints were affecting the company's ability to communicate with and train members of its far-flung organization each year. Travel expenses steadily increased as staff visited Job Corps centers to communicate new policies, deploy software, and train thousands of managers and staff. Job Corps used Cisco products exclusively to build a network that would solve these problems. Cisco IP/VC™ videoconferencing equipment made a scalable, reliable, and effective training program available to more than 120 Job Corps locations in the United States, freeing up financial resources for other business priorities.

Industries that benefit from e-communication solutions include:

- Education
- Financial Services
- Government
- Healthcare
- Hospitality
- Pharmaceutical
- Retail

Cisco Systems enables organizations to create, manage, and deploy learning and communications across an IP infrastructure to support e-business initiatives.

E-communications, e-collaboration, and e-learning are critical applications across an organization.

Executive Broadcasts and Employee Communications:

- CEO vision and executive addresses
- Ongoing updates on corporate policies
- Sales activity reports, customer wins, sales contests and awards
- Human resources benefits and services
- Corporate, marketing, and public relations events and schedules

High-Impact Meetings:

- Virtual collaboration across distributed workgroups or with business partners
- Global or national meetings

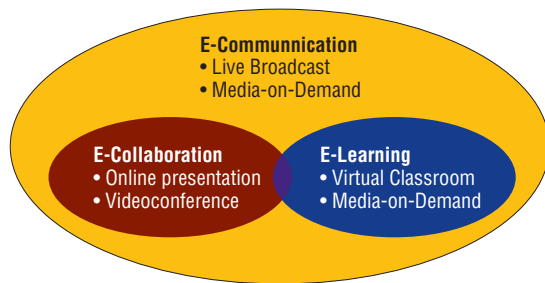
E-Learning:

- New employee orientations
- Lifelong learning
- Sales training
- Technical training
- Distance learning

By using their intranets and IP networks to communicate important information, organizations realize significant returns through cost reductions, decreased overhead, and measurable productivity gains.

“Instead of having people spend half a day driving to campus and hunting for parking—or catching a plane—we deliver the sessions to them live at their desks.”

—Harold Ostrow
U.S. National Institutes of Health



E-communication solutions enable live broadcasts to large groups in geographically dispersed locations, as well as two-way interactive communications. By using IP multicasting to deliver live broadcasts, organizations can take advantage of high-quality training and communications on the network, while reducing costs. For learning or communications events that require extensive interaction, IP videoconferencing provides a powerful solution for real-time feedback and collaboration.

E-Communication Enables a “Collaborative” Organization

E-collaboration effectively eliminates the barriers of time, distance, and resources, permitting people in different locations to behave as if they were in the same room. Companies that adopt e-collaboration technology can integrate telecommuters, arrive at decisions faster, and train and educate employees effectively. Educational institutions can interactively disseminate knowledge anywhere, creating a “campus without walls.” Just as online collaboration enables doctors to consult specialists all over the world to provide the best care for their patients, it also gives employees in worldwide organizations instant access to “subject matter experts” no matter where they are located. Organizations that “humanize” their communications in this way can reduce administrative costs and increase productivity, profitability, and competitiveness like never before.

Today's Learning and Communications Challenges

Organization	Individual
<ul style="list-style-type: none"> • Sustaining positive employee morale • Constant change in employee base • Constant change in product information • Diverse and dispersed workforce • Travel costs and restrictions • Educating and motivating partners • Ensuring customer loyalty • Continual pressure to do more with fewer resources 	<ul style="list-style-type: none"> • Job insecurity • Rapid change • Vast amounts of new information • Constant demands on time • Escalating skill requirements • Travel concerns • On-the-job safety concerns

“Cisco’s e-learning solution not only enables us to deliver a Spanish curriculum to all grade levels but also allows us to augment classroom lessons in math, science, and other subjects.”

