

## Dialogic® PowerMedia™ XMS



Dialogic’s PowerMedia XMS is a highly scalable, software-only media server that enables standards-based, real-time multimedia communications solutions for IMS, MRF, Enterprise, and WebRTC applications on premise or in the cloud. Built on 15+ years of software media processing experience, PowerMedia XMS is trusted by world-class service providers and large enterprises to power millions of rich media sessions.

With an extensive list of successful implementations that include MRF for VoLTE, carrier hosted contact centers, enterprise communications, voice messaging and “mission critical” next-generation 911 services, PowerMedia XMS has proven to be a key building block to new and innovative applications. When deployed with the optional [Dialogic® PowerMedia™ Media Resource Broker \(MRB\)](#), PowerMedia XMS scales to meet growing service-provider and business requirements.

Features	Benefits
<b>Highly scalable, software media server with advanced multimedia processing functionality with an optional PowerMedia Media Resource Broker (MRB)</b>	Facilitates the development and deployment of rich communication applications and services across Web, VoIP/SIP, Mobile and PSTN networks with a wide range of connected endpoints. By offloading difficult media handling requirements to PowerMedia XMS, service providers, and developers are able to focus on unique aspects of their application without the burden and cost associated with developing highly-scalable media expertise in-house.
<b>Standards-compliant IMS MRF with full Voice over LTE (IR.92) and Video over LTE (IR.94) support</b>	Conforming to the 3GPP IMS architectural specifications, PowerMedia XMS can be deployed as a Media Resource Function (MRF), providing key media processing capabilities that may be required by IMS-based services such as VoLTE and RCS. Additionally, its conformance to IMS specifications promotes compatibility between legacy telephony networks and evolving IP telecommunication standards.
<b>Robust HD audio and video media support with IETF, 3GPP and W3C WebRTC codecs</b>	As new codecs are being introduced into the market, PowerMedia XMS can act as a transcoding gateway, providing interworking of a wide variety of audio and video codecs. PowerMedia XMS’s software nature also means that new codec support can be rapidly added without changing physical DSPs or necessitating complicated firmware upgrades.
<b>Support for Commercial-Off-The-Shelf (COTS), virtualization, and Network Function Virtualization (NFV) deployment models</b>	Reduces both OPEX and CAPEX by utilizing existing datacenter infrastructure and cloud services for deployment of dynamically scalable communication solutions.
<b>Media control through open, and industry standards based API’s</b>	Energizes service provider and communication developers by leveraging industry-standard programmable APIs to rapidly add sophisticated media handling capabilities to their applications.
<b>Web-based GUI and HTTP RESTful Management interface for media server management, control and monitoring</b>	Intuitive, yet powerful operator console can reduce OPEX when deploying solutions by enabling the quick resolution of operation issues. The HTTP RESTful web management interface provides seamless integration with existing infrastructure for real-time monitoring, alarms, logging, and tracing.
<b>Scalable licensing from ten ports to thousands of ports per server</b>	The simple, flexible, and scalable licensing model allows paying only for the functionality your application needs and only when you need it. Applications can start with licenses for basic audio services and can later add HD voice or video capabilities when required by the application, thus providing significant CAPEX savings opportunities by allowing solutions to be scaled easily by software upgrade as demand grows.

## Overview

PowerMedia XMS allows for rapid integration and development through open, and industry standard APIs, including MSML, VXML, NetAnn, and JSR 309, plus a Dialogic RESTful API. As a 100% software solution with Network Function Virtualization (NFV), PowerMedia XMS allows for installation on commercial off-the-shelf (COTS) servers, virtual machines, or public & private clouds.

PowerMedia XMS supports an extensive range of real-time media processing needs, including:

- **Multi-party conferencing** – low-latency mixing of audio and video, including HD voice and high-resolution video up to HD 720p, and Multi-point Control Unit (MCU) for group communications with the ability to adapt individual streams to optimize the experience for each user
- **Transcoding** – any-to-any audio and video codec conversion for a wide-range of fixed, wireless, and web-oriented codecs, including transrating and transizing for video
- **Media interworking** – conversion of underlying transport protocols and encryption interworking, including support for a WebRTC Media Gateway
- **Recording** – flexible centralized audio and video recording for mixed conferences, or individual streams
- **Stream processing** – analyze, insert, and modify the audio or video stream for speech recognition, DTMF, video overlays, and much more
- **Person-to-Machine** – connect to computer-controlled interfaces, not just other people, for applications such as Interactive Voice (and Video) Response (IVR and IVVR) systems, and speech interaction

