Dialogic

Datasheet

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 Media Resource Function (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. The PowerMedia XMS media processing platform can be deployed as a composite Virtualized Network Function (VNF) to provide both Media Resource Functionality (MRF) and Media Resource Broker (MRB) services in IMS, VoLTE, NGN and cloud environments.

Features	Benefits
Highly scalable, software media server with advanced multimedia processing functionality with an optional PowerMedia Media Resource Broker (MRB)	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 can focus on unique aspects of their applications without the burden and cost associated with developing highly-scalable media expertise in-house.
Standards-compliant IMS MRF with full Voice over LTE (IR.92) and Video over LTE (IR.94) support	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.
Robust HD audio and video media support with IETF, 3GPP (incl. EVS, AMRNB and AMRWB) and W3C WebRTC codecs (incl. VP8, VP9 and Opus)	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.
Support for Commercial-Off-The-Shelf (COTS), virtualization, and Network Function Virtualization (NFV) deployment models	Reduces both OPEX and CAPEX by utilizing existing datacenter infrastructure and cloud services for deployment of dynamically scalable communication solutions.
Media control through open, and industry standards based APIs	Energizes service provider and communication developers by leveraging industry-standard programmable APIs to rapidly add sophisticated media handling capabilities to their applications.
Web-based GUI and HTTP RESTful Management interface for media server management, control and monitoring	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.
Scalable licensing from ten to thousands of ports per server	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-based solution with Network Function Virtualization (NFV), PowerMedia XMS allows for installation on commercial off-the-shelf (COTS) servers, virtual machines, or public and 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. Multi-point Control Unit (MCU) conferencing for group communications with the ability to adapt individual streams to optimize the experience for each user or Selective Forwarding Unit (SFU) conferencing for multimedia routing to benefit scalability in uniform environments
- **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/Secure Recording** – flexible centralized audio and video recording for mixed conferences, or individual streams, including encrypted record where the highest level of security is required for recording applications
- **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

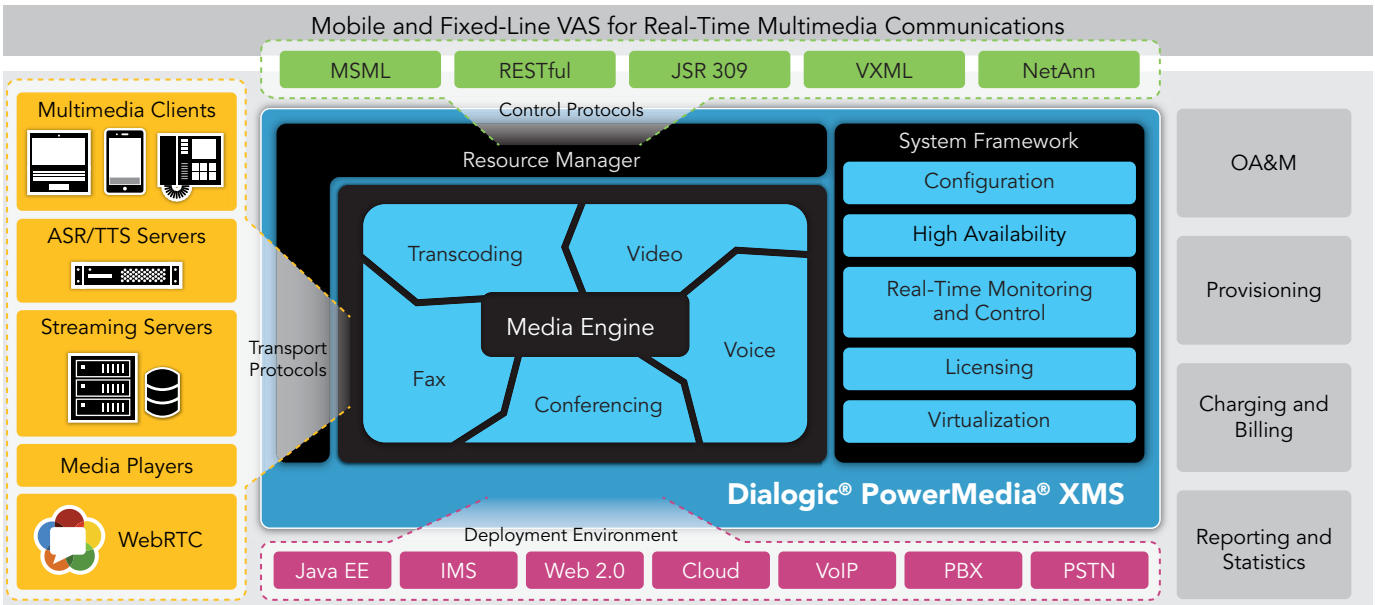

Figure 1. Dialogic® PowerMedia® XMS: Interfaces, Functions, and Deployment Environments

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 1000 HD 720p sessions (with SFU) or 500 sessions (with MCU transcoding). Capacity depends on system specification, codec, resolution, frame rate, etc.

