G9

Converged Media Gateway

Ribbon Communications is a recognized global leader in IP gateways, and the company's flagship G9TM Media Gateway is the latest generation in Ribbon Communication's carrier class media processing platforms. The G9 gives operators the flexibility to converge disparate networks together using a single, cohesive next generation gateway. Enabling scalable media handling in IMS networks, the G9 supports Trunking and Access gateway, femtocell, and Media Server solutions. The G9 is scalable to 120,000 ports per shelf and uses field-hardened software with proven five 9's (99.999%) reliability, over 70 million ports shipped, and over 25 Tier 1 operator deployments worldwide.

Unified Gateway for Transforming Networks

In today's world of mixed IP and legacy networks, operators need a common media handling platform that reduces operating costs and simplifies operations. The G9 provides simultaneous, any-to-any switching for enhanced flexibility and cost-effectiveness, including protocol, interface, security, signaling, and media processing support in all wireless and wireline, access and core, and IP and TDM environments, maximizing investment protection as networks migrate.

A powerful IP gateway for mobile operators, the G9's wireless solutions span GSM, UMTS, CDMA, and satellite networks in 2G, 3G, and 4G/LTE architectures. In IMS networks, the G9 is a versatile IP media processing node ssupporting IMS Media Gateway and Media Resource Function Processor. In wireline networks, the G9 also supports Class 4/IP Tandem/IP Trunking as well as global applications such as Peering and IPX. In converged wireless/wireline networks, the G9 provides advanced solutions for Fixed Mobile Convergence/femtocells and IP-to-IP transcoding.

Expansive Interoperability

The G9 is compliant with ANSI, ETSI, ITU, IETF, 3GPP, 3GPP2, and TISPAN standards and supports all relevant interfaces for its multiple functions, including H.248 text and binary, 3GPP Mc and IMS Mn, open Mp/MRFP, Iu/Iuh/femtocell, and Mb/Nb mobile interfaces. This flexibility allows the G9 to be used extensively with OEM partner platforms including fixed and mobile softswitches, IMS/ IP cores, femto/FMC controllers,

and other call control and access equipment. When coupled with Ribbon Communication's C3 or C20 call session controllers, the G9 provides scalable IP trunking, Intra-Network Interconnect, IMS MGW, and other mission-critical media adaptation and signaling functions.

Advanced Media Processing

The custom-designed G9 uses the latest in state-of-the-art computing, DSP/NPU, and media processing components and is housed in a green technology, power-efficient footprint. Separate IP and TDM fabrics provide high quality native switching and interworking for IP-to- IP, TDM-to-IP, and TDM-to-TDM applications. The G9's massively scalable backplane and flexible 28-slot chassis also provides an efficient card design that allows operators to easily scale TDM and IP session capacity as well as incremental functions and services.

Cost-Saving Integrated Features

The G9 includes many integrated features that reduce operator costs by eliminating the need for ancillary, single purpose network elements. Integrated features include echo cancellation, emergency services, lawful intercept, and media server/MRFP

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capabilities such as audio bridging, conferencing, announcements, and tones. The G9 also has a powerful, integrated, high capacity signaling gateway that lets operators centralize network signaling with IP backhaul to reduce total cost of ownership. With Impressive IP to IP processing capabilities, the G9 supports IP Transcoding and also provides also provides many other high value features and functions like IPv6, IWF/ Interworking Function, Tandem and Transcoder-Free Operation, and Virtual Media Gateway support.

Carrier-Grade Reliability and Management

As a carrier class gateway, the G9 provides multiple levels of redundancy and load-sharing on critical system components, cards, and network interfaces, in addition to in-service software upgrades. The G9 supports open interfaces for flexible OSS integration and is managed by a comprehensive element manager for centralized OAM&P control of multiple G9 platforms.

Deployments

The G9 is one of the world's most widely-deployed media processing platforms, with over 70 million ports shipped on field-hardened software, and it is deployed in over 25 Tier 1 operators.

