



# EdgeMarc 2900e + 2900a PoE

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.

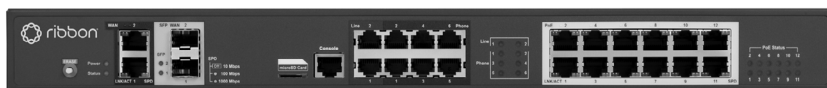
EdgeMarc elements can operate independently or be centrally managed with the EdgeView Service Control Center. By centrally managing hundreds or thousands of EdgeMarc elements, EdgeView gives providers a local view of issues as well as a holistic view of their network. EdgeView also enables

- 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 and 2900a Power over Ethernet (PoE) Intelligent Edge™ devices are ideally suited for Cloud UC applications that require PoE functionality to power IP endpoints. This solution enables service providers to easily support locations with less than 12 phones with a single device (larger implementations can utilize external PoE switches).

## Key Capabilities

- 12 fully managed PoE ports
- 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



Certified for Zoom Phone



Microsoft Certified for Teams Direct Routing

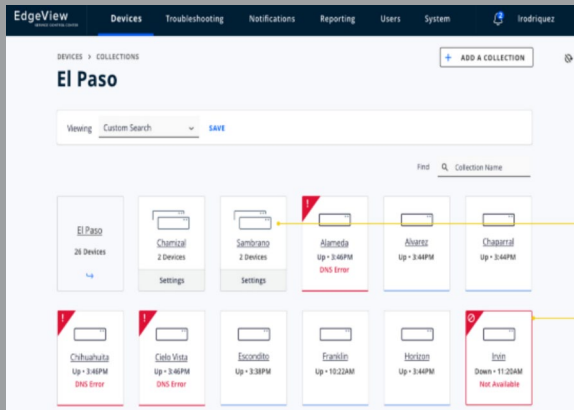
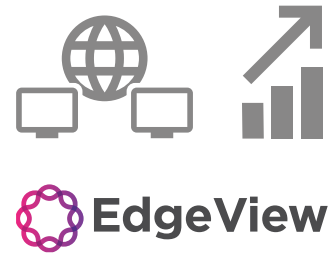
Key Connectivity Choices		
	EdgeMarc 2900e PoE	EdgeMarc 2900a PoE
Maximum Concurrent Calls	300	300
Gb Ethernet WAN ports	2	2
Gb Optical WAN ports	2	2
Gb LAN Power over Ethernet ports	12	12
FXO ports	0	0   2
FXS ports	0	8   6
Note: EdgeMarc 2900 series models are also available without PoE ports, if these are not required.		

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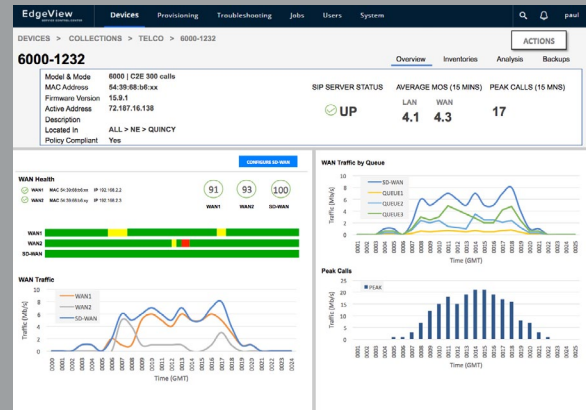
## Centrally Managed - A Strategic Investment that Pays for Itself

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.

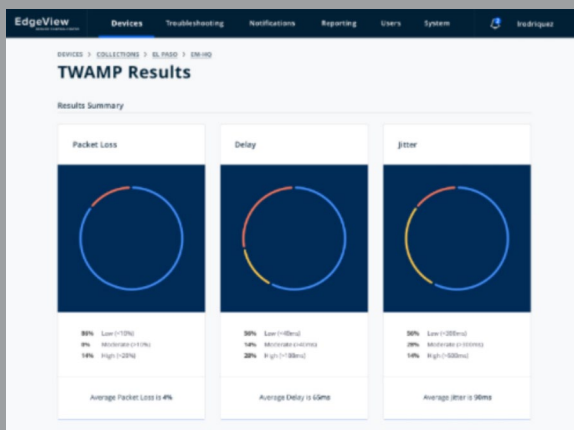
It's no wonder many of the world's leading service providers use EdgeView and deploy an EdgeMarc element as part of EVERY one of their UCaaS and SIP Trunk deployments. The solution pays for itself.



