

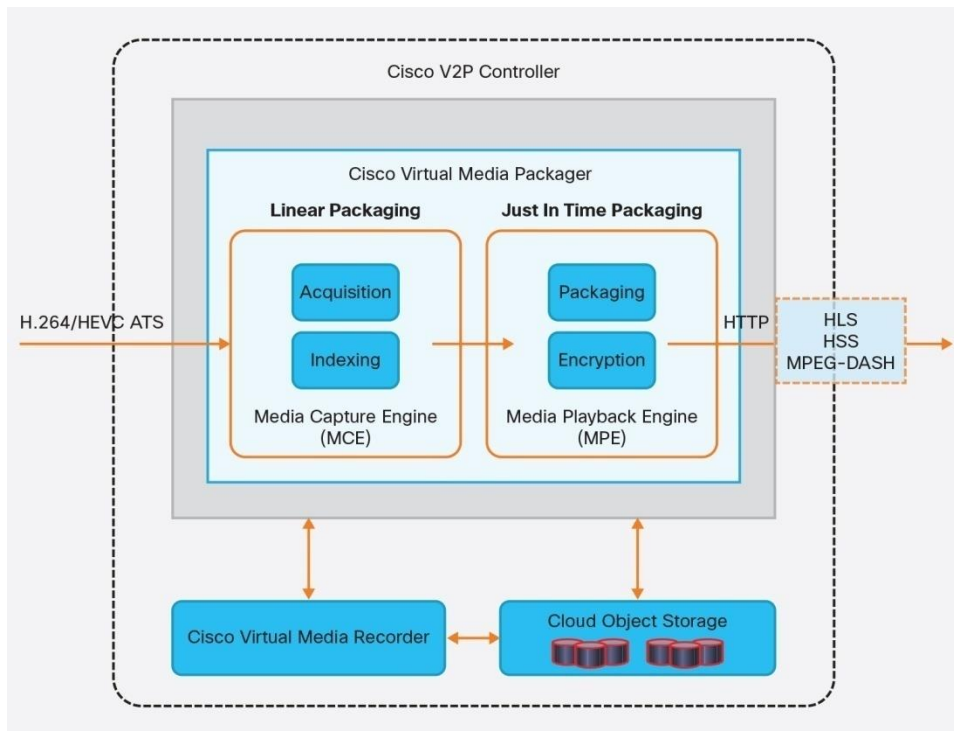
# Cisco Virtual Media Packager

## Product Overview

The Cisco® Virtual Media Packager (Figure 1) provides linear and just-in-time packaging capabilities required by over-the-top (OTT) services such as live streaming, video on demand (VoD), and cloud DVR.

Using the latest virtualization and cloud orchestration technology, Cisco Virtual Media Packager lets operators elastically instantiate and scale critical media functions independently for deployment flexibility. With Cisco Virtual Media Packager, operators can prepare and originate media for distribution to the latest HTTP adaptive bit rate (ABR) streaming clients on mobile devices, set-top boxes (STBs), and PCs/laptops.

**Figure 1.** Cisco Virtual Media Packager Functional Diagram



The Virtual Media Packager is one of the primary applications running on the Cisco Virtualized Video Processing (V2P) platform. The Cisco V2P controller is used for creating application workflows for live, VoD, cloud DVR, and time-shift TV using the Virtual Media Packager and other data plane components such as cloud object storage (COS) and Virtual Media Recorder.

The Virtual Media Packager is optimized for the Cisco Unified Computing System™ (Cisco UCS®) server platform, and it runs on general-purpose computing hardware.

## Features and Benefits

### Highlights

- Software-based system supporting next-generation video services such as live streaming, VoD, cloud DVR, and time-shift TV
- Multiscreen media distribution to STBs, PCs/laptops, and mobile devices
- Content ingested and stored in common format and packaged into final delivery format on an on-demand basis
- Virtualized applications running on industry-standard platforms including VMware
- Designed for high availability
- Open APIs for integration with third-party systems, including transcoders, storage, and control plane components

### Service Delivery

Cisco Virtual Media Packager helps accelerate service delivery by providing, in a single commonly managed platform, the core media origination capabilities for the following services:

