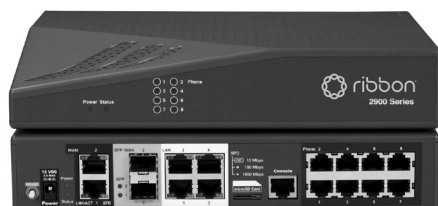


EdgeMarc 2900e + 2900a

Intelligent Edge™ – Enterprise Session Border Controllers



Deploying voice communications over the Internet has the potential to create quality and security issues if providers don't take proactive measures to prevent issues. Ribbon's Intelligent Edge™ solutions are deployed at the edge of a customer's network to give communication service providers a better way to monitor, manage and secure voice traffic as it enters and exits a customer's site.

EdgeMarc elements can operate independently or be centrally managed with the EdgeView Service Control Center. By centrally managing hundreds or thousands of EdgeMarc elements, EdgeView gives providers a local view of issues as well as a holistic view of their network. EdgeView also enables

- Zero touch provisioning for consistent, low touch, low cost deployments.
- Centralized reporting and management tools reduce expensive truck rolls and many of the customer satisfaction issues that create churn.

Ribbon Communications' EdgeMarc 2900e Intelligent Edge™ is ideally suited for Cloud UC or SIP Trunking applications, including Microsoft Teams Direct Routing. The solution supports bi-directional data rates up to 1 Gbps and up to 300 concurrent calls.

The EdgeMarc 2900a delivers the same functionality of the EdgeMarc 2900e while adding support for FXS connections for fax lines, overhead paging systems & door phones as well as FXO for PSTN failover.



Certified for Zoom Phone



Microsoft Certified for Teams Direct Routing

Key Capabilities

- The EdgeMarc 2900a model includes 6 or 8 FXS ports to support analog endpoints and up to 2 FXO ports
- Scalable configuration based on session license
- Supports data rates up to 1 Gbps and 300 concurrent calls
- Multiple WAN ports enable link redundancy and stateful SIP transfer
- Includes SIP aware firewall with stateful packet inspection
- QoS functions including traffic shaping, guaranteed bandwidth, and call admission control
- Detailed call statistics and quality measurements that are analyzed by the EdgeView Service Control Center for troubleshooting and remediation
- Microsoft Certified for Teams Direct Routing
- Zoom Certified for Zoom Phone
- Available in Cloud2Edge configurations

Key Connectivity Choices

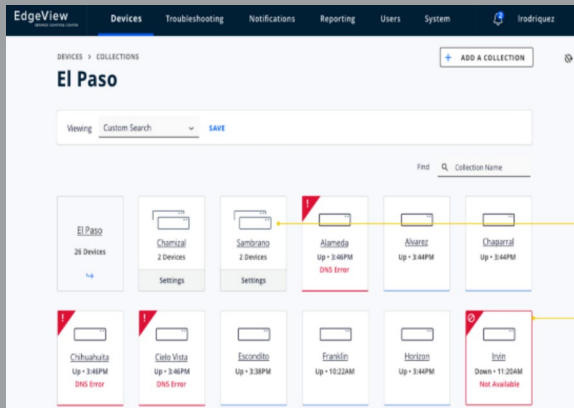
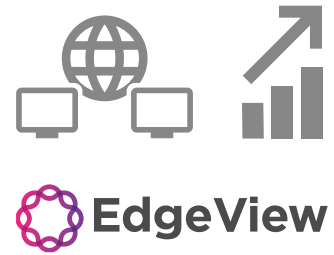
	EdgeMarc 2900e	EdgeMarc 2900a
Maximum Concurrent Calls	300	300
Gb Ethernet WAN ports	2	2
Gb Optical WAN ports	2	2
Gb LAN ports	4	4
FXO ports	0	0 2
FXS ports	0	8 6
Note: EdgeMarc 2900 PoE series models are also available, they offer 12 PoE ports in place of the 4 LAN ports.		

