MiVoice MX-ONE

The core component in the Mitel MiVoice MX-ONE Solution

Taking enterprise multimedia communications to the next level

Highlights

- SIP-based multimedia platform
- Scalable from 100 to 500,000 users
- Flexible licensing: A la carte or feature-based
- On-premise or cloud-based deployment options
- 64-bit architecture with native support for IPv6
- Complete range of fixed and mobile end-user devices
- Single point of entry for system management

MiVoice MX-ONE provides powerful communication and collaboration anywhere, over any medium, on the end-user's preferred device.

MX-ONE is a complete SIP-based communications system with the underlying architecture for unifying services like instant messaging, presence, voice, video conferencing and collaboration. The MX-ONE is built upon an open design, allowing for flexible and future-proof deployment. The same wide range of services and features are available from on-premise or in the cloud deployments of the MX-ONE solution..

Open System with a Single Point of Entry

Based on open software and hardware environments, the MX-ONE uses standard servers with a Linux SUSE operating system. MX-ONE enhances SIP implementations to support openness, cloud computing and high-definition video. Organisations can also gain efficiency with its single-point-of-entry for system management.

Building Blocks

MX-ONE consists of three basic components: MX-ONE Service Node (SIP-based communications server), MX-ONE Media Server (software-based media gateway) and MX-ONE Manager Suite. Optionally, one or more MX-ONE chassis with embedded hardware-based media gateways can be added to enable access to traditional PSTN networks, and provide support for connection of legacy devices.

MX-ONE SERVICE NODE OPTIONS

The high-capacity MX-ONE Service Node communication server software—either virtualized or running on a standard server platform—can handle up to 15,000 SIP users and 15 media gateways in a single server configuration. Multiple MX-ONE Service Nodes and media gateways can be combined to form a single logical system and deployed either as a large centralized system or as a distributed system with many servers and media gateways spread over a geographically dispersed area. This architecture enables the MiVoice MX-ONE solution to scale from 100 users to several hundred thousand users in a single system.

MX-ONE SERVICE NODE AS A "SOFTWARE-ONLY"

MX-ONE Service Node, as a "software-only" option, is available with media kits for standard Intel© servers or as virtual appliance for VMware environments. The MX-ONE Service Node, as well as MX-ONE Media Server software can be installed on the same server or Virtual Machine. The VMware-based software option is a perfect solution for organizations looking to move to a private cloud-based architecture.

TURN-KEY SERVER SOLUTION

The MX-ONE Service Node and MX-ONE Media Server software can be delivered in a turn-key server solution based on Dell PowerEdge R320 servers. Both the Linux operating system and Service Node application software are installed and pre-configured.

Mitel

APPLICATION SERVER UNIT (ASU)

The ASU, an Intel based server board, can be delivered as a part of MX-ONE Lite or MX-ONE Classic media gateway chassis, or separately as a 1U appliance. It is primarily used to host the MiVoice MX-ONE Service Node and MX-ONE Media Server software, but can also be used for other applications, such as Mitel's attendant, collaboration or unified messaging suites, as well as other Mitel certified applications. This compact server board consumes only 35 W of power.

ASU LITE

ASU Lite is available as an optional server model for remote MX-ONE sites with a single media gateway chassis (i.e., remote offices with an MX-ONE Lite or MX-ONE Classic configuration). It is also the preferred choice for single site MX-ONE deployments with up to 1,000 users. Furthermore, the ASU Lite server is included with the Survivable Branch Node (SBN) bundles, offering survivability and local hop-off for branch offices equipped with IP/SIP phones.

MX-ONE MEDIA GATEWAYS

MX-ONE offers two types of media gateways: One software-based version called MX-ONE Media Server and another hardware-based version called Media Gateway Unit (MGU), a 20 mm high board that is inserted in a MX-ONE Slim (1U), MX-ONE Lite (3U) or MX-ONE Classic (7U) chassis. In a multi-gateway deployment, up to 15 media gateways can be associated to one server.

MX-ONE MEDIA SERVER

The MX-ONE Media Server is a software-based media gateway that provides the Service Node with RTP media resources and manages protocol conversion between IP-based endpoints, using different protocols (e.g., H.323 and SIP). It resides either in the Service Node server or in a separate Linux server. In an IP/SIP deployment, it handles media services such as conferences, tone detection/generation and RVA. With the software-based media gateway, SIP trunks are used for access to the PSTN.

MEDIA GATEWAY UNIT (MGU)

The Media Gateway Unit version 2 (MGU2) is a compact media gateway board that is inserted in an MX-ONE chassis, providing DSP resources and access to the traditional PSTN network. Its primary function is to perform the transcoding between TDM and IP/SIP-based endpoints in an MX-ONE network. Additionally, it provides the switching fabric for legacy subscriber endpoints located in the MX-ONE chassis. Like the MX-ONE Media Server, the MGU also handles media services, such as conferencing, tone detection/sending and RVA.

