Cisco Digital Media System Technical Overview: Focus on Cisco Desktop Video

The Cisco® Digital Media System (DMS) is a comprehensive suite of digital signage, Enterprise TV, and desktop video applications that allows companies to use digital media to increase sales, enhance customer experience, and facilitate learning. Support from Cisco's broad Partner Ecosystem of deployment, solution development, and content creation partners helps ensure a successful digital media implementation.

This document provides a technical overview of the Cisco Digital Media System for Cisco Desktop Video and its main components.

The Challenge

Geographically distributed organizations are increasingly striving to deliver more compelling and effective communications to customers, employees, partners, and students to provide richer experiences and achieve better return on investment (ROI). They look to IT groups for solutions that address content creation, management, delivery, and access. Advances in network infrastructure have also improved the ability of enterprise networks to support new forms of digital media, creating the need for flexible media-management systems.

Until now, organizations have tended to adopt disparate point products that target only small slices of the overall digital media value chain; and putting together individual components from multiple vendors has resulted in complex integrations, high total cost of ownership, and limited scalability. The challenge of supporting multiple formats, browser types, and access methods further intensifies the dilemma facing IT groups. Most products available today limit viewer access by employing closed systems that require special codecs and players.

This situation has created the need for an integrated solution that can address the entire digital media value chain while also supporting industry-leading formats for live and on-demand content publishing.

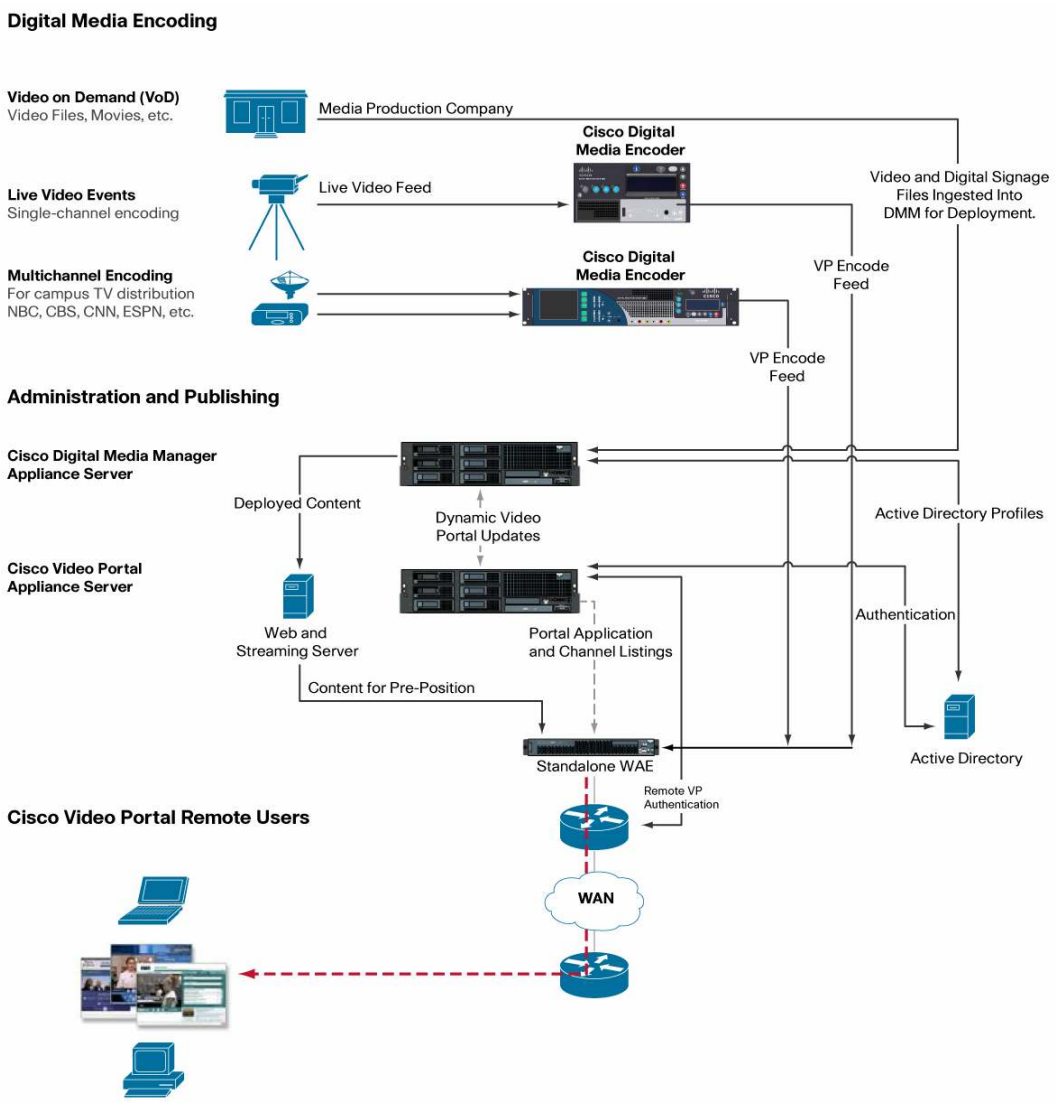
Cisco Digital Media System Completes the Lifecycle

