Cisco Open Media Distribution

Product Description

Demand for online video continues to grow dramatically across connected devices. By 2020 we will have 11 billion connected video devices, and 82 percent of IP traffic will be video (Cisco Visual Networking Index). To meet that demand, today's content delivery network (CDN) infrastructure must evolve to scale cost-effectively, accelerate feature velocity, and deliver simplified and open management tools. By adopting cloud architecture and agile software development methodology and using best-in-class open-source software, Cisco® Open Media Distribution (OMD) provides an open and flexible CDN platform that delivers the multiscreen Internet video quality that consumers expect and service providers can deploy.

The Open Media Distribution content delivery platform is designed to deliver immersive multiscreen video experiences to managed and unmanaged devices across telco, cable, and mobile access networks. Open Media Distribution scales cost-effectively to distribute terabits per second (Tbps) of live, on-demand, and time-shifted video. It enables service providers to compete with over-the-top (OTT) video offerings and generate revenue from wholesale CDN services within their infrastructure. Open Media Distribution is the foundational IP delivery platform for Cisco's Infinite Video Platform, which provides comprehensive consumer video experiences.

Open Media Distribution includes all the core elements of management, request routing, load balancing, caching, and analytics to deliver HTTP and HTTPS content at scale and to easily integrate into your network and middleware. Open Media Distribution builds on Cisco's more than 10 years of CDN expertise. It is delivered with Cisco's 24-hour-a-day software support and optional remote operate services, reducing your need to rely on your engineering resources for support.

Open Media Distribution can be deployed into an end-to-end video workflow powered by Cisco's Virtualized Video Processing (V2P) platform. Virtualized Video Processing is a media application and hosting platform for orchestrating end-to-end workflows, from video acquisition to delivery. Built on a cloud-based network function virtualization (NFV) architecture, Virtualized Video Processing enhances your business agility and reduces the complexity of video workflow operations. The combination of the Open Media Distribution and Virtualized Video Processing solutions offers service providers the rapid deployment and simplified CDN configuration they need to reduce capital expenditures (CapEx) and operating expenses (OpEx) for demanding video delivery workflows. With Open Media Distribution, you can focus on running your video business and accelerating your time to market, while leaving the technology and operations to Cisco.

Cisco Open Media Distribution Overview

Open Media Distribution caches and delivers web content, software, and streaming media with support for media players using Apple HTTP Live Streaming (HLS), Microsoft HTTP Smooth Streaming (HSS), Adobe HTTP Dynamic Streaming (HDS), and MPEG Dynamic Adaptive Streaming over HTTP (MPEG-DASH) HTTP streaming protocols. Open Media Distribution supports video on demand (VoD), live video, time-shifted TV (TSTV), progressive download, secure download, and small object caching from a common high-performance HTTP cache. Open Media Distribution performs sophisticated algorithms for cache selection based on client location, cache availability, cache load, and content requested.

Open Media Distribution software applications are installed on high-performance Cisco content delivery engines (CDEs), Cisco Unified Computing System™ (Cisco UCS®) servers, and Intel x86-based commercial off-the-shelf (COTS) servers, providing a flexible and cost-effective solution. Open Media Distribution software components can be virtualized with VMware or OpenStack kernel-based virtual machines (KVMs) and operate on a cloud platform deployed with COTS servers. Figure 1 illustrates a typical Open Media Distribution CDN deployment.

