VBrick Distributed Media Engine (DME) for Cisco TelePresence and Cisco WebEx Environments

Make every video experience the best for every user, with an enterprise content-delivery network (eCDN) that provides the backbone to deliver predictable and scalable video to every device.

Product Overview

Now it's easier than ever to broadcast video efficiently to large audiences on all the devices they prefer. People in regional offices or on remote campuses can view high-definition video, either live or stored, without taxing data connections to a central site.

The VBrick Distributed Media Engine (DME) provides dynamic live stream creation, bandwidth optimization, and automated and intelligent video-on-demand (VoD) sharing and prepositioning. A typical deployment has one or more central DMEs connected to edge DMEs. A single stream of media from a central site can support tens of thousands of live views and then be stored locally for on-demand access by thousands more. Combined with VBrick Rev, an enterprise video management platform, the DME becomes a powerful, integrated component that intelligently and automatically delivers borderless live and stored content to users.

The DME also uses the DME Mesh, which is a set of technologies that provides a self-managing, self-optimizing ability to share, distribute, and cache VoD content Mesh capabilities also enable video content location across DMEs and first-request caching. This capability allows administrators to selectively preposition content, and enables DMEs to locate and pull that requested content from the closest DME on the network, using bandwidth and storage only when necessary. Focusing on these operational savings is a vital part of an eCDN that allows you to make high-quality video available to massive, geographically dispersed audiences, all without overloading your WAN. Plus, the DME supports video ingest and recording for a variety of endpoints, including popular smartphones and media tablets. Recommended Cisco Unified Computing System™ (Cisco UCS®) M4 hardware is available for deploying the DME software. Ordering details are given later in this data sheet.

Features and Benefits

Table 1 lists the features and benefits of the solution.

Table 1. Features and Benefits

Feature	Benefit
Origin streaming server	The DME has Real-Time Transfer Protocol (RTP), Real Time Message Protocol (RTMP), HTTP Live Streaming (HLS), and HTTP Progressive Download server capabilities for stored (VoD) files. When a software client requests a served stream, the DME server examines the file to determine transport type, video rate, audio rate, and other parameters and then plays the stream using optimal settings adjusted for bandwidth, frame rate, and other parameters.
Pushed streams	The DME also pushes live streams to configured endpoint destinations. In pushed stream mode, the DME is always transmitting and does not wait for a client request. The DME transmits if the client is reachable and listening (in the case of unicast). The streams are transmitted across the network with RTP, RTMP (unicast only), or transport stream.

Feature	Benefit
Pulled streams	The DME can receive or pull from an encoder, a Flash server, a video conferencing device, or another DME. The DME can also serve streams or push streams to an RTMP server, RTP server, or another DME. The DME supports unicast (one to one) and multicast (one to many) for both input and output. Multicasting can save substantial network bandwidth when multiple clients are accessing the same stream.
Transrated streams	The DME can transrate live video streams by converting a stream from one bit rate and resolution to another. A common example is to ingest a single bit rate stream and transrate it into smaller bit rates. Those streams are then commonly combined into a single HLS adaptive bit rate delivery for platforms from mobile (lower bit rate) to PC or desktop (higher bit rate).
Transmuxed streams	The DME can transmux live video streams from one file format or streaming protocol to another without changing the compression method. An example of transmuxing is when a unicast stream is converted to multicast or when an RTP stream is converted to RTMP. The DME supports a wide range of input streams and live output streams.
Unicast to multicast	The DME can receive unicast streams, by the mechanisms list above, and create multicast streams. This capability is highly useful for bandwidth savings between origin servers and remote offices. Converting into multicast also conserves bandwidth on the LAN, and avoids the network load of many, multiple unicasts.

Your Integrated Solution for Video Capture, Transformation, and Sharing

With its ability to capture and transform video from Cisco TelePresence® and Cisco WebEx® environments, the combined DME and Rev solution helps you eliminate video silos. It ingests recorded and live video streams from video conferencing, web conferencing, and webcasting systems alike, including Cisco TelePresence Content Server (TCS). It can also pull content from an encoder, a Flash server, or another DME. The DME can concurrently deliver multiple streams of live and stored video content in a variety of formats.