Sandy Barton
Director of the Fremont County BOCES

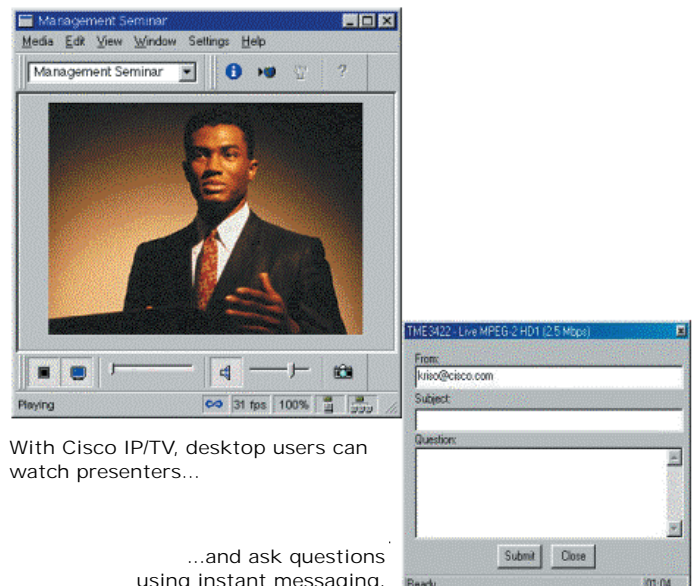


E-learning Enables Easy Knowledge-Sharing across Time Zones

E-learning has emerged as a cost-effective way to create, manage, and share knowledge while still controlling delivery, assessment, and administration. By bringing learning online, companies can break away from the “same time, same place, one-size” learning model, and instead offer a new style of “anytime, anyplace” learning better suited for their employees, partners, and customers. Today, IP-based technologies such as content networking and videoconferencing make it possible for enterprise companies to provide rich, engaging learning and information on their networks.

Fremont County School Districts, Wyoming, Use Cisco CDN to Deliver Foreign Language Program to Every Student in the State

When Wyoming legislators mandated a foreign language program for every kindergarten through high school student in the state, the central Fremont County School District was challenged with finding dozens of Spanish teachers for classrooms by the fall of 2000. With a general shortage of language teachers throughout the state and funding cutbacks for new teaching positions, school administrators instead forged a creative partnership with a local university, the Board of Cooperative Education Services (BOCES), and Cisco to deploy a sophisticated, e-learning solution that reaches every classroom in the state.



With Cisco IP/TV, desktop users can watch presenters...

...and ask questions using instant messaging.

Benefits of E-Communication, E-Collaboration and E-Learning

Benefit	Results
Greater access to information and learning materials	Removes the barriers of global distribution
Faster access to new information and learning materials	Delivers content electronically; removes time delay associated with traditional delivery methods such as regular mail, couriers, and fax service
Time savings	Reduces travel and classroom time by delivering knowledge on the network instead of via traditional, more expensive classroom sessions
Cost savings and return on investment (ROI)	<ul style="list-style-type: none"> • Forrester Research places the average ROI on intranet applications at 1238 percent • Training Magazine states corporations save 50 to 70 percent of their overall training costs by replacing traditional training with online delivery • Transmitting videoconferences over standard ISDN lines is expensive and prone to connectivity problems • Live, on-demand, online delivery enables savings on facility rental fees for large meetings or assemblies
Maximize existing technology investments	Uses IP network, intranets, extranets, and Internet systems to provide additional functionality and services. Part of the AVVID infrastructure for optimizing network and application performance.
Consistency across audiences	Better consistency of information than traditional methods ensuring that the communication is delivered the same way, everywhere.
Higher retention rates	<p>"There is general agreement among researchers that people retain about 20 percent of what they hear, 40 percent of what they see and hear, and 75 percent of what they see, hear, and do."</p> <p>—Geoffrey R. Amthor, Multimedia In Education: An Introduction</p>

Siemens Medical Solutions Uses Streaming Media in Its Executive Briefing Center

Siemens Medical Solutions Health Services Group in Malvern, Pennsylvania, operates the health industry's largest information services center and health information network. The company provides application hosting, e-commerce, enterprise systems management, and managed Internet and infrastructure services for health enterprises, public health systems, hospitals, university-based health institutions, children's hospitals, home-care agencies, long-term care facilities, physicians groups, clinics, providers, and ambulatory care centers. Siemens Medical wanted to implement a sophisticated video streaming solution in its Executive Briefing Center (EBC) for customer demonstration purposes. They use Cisco IP/TV[®] to stream news-related content into a Web browser during customer EBC visits to effectively demonstrate the power of streaming media and keep customers informed. The Cisco IP/TV solution meets their streaming video needs today and provides a foundation for deploying enhanced corporate communications and e-learning modules internally to employee desktops in the future.





