

Integrated Media and Signaling VoIP Gateway



The Cantata Technology™ IMG 1010™ is an integrated media and signaling VoIP gateway that provides any-to-any voice network connectivity enabling the delivery of SIP services into legacy PRI, CAS and SS7 networks, as well as IP to IP transcoding for network peering applications. With its compact 1U high-density package, integrated SS7 termination, software licensing for in-service capacity expansion, and GUI-based element management system, the IMG 1010 is a carrier-grade VoIP gateway that enables service providers to quickly add new telephony services while providing a clear migration path to an all IP network.

The IMG 1010 simultaneously supports PRI and SS7 signaling, plus SIP and H.323, all on a cost effective, future-proof platform that can grow as services evolve.

Faster time to market, improved flexibility, investment protection, and higher quality, all at lower cost and greater efficiency combine to make the IMG 1010 the strategic platform of choice for voice service providers evolving their infrastructure to IP.

Features and Benefits

Integrated SS7 and IP Transcoding

Unlike separate trunking gateways and signaling servers, the IMG 1010 enables VoIP-based services without requiring customers to buy, integrate or manage expensive third party softswitches and signaling gateways. The IMG 1010 supports direct SS7 termination across multiple gateways and full, simultaneous interoperability with PRI, CAS, SS7, SIP and H.323 networks. With signaling, call routing, call translations and transcoding supported in a single platform, customers dramatically reduce complexity and overhead.

Wireline and Wireless Support

The IMG 1010 provides AMR, iLBC, G.711, G.723, G.729 simultaneously for the ultimate voice compatibility. Built-in transcoding allows on-the-fly conversion between any of these voice codecs.

The IMG supports ENUM which takes VoIP calling to the next level. With ENUM native SIP users, even at different VoIP service providers, can call each other directly without ever touching a PSTN service which can result in faster connection times and lower phone charges.

High-Density, Scalable Architecture

With its high-density architecture supporting up to 1024 channels in a 1U footprint, the IMG 1010 can significantly reduce co-location costs compared to more complex multi-box alternatives. In addition, the IMG's scalable architecture allows customers to start with as few as 96 channels and scale up to 1024 in the same 1U form factor, as well as combine and manage up to 16 IMG 1010s with the GateControl Element Management System (GC EMS). The IMG and the GC EMS are designed to work together to minimize operational costs and make it easier to manage VoIP gateways. Cantata's GC EMS enables customers to easily manage a network of IMGs from a central location — configuring equipment, adding capacity, building routing and translation tables and managing SS7 connectivity. Support of industry standard MIBs for Alarms, Interface and DS0/DS1/DS3 allows centralized configuration and monitoring in a network operations center.

Simplified Implementation

Because the IMG 1010 integrates signaling and media capabilities, it simplifies new service implementation significantly, eliminates call hand-offs and re-direction from box to box, speeds integration of enhanced services and improves call setup time. As networks migrate to an all-IP infrastructure, the IMG 1010, with its simultaneous support of TDM-to-IP and IP-to-IP calls, dramatically reduces the number of gateways required. The IMG 1010 is cost-effective for both entry-level and large network configurations. System architecture and a unified OAM&P platform enable cost-effective rack and stack deployments that are managed as a single large gateway, with redundant SS7 connectivity and small failure groups, providing a solution that approaches 99.999% uptime.

Carrier-Grade Design

The IMG 1010 is a NEBS 3 carrier-grade design that employs independent network interfaces to separate transport, signaling and OAM&P to provide high reliability and service availability. In addition, the IMG 1010 allows service providers to make "in-service" capacity upgrades, as well as cost-effectively scale the system to hundreds of T1/E1 spans while maintaining a simple management interface.

The IMG 1010 works with load balancers to provide better distribution of SIP traffic for improved scalability and fault tolerance. On all counts, the IMG 1010 is a true carrier grade gateway solution.