The Cisco Digital Media System includes an integrated set of software applications that allow for effective management of and access to live and on-demand video: desktop video (Figure 1). Taking advantage of Cisco best practices from more than a decade of video and Internet initiatives, the Cisco Digital Media System makes it simple for organizations—including banks, retailers, corporations, schools, hospitals, and public-sector groups—to deliver high-quality, compelling digital media to their critical audiences.

- Through the deployment of the Cisco Digital Media System, organizations are better positioned to:
  - Communicate effectively with targeted customers, investors, press, and analysts
  - Offer live and on-demand events and meetings to geographically dispersed audiences
  - Deliver critical information and training to employees, suppliers, and partners
  - Provide educational content to students

The Cisco Digital Media System solution for desktop video delivers these benefits through three product lines—the Cisco Digital Media Manager (DMM), the Cisco Video Portal, and Cisco Digital Media Encoders (DMEs). These advanced solutions comprise software running on high-performance Cisco media convergence server (MCS) platforms such as the Cisco MCS 7825 and MCS 7835 Media Convergence Servers. They can support and manage nearly all standard streaming-media formats—from Windows Media to Adobe Flash, and H.264 (AVC/MPEG4 Part 10).

Figure 1. Cisco Digital Media System Overview



Note: All items in Figure 1 identified in blue are general equipment that you would normally find in a digital media deployment and are not sold by Cisco.

Cisco Digital Media Manager

The Cisco Digital Media Manager allows content authors to publish rich digital media to the Cisco Video Portal through a web-based management application. The Cisco Digital Media Manager includes the following features:

- **Cisco DMM Encoder Manager:** You can manage encoders directly from the Cisco Digital Media Manager Video Portal Module web interface.
- **Cisco DMM Account Manager:** Cisco Digital Media Manager users can have various roles and responsibilities, thus requiring different levels of access and permissions. With the account manager module, you can create user accounts and administer user passwords, permissions, and profiles.
- **Cisco DMM Program Manager:** Content offerings, both live and on-demand, are managed in the program manager module.
- **Cisco DMM Playlist Manager:** Different content offerings are easily displayed and featured in the Featured Playlist on the Cisco Video Portal Playlist tab.
- **Cisco DMM Category Manager:** You can organize content offerings into custom categories that represent common content characteristics such as topic, subject matter or course offering, target audience, featured executive, and business function. Through the Cisco Video Portal, you can easily browse for content by category using the Cisco Video Portal program guide.
- **Cisco DMM Interface Manager:** You can design and control the Cisco Video Portal user interface. You can easily customize elements such as the Cisco Video Portal background and font colors, logos, ticker messages, and features for highlighting videos or communicating messages to the end user.
- **Cisco DMM Deployment Manager:** All content and data additions, updates, and other changes in the production environment must be deployed to be reflected in the Cisco Video Portal.
- **Cisco DMM Live Event Module:** With this module, webcast producers can synchronize slide graphics with streaming video and audio, and manage or administer viewer questions submitted during a live event.
- **Active Directory:** Optional authentication with Microsoft Active Directory using the Lightweight Directory Access Protocol (LDAP) gives authenticated administrators access to the Cisco Digital Media Manager Video Portal Module and Video Portal Reports.
- **Content-level viewing security:** You can define by groups who can watch what video part.
- **Detailed usage reporting:** All video portal viewer selection activity is stored and is available for detailed usage reporting. The report can provide details about what viewers watched what video—and a variety of other usage reports—during a specified timeframe.

