

## Dialogic® 2000 Media Gateway Series

Formerly Dialogic® T1/E1-IP Media Gateways (TIMG)



The Dialogic® 2000 Media Gateway (DMG2000) series is a set of turnkey appliances that seamlessly merge traditional PSTN technology with IP networks. These economical gateways help consolidate typically separate voice and data networks and provide new and differentiated communication services. Without making radical, disruptive, and expensive upgrades to existing PBX equipment, service providers and enterprises can realize the benefits of a converged voice and data network with these gateways.

Features	Benefits
<b>Provides an interconnect between legacy PBXs and various IP endpoints</b>	Enables communication between a circuit-switched telephony network and H.323 or Session Initiated Protocol (SIP) compatible remote devices such as IP voice mail, unified messaging applications, and IP phones
<b>Available in single, dual, and quad density T1/E1 rack mount appliances</b>	Offers a range of product densities to fit the needs of a variety of applications and business sizes
<b>Compatible with a variety of popular PBX manufacturers including Avaya, Mitel, NEC, Nortel, and Siemens</b>	Protects investment in legacy telecommunications equipment and allows a phased migration to IP
<b>Support for IP load balancing and IP fault tolerance</b>	Allows the ability for inbound (TDM-to-IP) calls to round-robin between available media servers and automatically routes calls away from unresponsive media or proxy servers
<b>Supports supplementary services on CAS, QSIG, Euro ISDN, NI2, DMS100, 5ESS protocols, enabling call transfer, call hold, MWI, and call party information</b>	Helps retain key supplementary services in the new IP environment
<b>Seamless interoperability with Dialogic® Host Media Processing (HMP) Software</b>	Provides the option for customers to build enhanced applications on top of base gateway and PBX functions, and make those applications available on legacy handsets
<b>Supports configuration via serial, telnet, and a web browser including context-sensitive Help</b>	Easy to install, configure, debug, and maintain
<b>IP security features include TLS, SRTP, and HTTPS</b>	Enables secure communications for SIP messages via TLS, for media stream via SRTP, and for web interface via HTTPS

### Applications

- Centralized VoIP and FoIP applications servers, including IP-based voice mail and unified messaging
- Interactive voice response (IVR) and announcements
- IP PBX
- Voice over Internet Protocol (VoIP) extension to branch offices
- Contact centers

The Dialogic 2000 Media Gateways can be installed and configured “plug and play,” reducing the total cost of ownership. Operations, Administration, and Maintenance (OA&M) features such as network alarm events, remote management enabled by a user-friendly web interface along with advanced diagnostics and administration tools make the installation and maintenance of these appliances quick and easy.

The cost of the Dialogic 2000 Media Gateways makes them a unique and ideal solution for enterprises interested in deploying a variety of applications such as PBX extension, remote office connectivity, long-distance consolidation, call centers, and IP media servers. Available in a 19-inch standard rack mountable chassis, these appliances are also ideal for service providers offering hosted IP-PBX, IP Centrex, and enhanced messaging servers.

### **Save Time, Money — and Existing PBX Equipment**

A large base of enterprises today have legacy PBX equipment installed in their premises. These enterprises want to cut their communications costs by implementing a VoIP solution, but wish to retain their investment in legacy equipment. Because these enterprises have a diverse base of PBX equipment, solution providers need a product that will help them address this wide customer base with a single, simple solution.

The Dialogic 2000 Media Gateways have been tested for interoperability with legacy PBXs from vendors such as Alcatel, Avaya, Mitel, NEC, Nortel, and Siemens. This testing lets solution providers focus on customer applications rather than integration efforts with legacy PBXs.

In addition to providing IP connectivity, the gateways support key supplementary services such as call transfer, call forwarding, call hold, message waiting indicator (MWI), and call party information on most T-1/E-1 protocols including CAS, QSIG, Euro ISDN, NI2, DMS100, and 5ESS, enabling customers to retain application-critical PBX functionality in the new VoIP environment.