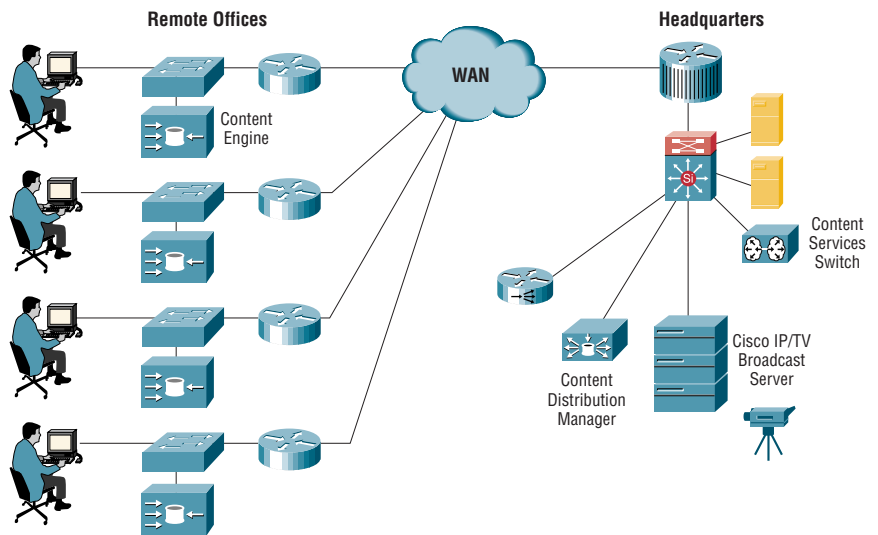
Cisco Enterprise Content Delivery Network and IP Video Solutions

Depending on their needs, enterprises can choose to deploy simple or sophisticated e-learning and e-communication solutions. To capture and deliver live events and corporate communications, enterprises can deploy a Cisco IP/TV Broadcast Server and Control Server. The IP/TV system uses multicast technology, which makes it possible for organizations to deliver high-quality live broadcasts—even synchronized slide presentations—to desktops and meeting rooms with network efficiency.

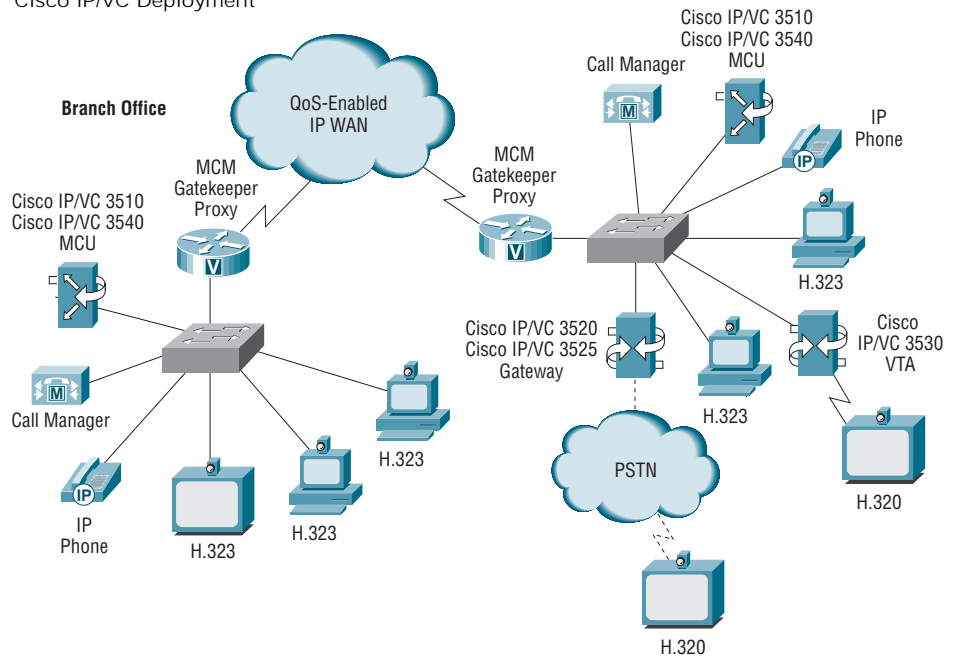
For live two-way events, enterprise companies can deploy Cisco IP/VC technologies to use their IP network infrastructure for high-quality videoconferencing. Users can dynamically share views (spreadsheets, Web pages, and so on) and engage in text chats, whiteboard exchanges, and rapid file transfers.

For on-demand delivery of video, software, and files associated with training or communications, companies can deploy a Cisco Content Distribution Manager (CDM) in their data centers and Cisco Content Engines at their branch offices.