Cisco Digital Media Manager: Live Event Module

The Cisco Digital Media Manager Live Event Module add-on to the Cisco Digital Media Manager Video Portal Module helps live-event webcast producers synchronize graphics derived from Microsoft PowerPoint slides with live audio and video streams through the Cisco Video Portal. The live event module also allows Cisco Video Portal viewers to submit text-based questions at any

time during a live event to the live-event producer. The producer views all questions coming in during the event through the Cisco Digital Media Manager Question Manager console and at any time can choose appropriate questions and either forward them to a presenter console window or ask the presenter verbally in real time. At the end of the live event, the producer can publish a video on demand (VoD) complete with the audio and video stream and the synchronized graphics to the Cisco Video Portal for anytime, anywhere playback.

Cisco Digital Media Manager: Active Directory

With the Microsoft Active Directory integration using the LDAP option on the Cisco Digital Media Manager, administrators can manage access to the Cisco Digital Media Manager Video Portal Module, Cisco Video Portal, and Video Portal Reports. They can manage authentication through the Cisco Digital Media Manager Video Portal Module. Cisco Digital Media Manager offers three types of authentication:

- No authentication (users can gain access without being challenged).
- Embedded authentication (users are authenticated against Cisco Digital Media Manager built-in user database)
- LDAP authentication (Cisco Digital Media Manager synchronizes username and password with LDAP database for authentication)

Cisco Video Portal and Video Portal Reports

The Cisco Video Portal uses standard web technologies to give viewers access to compelling live and on-demand video experiences. The platform-independent Cisco Video Portal easily integrates into an organization's existing IT infrastructure and supports established video standards, including Windows Media and Adobe Flash. The interface allows you to conveniently and quickly browse, search, and view content interactively. The Cisco Video Portal offers the following benefits:

- **Program listings and keyword search:** Easily locate media by content category, title, or keyword.
- **Customizable playlists:** Choose from a dynamic list of videos programmed by content publishers or bookmarked by individual users.
- **Enhanced video portal interface:** Use this interface for live event slide synchronization and question submission.
- **Active Directory:** Select optional authentication through Active Directory with LDAP for authenticated end-user access to the Cisco Video Portal.
- **Supplemental content:** View packaged content with each video, such as tickers, related readings, related videos, websites, and downloadable materials.
- **Advanced player controls and full-screen mode:** Optimize the viewing experience with enhanced control of video playback.
- **Simultaneous playback and thumbnail preview:** Preview other videos during main video playback.
- **Tracking and reporting:** Capture, report, and export content information through the Cisco Video Portal Reports tool. Secure reporting access from the Cisco Digital Media Manager with Active Directory authentication.

- **Video URL sharing:** Cisco Video Portal provides software code that can be embedded in a website or application; it also provides the direct URL of any published video to share with another Cisco Video Portal user.
- Support for displaying non-English characters for Cisco Video Portal content titles.

Cisco Digital Media System Deployment Flexibility

The Cisco Digital Media System can be easily deployed in existing network environments. After network administrators configure the IP address and Domain Name System (DNS) information for the Cisco Video Portal and the Cisco Digital Media Manager, they can launch the Cisco Digital Media Manager setup wizard in a web browser to complete the installation. Publishers can then immediately begin accessing the Cisco Digital Media Manager and Cisco Video Portal through their web browsers and begin deploying content to users.

