

Cisco IP/TV Version 3.5

Cisco® IP/TV® Version 3.5 delivers a complete, highly scalable, bandwidth-efficient solution for high-quality video communications over enterprise networks.

Part of the Cisco Systems® line of content networking products, Cisco IP/TV is a turnkey solution for delivering networked video with superior ease of use and integration with IP network services.

Cisco IP/TV supports live video, scheduled video, video on demand (VoD), synchronized presentations and screen captures, and a wide range of video management functions.

Cisco IP/TV is designed for scalability and addresses the need to deliver high-quality video broadcasts safely across the largest enterprises. It uses IP Multicast to deliver one stream throughout the network regardless of audience size and enables detailed monitoring of quality and usage from every desktop during an event.

Built on industry standards to facilitate interoperability, Cisco IP/TV enables a broad spectrum of applications for enterprise communications, including training, corporate communications, business TV, and distance learning.

To further ensure the success of each event, Cisco IP/TV hardware and software are fully backed by the industry-leading Cisco SMARTnet® maintenance service and support program.

Scheduled Events, Delivered Safely and Easily

Using Industry Standards for Interoperability

An important advantage of Cisco IP/TV is its adherence to industry standards, thus enabling interoperability with other standards-based devices.

Cisco IP/TV safely delivers a wide range of video and audio formats, most commonly MPEG-2 for the highest-quality broadcasts, MPEG-1 for TV quality, and MPEG-4, the new format for high quality at low bit rates.

In addition to its existing wide range of audio compression formats, Cisco IP/TV 3.5 now supports the new MPEG-4 audio format, Advanced Audio Coding (AAC), offering CD quality at compression substantially better than the popular but decade-old MP3 format.

Cisco IP/TV is also based on standard Internet Engineering Task Force (IETF) streaming protocols such as Real-Time Transport Protocol (RTP), Real-Time Streaming Protocol (RTSP), and IP Multicast. By adopting such standards for media streaming, Cisco IP/TV benefits by



interoperating with other devices based on the same standards. Cisco IP/TV 3.5 incorporates the Internet Streaming Media Alliance (ISMA) specifications, which are built around standard protocols and formats supported by a wide range of players and devices.

Through support of common standards, Cisco IP/TV 3.5 now integrates delivery directly to Apple QuickTime viewers. For delivery of analog video directly to TVs, it can also stream to set-top boxes that have implemented the ISMA specification.

Cisco IP/TV is part of the Cisco line of content networking products, offering a unified solution for content management, content-edge delivery, content routing, content switching, and intelligent network services. Cisco content networking solutions allow enterprises to intelligently and securely deliver any rich media content over a Web infrastructure.

Cisco IP/TV and content networking solutions are based on Cisco AVVID (Architecture for Voice, Video and Integrated Data), which lays the foundation for converged enterprise communication networks. Cisco AVVID encompasses converged client devices, infrastructure hardware and software, directory services, call processing, telephony/data applications, network and policy management, and service and support.

Ease of Use Through a Turnkey Solution

Cisco IP/TV has many built-in capabilities, requiring no programming or systems integration. It offers a wide range of management functions from a simple interface.

Integrated event scheduling allows producers to set up live or scheduled events through an easy point-and-click browser. Scheduled rebroadcast capability allows time-shifted multicasts of the original event, either from the same broadcast server or a remote Cisco IP/TV server, minimizing the use of expensive WAN bandwidth.

The Cisco IP/TV *Program Listing* offers an easy way for the audience to view Cisco IP/TV events and participate. Hosted by the Cisco IP/TV Content Manager, it is generated automatically and updated whenever events are scheduled or new content is added. Similar to a television guide, the Program Listing is accessible from either a Web browser or the Cisco IP/TV client.

The integrated media synchronization tools—*WebPresenter*, *ScreenCaster*, and *SlideCast*—eliminate the need for programming to deliver presentations along with the video stream to thousands of live viewers.

Using these tools, producers can deliver native HTML or PowerPoint files, create and broadcast screen captures of any application, or browse a Website that the audience follows automatically. The combined video and presentation can be recorded for later viewing as a scheduled multicast or VoD.

QuestionManager gives the audience one-button access to the presenter. Viewers can quickly and easily send inquiries without waiting in a telephone queue. A moderator can efficiently gather feedback from large audiences and maximize the interactivity of the presentation.