E-Learning and E-Communications Content Delivery Network



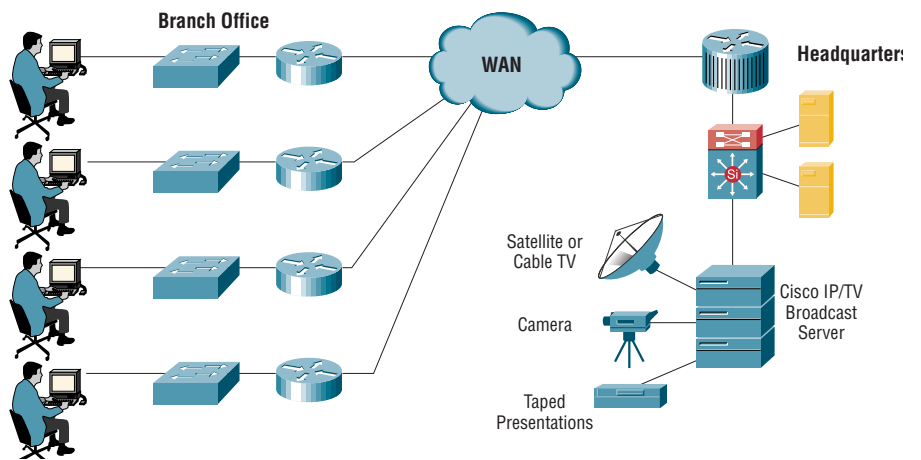
Cisco IP/VC Deployment



Cisco IP/TV, Content Distribution Managers, and Content Engines are components of a Cisco Enterprise Content Delivery Network (ECDN), a global distribution network of intelligent delivery nodes that transparently route content requests to the best or closest source for playback. By moving high-bandwidth content as close to the end user as possible, enterprises can overcome the limitations of low-bandwidth Internet connections. Content Engines can serve both “pushed” and “pulled” information that has been pre-populated at the edge or cached from a website.

For organizations that want to deploy a sophisticated e-learning solution, companies can use Cisco live and on-demand systems integrated with applications such as live collaboration servers, learning management systems, knowledge authoring tools and custom or “off-the-shelf” business content.

Cisco IP/TV Deployment



The Dollars and “Sense” of E-Communications and E-Learning

Cisco Systems, Inc.

Cisco rapidly and inexpensively deployed its first employee directory several years ago—In addition to the \$3 million saved each year, the application has been a powerful cultural driver, bringing employees to the Web and enhancing overall communications and productivity.

A Cisco employee, on average, attended six training events for the year, a third of which were Web-based. In the absence of Web-based training, at least half of each training class requires travel. Through Web-based training events, Cisco has avoided \$31 million in additional training expenses.

IBM

“IBM saw \$200 million in savings from e-learning in one year. The company provides five times as much training at one-third the cost in its management development program.”

E-Learning Across the Enterprise,
Benchmark Study, Brandon-hall.com,
July 2000.

U.S. Census Bureau

“Enhancements in performance and applications will result in increased cost savings, productivity, and improved real-time, enterprise-wide communication for organizations like ours that are taking advantage of Cisco products.”

—Larry Patin, Chief of the
Telecommunications Office,
U.S. Census Bureau

Cisco AVVID: The Foundation for Cisco Enterprise Solutions

Cisco AVVID (Architecture for Voice, Video, and Integrated Data) provides the definitive intelligent network infrastructure for Internet business solutions. Cisco AVVID unifies the environments of data, voice, and video to enable converged applications such as unified messaging and distributed customer care. Cisco AVVID also provides content networking capability, improving user experience across the network and optimizing application performance. Content networking recognizes packet flow content and then applies intelligent network services such as quality of service (QoS), as well as content distribution, routing, switching, and delivery services. Further, Cisco AVVID includes the security solutions required for today's accelerated business environment. The Cisco SAFE blueprint, which comprises security solutions based on the Cisco AVVID foundation, provides scalable and integrated security solutions throughout the network. Finally, Cisco AVVID supports the full range of emerging network capabilities from wireless technologies, to virtual private networks (VPNs) and optical infrastructures.

The Cisco IP/TV, IP/VC, and ECDN solutions, which are part of Cisco AVVID, allow for fast integration and deployment, ensuring that organizations can quickly take advantage of all that an IP-based infrastructure offers. Whether it is the delivery of rich media for a true Web-enabled e-learning solution or enhanced partner extranets for supply-chain management, Cisco AVVID lays the foundation for optimal network integration and scalability today and in the future.