Programmable Protocol Language

Cantata's patented Programmable Protocol Language (PPL) enables customers to implement SS7 and SIP changes themselves, quickly and efficiently.

Integrated Media Gateway (IMG) 1010

Specifications

ROUTING FEATURES

- Call routing and translation based on ANI, DNIS, and Nature Of Address, Time of Day, Day of Week/Year
- Pre- and post-routing digit translations
- Multiple routing algorithms per trunk group or groups of trunks for IP to TDM and IP to IP both a-law and μ -law conversions
- Pre-call announcement (Branding)

OAM&P

- Centralized Element Management System
- GUI-based system allows monitoring and provisioning of up to 16 gateways
- Centralized routing engine simultaneously configures all gateways in the network
- Radius (billing, authentication, prepaid)
- Local time zone support
- SNMP
- MIBs: MIB-2, Interface, Alarms, DS0, DS1, and DS3
- MRTG

POWER REQUIREMENTS

- -48V DC with voltage range (-40V to -60V)
- 100-240V AC 50/60 Hz with voltage range (90V to 260V)
- Power consumption: 90 Watts

PHYSICAL SPECIFICATIONS

- 1.72" h (43.7 mm) x 17.25" w (438.2mm) x 19.00" d (482.6mm)
- wt: 18 lbs (8.1kg)

RESILIENCY

- SS7 Signaling: 1+1 Active/Standby redundancy
- Virtual IP addresses for SIP load balancing

CAPACITY

- 96 - 768 TDM channels per 1U shelf (scalable from 3 E1/ 4 T1 to 24 E1 / 32 T1)
- 96 - 1024 VoIP channels per 1U shelf

I/O INTERFACES

- Telephony: T1 and E1, or DS3
- IP: 4 - Fast Ethernet for control and signaling 2 - Gigabit Ethernet for VoIP payload
- T1/E1s for timing (BITS clock) and signaling
- Loop timing via any telephony port

TDM SIGNALING PROTOCOLS

- ISDN PRI (FAS and NFAS) - NI2, Euro ISDN, DMS 250, 5ESS, JATE/Japan INS-NET1500
- T1/E1 CAS (FGB, FGD and MFR2)
- Q.699 ISDN to SS7 mapping
- SS7/C7 ISUP - ITU and ANSI variants supported through Cantata's Programmable Protocol Language (PPL)
- 64 SS7 links (A-links and F-Links supported)

IP SIGNALING PROTOCOLS

- H.323 v2
- H.323 keep alive
- RFC 2327 Session Description Protocol (SDP)
- RFC 2976 SIP Info for digit transmission (#)
- RFC 3261 SIP: Session Initiation Protocol
- RFC 3262 SIP PRACK
- RFC 3264 SDP Offer/Answer Model
- RFC 3265 SIP Subscribe/Notify
- RFC 3311 SIP Update
- RFC 3325 Asserted Identity
- RFC 3326 SIP Reason Header
- RFC 3372 SIP for Telephones (SIP-T)
- RFC 3398 ISUP/SIP Mapping
- RFC 3578 ISUP overlap signaling to SIP
- RFC 3581 Symmetric Response Routing
- RFC 3666 SIP to PSTN Call Flows
- RFC 4028 SIP Session Timer
- SIP 3xx Gateway Responses
- SIP Diversion Header
- SIP Trunk Group IDs
- SIP Codec Negotiation
- SIP Busy out

IP BEARER FEATURES

- Codec Support — AMR, iLBC, G.711, G.723.1, G.729 A/B, G.729 E/G
- Echo Cancellation - G.168 128ms tail length
- Voice Activity Detection (VAD)
- Comfort Noise Generation (CNG)
- T.38 Real Time Fax
- Fax / Modem Bypass
- Digit transmission via RFC 2833 (SIP and H.323) or H.245 UUI (H.323)
- Symmetric NAT Traversal

QoS

- Adaptive Jitter Buffer
- Packet Loss Compensation
- Configurable ToS (Type of Service) fields for packet prioritization and routing

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