### **Advanced Voice Features Provide Superior Caller Experience**

The extensive features of the Dialogic 2000 Media Gateways can help build a reliable, high-quality VoIP application. The gateways provide the interoperability needed for high-quality media streaming with a wide variety of industry-standard IP endpoints by supporting advanced coders including:

- G.711 (packet size 10 ms, 20 ms, and 30 ms)
- G.723.1
- G.729ab

Echo cancellation is essential for packet-switched networks to carry voice traffic successfully. The gateways conform to ITU G.168 echo cancellation with a tail length up to 128 ms. Voice quality is further enhanced with features such as comfort noise generation, silence detection, and adaptive jitter buffering.

The gateways have QoS features, including type of service (TOS)/IP precedence, and DiffServ, providing a low-latency, high-reliability path for sensitive voice traffic through today's networks. In addition, the gateways support advanced call progress analysis on all channels.

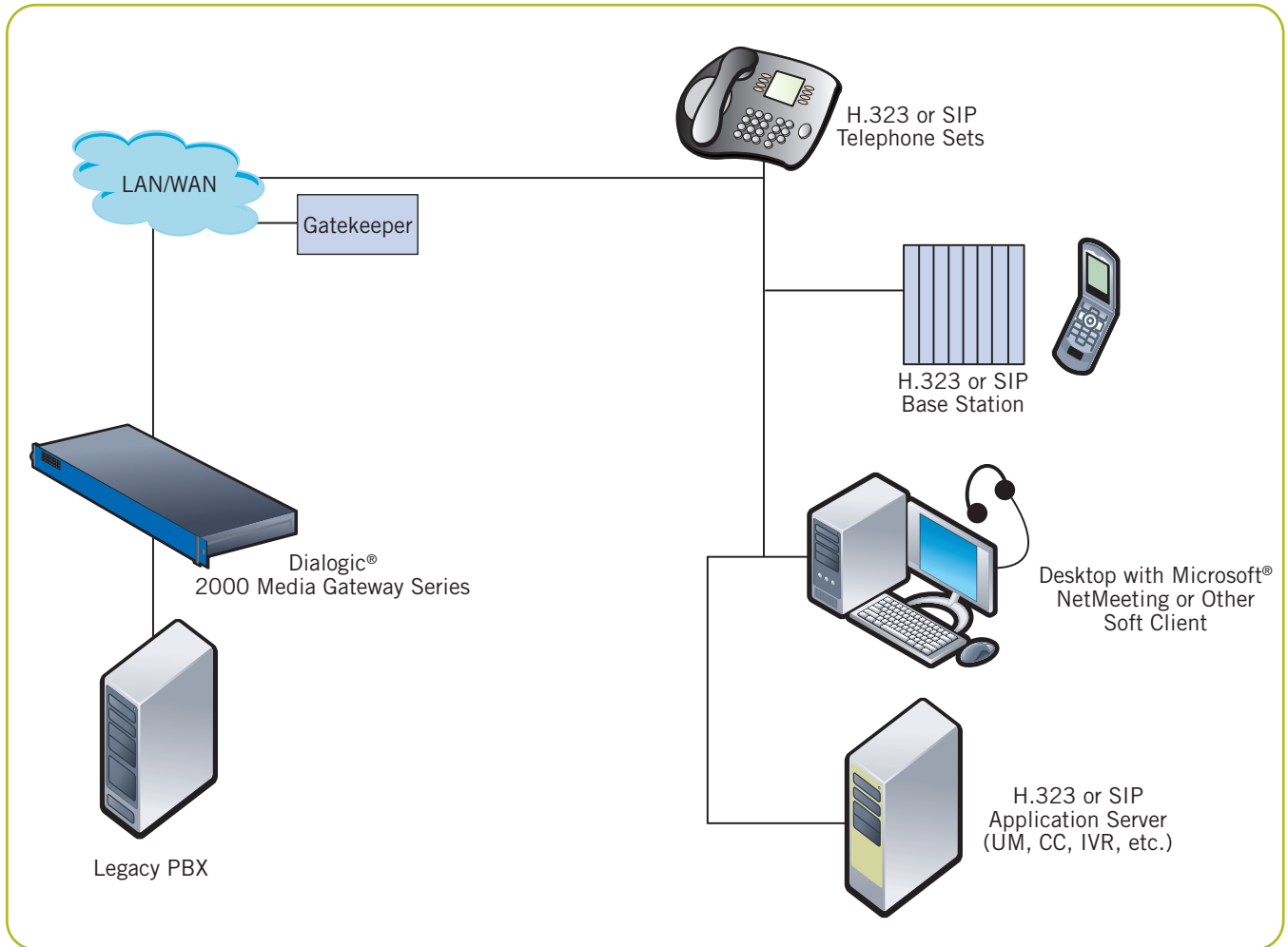


Figure 1. Bridge the Gap Between PSTN and IP End Points

## Configurations

The 2000 Media Gateways provide a cost-effective way to connect various IP end points to the circuit-switched network (see Figure 1), eliminating the need to swap out legacy PBXs and helping to protect telecom investment.

The Dialogic 2000 Media Gateways along with Dialogic HMP software support the development of cost-effective IP media servers accessible from both PSTN and IP networks (see Figure 2). IP media servers can provide a central and efficient messaging server in existing time division multiplex (TDM) voice infrastructures by servicing remote locations via an IP network.