When multiple servers are deployed with PowerMedia MRB, total scaling can achieve upwards of 50,000 audio sessions and 4800 video sessions.

Signaling, Protocol, and Control Interfaces

Control Protocols and Specification (i.e., Standards) Compatibility

SIP (RFC3261)

SIP PreConditions (RFC3312, RFC4032)

SIP DNS (RFC3263)

SIP Global Session Identifier (RFC 7329)

GSMA IR.92 for Voice over LTE (VoLTE)

GSMA IR.94 for Video over LTE (ViLTE)

3GPP TS23.228 for IMS (Mr/Mr' and Cr interfaces)

3GPP TS26.114 for IMS media interaction

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*" section

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)

Secure RTCP (SRTCP)

DiffServ/ToS Markings

ICE Lite, Trickle ICE

HTTP/HTTPS

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 - W3C industry-standard XML interface for specifying interactive voice dialogs for IVR or speech enabled applications , including video support

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) – customizable per environment

Positive Voice Detection (PVD) and Positive Answering Machine Detection (PAMD)

Audio Codecs

Narrowband codecs: G.711u/a, G.723.1, 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)

Enhanced Voice Services (EVS)
- EVS Primary and EVS AMRWB IO modes
- All RTP bandwidths (nb, wb, swb, fb)[1]
- Compact and Header-full packetization
- TS 26.114 compliant

Voice activity detection, silence suppression, comfort noise generation, packet loss concealment

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 (including bulk delay EC for AEC)

Video

Play/record, including fast forward, rewind, pause, resume

Video transcoding, transrating, and transizing

Video MCU and SFU Conferencing

Video overlays (text and image overlay with scrolling)

Dialogic patented Video Encoder Sharing technology

Dialogic patented Encoding Bitrate Control technology

Dialogic patented Perceptual Processing technology

Dialogic patented Adaptive Packet Loss Handling technology

Dialogic patented Packet Loss Concealment (PLC) technology

Dialogic patented Effective Intra-frame Refresh technology

Dialogic patent-pending Dynamic Bitrate Adaptive Encoding technology

Dialogic patent-pending Dynamic Frame Resolution Adaptation technology

Video Codecs

H.264 Baseline Profile, up to Level 3.1 (HD 720p)

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: HD 720p, 4CIF, VGA, CIF, QVGA, QCIF, SQCIF (including landscape, portrait 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:	HTTP/HTTPS, and/or NFS; RTSP/RTP; MSRP
Multi-track audio recording:	(stereo .wav)
Encrypted Record (AES 256bit):	.webm, .mkv
Audio File Containers:	.wav, .pcm, .vox, .aud, .amr, .amb, .evs
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)
EVS Codec Format (.evs) as specified by TS26.445	
Multimedia File Formats:	.3gp, .mp4, .mkv, .webm
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
WebM Container Codec Formats:	Video: VP8 Audio: Opus

Fax

Fax Tone Detection & Notification	
Fax Send and Receive:	G.711 or T.38 (Up to V.34) 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 and 6.x
Kernel-based Virtual Machine (KVM)
Oracle VM/Oracle Cloud
XEN Virtual Machine
Amazon Web Services (AWS)
Rackspace Cloud Servers
OpenStack
NFV

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)

Key Performance Indicators (KPI)

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)

Hardware Support and Minimum System Requirements

Hardware:	Intel Architecture-based server
Operating System (64-bit OS):	ISO image installation: – CentOS Release 7.x rpm package installation: – CentOS Release 6.4 (or higher) & 7.x – RedHat Enterprise Linux 6.4 (or higher) & 7.x – Oracle Enterprise Linux 6.4 – Oracle Enterprise Linux 7.2 wUEKv4
Processor:	Intel Xeon E5-1620 or greater
Memory:	12 GB RAM minimum
Storage:	60 GB HD minimum
Network interfaces (minimum):	Signaling/Media/Mgmt. - 1x Gigabit Ethernet (1000Base-T)

Third Party MRCP Speech Vendor Compatibility

Lumenvox (ASR and TTS)

Nuance (ASR and TTS)

Vestec (ASR)

[1] *SWB (swb) and Fullband (fb) RTP processed as Wideband (wb) internally*

Getting Started

Start building your new innovative application NOW with a FREE download and trial license of PowerMedia XMS: https://www.dialogic.com/xms/xms-download

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

PowerMedia XMS Product Page: https://www.dialogic.com/xms

PowerMedia XMS Developer Portal: https://www.dialogic.com/developer

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

www.dialogic.com

For a list of Dialogic locations and offices, please visit: https://www.dialogic.com/contact

10/17 12888-14