High Quality Delivery Through Tight Network Integration

Cisco IP/TV makes full use of the network infrastructure to ensure the best possible broadcast quality.

- IP Multicast—Cisco IP/TV facilitates delivery over multicast networks to minimize bandwidth for live and scheduled video, broadcasting a single stream over the network regardless of audience size.

Support for Source Specific Multicast (SSM) simplifies the management and control of an IP Multicast network. SSM eases multicast deployment, removes address allocation problems, and improves multicast performance for one or for many broadcasts.

- Quality of service—The Cisco IP/TV Content Manager enables IP quality of service (QoS) using Resource Reservation Protocol (RSVP) to ensure that bandwidth is allocated for the event.

Cisco IP/TV also optimizes delivery for live events over WANs by using protocols designed for real-time streaming. Audio and video streams are delivered independently, with audio prioritized to minimize the impact of network congestion on the user.

- StreamWatch—This feature enables quality and usage monitoring from every desktop during an event and generates logs for post-event analysis. With Cisco IP/TV 3.5, StreamWatch can receive reports from tens of thousands of desktops to handle the largest enterprise broadcasts. It can filter the feedback based on quality, location, IP address, or other parameters to facilitate the success of a large broadcast.

Cisco IP/TV Solution

Cisco IP/TV consists of three primary components:

- *Cisco IP/TV Content Manager*, to centrally manage the environment
- *Cisco IP/TV Broadcast Server*, for real-time encoding, and delivery of live, scheduled, and on-demand video
- *Cisco IP/TV Viewer*, for high-quality reception of video streams and synchronized media, either as a standalone application or browser plug-in for Web access

The Cisco IP/TV Content Manager and broadcast servers can be purchased as preconfigured appliances or as software to run on appropriately configured Windows NT and Windows 2000 servers. The Cisco IP/TV viewer runs on Windows 98, 2000, NT, and XP systems.

Combined, these components offer industry-leading capabilities for high-quality streaming across corporate networks.

Cisco IP/TV Content Manager

The central management platform for the Cisco IP/TV network, the Cisco IP/TV Content Manager offers a simple browser interface for a wide range of capabilities.

Through the Cisco IP/TV Content Manager, administrators can create, schedule, and manage events, manage Cisco IP/TV servers, monitor QuestionManager, establish preferences and network settings, and move content among servers.

The Cisco IP/TV Content Manager automatically creates and hosts the Cisco IP/TV Program Listing. It supports optional Cisco Intrusion Detection System (IDS) software to protect against security threats.



Cisco IP/TV Broadcast Servers

Cisco IP/TV Broadcast Servers can deliver live, on-demand, or scheduled rebroadcasts of Cisco IP/TV programs, which can include synchronized media produced with WebPresenter, ScreenCaster, and SlideCast. By using the existing IP Multicast technology of Cisco routers, the Broadcast Servers can deliver events as they happen, such as a CEO's address to thousands of employees, while using the network bandwidth of an individual stream.

Cisco IP/TV Broadcast Servers offer the ability to encode in a variety of standard formats, including MPEG-1, MPEG-2, and MPEG-4, based upon application requirements and available bandwidth. These servers are ideal for multicasting live events or prerecorded programs on a scheduled basis. They can receive content from analog sources such as video cameras, VCRs, satellite feeds, cable feeds, or existing digital files.

Cisco IP/TV 3400 Series Servers

Cisco IP/TV 3400 Series servers, with preconfigured software, pre-installed capture cards, network interface cards, and device drivers, offer an easy way to deploy network video throughout an enterprise.

Cisco IP/TV 3400 Series servers include: the Cisco IP/TV 3412 Control Server; the Cisco IP/TV 3425, Cisco IP/TV 3425A, Cisco IP/TV 3426, and Cisco IP/TV 3427 Broadcast Servers; and the Cisco IP/TV 3417 Video Starter System.

Cisco IP/TV 3400 Series servers and software are fully backed by the industry-leading Cisco SMARTnet maintenance service and support program. SMARTnet support provides a rapid response to hardware-replacement needs, 24-hour telephone support, and software upgrades. As the internetworking leader, Cisco provides full network support, from routers to switches, hubs, firewalls, Cisco IOS[®] Software, and systems integration consulting.

Cisco IP/TV 3412 Control Server

The Cisco IP/TV 3412 Control Server ships preconfigured with the Cisco IP/TV Content Manager and StreamWatch applications for centralized management of a Cisco IP/TV installation.