- **Live:** Cisco Virtual Media Packager provides the ability to package linear streams into multiple protected adaptive formats for secondary distribution. The Cisco Virtual Media Packager prepares media content for distribution by generating ABR manifests, fragments, and segments and by reformatting subtitles, multiaudio tracks, and ad markers into target ABR formats. Cisco Virtual Media Packager supports packaging and origination for multiple ABR formats, as well as multiple DRM solutions for content protection.
- **VoD:** Cisco Virtual Media Packager can be used for ingesting VoD assets into storage such as the Cisco COS. The Cisco Virtual Media Packager can then package and encrypt the assets for streaming to the latest ABR streaming clients.
- **Cloud DVR and time-shift TV:** The Cisco Virtual Media Packager packages live linear streams into media segments that can be consumed by cloud DVR or time-shift TV recording components such as the Cisco Virtual Media Recorder. When there is a request for playing back content, the Cisco Virtual Media Packager retrieves the content from the recording component and packages and encrypts the assets for streaming to the ABR streaming clients.

### Unified Content Origin

Cisco Virtual Media Packager unifies media ingest and origination for the latest HTTP ABR clients, allowing service providers to simplify their operations. Cisco Virtual Media Packager ingests and stores linear or VoD content from various sources, such as upstream transcoders and encoders. During playout, Cisco Virtual Media Packager can dynamically generate ABR formats for the latest HTTP ABR streaming clients.

### Massive Ingest and Storage Capabilities

Cisco Virtual Media Packager is designed for highly optimized ingest and storage. It is designed to integrate transparently with Cisco COS: a video-optimized software-defined storage solution that can run on Cisco UCS C3x60 rack servers. Service providers can easily expand capacity with Cisco COS, thereby achieving virtually unlimited video ingest and storage capacity. With a logically distributed architecture that can separate ingest and storage from streaming, each function can be scaled independently.

## Built for the Cloud

Cisco Virtual Media Packager has been designed to work with commodity compute and storage infrastructure, and it uses cloud platform orchestration tools to horizontally scale deployment. This option provides independent scalability of media acquisition and playout functions. The different media processing components in Cisco Virtual Media Packager can be instantiated on virtualization environments such as VMware.

## HTTP Adaptive Streaming Optimization with Media Packaging on Demand

Cisco Virtual Media Packager supports ingesting and storing content in a common format based on standards such as ATS and MPEG DASH MPD. This allows the operator to store VoD and time-shifted TV content in a single format that can be transformed in real time by the Cisco Virtual Media Packager to the desired ABR format for delivery to end clients.

## Unified, Automated Provisioning and Management

The Cisco Virtual Media Packager is deployed using the Cisco V2P Controller. The V2P Controller is also used to create application workflows such as live streaming and cloud DVR using the Cisco Virtual Media Packager and other data plane components. The Virtual Media Packager is truly abstracted from the underlying compute and storage resources, allowing operators the flexibility to create application workflows. For example, operators can dynamically add live channels to an existing workflow, leading to easier manageability of their service.

System alarms and events generated by the Virtual Media Packager are logged in a central logging server, from which they can be exported to visualization tools such as Kibana.

## Product Specifications

Cisco Virtual Media Packager Product Specifications are summarized in Table 1.

**Table 1.** Cisco Virtual Media Packager Product Specifications

Category	Features
Service	<ul style="list-style-type: none"><li>Linear, Video on Demand</li><li>Cloud DVR, Time-shift TV</li></ul>
Input format	<ul style="list-style-type: none"><li>Adaptive transport stream (ATS) with encoder boundary points (EBPs)</li></ul>
Network	IPv4 Multicast for Live Ingest, HTTP1.1 for Playout, SWIFT for VOD storage
ABR format	HLS, HSS, MPEG-DASH
Virtualization platforms	VMware
Storage	Cisco Cloud Object Store (COS)
Content protection	Microsoft PlayReady, Adobe Access, VideoGuard, Widevine, Nagra, FairPlay
Key stores	EZDRM (Widevine), Cisco Keystore (FairPlay, VideoGuard)
Ad insertion	<ul style="list-style-type: none"><li>ESAM support – Inband, template</li><li>Integrated with BlackArrow POIS, and Cisco Media Suite</li></ul>
Audio codecs	AAC-LC/HE, AC3, Dolby Digital+
Video codecs	H.265/HEVC, H.264/AVC
Operating systems	CentOS 7.0
Closed captions and subtitles	<ul style="list-style-type: none"><li>CEA608 conversion to TTML (HSS)</li><li>CEA608 conversion to SMPTE-TT/TTML (MPEG-DASH)</li><li>Teletext conversion to WebVTT (HLS) and TTML (HSS)</li><li>DVB bitmap subtitles</li></ul>
Miscellaneous	<ul style="list-style-type: none"><li>Trickmode support using I-Frame Playlists</li><li>Create variant playlists for different client device types</li></ul>

## ABR and DRM Support

Table 2 shows ABR and DRM support.