Figure 1.   Cisco Open Media Distribution Typical Deployment
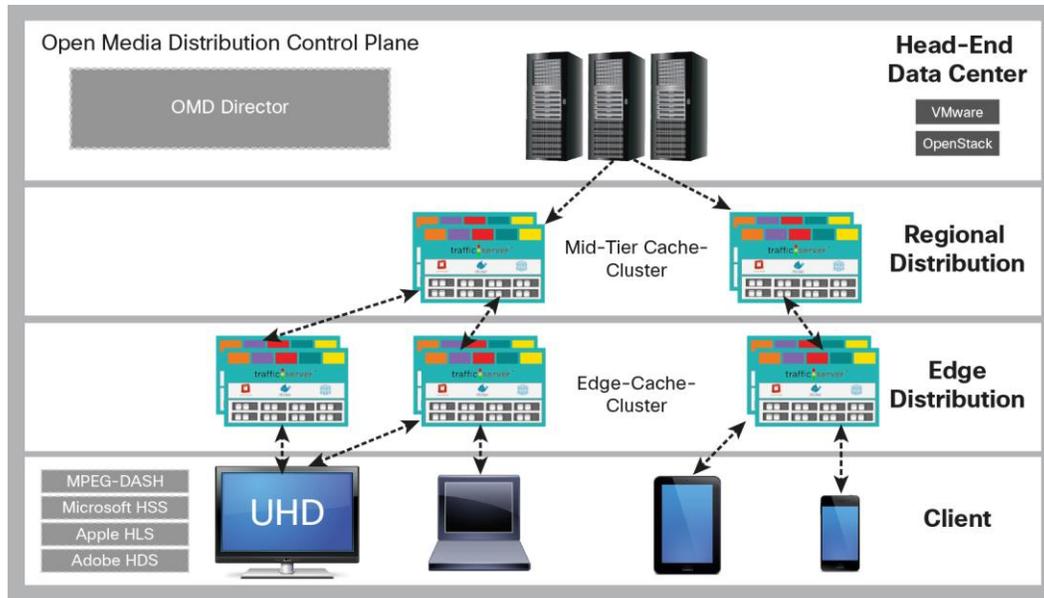
Open Media Distribution offers service providers a CDN solution that is rapid to deploy, simple to operate, and cost-effective to scale so that they can compete with pure OTT content offerings and deliver a better quality of experience (QoE) to their subscribers.

Cisco OMD Director

Cisco OMD Director is a cloud-based CDN management system providing integrated provisioning, monitoring, analytics, alerting, and role-based management. Cisco OMD Director is implemented to be virtualized and further optimized with microservices in containers: Cisco OMD Director supports and provides:

- **Cloud infrastructure:** Can be deployed on private or public clouds running OpenStack or VMware and virtualized Cisco UCS servers.
- **Key performance indicator (KPI) dashboards:** Provides quick views of capacity utilization, cache efficiency, and streaming concurrency with threshold crossing alerts. (See Figure 2.)
- **CDN wizard:** Includes a simple six-step GUI tool to accelerate day-zero provisioning of distributed cache servers, including remote software deployment, which eliminates onsite software installation requirements.
- **OMD Insights:** Provides in-depth CDN analytics with graphs and reports for capacity utilization, viewer distribution, content popularity, streaming protocol distribution, device types, ISP networks, and many other metrics.
- **Server monitoring:** Provides in-depth server monitoring, threshold crossing, and alarming based on CPU utilization, port utilization, temperature, disk I/O, and other detailed server metrics.

- **Request routing:** Provides client request routing to cache servers based on proximity, content affinity, and server load.
- **Alerting:** Supports configuration of threshold crossing policy on KPIs and analytics and includes server monitoring to provide SMS and email notification of minor, critical, and major alarms.

Figure 2.   Cisco OMD Director Dashboards
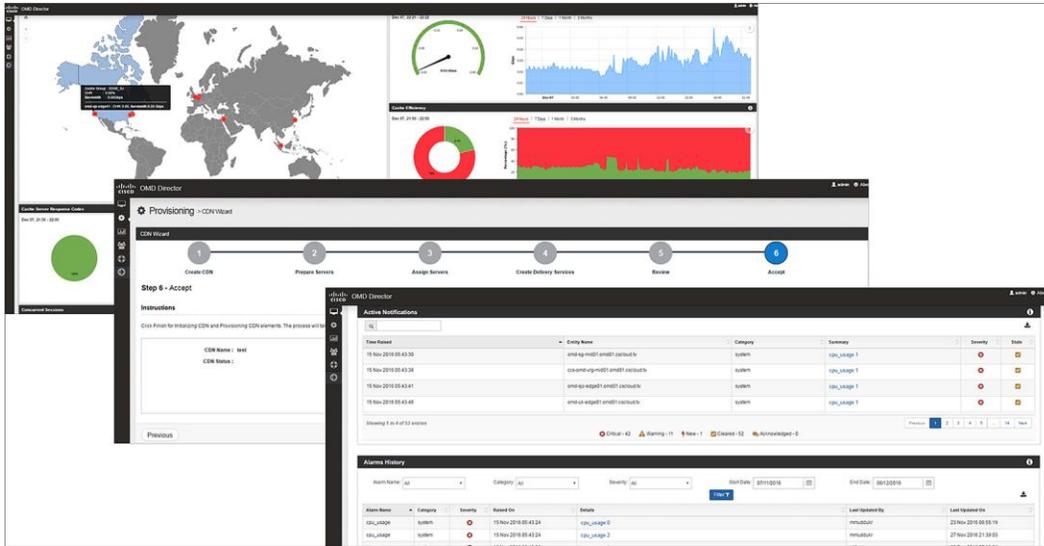
Cisco Open Media Distribution Insights