Major Retailer Saves Time and Money with Cisco IP/VC

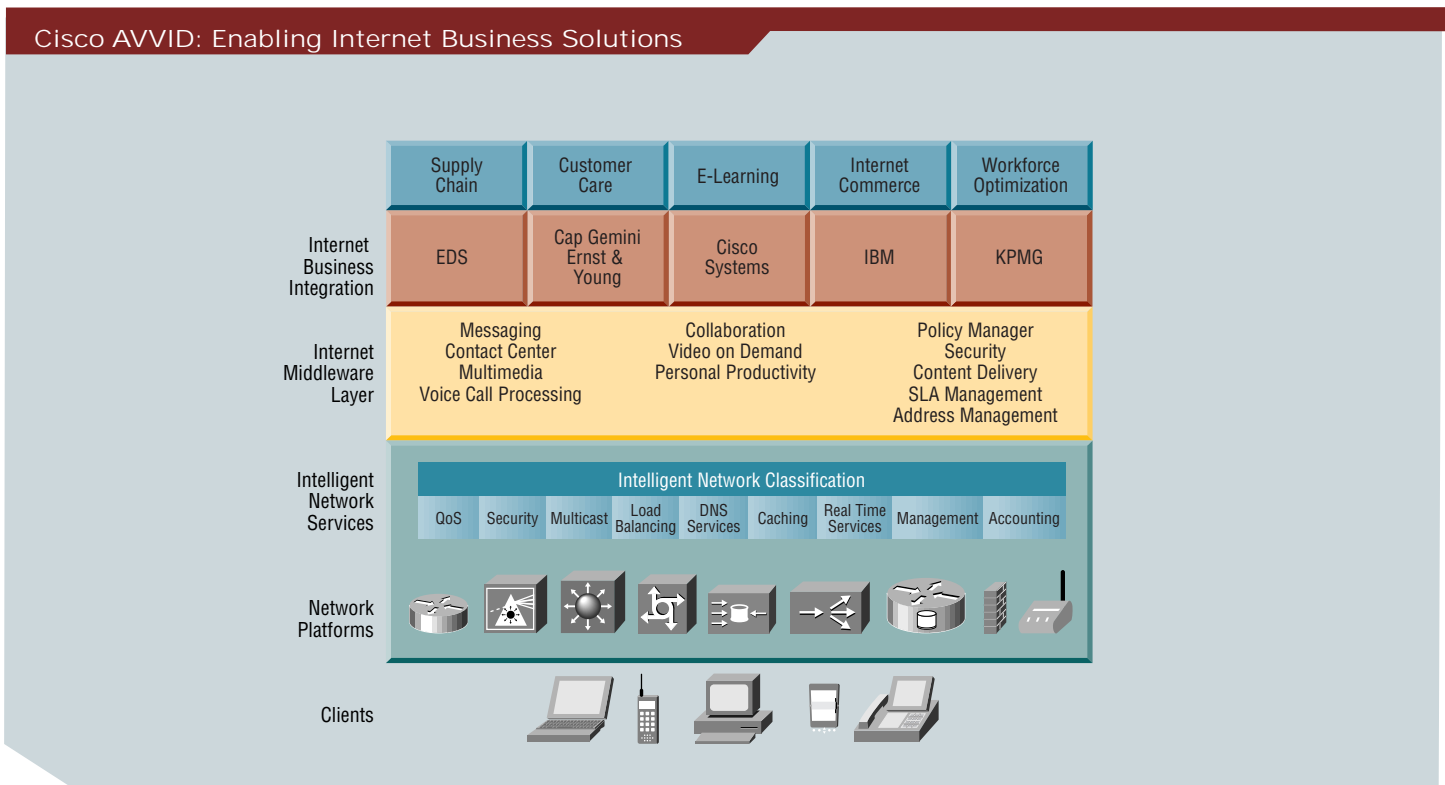
Hannaford Brothers Company, based in Scarborough, Maine, owns and operates 107 supermarket and food and drug combination stores in Maine, New Hampshire, Vermont, Massachusetts, and New York. Recently, Hannaford merged with Delhaize, a Belgian-based retailer with worldwide operations. In addition to its grocery business, Hannaford also operates a large product distribution trucking operation and three distribution centers. Delhaize's American holdings make it the fifth-largest grocery operator in the United States.