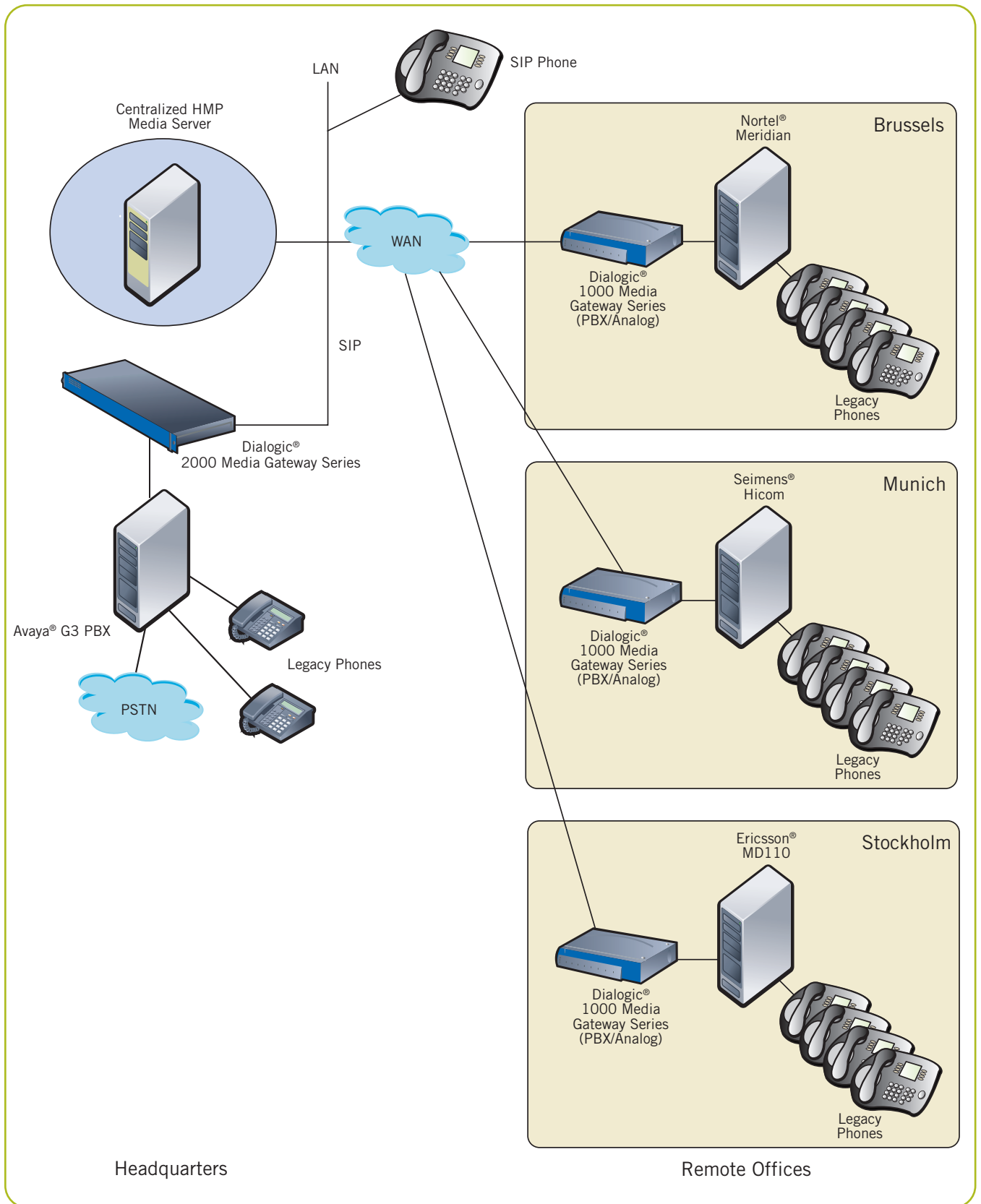


Figure 2. Converged IP Media Server Architecture

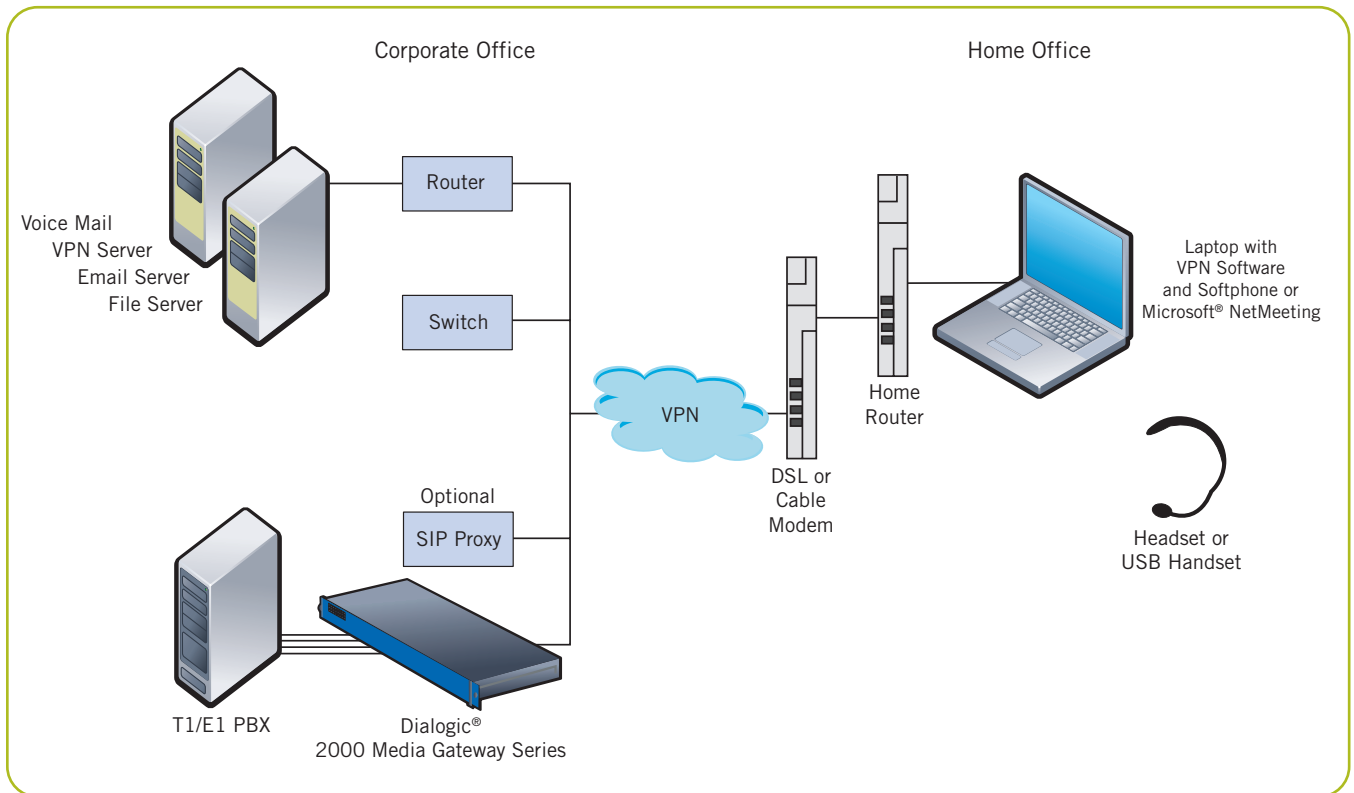


Figure 3. Next-generation Application Solutions — Telecommuting

Media gateways help service providers and enterprises offer cost-saving voice, data, and multimedia convergence services. One such solution is an application for telecommuters.

The number of employees working from home on a permanent or periodic basis continues to rise. These employees need full access to company voice and data services. By installing a Dialogic 2000 Media Gateway (see Figure 3), employees working from home can have

the same telephony experience as their counterparts in the corporate office. They can make and receive calls and access other features such as voice mail from home, just as if they were in the office. Their office extension can