In combination with Rev, the DME stores on-demand content and makes it available in multiple locations from a single, centralized, consumer-grade portal where employees can search and replay the assets on demand and on any device. Matching end-user information, including the user's location and viewing permissions, with a network of DMEs, the solution routes users to access live and on-demand content from the network edge, saving bandwidth across the WAN.

Ideal for Your Unique Video Needs

DME can improve video delivery and quality in a range of use cases:

- Meeting and event broadcasting: When the DME is deployed with Rev, users are automatically connected to the closest DME, delivering higher-quality broadcasts while reducing burden on the network.
- Training and lecture capture: Reach larger audiences, reduce travel expenses, and eliminate adoption barriers such as limited bandwidth or incompatible devices.
- Internet Protocol Television (IPTV) distribution: Send one stream to serve hundreds or thousands of users in remote locations, and centrally manage IPTV broadcasts with intelligent video streaming through unicast, multicast, or both.

Table 2 gives licensing information, Table 3 lists product specifications, Table 4 lists system requirements, Table 5 gives ordering information for the VBrick Distributed Media Engine, and Table 6 gives ordering information for DME appliances.

Table 2. Licensing

License level	Small	Medium	Large
Recommended concurrent unicast users	100 or fewer	1000 or fewer	2200 maximum
Maximum throughput	250 Mbps	500 Mbps	3.2 Gbps

Table 3. Product Specifications

Hypervisor version	• ESXi 5.0, 5.1, 5.5, and 6.0 • Windows Hyper-V Server 2012 and 2012R2
Player support	• Adobe Flash Player • HTTP Dynamic Streaming • Apple Adaptive Player on iPhone and iPad using HLS • Windows Media Player 12 or VBrick plug-in • QuickTime Player (Windows and Mac)
Incoming protocols	• RTP • RTMP • MPEG2TS with KLV • FTP for VoD file transfer • Smooth Stream from Microsoft Internet Information Services (IIS) Server • Session Initiation Protocol (SIP) (optional)
Outgoing protocols	• RTMFP: Flash Multicast • RTP: Unicast and multicast • RTMP: Unicast • MPEG2TS with KLV: Unicast and multicast • Historical Data Server (HDS): Unicast • HLS: Unicast (with adaptive bit rate support) • HTTP: Progressive download • Smooth Stream • Stored Windows Media: Progressive download
Management	• HTTP and Secure HTTP (HTTPS) for management • Internet Group Management Protocol Version 3 (IGMPv3) • Simple Network management Protocol Versions 1, 2, and 3 (SNMPv1, 2, and 3)

Table 4. System Requirements

	Small	Medium	Large
Required virtual CPUs	4 core	8 core	16 core
Required memory	4 GB	16 GB	32 GB
Network interface	VMWare E1000	VMWare E1000	4x VMWare E1000 or emulated 10-Gbps interface

Table 5. Ordering Information for DME Software

Part Number	Product Description	
R-VBRICK-DME-SP	VBRICK REV Solutions Plus DME Tier Offers	
Options		
Distributed Media Engine	DME-S DME-S-MNT DME-M DME-M-MNT DME-L DME-L-MNT	Distributed Media Engine Small Distributed Media Engine Small Maintenance Distributed Media Engine Medium Distributed Media Engine Medium Maintenance Distributed Media Engine Large Distributed Media Engine Large Maintenance
Distributed Media Engine Upgrades	DME-S/M-UPG DME-M/L-UPG DME-S/L-UPG	Distributed Media Engine Small to Medium Upgrade Distributed Media Engine Medium to Large Upgrade Distributed Media Engine Small to Large Upgrade
Distributed Media Engine Subscription	DME-S-SUB DME-M-SUB DME-L-SUB	Distributed Media Engine Small Subscription (Annual) Distributed Media Engine Medium Subscription (Annual) Distributed Media Engine Large Subscription (Annual)

Table 6. Ordering Information - DME Appliance

Part Number	Product Description
CVC-DME-M4-S	VBrick M4 Server Appliance for VBrick DME Small
CVC-DME-M4-M	VBrick M4 Server Appliance for VBrick DME Medium
CVC-DME-M4-L	VBrick M4 Server Appliance for VBrick DME Large

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