The Cisco Video Portal is built around standard web application tools that allow its use in conjunction with common server load-balancing systems such as the Cisco Content Services Switch (CSS) platforms, or content networking systems such as the Cisco Application and Content Networking System (ACNS) Software. This same flexibility extends to the client desktop, allowing the use of media players already deployed in most common PC and laptop systems. Additionally, the Cisco Video Portal does not require any special codecs to allow viewers to see the content published through the Cisco Digital Media Manager.

The Cisco Video Portal identifies the browser type and operating system used to access its content and provides a version of the Cisco Video Portal that supports the media types appropriate for the viewer's system. In this way, the Cisco Video Portal Plug-in Detector allows publishers to provide content to their audiences without having to customize it for different browsers or players. This feature also helps ensure that content is viewed in the available format(s) and that it provides the user experience that the publisher intended.

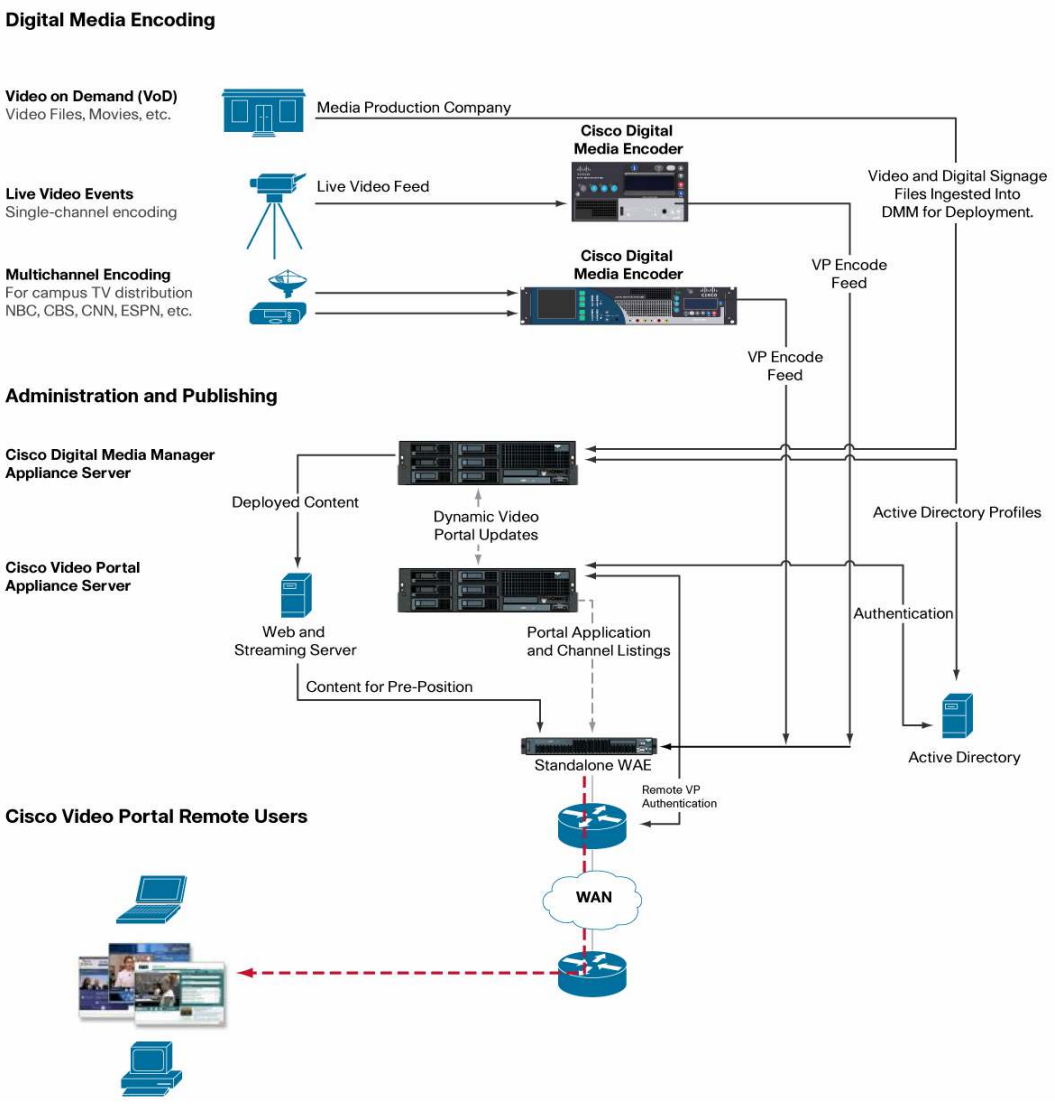
Live and Video on Demand

