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White Paper

Choosing a Media Gateway Appliance for Avaya Modular Messaging

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Executive Summary

Although many enterprises are eager to deploy converged voice and data applications and services over IP, some see their legacy PBX systems and up-front costs as roadblocks to the enhanced capabilities that IP can bring.

Legacy PBX equipment does not have to be replaced before enterprises can begin a phased migration to IP convergence. In fact, Dialogic® Media Gateway Series appliances make possible right now the implementation of IP applications with PBX systems, and they can do this with low up-front investment costs.

This paper describes the benefits of deploying a media gateway appliance from the Dialogic® 1000 Media Gateway Series (DMG1000 Gateway) or the Dialogic® 2000 Media Gateway Series (DMG2000 Gateway) with the Avaya Modular Messaging platform.

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Introduction

Media gateway appliances (media gateways) are turnkey solutions that enable a phased migration to IP. These gateways can seamlessly converge voice, data, and fax across IP networks, creating a single, integrated enterprise network without requiring expensive changes to an existing circuit-switched network. Thus, they protect a company's investment as the company grows by bridging legacy hardware with newer IP-based applications, such as Avaya Modular Messaging.

Media gateways let users receive both voice and data content in a single call over a managed packet network (LAN, WAN, or VPN) that interfaces directly to a legacy PBX. This allows enterprises to take a phased approach to a fully converged voice and data network while prolonging the useful life of their legacy switching equipment.

This white paper provides information about the benefits of media gateways, options for selecting a media gateway, and trends to be aware of, such as unified communications (UC). It also describes the media gateways available from Dialogic that can be deployed with Avaya Modular Messaging.

Benefits of Media Gateways

A media gateway is a self-contained unit that enables enterprises to interface either a traditional PSTN connection or a PBX to the IP networks that are proliferating today. This allows users to realize the benefits of rapid, cost-effective development and provides them with the ability to move to an IP network without making major changes to their existing infrastructure.

Rapid and Cost-Effective Development

Media gateways are well suited for enterprises that require a low-cost, low-maintenance solution. A media gateway can be installed and configured easily — usually in a matter of minutes — and can help enterprises reap the benefits of VoIP with a low up-front cost.

Media gateways also allow developers to concentrate on high-level end-user IP application development rather than on low-level media gateway application development.

Moving to IP without Major Changes

Dialogic® Media Gateway Series appliances (DMG Gateways) allow customers to deploy new IP services and features, such as the Avaya Modular Messaging platform, without making major changes to existing hardware and software architecture. DMG Gateways can do all of the following:

- Connect IP-based application servers like Avaya Modular Messaging to a legacy PBX
- Integrate network-hosted applications with a legacy PBX
- Connect IP telephones to a legacy PBX
- Extend a PBX to branch offices
- Integrate various voice, fax, and call processing capabilities into an enterprise LAN or WAN environment

When enterprises are ready to transition from a hybrid solution to a complete IP solution, existing IP applications will continue to function seamlessly, and when customers require higher density solutions, their existing solutions can be scaled easily with reduced equipment downtime.

Selecting a Media Gateway

Many media gateways are currently available, and selecting a suitable one can mean the difference between seamless integration and a prolonged installation and testing process. In addition, a suitable media gateway can determine the ease with which enhanced services, such as messaging, IVR, conferencing, and other media-server-based applications, can be integrated into a legacy network. For these reasons, the considerations discussed in this section are important when choosing a media gateway.

PBX Integration/Interoperability

Choosing a media gateway that has been pre-tested with the leading PBX systems on the market can save time, because the interoperability testing has already been done. DMG Gateways have been tested with the majority of the installed base of legacy PBXs, and they have also been tested using the major interface protocols that are currently deployed. Two PBX integration modes should be considered:

- **Emulation mode** — Legacy PBXs are IP-enabled by connecting the media gateway to digital station ports on the PBX, essentially emulating a traditional station endpoint. This allows low-to-mid-density communication between the circuit-switched telephony network and the Avaya Modular Messaging platform or other SIP-compatible devices (such as IP phones and wireless phones).
- **Line-side T1/E1 mode** — Legacy PBXs are IP-enabled by connecting the media gateway to high-density digital line ports on the PBX and running standard T1/E1 protocols such as ISDN and QSIG. This allows much higher density communication between the circuit-switched telephony network and SIP-compatible devices and applications.

Media Server Integration/Interoperability

Enterprises are no longer content with deploying VoIP solutions only for toll bypass. Many want to integrate multimedia convergence services (for example, collaboration, voice mail, and unified messaging) to handsets and desktops in both their headquarters and remote locations. Selecting a media gateway that has been pre-tested with media processing software can save weeks or even months of installation, integration, troubleshooting, and maintenance. Avaya has tested DMG Gateways and verified them for interoperability with its Modular Messaging platform.

Sample Deployment

Media gateways can function in a number of scenarios. The following diagram shows a media gateway from the Dialogic® 1000 Media Gateway Series (DMG1000 Gateway) connecting Avaya Modular Messaging servers to a legacy, corporate PBX.