**Table 2.** ABR/DRM Support Matrix

ABR/DRM	PlayReady	VideoGuard	Adobe Primetime	Widevine	FairPlay	Nagra
<b>HLS</b>	Not supported	HEVC,AVC,AAC-LC/HE, AC3, DD+	AVC, AAC-LC/HE, AC3	Not supported	AVC, AAC-LC/HE	AVC, AAC-LC/HE
<b>HSS</b>	AVC, AAC-LC/HE	Not supported	Not supported	Not supported	Not supported	Not supported
<b>MPEG-DASH</b>	Roadmap	Not supported	Not supported	AVC, AAC-LC/HE	Not supported	Not supported

## Cisco Virtual Media Packager Components

Table 3 shows Cisco Virtual Media Packager components.

**Table 3.** Cisco Virtual Media Packager Components

Description	Specification
<b>Media capture engine (MCE)</b>	<ul style="list-style-type: none"> <li>Virtual machine–based application used for ingest, recording, and storage of content for live and VoD services</li> </ul>
<b>Media playback engine (MPE)</b>	<ul style="list-style-type: none"> <li>Virtual machine–based application used for on-demand encapsulation (ODE) of common format content to native ABR formats (HLS, HSS, MPEG-DASH)</li> </ul>

## Platform Support and Compatibility

### Recommended Cisco UCS Hardware Configurations

Table 4 summarizes the recommended hardware for Cisco Virtual Media Packager installation on a Cisco UCS B Series Blade Server.

**Table 4.** Recommended Hardware Configuration on Cisco UCS B Series Blade Server

Product Part Number	Description	Recommended Quantity
<b>UCSB-B200-M4-U</b>	Cisco UCS B200 M4 Blade Server	1
<b>UCS-CPU-E52680E</b>	2.40 GHz E5-2680 v4/120W 14C/35MB cache/DDR4 2400MHz	2
<b>UCS-MR-1X161RV-A</b>	16GB DDR4-2400-MHz RDIMM/PC4-19200/single rank/x4/1.2v	16
<b>UCSB-MRAID12G</b>	Cisco FlexStorage 12G SAS RAID controller with drive bays	1
<b>UCS-HD600G10K12G</b>	600GB 12G SAS 10K RPM SFF HDD	2
<b>UCSB-MLOM-40G-03</b>	Cisco UCS VIC 1340 modular LOM for blade servers	1
<b>UCSB-HS-EP-M4-F</b>	CPU heat sink for Cisco UCS B200 M4/B420 M4 (front)	1
<b>UCSB-HS-EP-M4-R</b>	CPU heat sink for Cisco UCS B200 M4/B420 M4 (rear)	1

For running COS software, the Cisco UCS C3260 rack servers should be ordered. For more details, refer to the [COS datasheet](#).

## Ordering Information

Table 5 lists the Cisco Virtual Media Packager product part numbers required to place an order, including application and feature licenses.

To place an order, visit the [Cisco Ordering home page](#) and refer to Table 5.

**Table 5.** Ordering Information

Type	Part Number	Product Description
Application license	R-V2P-VMP-APPS-K9	Top-level application licenses
Base license for live streaming	V2P-VMP-LIVE-BASE	Base license per site
Channel license	V2P-VMP-LIVE-CHAN	License per channel
Base license for VoD	V2P-VMP-VOD-BASE	Base license for VoD per site
Storage license for VoD	V2P-VMP-VOD-STOR	License per TB stored
Bandwidth license for VoD	V2P-VMP-ORIGIN-BW	License per Gbps

## Service and Support

Cisco offers a wide range of service programs to accelerate customer success. These innovative service programs are delivered through a unique combination of people, processes, tools, and partners, helping to achieve high levels of customer satisfaction. Cisco Services help you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services, refer to [Cisco Technical Support Services](#) or [Cisco Advanced Services](#).

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