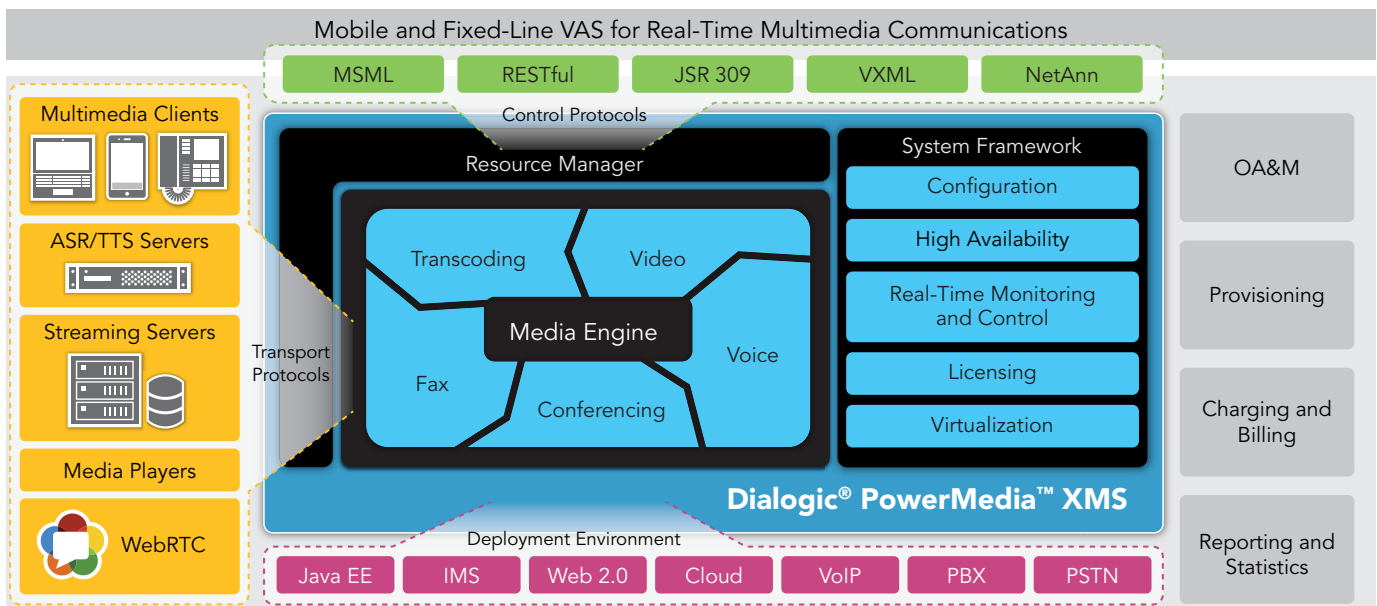


Figure 1. Dialogic® PowerMedia™ XMS: Interfaces, Functions, and Deployment Environments

## Technical Specifications

### Session Capacity

Typical media sessions per server (specific per server results will depend on a variety of factors, including but not limited to deployment conditions, configurations, and equipment):

**Audio** — Up to 2000 sessions of G.711 or 1000 sessions with full-duplex (RTP-RTP) transcoding

**Video** — Up to 450 unidirectional sessions (also includes audio transcoding), depending on system capacity, codec, resolution, frame rate, etc.

When multiple servers are deployed with PowerMedia MRB, total scaling can achieve upwards of 50,000 audio sessions and 2,000 video sessions.

## Signaling, Protocol, and Control Interfaces

### Control Protocols and Specification Compatibility

SIP (RFC3261)  
SIP PreConditions (RFC3312, RFC4032)  
SIP DNS (RFC3263)  
GSMA IR.92 for Voice over LTE (VoLTE)  
GSMA IR.94 for Video over LTE (ViLTE)  
3GPP TS23.288 for IMS (Mr/Mr' and Cr interfaces)  
WebRTC JavaScript API  
MSRP for multimedia chat and RCS message services  
RTSP client support for streaming multimedia content from RTSP servers  
MRCP v2.0/v1.0 for connection to speech servers for ASR/TTS - see "Third Party MRCP Speech Vendor Capability" below

### Media Protocols

IPv4, IPv6, and mixed-mode IPv4/IPv6 (Multiple-NIC support)  
3GPP Mb (RTP) interface for IMS  
RTP, RTCP, RTCP-XR, RTCP-HR  
Secure SRTP: DTLS-SRTP (WebRTC), SDES-SRTP (VoIP)  
ICE Lite, Trickle ICE  
HTTP

### Media Control Interfaces

**RESTful API** - HTTP-based RESTful web services interface  
**MSML (RFC5707)** – SIP with XML-based Media Server Markup Language  
**JSR 309 Connector** – industry-standard Java media server control API for multimedia application development  
**VXML v2.1/v2.0 (VXML v3.0 for Video)** - W3C industry-standard XML interface for specifying interactive voice dialogs for IVR or speech enabled applications.  
**NetAnn (RFC4240)** – Basic Network Media Services with SIP for announcements, dialogues, and simple conferences

## Media and Coders

### Audio

Voice and HD Voice play/record  
Tone generation/detection (Inband DTMF, RFC2833/RFC4733 including RFC4734/RFC5244 tone events)  
Call progress analysis (CPA)  
Positive Voice Detection (PVD) and Positive Answering Machine Detection (PAMD)

### Audio Codecs

Narrowband codecs: G.711u/a, G.723, G.726, G.729a, G.729b, iLBC, GSM-FR, GSM-EFR, and AMR-NB (including AMR2)  
Wideband codecs: Opus, G.722 and AMR-WB (G.722.2)  
Voice activity detection, silence suppression, comfort noise generation