► **Click Here to Get an EdgeMarc Quote**
<http://go.rbbn.com/edgemarc-quote>

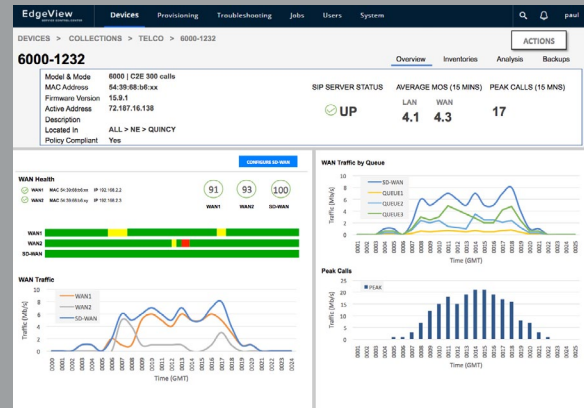
Centrally Managed - A Strategic Investment that Pays for Itself

As with all EdgeMarc Intelligent Edges™, the EdgeMarc 2900 Series is centrally managed with the EdgeView Service Control Center. EdgeView provides zero touch provisioning along with a comprehensive view of the customer and provider's VoIP network, enabling providers to monitor performance and quickly remediate issues, leading to improved customer experience and reduced costs.

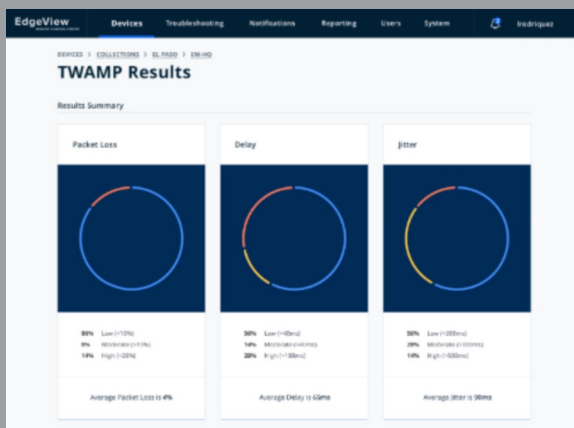
It's no wonder many of the world's leading service providers use EdgeView and deploy an EdgeMarc element as part of EVERY one of their UCaaS and SIP Trunk deployments. The solution pays for itself.



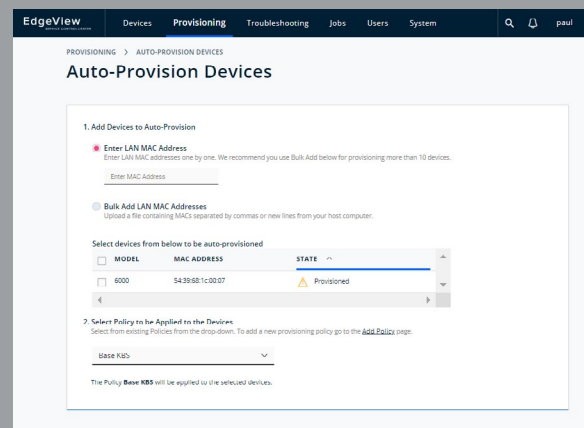
Manage hundreds of thousands of sites and devices



Easily spot issues



Measure voice quality to the desktop



Zero Touch Provisioning



PSTN Gateway



WAN Router



NAT/DHCP



SIP Firewall



ALG/B2BUA



Voice Quality Monitor



Traffic Shaper

EdgeView and the EdgeMarc 2900 Series provide a comprehensive solution to secure and centrally manage communications all the way to the enterprise edge