Networks

- Multi-network convergence: wireless + wireline, core + access, IP to IP, TDM to IP, TDM to TDM, FMC/ femtocells
- 2G GSM, 3G UMTS, CDMA, IMS Lite/IMS/VoLTE, 4G/LTE, FMC/Femto, UMA/GAN, TDM, IP, PSTN, PLMN

Protocols, Interfaces, Interoperability

- 2G/3G/IMS -- AoIP, Iu/IP, Mb/IP, Nb/IP; Femto UMA/GAN, Iuh; Signaling -- ALCAP, RANAP, BSSAP, MFR2, PRI, NFAS, TBCT, MF CAS, V5.2, GR-303, SS7 MTP; Control -- H.248 text and binary, EGCP, Mn, Mc, Mp, Ia, Virtual Media Gateway to 34 controllers, SCTP, SIGTRAN M3UA; IUA, ARP, ping/traceroute

- Open standards-based; compliant with ANSI, ETSI, ITU IETF, 3GPP, 3GPP2, and TISPAN standards; supports worldwide variants; extensive, network-proven interoperability with leading call control, feature, access network, and CPE platforms

Voice Quality Enhancements

- Advanced VQE for VoIP and TDM, including G.169 Automatic Level Control, Adaptive Noise Reduction, Acoustic Echo Cancellation, Voice Activity Detection, Silence Insertion/ Detection, Comfort Noise Generation, Packet Loss Concealment, Adaptive Jitter Buffer, TFO/TrFO, WB-AMR
- Hybrid Echo Cancellation supports ITU-T G.164, G.165, G.168, and echo tail to 128ms

Integrated Features

- High-capacity signaling gateway supports up to 200 SS7 linksets with TDM (MTP2/3/3b), and M3UA interfaces, and SS7-SS7 interworking and routing; Overload control
- Lawful Intercept, including CALEA and other national variants; E911; Operator Services
- Media Resource Function Processor/MRFP with open Mp interface, digit collection, tones, announcements, conference bridging, high scale IP-to-IP transcoding and media adaptation
- Per session firewall and gate control, NAT learning and traversal, ACL, rate limiting, resource allocation, bandwidth reservation, measurements-based CAC, usage metering, NAPT-PT with IPv4/IPv6 interworking
- Routing and QoS including ARP, RTCP bandwidth modifiers, RTCP-XR with per call reporting
- IWF/Interworking Function for Circuit Switched Data/CSD
- NNSF/NAS Node Selection Function for GSM A-Flex
- Transcoder-Free and Tandem-Free Operation

Capacities

- DS0s: T1 - 15,840; E1 - 19,800; DS3 - 40,320; OC3 - 96,768; STM-1 - 90,720 w/FPS
- IP: 4 - 8 Gigabit Ethernet
- Signaling Gateway: 512 LSL links, 20 HSL links; SS7: 200 linksets; M3UA: 15,000 MSU/second

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Dimensions

- HxWxD: 15U, 26.25" x 17.38" x 18.50"; 66.68 x 44.15 x 47.00 cm
- Weight: 80 lbs chassis only

Redundancies

- Field-replaceable hardware; in-service hardware and software upgrades
- GbE load-sharing, VLAN tagging
- 1:N, 1:1, N+1, 1+1 load sharing, and Facility Protection, depending on card type
- Redundant power, control, cooling, and clocking

Power

- Input Voltage: -40.8 to -57.6 volts
- Input Current: 65 Amps
- Power Consumption: 3,000 watts maximum

Compliances

- NEBS Level 3 per GR-63-CORE, physical protection
- NEBS Level 3 per GR-1089-CORE, EMC, and electrical safety
- UL and Canadian Standards Association (CSA), safety of IT equipment
- FCC Part 15 Class A, emissions
- CE Mark (Europe) EMC standards
- Restriction of Hazardous Substances (RoHS)

Management

- Ribbon Element Management System
- Supports all G9, C20 and C3 configurations
- Full FCAPS functionality
- User-friendly GUI (Unix or Windows) and CLI
- Multi-node management
- Northbound interface: SNMP, CLI, TCP/IP, Telnet, SFTP/ TFTP/ FTP, XML, SSH, IPDR/CDR, RADIUS, AAA
- Highly Scalable – up to 100 clients, 20 per station
- Client is platform-agnostic

Contact Us We are here to help. Let us know if you are interested in a quote or if you have any questions.

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