Cisco IP/TV Broadcast Servers

With Cisco IP/TV 3.5, Cisco offers a range of single-stream and multistream encoding platforms. These include the Cisco IP/TV 3425, Cisco IP/TV 3425A, Cisco IP/TV 3426 servers and three Cisco IP/TV 3427 models. Although they differ in the encoding formats they support, all have the same high-quality capabilities to deliver real-time streams, synchronize presentation media, and record for later viewing. Any Cisco IP/TV Broadcast Server can be used to deliver recorded files on demand or as a scheduled broadcast.

The Cisco IP/TV 3425 and Cisco IP/TV 3425A Broadcast Servers satisfy the need for high performance, with all encoding done in hardware. For the highest quality in real-time streaming, the Cisco IP/TV 3425 Broadcast Server uses television-quality MPEG-1 or broadcast-quality MPEG-2 compression. The Cisco IP/TV 3425A is identical to the Cisco IP/TV 3425 except that it encodes and delivers MPEG-1 streams at a lower cost.

The new Cisco IP/TV 3426 server addresses the need for formats such as ISO MPEG-4 through software-based compression. It can encode up to four different streams simultaneously in real time. Alternatively, it can take in one video feed and encode at multiple bit rates for Webcasts that need to reach audiences with varying bandwidth requirements.



A second new set of models, the Cisco IP/TV 3427, offers the ability to encode from five to eight streams in one unit, saving rack space and simplifying manageability. This high-performance hardware platform includes dual CPUs for multistream software encoding, along with hot-swappable disks and fans for high system availability.

- The Cisco IP/TV 3427-C1 model can simultaneously encode up to six streams in software, for formats such as MPEG-4, offering the benefits of the high-end platform at an attractive price per stream.
- The Cisco IP/TV 3427-C2 model is identical to the C1 model, except for the additional capability of two MPEG-1 or MPEG-2 streams for high-quality hardware-based encoding. It can deliver up to eight simultaneous streams, offering a high stream density in one unit, and the ability to use any available format.
- The Cisco IP/TV 3427-C3 model enables real-time encoding of three high-quality MPEG-1 or MPEG-2 streams and two streams of MPEG-4. With five total streams, it offers a high density of high-quality MPEG-1 or MPEG-2 streams along with the flexibility of additional software-encoded formats.

Cisco IP/TV 3417 Video Starter System

The Cisco IP/TV 3417 Video Starter System introduces high-quality Cisco IP/TV network video to an enterprise evaluating future larger-scale deployments. This system combines the capabilities of a Cisco IP/TV Broadcast Server and a Cisco IP/TV Control Server in a single unit. With support for MPEG-1 and MPEG-2 formats, it is ideal for department or small group training. A software starter kit is also available for deployment on appropriately configured Windows servers.

Table 1 provides ordering information for Cisco IP/TV components, and Table 2 outlines the hardware specifications.

Table 1 Cisco IP/TV Part Numbers

Systems	
Cisco IP/TV Control Server	IPTV 3412-CTRL
MPEG-1/2 Broadcast Server	IPTV-3425-BCAST-M
MPEG-1 Broadcast Server	IPTV-3425A-BCAST-M
MPEG-4 Broadcast Server	IPTV-3426-BCAST
MPEG-4 Broadcast Server, 6-stream	IPTV-3427-BCAST-C1
MPEG-1/2/4 Broadcast Server, 8-stream	IPTV-3427-BCAST-C2
MPEG-1/2/4 Broadcast Server, 5-stream	IPTV-3427-BCAST-C3
Starter Kit	IPTV-3417-START-M
Software	
Cisco IP/TV Content Manager	IPTV-CM-3.5
Cisco IP/TV Broadcast Server	IPTV-SERV-3.5
Broadcast Server with MPEG-4 Card and License	IPTV-SERV-MP4-3.5
Starter Kit	IPTV-START-HD1-3.5



Table 1 Cisco IP/TV Part Numbers (Continued)

MPEG-4 100-Client License	IPTV-VIEW-MP4-LIC
MPEG-2 Client Kit	IPTV-VIEW-MP2-BASE
Additional MPEG-2 Clients	IPTV-VIEW-MP2-ADD
1000-bundle MPEG-2 Client	IPTV-VIEW-MP2-1000
Miscellaneous	
MPEG-1/2 Full D1 Card	IPTV-MPEG2-FD1
MPEG-1/2 Half D1 Card	IPTV-MPEG2-HD1
Spare Encoder Cable Set	IPTV-MPEG2-CABLE=
Keyboard	IPTV-3400-KEYBRD=
Mouse	IPTV-3400-MOUSE=

