

# Cisco IP/TV Software Version 5.1

Cisco® IP/TV® Software Version 5.1 delivers a complete, highly scalable, bandwidth-efficient solution for high-quality video communications over enterprise networks.

Part of the Cisco Systems® line of application and content networking products, Cisco IP/TV Software is an easily deployed solution for delivering networked video with superior ease of use and integration with IP network services. Cisco IP/TV Software 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 Software 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 Software enables a broad spectrum of applications for enterprise communications, including training, corporate communications, business TV, and distance learning.

For more demanding VoD applications or live events in predominantly unicast networks, a Cisco IP/TV solution can be used in conjunction with the Cisco Application and Content Networking

System (ACNS) solution, which offers a wide range of content distribution and streaming capabilities. Cisco IP/TV Software Version 5.1 interoperates with the Cisco ACNS Software Version 5.1 to extend its reach more effectively into unicast and multicast “island” networks by using Cisco ACNS features like Stream Splitting, Streaming Automation, and the Cisco Streaming Engine.

To further increase the success of the Cisco IP/TV solution, 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 the Cisco IP/TV solution is its adherence to industry standards, thus enabling interoperability with other standards-based devices.

Cisco IP/TV technology 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 video and audio at low bit rates.

Cisco IP/TV technology is also based on standard 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, the Cisco IP/TV solution benefits by interoperating with other devices based on the same standards. For example, Cisco IP/TV Software Version 5.1 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 Software Version 5.1 now integrates content delivery directly to Apple QuickTime viewers. For delivery of analog video directly to TVs or plasma screens, it can also stream to set-top boxes that have implemented the ISMA specifications.

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

Cisco IP/TV and ACNS 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 and data applications, network and policy management, and service and support.

#### **Cisco IP/TV Solution: Easy to Deploy and Use**

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, a remote Cisco IP/TV server, or a Cisco ACNS content engine, 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 to participate. Hosted by the Cisco IP/TV Program 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. With Cisco ACNS Software v5.1, Cisco ACNS content engines can also support the SlideCast feature for delivery of live and scheduled rebroadcasts from Cisco IP/TV Software Version 5.1 broadcast servers.

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

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

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

The Cisco IP/TV solution 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 Software Version 5.1, 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. StreamWatch is an application that is distributed on Cisco IP/TV Software CDs or as a Cisco IP/TV Software download from [www.cisco.com](http://www.cisco.com) and must be installed on a Windows NT 4.0 or Windows 2000 computer to be implemented.

## Cisco IP/TV Solution

The Cisco IP/TV solution consists of three primary components:

- Cisco IP/TV Program Manager replaces the Cisco IP/TV 3412 Control Server and the Cisco IP/TV 3.5 Content Manager software to centrally manage the Cisco IP/TV solution.
- Cisco IP/TV Broadcast Server provides real-time encoding, and delivery of live, scheduled, and on-demand video.
- Cisco IP/TV Viewer offers 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 solution also supports the Apple QuickTime standalone and plug-in viewers to provide more deployment flexibility in client software.

The Cisco IP/TV Program Manager and Broadcast Server can be purchased as preconfigured appliances. The Cisco IP/TV Broadcast Server can also be purchased 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 Program Manager

With the release of Cisco ACNS and IP/TV software versions 5.1, the Cisco IP/TV Program Manager, which replaces the Cisco IP/TV 3412 Control Server and Cisco IP/TV Content Manager software, now runs on the Cisco 565 or 7305 content engines. The Cisco IP/TV Software Version 5.1 Program Manager contains all the capability of the



previous Cisco IP/TV Software Version 3.5 Control Server appliance and Content Manager software for the centralized management of a Cisco IP/TV solution, plus new features that enable exporting of Cisco IP/TV events and content to the Cisco ACNS solution.

As the central management platform for the Cisco IP/TV network, the Cisco IP/TV Program Manager offers a simple browser interface for a wide range of capabilities. Administrators can create, schedule, and manage events; manage Cisco IP/TV servers; monitor QuestionManager; establish preferences and network settings; move content among Cisco IP/TV servers; and easily publish live events and VoD content to the Cisco ACNS solution for distribution. The Cisco IP/TV Program Manager automatically creates and hosts the Cisco IP/TV Program Listing.

### **Cisco IP/TV 3400 Series Broadcast Servers**

Cisco IP/TV 3400 Series broadcast servers 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 3400 Series broadcast servers, with preconfigured software, preinstalled capture cards, network interface cards, and device drivers, offer an easy way to deploy network video throughout an enterprise. These servers provide 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. They can receive content from analog sources such as video cameras, VCRs, satellite feeds, cable feeds, or existing digital files.