Cisco Open Media Distribution Insights lets service providers gain insight and improve the operations of their CDNs (Figure 3). It provides comprehensive CDN operational analytics, including analysis of throughput, utilization, and efficiency of video content delivery. It also provides insight into viewership trends. With real-time data captured from CDN logs, Open Media Distribution Insights provides simplified access to actionable data and analytics, so that operations teams can proactively monitor activity and take action before problems occur. It also delivers comprehensive dashboards and trending reports that capture valuable information for CDN capacity planning and delivery optimization.

Open Media Distribution Insights is powered by Splunk. Splunk universal forwarders are embedded in the Open Media Distribution midtier caches and edge caches to monitor log files and forward log events in real time to the highly resilient Splunk database. Open Media Distribution Insights provides scorecards, lean forward analytics, trend analysis, reports, custom dashboards, custom reports, content-based analysis, sessions-based analytics, near-real-time monitoring, and more.

Figure 3.   Cisco Open Media Distribution Insights

Cisco Open Media Distribution Advantage

Open Media Distribution offers the following advantages:

- Openness and extensibility:
  - CDN that integrates qualified open-source applications using continuous community development
  - Massive scalability with proven deployment by leading service providers with Tbps of edge caching
  - Support for leading adaptive bit rate (ABR) protocols for streaming live, VoD, TSTV, and cloud DVR
  - Open interfaces, cache-plug-in architecture, with an array of open-source traffic server plug-ins
  - Robust security to protect content and CDN systems
  - Powerful Cisco developed CDN analytics with more than 100 dashboards
  - CDN solution for both wholesale and retail markets
- Operational simplicity:
  - Efficient capacity management to easily expand edge caching capability
  - Cloud-based CDN management platform to simplify day-to-day CDN operations
  - Continuous enhancement for safe and rapid deployment of vital security patches
  - Simplified operations and reduced OpEx through the use of sophisticated management tools
  - APIs and plug-ins that enable simple integration with existing video workflow
  - Cisco 24-hour-a-day support and remote operate services every day
- Cost-effective scalability:
  - Support for millions of subscribers with scalable architecture
  - Flexible deployment models licensed for virtual machines and bare-metal servers
  - Foundational architecture leading the CDN transformation to cloud and NFV architecture
  - Simplified commercial model with quarterly support subscription

Additional features and benefits of the Open Media Distribution solution are summarized in Table 1.

Table 1.   Cisco Open Media Distribution Benefits

Feature	Benefit
Services	
VoD, live, TSTV, cloud DVR, download, and secure download small object caching	Open Media Distribution enables rapid deployment of high-value distribution services and video streaming services, software and video download, and website acceleration with small object caching.
Content Distribution and Delivery	
HTTP ABR streaming support	ABR streaming support for a variety of formats (Microsoft, Apple, Adobe, and MPEG-DASH)
HTTP download and progressive download	Support for long- and short-form content service and services such as download to own
HTTPS download and progressive download	HTTP and SSL for secure VoD download with certificate management
Request Routing and Load Balancing	
Load balancing	Dynamically optimized routing of subscribers to edge caches with minimal delay
Content awareness	Deterministic distribution of content assets within cache groups to reduce delivery times and increase QoE
System resiliency	High resiliency in the presence of server failures, connectivity losses, and system upgrades and patches
Management and Analytics	
Management as a single system	Easy-to-use GUI to configure, monitor, and troubleshoot the Open Media Distribution applications throughout the entire system
Real-time analytics and reporting	Powered by Splunk, which provides dashboards and reports by processing traffic server HTTP transactions and log data

Product Specifications

Open Media Distribution product specifications are summarized in Table 2.