A critical feature of the Cisco Digital Media System for Cisco Desktop Video is its ability to simplify the publishing of live and on-demand digital media files to the Cisco Video Portal. You can upload on-demand content from the content creator's PC directly to the Cisco Digital Media Manager server for staging and previewing prior to deployment. This staging capability includes the addition of an approval process within the content workflow to help ensure that organization branding and messaging are properly incorporated in the content. After staging and branding are complete, you can deploy the content to the Cisco Video Portal using FTP, Secure FTP (SFTP), or Secure Copy (SCP) for standard or secure transmissions.

The Cisco Digital Media Manager works in conjunction with Cisco Digital Media Encoders to create and deploy live content to the Cisco Video Portal. The Cisco Digital Media Manager first manages the Cisco Digital Media Encoders to set up their encoding profiles, defining the bit rate, format, and media type (Windows Media). The Cisco Digital Media Manager also defines the port that the Cisco Digital Media Encoders will stream from, so that the streaming servers can pull the stream to their live publishing points. These publishing points are then deployed to the Cisco Video Portal through the Cisco Digital Media Manager deployment process. The same workflow defined for the on-demand digital media content is applied to live events, providing a consistent, easy-to-use process for all types of deployments.

Figure 2 shows examples of live and on-demand digital media deployment solutions.

