

### Q21 Session Border Controller

SBC solution for service providers and enterprises

#### Product Description

The Ribbon Q21 SBC is a market-leading, Intelligent Session Border Controller utilizing innovative software based media processing to enable high-performance, high-density session management, and high scale media throughput in a highly energy efficient 2RU form factor. The Q21 provides security, policy control, and deployment flexibility to enable seamless solutions including SIP Trunking, IP eXchange (IPX), IP Peering, Intra-Network IP Interconnect, Multimedia and Unified Communications, VoLTE, and RCS, in-fixed, wireless, cable, and IMS networks.

Ribbon Q21 as Intelligent SBC has smart management technology that reduces operational complexity and simplifies the network edge. By securely managing, routing, and controlling real-time voice and multimedia sessions, the Q21 provides intelligent insight into network performance. With the Q21 SBC, operators gain predictability and assurance to the delivery of secure rich multimedia services. Through its adaptive security, insightful policy enforcement, flexible interworking, protocol normalization, and advanced session routing capabilities, the Q21 SBC adds an unparalleled layer of intelligence in managing SIP and other IP-based voice and multimedia sessions. Furthermore, Ribbon's Network Wide Licensing model offers additional flexibility for cost efficiency and savings.

#### Ribbon Q21 Session Border Controller's Features

- **Smart Management**

- Accompanying the Ribbon Q21 SBC is the market leading GENView Real Time Session Management tool (RSM) a smart management solution that simplifies day-to-day operations. The RSM monitors, analyzes, reports, and enforces quality and performance at the network borders, providing visibility into edge traffic along with the ability to dynamically modify call-routing behavior based on a combination of business policies, network QoS, and subscriber usage patterns. The RSM offers user a web-based provisioning interface with simple drop down menus and configuration templates for vendor- specific profiles, enabling faster time-to-market for services.

### - **Smart Analytics**

- The powerful Ribbon GENView Analytics tool enables operators to easily monitor network wide performance and end to end service quality, in order to quickly troubleshoot and resolve network problems. GENView Analytics unique intuitive and interactive interface uses customizable dashboards to visualize and analyze performance metrics. Dashboards can be custom made to suit operator use cases such as Security & Fraud, Quality Assurance, System Resource monitoring and service utilization, and call troubleshooting diagrams.

### - **Delivering Holistic Visibility and Dynamic Adaptation**

- **Quality/QoS Monitoring:** providing visibility into how the network is delivering service
- **Comprehensive Reporting:** exposing historic and real-time network performance.
- **Business Reporting:** providing visibility into route profitability.
- **Adaptive Call Routing:** re-shaping routing policies to ensure network quality targets are met.
- **Advanced Call Diagnostics:** enabling views into sessions that may straddle multiple SBCs.

### - **Multi-Dimension Adaptability**

- Delivered on a “commercial off the shelf” (COTS) 2RU server platform, and using media processing in software, not hardware, the Ribbon Q21 SBC provides substantial and measurable deployment benefits at a price/ performance ratio that leads the industry. Combining the advantages of a software-centric architecture, and flexible deployment options, the Ribbon Q21 SBC addresses a wide-range of performance needs while ensuring lowest total cost of ownership (TCO).

- The Q21 is ideal for large carrier or service provider environments, yet equally well suited to medium service providers and enterprises, who are looking for high scale and density, with high session capacity and media throughput. It is easily capable of supporting up to 70,000 concurrent VoIP sessions in a small footprint, and offers market leading energy efficiency to drive significant reduction in energy usage and data center costs.

- Ribbon's portfolio of appliance-based SBC's are available as a best-of-breed carrier-grade, stand-alone SBC on a family of rack mount COTS servers. The SBC leverages common software across all versions of target hardware options, offering deployment flexibility, and the ability to seamlessly grow the network as needed.

### - **Network Functions**

- Access SBC, Interconnect SBC, Enterprise SBC, IPX Proxy.
- B2BUA, Outbound Proxy, Mirror Proxy, H.323 gatekeeper.

### - **IP Network Security & Traffic Management**

- Topology hiding with signaling and media NAT traversal, Rogue RTP Detection, Denial of Service (DoS/DDoS) protection.
  - Multi-stage Session Layer and IP Layer Rate Limiting, including configurable limits for trusted and untrusted endpoints, subnets, realms, and system.
  - Detect and Drop Malformed Packets.
  - Dynamic Blacklisting, Access Control Lists, Session Admission Controls.
  - Per flow Bandwidth Call Admission Control (CAC).
  - TLS, IPSec (IKEV1) for signaling encryption.
  - Secure RTP/RTCP for media encryption.
  - Ingress/Egress DTN Call Limiting/gapping.

### - **Interworking and Interoperability**

- IPV4, IPV6, IPV4/IPV6 interworking.
- H.323/SIP Interworking Function (IWF), SIP over UDP/TCP/TLS/ SCTP interworking.
- H.245 Tunneling; H.225 RAS messages support for alternative gatekeeper functionality; stateful H.225 and H.245 routing.
  - SIP Flexible Message Manipulation (FMM) & Programming.
  - Hosted NAT traversal.
  - Overlapping realm and IP signaling addresses.
  - Surrogate Registration.
  - RTCP Assist for Skype® for Business.

### - **Transcoding and Media Adaptation**

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- Extensive Voice Transcoding including G.726, G.723.1 and OPUS variants.
- DTMF Translation, G.711 / T.38 Fax Relay, SIP Info, SIP Notify, RFC 2833.
- Software based media processing.
- Flexible transcoding deployment options.
- Per device codec profiles, re-ordering and prioritization.
- Message Session Relay Protocol (MSRP) and RCS.
- SIPREC Call Recording.

- **Advanced Routing and Policy**
  - Least Cost, Profitability based, and Percent Based Routing.
  - Quality and Performance based Routing.
  - Digit Matching / Manipulation; Called Number Translation, Calling Number Translation/Randomizations; Call Blocking; Call Loop Detection and Prevention.
  - Flexible policy to enable hosted direct media routing between end points behind same NAT.
  - ENUM/3GPP, DNS, SIP Redirect (RFC 4903) based route query.
  - Service partitioning based on customer and service type QoS and SLA Assurance.
  - Bandwidth call admission control.
  - Per session network quality analytics: jitter, packet loss, latency, R-factor.
  - Per session service quality analytics: ASR, NER, post dial delay.
  - Per call statistics.
  - DSCP packet marking for TOS / COS.
  - Real-time performance statistics.
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- **Management**
  - Intuitive Graphical User Interface (GUI) for ease of configuration.
  - Embedded web-based management/GUI access via secure HTTPS access.
  - Command Line Interface (CLI) for local and SSH access.
  - Secure RADIUS-based user authentication.
  - Role-based user access.
  - SNMP V2 status and statistics.
  - Local logging of events, alarms, and traps; call trace.
  - Support for storing CDRs; RADIUS accounting records.
  - 1:1 redundant management control ports.
  - Onboard Flight Recorder for enhanced session analysis.
  - SIP Call Leg Correlation.
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- **Performance & Resiliency**
  - 1:1 high availability redundant system with stateful call migration of signaling and media with no loss of service.
  - Up to 550 Call Attempts Per Second (CPS).
  - Up to 160,000 simultaneous SIP Signaling sessions.
  - Up to 70,000 simultaneous media sessions (G.711).
  - Up to 200,000 SIP registered endpoints.
  - Up to 2,000,000 routes and calling plans.