be “bridged” onto a gateway port so that their “phone” rings, no matter where they are working. This enhances productivity, reduces costs, and improves both customer and employee satisfaction.

## Technical Specifications

### TDM Port Density by Model

DMG2030DTI	1 T1 or 1 E1
DMG2060DTI	2 T1 or 2 E1
DMG2120DTI	4 T1 or 4 E1

### IP Channel Density by Model

DMG2030DTI	30
DMG2060DTI	60
DMG2120DTI	120

### Connectors

RJ-45 jacks

### Network Interfaces

10/100 BaseT Ethernet LAN port  
Connector 1 shielded female RJ-45 jack for LAN

### Configuration and Management

Web browser with context-sensitive Help facility  
Telnet  
BOOTP client and TFTP client built-in  
SNMP v1 read-only for alarm reporting

### Call Routing

Round Robin via IP load balancing

### IP Security

TLS for SIP messages  
SRTP for media stream  
HTTPS for web interface

### Power Requirements

Line voltage	90VAC to 264VAC
Frequency	47 Hz to 63 Hz

### Physical Dimensions

Height	1.68 in. (4.27 cm)
Width	19 in. (48.26 cm)
Length	14.2 in. (36.07 cm)
Weight	11.1 lbs (5.03 kg)

### Environmental Requirements

Operating temperature	+32°F to +122°F (0°C to 40°C)
Storage temperature	-4°F to +158°F (-20°C to 70°C)

## Technical Specifications (cont.)

### Protocol Support

Serial	MCI MD-110 SMDI
T-1 ISDN	5ESS DMS100 NI2 QSIG
T-1 CAS	E&M GroundStart LoopStart
E-1	EurolSDN QSIG
VoIP	ITU H.323 v3, H.450 supplementary services (including H.450.2/4/7, call transfer/call hold/message waiting indicator) SIP per RFC 3261 RTP/RTCP for delivery of voice
FoIP	T.38 FoIP emulating units transcode fax from T.30 fax protocol, supporting V.21, V.27, V.29, and V.17 modulation schemes, to T.38 for transmission over a packet network
Security	SRTP HTTPS TLS