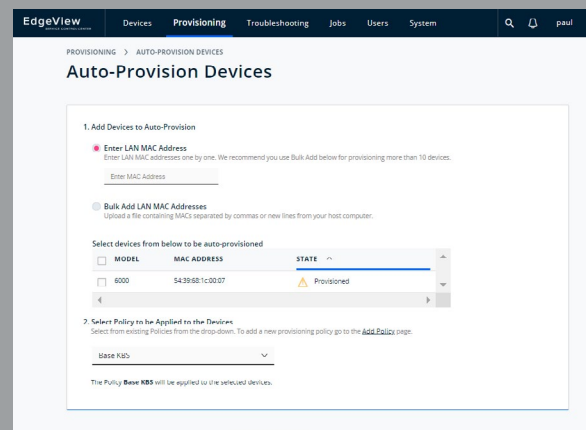
Manage hundreds of thousands of sites and devices



Easily spot issues



Measure voice quality to the desktop



Zero Touch Provisioning



PSTN Gateway



WAN Router



NAT/DHCP



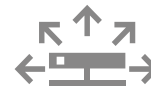
SIP Firewall



LTE



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
<b>Performance</b>	
Maximum data throughput	1Gbps
Maximum sessions, voice only	300
Maximum number of registered devices (endpoints)	2000
PoE ports	Twelve (12) 15.4 watt ports, fully managed
Cloud2Edge Complete Compatible	Yes. See <a href="http://ribboncommunications.com/solutions/service-provider-solutions/edge-services/cloud2edge-complete">http://ribboncommunications.com/solutions/service-provider-solutions/edge-services/cloud2edge-complete</a> for more details
<b>Analog Port Features (2900a only)</b>	
FXO Port	Loop start, Far end disconnect supervision, Battery reversal, RTP silence detection
FXS Port	<ul style="list-style-type: none"> <li>• Loop Start</li> <li>• Ringer Equivalency Number (REN) – 5/port, 20/system</li> <li>• Ringing voltage &gt;= 48Vrms 20Hz, selectable impedance</li> <li>• 48v on hook voltage, 24mA off-hook current</li> </ul>
<b>SIP Features</b>	
Network Address Translation	<ul style="list-style-type: none"> <li>• Network Address Translation (NAT): static, dynamic</li> <li>• Port Address Translation (PAT)</li> <li>• (provides topology hiding of hosts on the LAN)</li> </ul>
Back-to-Back User Agent	Yes
Application Layer Gateway (SIP proxy)	Yes
Proxy Modes	<ul style="list-style-type: none"> <li>• Transparent proxy mode</li> <li>• Multi-homed proxy mode</li> </ul>
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"> <li>• RFC 3261</li> <li>• RFC 2327</li> <li>• RFC 3263</li> <li>• RFC 2833</li> </ul>
Codecs	G.711, G.722, G.726 G.729
Fax	T.38 support for FXS interfaces
<b>Security</b>	
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
<b>Voice Quality Measurement</b>	
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
<b>Traffic Management/Routing/QoS</b>	
Routing	<ul style="list-style-type: none"> <li>• BGP - fully functional BGP stack supporting Layer 2/3 IP WAN solutions (MPLS)</li> <li>• RIP</li> <li>• OSPF</li> <li>• PPPoE</li> <li>• Secondary address / Subinterface</li> </ul>
Multicast	Protocol Independent Multicast – sparse mode (PIM-SM)
Traffic prioritization	<ul style="list-style-type: none"> <li>• Class-based queueing (up to 8)</li> <li>• Prioritization on IP and port</li> <li>• Prioritization on VoIP protocol</li> <li>• Traffic Shaping</li> <li>• Call Admission Control</li> <li>• Upstream, downstream bandwidth management</li> </ul>
DHCP server	Yes
QoS	Diffserv (DSCP), IP Precedence, policing
VLANs	<ul style="list-style-type: none"> <li>• 802.1Q (up to 16)</li> <li>• Multi-VLAN ALG support</li> </ul>
Network addressing	IPv4, IPv6
<b>System Management</b>	
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"> <li>• Remote troubleshooting</li> <li>• Proactive management</li> <li>• Inventory management</li> <li>• Configuration management</li> <li>• Reporting and data analytics</li> </ul> (for more information, please see: <a href="http://ribboncommunications.com/products/service-provider-products/management/edgeview-service-control-center-scc">http://ribboncommunications.com/products/service-provider-products/management/edgeview-service-control-center-scc</a> )
<b>Hardware Specifications</b>	
Dimensions (W x D x H)	17" x 11.4" x 1.75" (1U rack)
Weight	8 lbs.
Mounting Options	Shelf, Rack Mountable
MTBF	332,520 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	110-240 VAC, 50-60 Hz, 3.2 A
Hardware Warranty	5 years
Software support and maintenance	First year included

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