Table 2 Cisco IP/TV Hardware Specifications

	Cisco IP/TV 3412 Control Server	Cisco IP/TV 3417 Video Starter System	Cisco IP/TV 3425 Broadcast Server	Cisco IP/TV 3425A Broadcast Server
Video Formats	-	MPEG-1, MPEG-2	MPEG-1, MPEG-2	MPEG-1
Storage	-	18 GB small computer system interface (SCSI)	18 GB SCSI	18 GB SCSI
Network Connectivity	10/100-Mbps Ethernet	10/100-Mbps Ethernet	10/100-Mbps Ethernet	10/100-Mbps Ethernet
Peripheral Ports	Video Graphics Array (VGA) graphics, keyboard, mouse	VGA graphics, keyboard, mouse	VGA graphics, keyboard, mouse	VGA graphics, keyboard, mouse
Height	1.72 in. (43.7 mm)	1.72 in. (43.7 mm)	1.72 in. (43.7 mm)	1.72 in. (43.7 mm)
Width	14.13 in. (358.8 mm)	14.13 in. (358.8 mm)	14.13 in. (358.8 mm)	14.13 in. (358.8 mm)
Depth	14.13 in. (358.8 mm)	14.13 in. (358.8 mm)	14.13 in. (358.8 mm)	14.13 in. (358.8 mm)
Weight	12.5 lb (5.67 kg)	12.5 lb (5.67 kg)	12.5 lb (5.67 kg)	12.5 lb (5.67 kg)
Power Supply	65W	65W	65W	65W
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz



Table 2 Cisco IP/TV Hardware Specifications (Continued)

	Cisco IP/TV 3412 Control Server	Cisco IP/TV 3417 Video Starter System	Cisco IP/TV 3425 Broadcast Server	Cisco IP/TV 3425A Broadcast Server
Operating Temperature	32–104°F 0–40°C	32–104°F 0–40°C	32–104°F 0–40°C	32–104°F 0–40°C
Non-Operating Temperature	–13–158°F –25–70°C	–13–158°F –25–70°C	–13–158°F –25–70°C	–13–158°F –25–70°C
	Cisco IP/TV 3426 Broadcast Server	Cisco IP/TV 3427-C1 Broadcast Server	Cisco IP/TV 3427-C2 Broadcast Server	Cisco IP/TV 3427-C3 Broadcast Server
Video Formats	MPEG-4	MPEG-4	MPEG-1, MPEG-2, MPEG-4	MPEG-1, MPEG-2, MPEG-4
Storage	80 GB Integrated Drive Electronics (IDE)	144 GB SCSI	144 GB SCSI	144 GB SCSI
Network Connectivity	10/100-Mbps Ethernet	10/100-Mbps Ethernet	10/100-Mbps Ethernet	10/100-Mbps Ethernet
Peripheral Ports	VGA graphics, keyboard, mouse	VGA graphics, keyboard, mouse	VGA graphics, keyboard, mouse	VGA graphics, keyboard, mouse
Height	1.72 in. (43.7 mm)	3.36 in. (85.4 mm)	3.36 in. (85.4 mm)	3.36 in. (85.4 mm)
Width	17.3 in. (440 mm)	17.46 in. (443.5 mm)	17.46 in. (443.5 mm)	17.46 in. (443.5 mm)
Depth	16.75 in. (425.5 mm)	27.48 in. (698.0 mm)	27.48 in. (698.0 mm)	27.48 in. (698.0 mm)
Weight	28 lb (12.7 kg)	62 lb (28.1 kg)	62 lb (28.1 kg)	62 lb (28.1 kg)
Power Supply	200W maximum	350W maximum hot-swap, redundant	350W maximum hot-swap, redundant	350W maximum hot-swap, redundant
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Operating Temperature	50–95°F 10–35°C	50–95°F 10–35°C	50–95°F 10–35°C	50–95°F 10–35°C
Non-Operating Temperature	–40–140°F –40–60°C	–40–140°F –40–60°C	–40–140°F –40–60°C	–40–140°F –40–60°C



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