### Voice Support

G.711  $\mu$ -law and A-law  
G.723.1  
G.729ab  
Silence suppression with comfort noise  
Dynamic jitter buffer  
G.168 automatic echo cancellation

### Quality of Service

Type of service (ToS)/IP precedence  
DiffServ

### Approvals

#### Safety

European Union	EN 60950
United States	ANSI/UL 60950, third edition
Canada	CAN/CSA 60950, third edition

#### EMC

European Union	EN 55022-1998 Class B
United States	FCC Part 15 Class A
Canada	IC ES-003 Class B

#### Telecommunications

European Union	EN 55024:1998
United States	FCC Part 68
Canada	IC CS03, Issue 7

Country-specific Approvals See the global product approvals database at <http://www.dialogic.com/declarations>

Hazardous Substances RoHS compliance information at <http://www.dialogic.com/rohs>

### Reliability/Warranty

Estimated MTBF	Nine years
Warranty	Warranty information at <a href="http://www.dialogic.com/warranties">http://www.dialogic.com/warranties</a>

## PBXs Supported

Manufacturer	Models	Software Version	Supplemental Service Support		
			Call Party ID	Transfer	MWI
Avaya	DEFINITY G3	Version 3 or greater	Yes	Yes	Yes
	S8500	Communications Manager SW V2.0 or greater	Yes	Yes	Yes
NEC	2400 IMX	Release 5200 Dec. 92 1b or greater	Yes <sup>1</sup>	Yes	Yes <sup>1</sup>
Nortel	Meridian 1— Option 11c	Release 15 or greater and options 19 and 46 are required	No	No	No
Siemens	Hicom 300E CS	Release 9006.4 or greater (North American software load only)	Yes <sup>2</sup>	Yes	Yes

For explanation of notes, see Table 7.

Table 1. PBX Support — CAS

Manufacturer	Models	Software Version	Basic Call Control			Supplemental Service Support					
			Inbound	Outbound	CPID	Diversion		Call Transfer		Path Replacement	MWI
						Forward ID and Reason	Redirect	Join (Hairpin)	Re-Route (TBCT)	Route Optimization	
Alcatel	OmniPCX 4400	Version 3.2.712.5	Yes	Yes	Yes	Yes	No	Yes	N/A	Yes	N/A
Avaya	S8500	Communications Manager SW V2.0	Yes	Yes	Yes	Yes	No	Yes	N/A	Yes	Yes
Mitel	SX-2000 S, SX-2000 VS	LW 34	Yes	Yes	Yes	Yes	No	Yes	N/A	Yes	Yes
	3300	Version 5.1.4.8	Yes	Yes	Yes	Yes	No	Yes	N/A	Yes	Yes
NEC	2400 IPX	R17 Release 03.46.001	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes <sup>1</sup>
Nortel	Meridian 1 — Option 11c	Release 15 or greater and options 19 and 46 are required	Yes	Yes	Yes	Yes	No	Yes <sup>3</sup>	N/A	Yes	Yes
	Communications Server 1000	Version 2121, Release 4, Issue 00 T	Yes	Yes	Yes	Yes	No	Yes <sup>3</sup>	N/A	Yes	Yes
Siemens	HiPath 4000	V2 SMR 9 SMPO	Yes	Yes	Yes	Yes	No	Yes <sup>3</sup>	N/A	Yes	Yes

For explanation of notes, see Table 7.

