

Dialogic® IMG 1010 Integrated Media Gateway Feature Highlight: VoIP Reliability

Overview

Dialogic® IMG 1010 Integrated Media Gateway: Reliability for Today's VoIP Networks

As telephone networks move from TDM to IP, operators and users demand the same high level of reliability from their VoIP service that they have come to expect from traditional PSTN networks. The traditional PSTN phone service has delivered five nines (99.999%) reliability based on its fault tolerant design, which uses high availability switches, backup connections, and redundant power. If there is a failure, the equipment used in the PSTN typically supports a low Mean Time To Repair (MTTR) so that faulty hardware can be quickly replaced.

To provide the comparable reliability and performance, VoIP infrastructure elements, including VoIP gateways, incorporate features for high availability to deal with unexpected operational challenges, such as network outages, call volume spikes, power disruptions, and field repairs.

Dialogic® IMG 1010 Integrated Media Gateway is well-suited to meet the performance and reliability challenges of today's VoIP networks. The IMG 1010 delivers five nines reliability by supporting independent and redundant network connections, backup gateway configurations, and redundant hardware. A leading independent analysis firm, SYSREL, LLC, found that the total system availability for a redundant IMG 1010 configuration (one active IMG 1010 and one standby) has over five nines reliability, allowing network operators who choose to move from TDM to IP to do so with a high level of confidence.

Independent and Redundant Connections

VoIP gateways carry signaling and data traffic across their IP connections. SIP and H.323 provide the VoIP signaling, and RTP delivers the VoIP data. Network management on the gateway is also handled via the IP connections. With some VoIP gateways, these three requirements (signaling, traffic, and management) are carried on the same network connection, which can create contention and operational challenges. For example, a spike in call volume and network traffic can slow down network management access.

To address this problem, the IMG 1010 provides independent network connections for control, signaling, and data (see Figure 1). Control lines connect the IMG 1010 to the Network Operations Center (NOC), where it can monitor, diagnose, and change the operation of the gateway independent of the network load created by signaling and bearer traffic. In addition, each of these connections can be made redundant and go to the same or different termination points, resulting in greater fault tolerance and reliability.

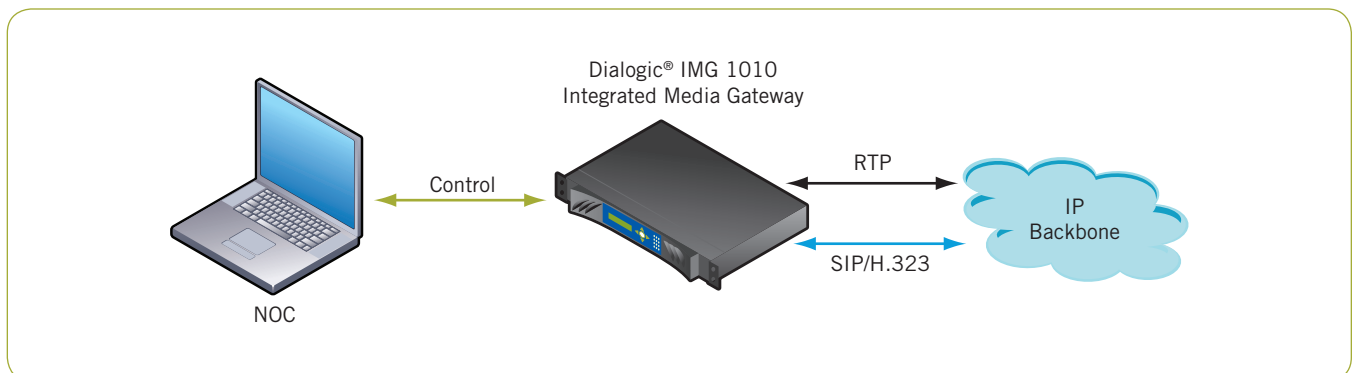


Figure 1. Dialogic® IMG 1010 Integrated Media Gateway Controls, Signaling, and Data via Independent Network Connections

Backup Gateway Configurations and Load Balancing

Service providers handling large call volumes seek to prevent a single point of failure in their networks to avoid outages. Taking a design practice from the data center, the IMG 1010 supports multiple VoIP gateways operating in parallel and can work with third-party load balancing equipment to distribute VoIP traffic across multiple IMG 1010s based on criteria such as round-robin, quickest response, and least number of connections (see Figure 2). If one of the network connections fails, the traffic on that link will be automatically redistributed over the remaining links. If used in an SS7 network, two IMG 1010s can be configured to use the same logical pair to enable redundant SS7 signaling. In the event of failure, the active calls will be shifted to the standby IMG 1010, so that the signaling for the active IMG 1010 calls is sustained. A pair of IMG 1010s can provide redundant SS7 signaling for up to 32 IMG 1010 or Dialogic® IMG 1004 Integrated Media Gateway products.