Figure 2. Deployment of Live and On-Demand Video



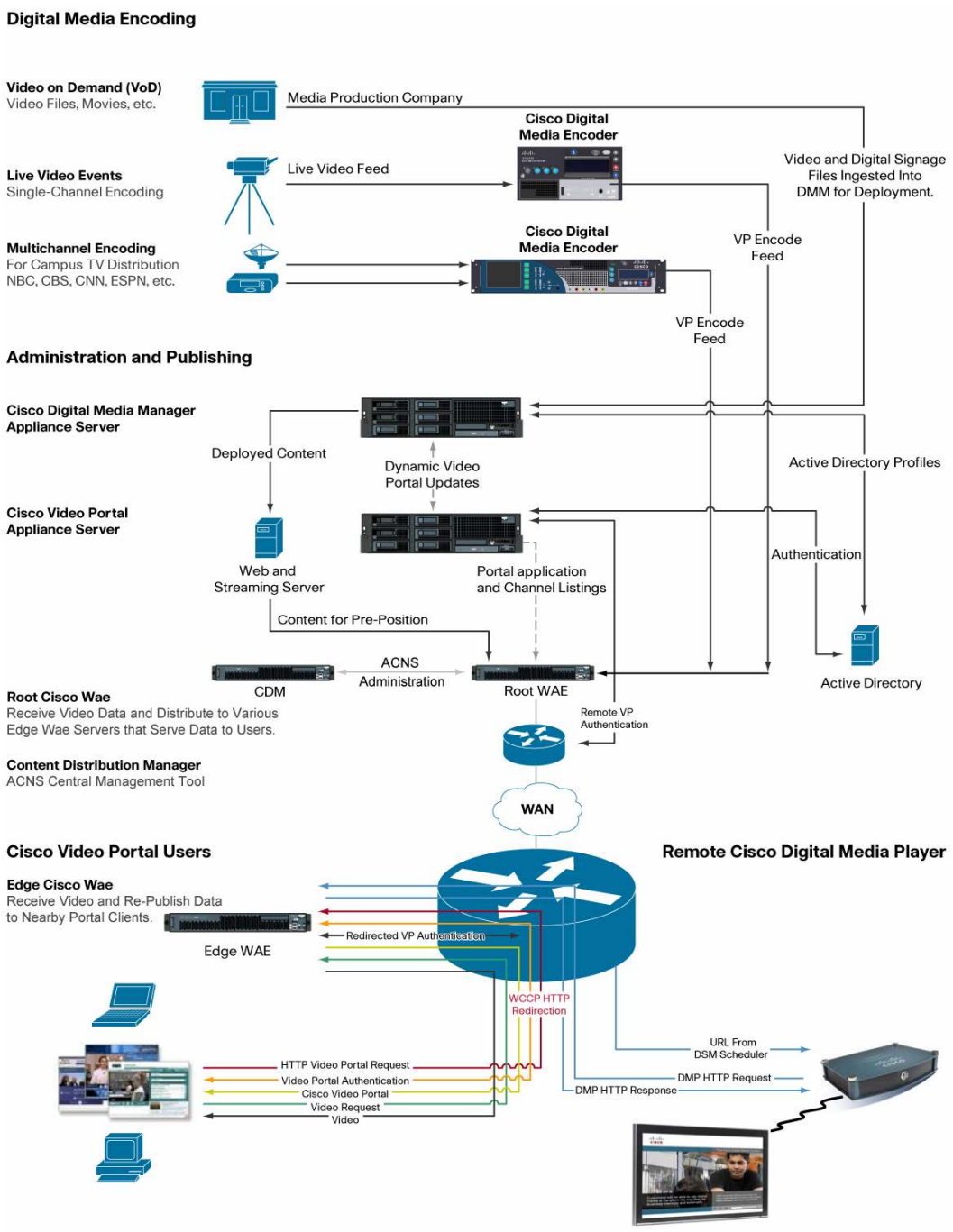
Note: All items in Figure 2 identified in blue are general equipment that you would normally find in a digital media deployment and are not sold by Cisco.

Deployments with Cisco Application and Content Networking System

The Cisco Digital Media System provides organizations with a centralized resource for creating, managing, publishing, and viewing streaming-media content through live and on-demand digital media sessions. For large deployments, the Cisco Digital Media System together with Cisco ACNS products can provide additional scalability (Figure 3). The Cisco ACNS products consist of a Cisco ACNS Central Distribution Manager (CDM) to monitor and manage the distribution network, a root Cisco Wide Area Application Engine (WAE) Appliance to acquire and distribute content to edge Cisco WAEs, and edge Cisco WAE devices to deliver content to the client.

The combined features of these two products provide a flexible, end-to-end video content management and distribution solution that can support enterprise, commercial, and educational environments—no matter how large the deployment or how diverse the locations.

Figure 3. Cisco Digital Media System with Cisco Application and Content Networking System



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Industry-Leading Media-Management System

As remote workforces become increasingly common and organizations become increasingly distributed—with widespread networks of branch offices and global suppliers—organizations increasingly need an effective replacement for face-to-face communications. The Cisco Digital Media System allows organizations to quickly assemble a highly scalable end-to-end streaming-media solution. The system is built on a modular system architecture, allowing the combination of advanced components that currently include the Cisco Video Portal and Video Portal Reports, the Cisco Digital Media Manager Live Event Module, and Cisco Digital Media Encoders. This approach eliminates the problems of integrating and managing multiple point solutions from different vendors, and uses the same proven systems power of the News@Cisco website, where Cisco delivers more than 2 million video streams per year to more than 13.8 million unique visitors. The Cisco Digital Media System achieves this level of performance in part through its ability to transparently integrate with today's leading streaming servers, storage systems, and content networking tools. Together with these components, the Cisco Digital Media System provides an end-to-end enterprise-class communication system that delivers high-quality communications and readily scales to meet any industry's requirements.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

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