Table 2. PBX Support — T1 QSIG

Manufacturer	Models	Software Version	Basic Call Control			Supplemental Service Support					
			Inbound	Outbound	CPID	Diversion		Call Transfer		Path Replacement	MWI
						Forward ID and Reason	Redirect	Join (Hairpin)	Re-Route (TBCT)	Route Optimization	
Alcatel	OmniPCX 4400	Version 3.2.712.5	Yes	Yes	Yes	Yes	No	Yes	N/A	Yes	N/A
Avaya	S8500	Communications Manager SW V2.0 or greater	Yes	Yes	Yes	Yes	No	Yes	N/A	No	No
Mitel	SX-2000 S, SX-2000 VS	LW 34	Yes	Yes	Yes	Yes	No	Yes	N/A	Yes	Yes
	3300	Version 5.1.4.8	Yes	Yes	Yes	Yes	No	Yes	N/A	Yes	Yes
Nortel	Meridian 1 — Option 11c	Release 15 or greater and options 19 and 46 are required	Yes	Yes	Yes	Yes	No	Yes <sup>3</sup>	N/A	Yes	Yes
	Communications Server 1000	Version 2121, Release 4, Issue 00 T	Yes	Yes	Yes	Yes	No	Yes <sup>3</sup>	N/A	Yes	No
Siemens	HiPath 4000	V2 SMR 9 SMPO	Yes	Yes	Yes	Yes	No	Yes <sup>3</sup>	No	Yes	Yes
Ericsson	MD110	Release MX1 TSW R2A (BC13)	Yes	Yes	Yes	Yes	No	Yes <sup>3</sup>	N/A	Yes	Yes
Philips	Sophos (iS3030-288)	Version 6810.34	Yes	Yes	Yes	Yes	No	Yes <sup>3</sup>	N/A	Yes	Yes

For explanation of notes, see Table 7.

Table 3. PBX Validation — E1 QSIG

Manufacturer	Models	Software Version	Basic Call Control			Supplemental Service Support					
			Inbound	Outbound	CPID	Diversion (ECMA-174)		Call Transfer (ECMA-178)		Path Replacement	MWI
						Forward ID and Reason	Redirect	Join (Hairpin)	Re-Route (TBCT)	Route Optimization	
Avaya	5ESS	Version 5e16(2)02.00	Yes	Yes	Yes	Yes	No	N/A	Yes	N/A	Yes <sup>4</sup>
Mitel	SX-2000 S, SX-2000 VS	LW 34	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
	3300	Version 5.1.4.8	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
NEC	All models	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nortel	DMS100	Version SN000.007	Yes	Yes	Yes	Yes	No	N/A	Yes	N/A	Yes
	Meridian — Option 11c	Release 15 or greater and options 19 and 46 are required	Yes	Yes	Yes	No	No	No	No	No	No
Siemens	HiPath 4000	V2 SMR 9 SMPO	Yes	Yes	Yes	No	No	No	No	No	No

For explanation of notes, see Table 7.

Table 4. PBX Validation — T1 NI2

Manufacturer	Models	Software Version	Basic Call Control			Supplemental Service Support					MWI
			Inbound	Outbound	CPID	Diversion		Call Transfer		Path Replacement	
						Forward ID and Reason	Redirect	Join (Hairpin)	Re-Route (TBCT)	Route Optimization	
Avaya	5ESS	Version 5e16(2)02.00	Yes	Yes	Yes	Yes	No	N/A	Yes	N/A	Yes <sup>4</sup>

For explanation of notes, see Table 7.

Table 5. PBX Validation — T1 5ESS

Manufacturer	Models	Software Version	Basic Call Control			Supplemental Service Support					MWI
			Inbound	Outbound	CPID	Diversion		Call Transfer		Path Replacement	
						Forward ID and Reason	Redirect	Join (Hairpin)	Re-Route (TBCT)	Route Optimization	
Nortel	DMS100	Version SN000.007	Yes	Yes	Yes	Yes	No	N/A	Yes	N/A	Yes <sup>4</sup>

For explanation of notes, see Table 7.

Table 6. PBX Validation — T1 DMS100

Note	Explanation
1	Supported via the MCI serial protocol
2	PBX does not send the Calling Party on inbound calls. However, the Called Party and the Call Reason Code fields are supported.
3	Display on the called party phone does not update after the Join transfer completes
4	Supported via the SMDI serial protocol

Table 7. Explanation of Notes

To learn more, visit our site on the World Wide Web at <http://www.dialogic.com/>.

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