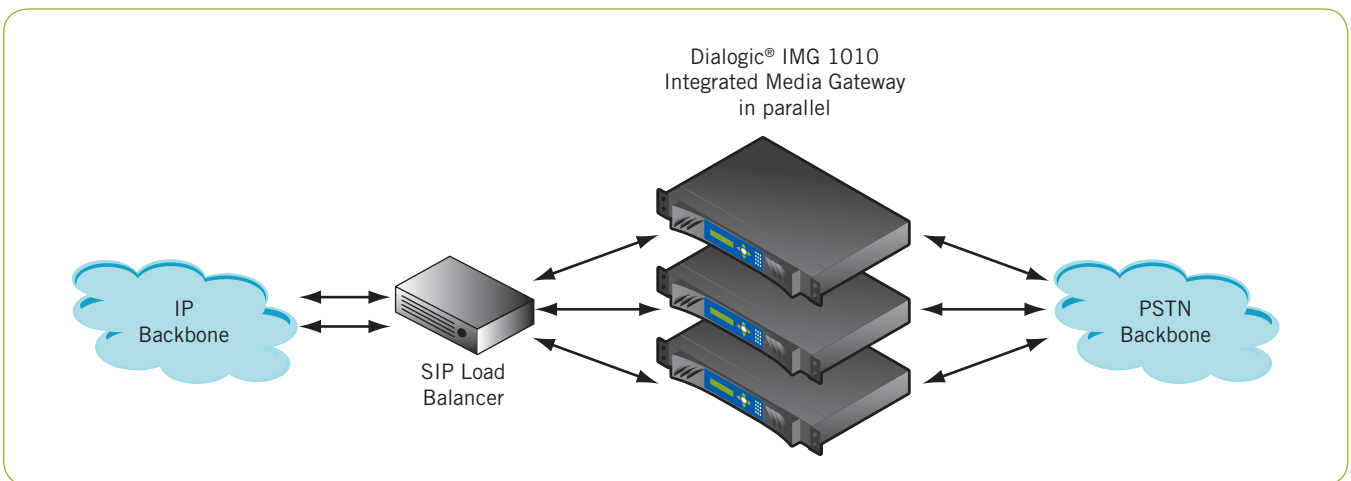


Figure 2. Dialogic® IMG 1010 Integrated Media Gateway Supporting Multiple VoIP Gateways

Redundant Hardware and Rapid Service

The IMG 1010 includes redundant fans and redundant DC power connections so the components with the lowest Mean Time Between Failure (MTBF) have built-in backups. The IMG 1010 features a docking station and field-replaceable motherboard tray that allow a network administrator to quickly swap out a motherboard to repair a faulty CPU, signal processor, or memory without having to disconnect cables (see Figure 3). This reduces the MTTR and brings the IMG 1010 back online in less than 30 minutes.

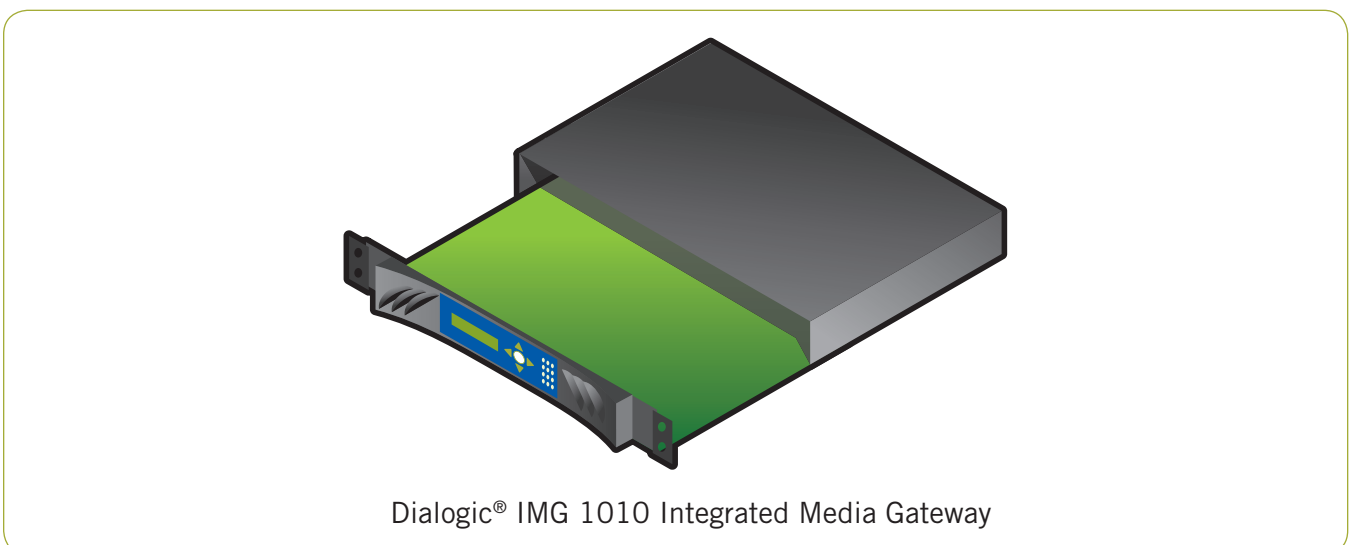


Figure 3. Dialogic® IMG 1010 Integrated Media Gateway Docking Station and Field Replaceable Motherboard Tray

Summary

When evaluating VoIP gateways, network operators consider several factors that can impact the reliability of their applications and services. With its independent and redundant connections, backup gateway configurations, load balancing, and redundant hardware, the IMG 1010 can provide the five nines reliability of traditional circuit-switched networks for today's VoIP networks. When combined with Dialogic's strong support and customer responsiveness, the IMG 1010 is an attractive choice given the needs of today's VoIP networks.

To learn more about Dialogic® products, go to www.dialogic.com

Dialogic Corporation

9800 Cavendish Blvd., 5th floor
Montreal, Quebec
CANADA H4M 2V9

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