The Cisco IP/TV 3400 Series broadcast servers offer a range of single-stream and multistream encoding platforms. These include the Cisco IP/TV 3425 Broadcast Server, the Cisco IP/TV 3425A Broadcast Server, the Cisco IP/TV 3426 Broadcast Server and three Cisco IP/TV 3427 broadcast servers. 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 events for later viewing. Any Cisco IP/TV broadcast server can be used to deliver recorded files on demand or scheduled broadcasts.

The Cisco IP/TV 3425 and Cisco IP/TV 3425A 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 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 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 includes the following models:

- The Cisco IP/TV 3427-C1 Broadcast Server 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 Broadcast Server 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 Broadcast Server 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 3400 Series servers and software are fully backed by the industry-leading Cisco SMARTnet maintenance service and support program. Cisco 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<sup>®</sup> Software, and systems integration consulting.

Table 1 lists the descriptions and part numbers for Cisco IP/TV hardware and software, and Table 2 lists the hardware specifications.

Table 1 Cisco IP/TV Part Numbers

Description	Part Number
<b>Model Description</b>	
MPEG1/2 Broadcast Server	IPTV-3425-BCAST-M
MPEG-1 Broadcast Server	IPTV-3425A-BCAST-M
MPEG-4 Broadcast Server, 4-stream	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
IP/TV Program Manager	CE-565A-72GB-K9 or CE-7305A-K9
<b>Software Description</b>	
Broadcast Server	IPTV-SERV-5.1
MPEG-4 100-Client License	IPTV-VIEW-MPG4-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
<b>Spares</b>	
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 Program Manager (on CE-565A)	Cisco IP/TV 3425 Broadcast Server	Cisco IP/TV 3425A Broadcast Server
<b>Video formats</b>	–	MPEG-1, MPEG-2	MPEG-1
<b>Storage</b>	–	18-GB SCSI	18-GB SCSI
<b>Network connectivity</b>	10/100-Mbps Ethernet	10/100-Mbps Ethernet	10/100-Mbps Ethernet
<b>Peripheral ports</b>	Video Graphics Array (VGA) graphics, keyboard, mouse	VGA graphics, keyboard, mouse	VGA graphics, keyboard, mouse
<b>Height</b>	1.72 in. (43.7 mm)	1.72 in. (43.7 mm)	1.72 in. (43.7 mm)
<b>Width</b>	17.3 in. (440 mm)	14.13 in. (358.8 mm)	14.13 in. (358.8 mm)
<b>Depth</b>	16.75 in. (425.5 mm)	14.13 in. (358.8 mm)	14.13 in. (358.8 mm)
<b>Weight</b>	28 lb (12.7 kg)	12.5 lb (5.67 kg)	12.5 lb (5.67 kg)
<b>Power supply</b>	200W maximum	65W	65W
<b>Frequency</b>	50/60 Hz	50/60 Hz	50/60 Hz
<b>Operating temperature</b>	50–95°F 10–35°C	32–104 F 0–40 C	32–104 F 0–40 C
<b>Nonoperating temperature</b>	–40–140°F –40–60°C	–13–158 F –25–70 C	–13–158 F –25–70 C

Table 3 Cisco IP/TV Hardware Specifications

	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
<b>Video formats</b>	MPEG-4	MPEG-4	MPEG-1, MPEG-2, MPEG-4	MPEG-1, MPEG-2, MPEG-4
<b>Storage</b>	40-GB Integrated Drive Electronics (IDE)	144-GB SCSI	144-GB SCSI	144-GB SCSI
<b>Network connectivity</b>	10/100-Mbps Ethernet	10/100-Mbps Ethernet	10/100-Mbps Ethernet	10/100-Mbps Ethernet
<b>Peripheral ports</b>	VGA graphics, keyboard, mouse	VGA graphics, keyboard, mouse	VGA graphics, keyboard, mouse	VGA graphics, keyboard, mouse
<b>Height</b>	1.72 in. (43.7 mm)	3.36 in. (85.4 mm)	3.36 in. (85.4 mm)	3.36 in. (85.4 mm)
<b>Width</b>	17.3 in. (440 mm)	17.46 in. (443.5 mm)	17.46 in. (443.5 mm)	17.46 in. (443.5 mm)
<b>Depth</b>	16.75 in. (425.5 mm)	27.48 in. (698.0 mm)	27.48 in. (698.0 mm)	27.48 in. (698.0 mm)

Table 3 Cisco IP/TV Hardware Specifications (Continued)

	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
<b>Weight</b>	28 lb (12.7 kg)	62 lb (28.1 kg)	62 lb (28.1 kg)	62 lb (28.1 kg)
<b>Power supply</b>	200W maximum	200W maximum hot-swappable, redundant	200W maximum hot-swappable, redundant	200W maximum hot-swappable, redundant
<b>Frequency</b>	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
<b>Operating temperature</b>	50–95°F 10–35°C	50–95°F 10–35°C	50–95°F 10–35°C	50–95°F 10–35°C
<b>Non-operating temperature</b>	–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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