Table 2.   Cisco Open Media Distribution Product Specifications

Description	Specification
Content types and formats	● HTTP image files (for example, HTML and JPEG) ● MPEG1, MPEG2, and MPEG4 ● H.264 ● HEVC
Delivery protocols	● Web content through HTTP and HTTPS
Ingest protocols	● HTTP ● HTTPS
HTTP ABR streaming support	● Apple HLS ● Microsoft HSS ● Adobe HDS ● MPEG-DASH
Cisco OMD Director	● Virtualized cloud-hosted centralized management system ● Configuration of caches and creation of delivery services and cache groups ● Secure, browser-based GUI over HTTPS ● Provisioning of VoD and live delivery services ● Monitoring of traffic statistics
Cisco OMD traffic router	Uses open-source load balancer that optimally redirects HTTP client requests to an edge cache: ● HTTP 302 redirection ● Domain Name Service (DNS) A and AAAA record response ● Health-based and load-based edge-cache selection ● Client-location-based cache selection ● Delivery-service-aware and content-aware routing

Description	Specification
Traffic vault	Uses open-source secure key store to store the following types of CDN information: SSL certificates, DNS security extension (DNSSEC) keys, and URL signing keys
Cisco OMD Insights	Dashboards for content, user, and operational insights built on Splunk and based on processing traffic server HTTP transaction log data
Internet video back-office integration interfaces	● Support for integration with entitlement services, digital rights management, and Internet publishing tools ● Representational state transfer (REST) APIs
Content security	● URL signing/tokenization ● HTTPS/SSL support ● DNSSEC support ● SSL key vault to secure API, tokenization, SSL, and DNSSEC credentials
Hardware support	● High-performance Cisco UCS servers ● Cisco content delivery engines ● Intel x86-based COTS servers
Operation system virtualization	● CentOS ● Red Hat
	● Supported hypervisors: VMware and OpenStack KVM ● Support for VMware ESXi, vSphere, and vCenter

Ordering Information

Table 3 lists the Open Media Distribution part numbers required to place an order.

To place an order, visit the Cisco Ordering homepage and refer to Table 3.

Table 3.   Ordering Information for Cisco Open Media Distribution

Type	Top-Level Part Number	Part Number	Part Name	Product Description
Software applications	R-OMD-PRCL-K9		Open Media Distribution Software applications	Electronic distribution of licensed software
		L-OMD-MGM-SW-PSS	OMD Director management and control, perpetual	OMD Director software bundle, which includes: ● Unlimited number of traffic routers ● 2 MaxMind geolookup databases for 2 traffic routers ● OMD Insights analytics (requires additional Gbytes/day log processing licenses)
		L-OMD-CACHEC10G-P	SW LIC, edge or midtier cache, perpetual	Cache license required for each midtier or edge cache server
		L-OMD-CAP1GBPS-P	SW LIC, 1 Gbps peak delivery capacity, perpetual	1 Gbps of peak delivery capacity perpetual license
		L-OMD-ANL-10GLD-P	SW LIC, Splunk capacity, 10 GB log processing/day, perpetual	10 Gbytes/day of cache log processing per day for CDN Insights (analytics)
		L-OMD-ANL-100GLD-P	SW LIC, Splunk capacity, 100 GB log processing/day, perpetual	100 Gbytes/day of cache log processing per day for CDN Insights (analytics)
		L-OMD-TR-GEODB-P	LIC, OMD traffic router geolookup database combines MaxMind software	Geolookup database license for IP to geolocation conversion

Type	Top-Level Part Number	Part Number	Part Name	Product Description
Subsription		**OMD-CAP1GBPS-RM**	SW subscription, 1 Gbps capacity: usage	1 Gbps of peak delivery capacitiy, measured and invoiced monthly
Remote operate subscriptions		**U-OMD-MGSV-MGT**	Remote operate service for OMD management and routing applications	Remote operate service for OMD management and routing applications. Cisco will use additional monitoring, measurement, and alerting applications to perform the duties of 24x7 remote operate service.
		U-OMD-MGSV-CACHE	Remote operate service for OMD caching applications	Remote operate service per OMD midtier and edge cache. Cisco will use additional monitoring, measurement, and alerting applications to perform the duties of 24x7 remote operate service.

Services

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, resulting in 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.

Cisco Capital Financing to Help You Achieve Your Objectives

Cisco Capital® financing can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx, accelerate your growth, and optimize your investment spending and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital financing is available in more than 100 countries. Learn more.

For More Information

For more information about the Cisco service providers video solutions, visit http://www.cisco.com/c/en/us/solutions/service-provider/service-provider-video-solutions/index.html.

For more information, contact your Cisco Services sales representative or Cisco authorized channel partner.