

EdgeMarc 6400LF2 Network Services Gateway

Introduction

The EdgeMarc Series 6400LF2 network services gateway provides the demarcation point for real-time, interactive IP services. The EdgeMarc 6400LF2 is used in demanding environments and available with a redundant AC or DC power supply configuration. Additionally the 6400LF2 is RoHS (Restriction of certain Hazardous Substances - a directive in electrical and electronic equipment) compliant.

Supporting up to 1,000 concurrent calls the EdgeMarc 6400LF2 is the ideal solution for converged IP voice and data networks requiring high performance. The EdgeMarc 6400LF2 delivers:

- Significant cost savings
- Comprehensive security
- Guaranteed voice quality
- Simplified management

Feature Rich, Simple to Use - Key Features

- 1 X 10/100/1000 Mbps Ethernet WAN interface
- 1 X 10/100/1000 Mbps Ethernet LAN interface
- High availability option for redundancy
- VoIP survivability (local)
- VoIP-aware VPN/Firewall
- Integrated VoIP Test Call Agent- standalone or in conjunction with EdgeView ALT
- VoIP application layer gateway (SIP and H.323) resolves NAT/Firewall traversal issues
- QoS: priority queuing, traffic shaping, Diffserv marking/policing
- VoIP call admission control
- Passive call quality monitoring (MOS, jitter, latency and more)
- DHCP server
- NAT/PAT
- Management: HTTP, HTTPS, SSH, Telnet, SNMPv1 and v3

Product Benefits

VoIP Application Layer Gateway

Enables a single public IP address to be used for multiple IP phones or IADs (SIP & H.323)

Traffic management

Prioritizes voice over data traffic to ensure toll quality voice calls while allowing data traffic to burst up to full line rate when possible. Provides Call Admission Control (CAC) to ensure high quality voice calls.

Voice and data firewall

Uses stateful packet inspection for data and tracks VoIP signaling states to dynamically open and close ports.

Plug & Dial phone support

Interoperates with top softswitch vendors to configure IP phones and the integrated analog ports in minutes.

Simplified troubleshooting

MOS statistics, call monitoring, Integrated VoIP test agent, LAN/WAN problem isolation from the router, TCPdump, ping, Traceroute and more.

Survivability

VoIP calls can be re-routed locally or over the PSTN with an external gateway during WAN link failures.

Call quality monitoring

Provides MOS scoring and alarms on operator defined minimum MOS thresholds for voice calls.



Converged Networking. Simplified.

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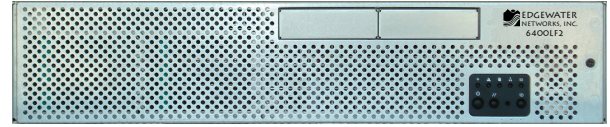
Specifications

Interfaces

Ethernet WAN	1 X 10/100/1000 Mbps
Ethernet LAN	1 X 10/100/1000 Mbps
Aux Ports	1 X 10/100 Mbps
Serial	1 X RS 232

Power, Dimensions, Safety

Size (2RU rack mountable)	Height 3 .45", Width 17.14", Depth 20"
Weight	WEEE weight: 45 lbs. Shipping weight: 55.2 lbs.
Power	2 x 600W DC power supplies or 2 x 600W AC power supplies
Power Consumption (Maximum)	400W
Safety	ROHS compliant, IEC 950, TUV/GS EN60950, CSA 60950(USA / Canada), EN60950 (Europe) IEC60950 (International), CB Certificate & Report, IEC60950 (report to include all country national deviations), GS License (Germany), GOST R 50377-92 - License (Russia), Belarus License (Belarus), Ukraine License (Ukraine), CE - Low Voltage Directive 73/23/EEE (Europe), IRAM Certification (Argentina), GB4943- CNCA Certification (China)
Emissions	FCC (Class A Verification) – Radiated & Conducted Emissions (USA) CISPR 22 – Emissions (International) EN55022 - Emissions (Europe) EN55024 - Immunity (Europe) EN61000-3-2 - Harmonics (Europe) EN61000-3-3 - Voltage Flicker (Europe) CE – EMC Directive 89/336/EEC (Europe) VCCI Emissions (Japan) AS/NZS 3548 Emissions (Australia / New Zealand) BSMI CNS13438 Emissions (Taiwan) GOST R 29216-91 Emissions (Russia) GOST R 50628-95 Immunity (Russia) Belarus License (Belarus) Ukraine License (Ukraine) RRL MIC Notice No. 1997-41 (EMC) & 1997-42 (EMI) (Korea) GB 9254 - CNCA Certification (China) GB 17625 - (Harmonics) CNCA Certification (China)