### Audio Conferencing

N-way (including HD Voice) audio mixing  
Conference Recording (summed or individual parties)  
Automatic Gain Control (AGC)  
Per party gain/volume control  
Active talker detection  
DTMF clamping  
Coach-pupil (whisper) mode  
Loudest N-party mixing  
Privileged party mixing  
Echo cancellation

**Video**

Play/record, including fast forward, rewind, pause, resume  
 Video transcoding, transrating, and transizing  
 Video overlays (text and image overlay with scrolling)  
 Dialogic patented Video Encoder Sharing technology

**Video Codecs**

H.264 Baseline Profile, up to Level 3.1 (HD720p)

VP9, up to HD720p

VP8, up to HD720p

MPEG 4 Simple Profile, up to Level 4 (VGA)

H.263, H.263+, H.263++ Baseline Profile, up to CIF

Image sizes: HD720p, 4CIF, VGA, CIF, QVGA, QCIF, SQCIF (and custom resolutions)

Frame rates: Up to 30 FPS

Bit rates: Up to 2Mbps

Video Fast Update (VFU): Configurable responses to I-Frame Update requests

Fully adaptive video jitter buffer

Dialogic patent-pending Packet Loss Concealment (PLC) technology

Dialogic patent-pending Dynamic Bitrate Adaptive Encoding technology

Dialogic patented Encoding Bitrate Control technology

RTCP feedback support (PLI, FIR, REMB, TMMBR, TMMBN, Generic NACK)

**Media Handling**

File operations: HTTP1.1, HTTPS, and/or NFS; RTSP/RTP

**Audio File Containers:** .wav, .pcm, .vox, .aud, .amr, .amb

WAV/PCM Codec Formats: 8k lin PCM, 11k lin PCM, 16k lin PCM, 8k alaw PCM, 8k mulaw PCM

AMR Codec Formats (RFC 4867): AMR-NB(.amr) and AMR-WB(.amb)

**Multimedia File Formats:** .3gp, .mp4, .mkv, Dialogic .vid/.aud

3GP Container Codec Formats: Video: H.264, MPEG4, H.263

Audio: AMR-NB, AMR-WB

MP4 Container Codec Formats:

Video: H.264

Audio: AMR-NB, AMR-WB

MVK Container Codec Formats:

Video: VP8, H.264

Audio: Opus

**Fax**

Fax Tone Detection & Notification

Fax Send and Receive: G.711 or T.38 (Up to v.17)  
 RFC 6913 – Indicating Fax with SIP  
 TIFF and PDF file formats

**Language Support**

Variable content announcement / language phrasing: "date", "digits", "duration", "month", "money", "number", "silence", "time", "weekday"

Customizable to support virtually any language or dialect

Built-in voice files: US English, Mandarin Chinese, Spanish are standard; French, German, Japanese, Italian, Greek and others are available upon request

**Virtualization & Cloud**

VMWare ESXi 5.x

Kernel-based Virtual Machine (KVM)

Oracle VM

XEN Virtual Machine

Rackspace Cloud Servers

Amazon Web Services (AWS)<sup>1</sup>

## System Management

- Intuitive Web GUI
- Real-time monitoring and management via HTTP RESTful control interface
- Command Line Interface (CLI) Scripting
- Remotely managed tracing and logging
- SNMP v2c/v3 for management and traps
- Call Detail Records (CDR)
- Active Call Monitoring
- Audit Logging

## Licensing

- Scalable from (10) to thousands of ports per server
- A time-limited trial license is available for evaluation purposes
- For more information about development licenses, please contact Dialogic inside sales ([insidesales@dialogic.com](mailto:insidesales@dialogic.com))

## Hardware Support and Minimum System Requirements

Hardware: Intel Architecture-based server

Operating System (64-bit OS):	CentOS Release 7.0 ISO installation OR RedHat Enterprise Linux 7.0 CentOS Release 6.4 (rpm-only) RedHat Enterprise Linux 6.4 (rpm-only) Oracle Enterprise Linux 6.4 (rpm-only)
Processor:	Intel Dual 56xx or greater
Ethernet:	Single or Dual 1000Base-TX (RJ-45)
Memory:	8 GB RAM minimum
Storage:	120 GB HD minimum

## Third Party MRCP Speech Vendor Compatibility

- Lumenvox (ASR and TTS)
- Nuance (ASR and TTS)
- Vestec (ASR)

<sup>1</sup> Planned future feature

## Getting Started

Start building your new innovative application **NOW** with a **FREE** download and trial license of PowerMedia XMS:  
PowerMedia XMS trial software download: <http://www.dialogic.com/Products/media-server-software/xms/xms-download.aspx>

PowerMedia XMS Documentation: <http://www.dialogic.com/goto?xmsdocs>

PowerMedia XMS Product Page: <http://www.dialogic.com/en/products/media-server-software/xms.aspx>

PowerMedia XMS Developer Portal: <http://developer.dialogic.com>

PowerMedia Media Resource Broker (MRB) Datasheet:  
<https://www.dialogic.com/~media/products/docs/media-server-software/14160-powermediamrb-ds.pdf>



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