Cisco replaced Hannaford's existing videoconferencing system with a Cisco IP/VC solution and laid the groundwork for a company-wide move to IP telephony. By utilizing components of the Cisco Architecture for Voice, Video and Integrated Data (AVVID), Hannaford was able to take advantage of the new efficiencies of its IP network to increase productivity and cut costs.

Hannaford Brothers needed an efficient and cost-effective means of enabling international meetings and presentations. In addition, Hannaford wanted to move its traditional operations into the 21st century and use new IP-based technologies to cut costs throughout the organization.

"That's the real benefit of Cisco IP/VC. It puts a face to a name. The savings that Cisco AVVID and Cisco IP/VC bring make money available to expand our IP technologies."

—Mary Natale,
Networking Communications Specialist,
Hannaford Brothers Company



Cisco ECDN and IP Video Solutions Components

Cisco IP/TV Broadcast Server and Control Server

The Cisco IP/TV Broadcast Server and Control Server provide the “live” capabilities in a content delivery network. The Cisco Broadcast Server can be used to capture a live event for on-demand viewing or scheduled delivery. Presenters simply deliver their content at a location equipped with a server and camera, and the Cisco Broadcast Server captures and streams it as live MPEG or WMT video programming with or without synchronized slides. The Cisco Control Server is the management component that the network administrator uses to schedule and control video on the network. At the desktop, the learner can “tune into” programs using a TV-guide-like interface.



Cisco IP/VC Videoconferencing Equipment

The Cisco videoconferencing solution encompasses a range of stackable and modular chassis-based products. It includes multipoint conference units that enable interactive collaboration between three or more endpoints, gateways that provide connectivity between networks of IP-based H.323 endpoints and ISDN-based H.320 videoconferencing systems, and video terminal adapters that connect single H.320 systems to IP networks. In addition, the T.120 data collaboration servers expand the capability of any videoconference to include application sharing.



Cisco Content Distribution Manager

The Cisco Content Distribution Manager (CDM) is a Web-browser-based administrative tool that provides complete control over the learning delivery network. Through a graphical user interface, enterprise companies can configure and monitor Cisco Content Engines anywhere in the world, import and preview any rich media—including TV-quality video—and generate media URLs for access from Web sites. A key feature of the Cisco CDM is its ability to set maximum bandwidth usage rates for distributing learning content to Cisco Content Engines over the WAN, as well as for delivery over the LAN to desktop learners, or even kiosks or television monitors.



Cisco Content Engines

Cisco Content Engines are the remote nodes that deliver content to the learner at LAN speeds, instead of using expensive and limited WAN bandwidth. The Cisco Content Engine can serve cached Web content from any Web site, such as breaking news from a broadcast source (such as CNN, Bloomberg or CNBC), the CEO’s quarterly earnings report, or “prepopulated” information from internal departments such as human resources, training, or sales and marketing. Rich-media content can be integrated into a learning management system or launched from an existing intranet or extranet Web site. Organizations have the flexibility of using any format, including MPEG, Windows Media Technology (WMT), RealG2, QuickTime, Shockwave, Flash, software executables, PowerPoint, graphics, and so on. In addition to delivering rich learning and communications or Web pages, Cisco Content Engines can be used to block nonbusiness Web sites or to grant Internet access to certain users.



Cisco Content Router

The Cisco Content Router is a compact, high-performance solution for enabling premium Web services over public or private networks. Customers can transparently route user Web browsers to the optimal content engine for file delivery.

With its patented routing technology, the Cisco Content Router provides redundancy, scalability, and performance enhancements for network Web sites. Using Hypertext Transfer Protocol (HTTP)-based re-direction, the Cisco Content Router can redirect users behind the security of a corporate firewall, making it a vital component of the Cisco end-to-end Content Networking Solution.



Storage Array

The Cisco Storage Arrays are external, rack-mounted storage devices that tightly integrate with Cisco Content Distribution Managers and Cisco Content Engines for increased performance and capacity. Used as part of a Content Delivery Network, they enable customers to scale up to a half of a terrabyte of storage for streaming media and other rich content files.

Conclusion

There is no question that successful e-communications, e-collaboration, and e-learning deployments can improve the financial bottom line by improving employee productivity, morale, and education. With the advent of content delivery networks and IP videoconferencing, enterprises now have a powerful way to communicate with and educate employees, partners or students. By deploying networks based on the AVVID infrastructure, organizations can unleash a number of new network services that will maximize their network investment.



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