Management

Web GUI	Yes
CLI	Yes
HTTP, HTTPS	Yes
SSH, Telnet	Yes
SNMPv1	Yes
SNMPv3	Yes
TCPdump, Traceroute, Ping, Syslog	Yes
Configuration backup/restore	Yes
Remote Upgrades (FTP)	Yes

System Services

DHCP server	Yes
Local TFTP/FTP server	Yes
Automatic TFTP/FTP download on restart	Yes

Security

Stateful packet inspection firewall	Yes
VoIP protocol aware firewall	Yes
Dynamic network address translation	Yes
Static network address translation	Yes
Port address translation	Yes
Denial of Service protection - SYN flood	Yes
Denial of Service protection - UDP flood	Yes
Denial of Service protection - ICMP flood	Yes
Denial of Service protection - Fragment flood	Yes

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Specifications

Traffic Management/QoS/Routing	
Class-based queuing	Up to 8
Prioritization on IP	Yes
Prioritization on VoIP Protocol	Yes
Traffic shaping	Yes
Guaranteed bandwidth	Yes
Upstream bandwidth management	Yes
Downstream bandwidth management	Yes
VoIP call admission control	Yes
Diffserv marking	Yes
Diffserv policing	Yes
IP routing	Yes
Secondary address/subinterface support	Yes

VoIP	
SIP ALG	Yes
H.323 ALG	Yes
NAT for SIP	Yes
NAT for H.323	Yes
Survivability (SIP) - station to station	Available
Survivability (SIP) - PSTN failover	Yes
Stateful Failover	Yes
SIP registration pacing	Yes
Softswitch redundancy	Yes
Proxy mode	Yes
Multi-homed proxy mode	Yes
Transparent proxy mode	Yes
EdgeView Plug & Dial Compatible	Yes
Dynamic VoIP clients list	Yes
SIP RFC 3261	Yes
SIP RFC 2327	Yes
SIP RFC 3263	Yes
SIP RFC 2833	Yes
H.323 version 4	Yes
H.225.0v5	Yes
H.245.0v10	Yes
VoIP Test Call Agent	Yes

Passive Call Quality Monitoring	
Per call statistics	Yes
LAN side measurements	Yes
WAN side measurements	Yes
Mean Opinion Score (MOS)	Yes
Bad MOS score alarms	Yes
Below threshold MOS counters	Yes
Degradation in MOS due to network impairments	Yes
Jitter	Yes
Packet loss	Yes
Consecutive lost packets	Yes
Total # of RTP packets received	Yes
Sum of received & expected packets	Yes
Out of sequence packets	Yes
Average packet loss burst length	Yes
Estimated jitter buffer delay	Yes
Estimated jitter buffer packet discard rate	Yes
Probability that degradation is due to LAN congestion	Yes
Probability that degradation is due to Router congestion	Yes
Probability that degradation is due to access link congestion	Yes
Probability that degradation is due to diverse routing	Yes
Probability that degradation is due to unreliable link	Yes

Ordering Information/SKU	
6400: EdgeMarc 500 (EM-6400A-500)	6400 EdgeMarc 500 Converged Network Appliance, AC power
6400: EdgeMarc 1000 (EM-6400A-1000)	6400 EdgeMarc 1000 Converged Network Appliance, AC power
6400: EdgeMarc 500 (EM-6400D-500)	6400 EdgeMarc 500 Converged Network Appliance, DC power
6400: EdgeMarc 1000 (EM-6400D-1000)	6400 EdgeMarc 1000 Converged Network Appliance, DC power
6400: EM Upgrade 500 – 1000 (EM-6400U-1000)	6400 Series EdgeMarc VoIP License Upgrade - 1000 WAN calls
VOS-SURV-6400-01	VOS VoIP SIP Survivability - Basic