Features and Capabilities	Specifications
Performance	
Maximum data throughput	1Gbps
Maximum sessions, voice only	300
Maximum number of registered devices (endpoints)	2000
Cloud2Edge Complete Compatible	Yes. See http://ribboncommunications.com/solutions/service-provider-solutions/edge-services/cloud2edge-complete for more details
Analog Port Features (2900a only)	
FXO Port	Loop start, Far end disconnect supervision, Battery reversal, RTP silence detection
FXS Port	<ul style="list-style-type: none"> • Loop Start • Ringer Equivalency Number (REN) – 5/port, 20/system • Ringing voltage >= 48Vrms 20Hz, selectable impedance • 48v on hook voltage, 24mA off-hook current
SIP Features	
Network Address Translation	<ul style="list-style-type: none"> • Network Address Translation (NAT): static, dynamic • Port Address Translation (PAT) • (provides topology hiding of hosts on the LAN)
Back-to-Back User Agent	Yes
Application Layer Gateway (SIP proxy)	Yes
Proxy Modes	<ul style="list-style-type: none"> • Transparent proxy mode • Multi-homed proxy mode
SIP Registration Pacing	Registration rates (LAN-side/WAN side) can be controlled
VoIP Test Call Agent	Remotely verify and troubleshoot connectivity
Header Manipulation	Full control to add/delete/modify SIP headers
Signaling Protocol (LAN/WAN)	UDP, TCP, TLS
Media Protocol (LAN/WAN)	RTP, SRTP
SIP Standards Compliance (primary standards)	<ul style="list-style-type: none"> • RFC 3261 • RFC 2327 • RFC 3263 • RFC 2833
Codecs	G.711, G.722, G.726 G.729
Fax	T.38 support for FXS interfaces
Security	
Firewall	Stateful, VoIP aware firewall
Denial of Service protection	SYN flood, UDP flood, ICMP flood, Fragment flood
Encryption and Authentication	TLS, SRTP, HTTPS, SSH, Radius
Encryption protocols supported	3DES, AES, SHA-256, MD-5
Key Management	IKE key management, IPSec
Proxy ARP	Yes
IPsec VPN	Yes (max 12 tunnels)
PPTP support	MSCHAP, MSCHAP V2, MSCHAP+MPPE
Voice Quality Measurement	
Per call statistics (LAN/WAN)	Full MOS support (including Jitter, Packet Loss)
Mean Opinion Score (MOS)	MOS tabulated every 10 seconds of every call on both WAN and LAN side of call leg.

Features and Capabilities		Specifications	
Traffic Management/ Routing/ QoS			
Routing		<ul style="list-style-type: none">• BGP - fully functional BGP stack supporting Layer 2/3 IP WAN solutions (MPLS)• RIP• OSPF• PPPoE• Secondary address / Subinterface	
Multicast		Protocol Independent Multicast – sparse mode (PIM-SM)	
Traffic prioritization		<ul style="list-style-type: none">• Class-based queueing (up to 8)• Prioritization on IP and port• Prioritization on VoIP protocol• Traffic Shaping• Call Admission Control• Upstream, downstream bandwidth management	
DHCP server		Yes	
QoS		Diffserv (DSCP), IP Precedence, policing	
VLANs		<ul style="list-style-type: none">• 802.1Q (up to 16)• Multi-VLAN ALG support	
Network addressing		IPv4, IPv6	
System Management			
Device Management		CLI, (SSH, Telnet) Web GUI (HTTP, HTTPS)	
Remote upgrades, back-up, restore		TFTP, FTP, SCP, HTTP, HTTPS	
Firmware		Dual local firmware image for upgrade and recovery	
Network Management		SNMP v1, v3	
Message Analytics		System monitoring and SIP statistics	
Debug tools		Packet capture (tcpdump), traceroute, ping, syslog	
Endpoint monitoring		Two-way Active Monitoring Protocol (TWAMP)	
Edge Orchestration		EdgeView Service Control Center for device and endpoint management	
EdgeView key functions		<ul style="list-style-type: none">• Remote troubleshooting• Proactive management• Inventory management• Configuration management• Reporting and data analytics (for more information, please see: http://ribboncommunications.com/products/service-provider-products/management/edgeview-service-control-center-scc)	
Hardware Specifications			
Dimensions (W x D x H)		9.21” x 6.54” x 1.75”	
Weight		2 lbs.	
Mounting Options		Wall Mount, Rack Mountable	
MTBF		269,532 hours	
Operating Temperature		0-40 deg. Celsius	
Operating Relative Humidity		4% to 90% (non-condensing)	
Compliance		RoHS 2.0, UL/cUL, CB, FCC part 15, FCC part 68, IC, CE, RCM and VCCI	
Power		Wall mount - 2900e: DC-12V 1.66A 20W, 2900a: DC-12V 3A 36W	
Hardware Warranty		5 years	
Software support and maintenance		First year included	

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