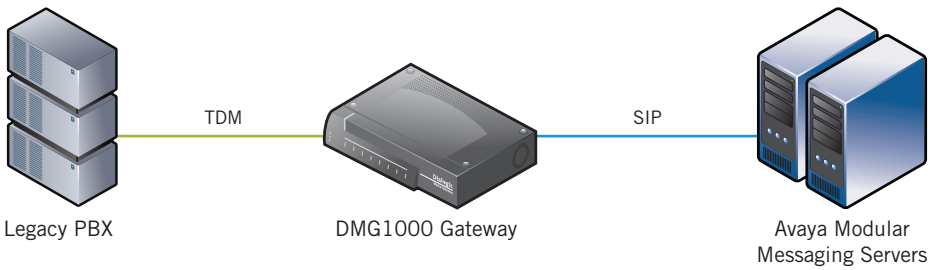

Figure 1. Connecting Avaya Modular Messaging Servers to a Legacy, Corporate PBX

In this diagram, the DMG1000 Gateway supplies the link between a legacy PBX and two IP-based Avaya Modular Messaging servers. This implementation offers the following benefits:

- Provides a low-cost way to add IP technology to an existing legacy system.
- Protects investment in legacy equipment, because the equipment does not have to be replaced.
- Prevents disruption of service. Because calls can be transferred freely between IP phones and legacy phones, the addition of IP technology to a legacy environment is largely seamless.
- Reduces development costs. An application such as voice mail can be written for an IP environment, but can be used without software changes in a mixed environment enabled by a DMG Gateway.
- Allows enterprises and service providers to supply enhanced services such as find me/follow me, conferencing, and fax to their employees and clients.

Media Gateways from Dialogic

Dialogic offers two series of media gateways that have been pre-tested with leading PBX systems as well as with the Avaya Modular Messaging platform:

- **Dialogic® 1000 Media Gateway Series (DMG1000 Gateways)** — Four or eight-port media gateways that connect to PBXs with analog or digital station emulation ports and to the IP network with an Ethernet interface, making the DGM1000 Media Gateways well suited for small- and medium-sized enterprises and remote offices.
- **Dialogic® 2000 Media Gateway Series (DMG2000 Gateways)** — Media gateways for higher density needs that connect to systems with one, two, or four T1/E1 interfaces, making the DMG2000 Gateways a suitable solution for medium- and large-sized enterprises interested in deploying a variety of applications such as IP media servers, remote office connectivity, long-distance consolidation, and call centers.

DMG Gateways are also IP-enablement tools that allow IP technology to be introduced easily and gradually into a legacy environment at a pace that an enterprise finds most cost-effective for its workload and current infrastructure.

Table 1 shows the appropriate DMG Gateway for various applications and density requirements:

Application	4- to 24-Port FXO Appliance	8- to 24-Port PBX Emulation Appliance	24- to 60-Port T1/E1 Appliance	120-Port T1/E1 Appliance
IVR/Messaging	DMG1000 Gateway	DMG1000 Gateway	DMG2000 Gateway	DMG2000 Gateway
IP PBX	DMG1000 Gateway	DMG1000 Gateway	DMG2000 Gateway	DMG2000 Gateway
Toll Bypass	DMG1000 Gateway	DMG1000 Gateway	DMG2000 Gateway	DMG2000 Gateway
SIP Trunking	DMG1000 Gateway	N/A	DMG2000 Gateway	DMG2000 Gateway
Contact Center	N/A	DMG1000 Gateway	DMG2000 Gateway	DMG2000 Gateway
Enhanced Services	N/A	N/A	DMG2000 Gateway	DMG2000 Gateway

Table 1. Application/Media Gateway Reference Grid

For more information about DMG Gateways and Avaya Modular Messaging, see Dialogic® Media Gateways for Avaya Modular Messaging on the Dialogic website.

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Summary

Media gateways are critical components for enterprises choosing to integrate PSTN and IP networks. Using a turnkey solution such as a media gateway is a suitable way to quickly introduce IP endpoints and applications (such as Avaya Modular Messaging) to existing infrastructures, while protecting investment in legacy hardware. Many media gateways are available today, and it is important to select the ones that are easiest to integrate and manage.

DMG1000 Gateways and DMG2000 Gateways from Dialogic offer a unique, turnkey solution that has been pre-tested with the leading PBX systems on the market, as well as with Avaya Modular Messaging. These media gateways allow the benefits of a converged voice and data network to be realized without radical, disruptive, and expensive upgrades to existing PBX equipment.

Acronyms

IP	Internet Protocol
ISDN	Integrated Services Digital Network
IVR	Interactive Voice Response
LAN	Local Area Network
PBX	Private Branch eXchange
PSTN	Public Switched Telephone Network
QSIG	Q Signaling
TDM	Time Division Multiplexing
UC	Unified Communications
VoIP	Voice over IP
VPN	Virtual Private Network
WAN	Wide Area Network

For More Information

Dialogic® 1000 and 2000 Media Gateway Series SIP Compliance (6.0)

Dialogic® 1000 Media Gateway Series

Dialogic® 2000 Media Gateway Series

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