Enabling SIP Trunking with Dialogic® Media Gateways and the Ingate SIParator®

Both enterprise and small to mid-sized business (SMB) customers are eager to reduce voice service costs, particularly in the current economic environment. Adopting VoIP technology and SIP trunk service are proven ways for business customers to lower costs. At the same time, businesses can benefit from the multimedia capabilities of the SIP protocol and extend the ways they communicate with their business partners beyond basic voice in the future.

During the initial rollout of SIP trunk services, Internet Telephony Service Providers (ITSPs) and their resellers focused on migrating business customers from PSTN service to a SIP-ready IP-PBX system. Although this strategy remains compelling, a significant opportunity exists in bringing SIP trunk cost reductions to customers who maintain legacy (non-SIP) PBXs and contact center systems. These customers may not be in a position to upgrade to a SIP-PBX infrastructure, but they are interested in benefiting from SIP trunking's lower costs.

This technology brief discusses a solution set from Dialogic and Ingate Systems that can open the legacy PBX and contact center system market to Service Providers, who supply SIP trunks, and their resellers. The solution set uses an Ingate SIParator® in tandem with a gateway from the Dialogic® 2000 Media Gateway Series (DMG2000 Gateway) to bring SIP trunk services into a legacy enterprise environment. The combined SIP trunk security features of a SIParator and the SIP-to-PBX trunk conversion capability of a DMG2000 Gateway enable a cost-effective, secure, and reliable SIP trunk interface for an enterprise with a legacy PBX.

What Is an Ingate SIParator®?

An Ingate SIParator is an enterprise session border controller (E-SBC) that connects to an existing network firewall to seamlessly enable SIP communications. While traditional firewalls block SIP traffic — including mission-critical applications such as VoIP — the SIParator solves this problem, working in tandem with current security solutions.

The SIParator can be installed either in the DMZ of an existing firewall, or as a standalone entry point into the LAN. The SIParator resolves the Network Address Translation (NAT) and firewall traversal problems encountered when SIP-based communications are added to an enterprise network, and secures the SIP media (including VoIP and SIP trunks). The SIParator first applies strict SIP parser policies to SIP signaling to verify that the SIP packets are valid. Since the SIParator is built on ICSA-certified firewall technology, it can withstand various types of security attacks in a stable and controlled way, allowing an enterprise to control and manage SIP traffic as securely as data traffic. With the SIParator, an enterprise can fully control the type of SIP-related media admitted to its network by identifying the source and IP addresses of signaling and media.

The SIParator delivers the following capabilities to enable secure and reliable SIP trunking:

- **Security** — Addresses issues of public vs private accessibility for LANs, IP-PBXs, and gateways
- **NAT and Firewall Traversal** — Includes corporate LAN IP address masking
- **SIP and Network Interoperability** — Normalizes SIP signaling and manages authentication, registration, UDP/TLS/TCP, dynamic IP addressing, etc.
- **SIP Repair** — Handles call transfer, packet fragmentation, bug fixes, etc.
- **Additional Features** — Supports remote users and local and remote administration, and can provide Quality of Service (QoS) management.

For more details, read Ingate's white paper The Ingate SIParator: Solving the firewall/NAT traversal issue of SIP.

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What Is the Dialogic® 2000 Media Gateway Series?

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

The DMG2000 Gateways can be installed and configured "plug and play," reducing total cost of ownership. Operations, Administration, and Maintenance (OA&M) features are enabled through a user-friendly web interface, making installation and maintenance quick and easy.

Since most legacy PBX and contact center systems do not support SIP and VoIP natively, a DMG2000 Gateway can be used to deliver the following capabilities to enable secure and reliable SIP trunking in a legacy PBX or contact center environment:

- **VoIP-to-TDM Conversion** — Translates packet VoIP streams for traditional TDM circuit-switched voice channels
- **SIP-to-TDM Protocol Conversion** — Translates SIP signaling into Primary Rate ISDN signaling (T1 or E1), including DNI
- **PSTN Trunk Service Emulation** — Provides physical connections to legacy PSTN trunk ports on a PBX or contact center system
- **Dial Plan Modification** — Appends or strips digits as needed to normalize routing between the SIP trunk service and a PBX

Enabling the Solution Set

SIP trunks are delivered to enterprise customers over broadband IP data networks. The interoperability solution set illustrated in Figure 1 shows how an Ingate SIParator and a Dialogic 2000 Media Gateway (DMG2000 Gateway) can be deployed at a customer site to support secure SIP trunk service.

The Ingate SIParator is deployed at the enterprise network edge between the SIP Trunking Provider Network (a wide area IP network) and the corporate LAN, passing SIP signaling and VoIP media streams securely to and from the corporate LAN. The DMG2000 Gateway resides on the corporate LAN and is connected to the legacy PBX or contact center system via traditional T1/E1 trunk ports. The DMG2000 Gateway passes the SIP trunk signaling and media to and from the Ingate SIParator to the PBX by emulating traditional PSTN trunk services.
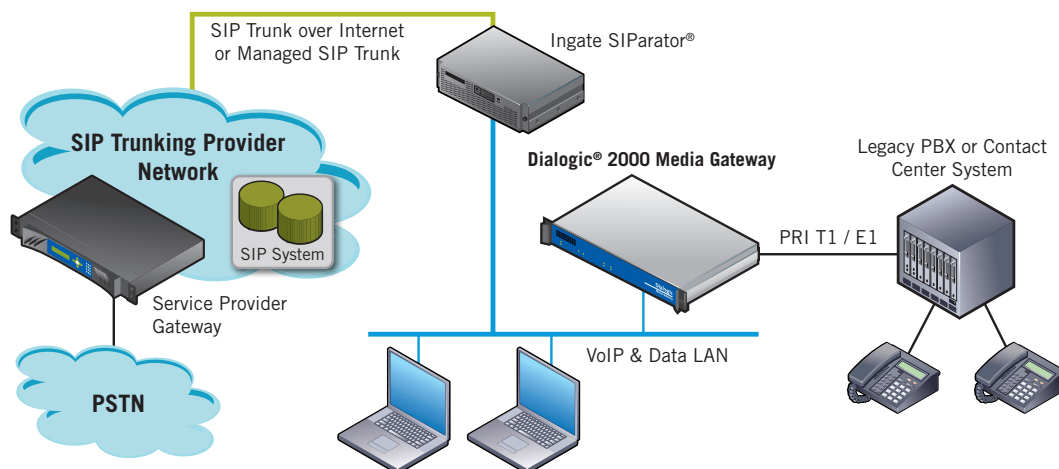

Figure 1. SIP Trunking Solution Set Deployment Diagram

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For More Information

Dialogic® 2000 Media Gateway Series

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