MX-ONE CHASSIS WITH EMBEDDED MGU

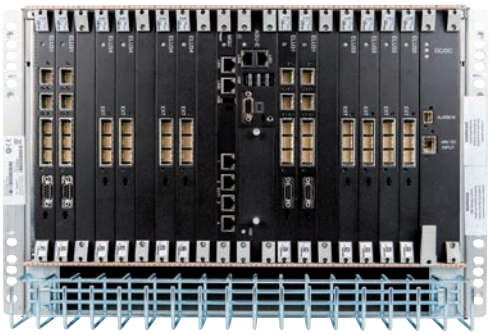
MX-ONE Slim – 1U chassis, containing one MGU2 board, is the choice for pure IP environments. There is also room for one additional extension board.

MX-ONE Lite – 3U chassis, more suitable for IP environments and branch office scenarios with the space for one MGU2 board, one ASU, plus three or five TDM boards, depending on whether an external server is used or not.

MX-ONE Classic – 7U chassis, fitted with an MGU2 board, targets mainly mixed environments with space for up to 16 legacy boards.

MX-ONE Slim

MX-ONE Lite



MX-ONE Classic

MX-ONE MANAGER SUITE

MX-ONE Manager Suite offers a complete range of applications for administrators and end-users. For end-user administrators, MiVoice MX-ONE appears as one single system regardless of the number of servers and media gateways. MX-ONE Manager Suite consists of:

- *MX-ONE Service Node Manager for configuration of system functions*
- *MX-ONE Provisioning Manager for user configuration data*
- *MX-ONE Traffic Manager for monitoring of traffic and system performance*

Main Functionality

POWERFUL RANGE OF FEATURES

- *Support for the full range of SIP multimedia desktop terminals and soft phones, as well as IP phones, Mobile Extension, Wi-Fi, DECT/SIP DECT, analog and digital phones*
- *Support for the whole family of UCC multimedia endpoints. Services offered include a mixture of voice, video, instant messaging and presence information*
- *Over 500 system and end-user features, including multi-device support for SIP users, free-seating across networked systems, and Mobile Extension for native FMC integration, addressing a wide range of vertical segments and customer scenarios*
- *System-based services, such as SIP- and QSIG-based networking, with full feature transparency, routing, number analysis, call information logging, CSTA Phase III and a wide range of applications*
- *Pre-configured SIP trunk profiles, enabling integration and certification from a variety of service providers worldwide*
- *Full range of public trunk interfaces, including ISDN, CAS/MFC, DPNSS and analog trunks*

MIVOICE MX-ONE REDUNDANCY OPTIONS

SERVER REDUNDANCY

MX-ONE Service Node redundancy uses the n+1 redundancy technique: If an active server fails, the back-up server starts with its copy of the failed server's data. Alias IP addressing is used, so clients and remaining server(s) can continue to use their configured IP addresses.

NETWORK REDUNDANCY

By Network Interface Card (NIC) bonding, two or more Ethernet interfaces look like one logical interface to the MX-ONE Service Node and Media Gateways, all to improve availability and performance. This method allows the MX-ONE to offer a higher level of reliability. When one network interface or switch fails, the other one takes over without affecting service.

HLR/VLR REDUNDANCY

IP/SIP extension implementation in MX-ONE Service Node is designed in accordance with the HLR/VLR (Home/Virtual Location Register) architecture used in mobile networks. An IP user has a "home server", HLR, but it can be handled by any server in the system by creating a VLR through synchronization of the user data between LDAP databases in all servers. If that home server fails, the gatekeeper/SIP proxy database redundancy feature creates a back-up HLR on another server in the system to allow the IP user to continue to operate.

ENHANCED REDUNDANCY USING VMWARE OPTIONS

The failover time can be reduced by using VMware´s High Availability (HA) option. Furthermore, MiVoice MX-ONE fully supports VMware's Fault Tolerance (HA/FT) option, enabling complete hot standby capability for the communications server.

UC APPLICATION INTEGRATION

CSTA III/XML INTERFACE

MiVoice MX-ONE supports the Computer Supported Telecommunications Applications Version 3 or CSTA III/XML interface, which provides CTI call control and monitoring with Mitel UCC applications as well as certified third-party applications.

MICROSOFT CERTIFICATION

MiVoice MX-ONE has completed the Direct SIP certification from Microsoft to enable integration with Microsoft Lync 2013 as well as Microsoft Exchange Server 2013 UM, providing end-user services like voice mail and auto attendant.

VIRTUALIZATION

It is possible to run the MX-ONE Service Node, MX-ONE Media Server and Mitel's UCC applications as virtual machines in a customer VMware environment. This enables IT departments to integrate their real-time communications-as-a-service in the cloud. Based on virtualization, cloud services or SaaS eliminate the need for organizations to build or buy the IT infrastructure themselves. The consolidation of server hardware through virtualization reduces the server footprint, offering lower power consumption and cooling requirements as well as decreased physical space requirements. Virtualization also enables high availability options that can provide increased resiliency for real time applications.

Currently, MiVoice MX-ONE uses VMware software as part of its virtualization solution. Mitel has verified complete solutions, including MX-ONE Service Node software, MX-ONE Media Server, as well as Mitel UCC applications (e.g., Mitel CMG collaboration management suite, Mitel Solidus eCare contact center, and Mitel OneBox unified messaging) running as virtual machines.

MIVOICE MX-ONE 6.0 TECHNICAL DATA

INBOUND (VOICE)	SIP V2; both extension and trunk side TLS for signaling encryption and SRTP for media encryption
	H.323 v4; both extension and trunk side TLS for signaling encryption and SRTP for media encryption
	IPv4 and IPv6 (SIP trunks and SIP extensions)
	T.38 Fax and clear channel (FoIP)
	DHCP, HTTP, HTTPS, Telnet, TFTP, SNMP, FTP, SSH, TLS, SRTP, Web Services, CSTA Phase I and III; TR/87, XML, TSAPI
SUPPORTED MEDIA CODECS	H.264 video codec, G.711 with a-law and µ-law, G.729a, G.729ab with voice activity detection (silence suppression and comfort noise generation), G.722 (extension side) and G.168 (echo cancellation)
QUALITY OF SERVICE	DiffServ (RFC 2474) for trunks and extensions
	IEEE802.1 p/Q extension-side only
	Compatible with CRTP header compression algorithms
CALL ACCOUNTING	CDR/SMDR records compatible with third-party accounting systems

SUPPORTED PHONES

SIP PHONES	Mitel 6800, Mitel 6700, MiVoice Conference Phone, MiVoice Video Phone, Mitel BluStar 8000, Mitel BluStar for Conference Room
IP PHONES	MiVoice Dialog 4400 IP and Mitel 7400 (incl. Dialog 5446 Premium) series
Wi-Fi PHONES	Mitel 340 and Mitel 342
UCC APPS	Mitel BluStar for PC, Mitel BluStar for iPad/iPhone, Mitel BluStar for Android
ANALOG PHONES	Mitel 7100, Mitel TA7100 (SIP terminal adapters)
DIGITAL PHONES	MiVoice Dialog 4200 Digital Phones
CORDLESS PHONES	Mitel 6x2/650/142 and Mitel DT390/69x/4x3

SERVER OPTIONS

PROCESSOR OPTIONS	COMMON CHARACTERISTICS
ASU- Intel Dual Core Processor 2.26 GHz with 8 GB RAM ASU-L - D525-1.8 GHz Intel ATOM dual core with 4 GB RAM	1 or 2 SATA HDD with minimum 160 GB, optional RAID 1 for ASU Alternatively, 1 or 2 SSD, minimum 120 GB 2 LAN ports (100 or 1000 Mb/s); 1 VGA port; 4 USB 2.0 ports
Dell PowerEdge R320 - Intel Xeon E5-2407 (2.20 GHz Quad processor with 8GB RAM (DDR3)	2 x 300 GB SAS HDD (RAID 1) 2 LAN ports (100 or 1000 Mb/s); Internal DVD reader Redundant power supply

MEDIA GATEWAY UNIT (MGU)

PLATFORM	TECHNICAL CHARACTERISTICS
MGU2 board - Linux-based OS with Mindspeed processor for DSP services	4 E1/T1 PRI interfaces 2 LAN ports (10/100/1000 M Gbit) LAN ports 128 RTP resources (concurrent gateway calls) DTMF reception/detection, tone generation, conference, echo cancelling Manages RVA and TDM legacy boards (in the chassis) in the MGW

REGULATORY STANDARDS

EMC	SAFETY	TELECOM
EU: EN55022:2010 (Class B), EN55024:2010	EU: EN60950-1:2006 /A11: 2009/ A1: 2010/ A12: 2011	EU: TBR3, TBR4
US/CA: CFR 47, Part 15 (Class B)	US/CA: ANSI/UL 60950-1 Ed 2, CAN/CSA-C22.2 No 60950-1-07	US/CA: 47 CFR Part 68, hearing aid compatible, IC CS-03 Part I, CS-03 Part VI
International: CISPR22 (Class B), CISPR24	International: IEC 60950-1: 2005/A1: 2009	AU/NZ: AS/ACIF S002, S003, S004, S016, S031, S038, PTC220: 2008, Access standard newsletter No 125
		JP: Ordinance 31; RSA: DPT-TE-001

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