EdgeMarc 4500 Series Converged Networking Routers

Introduction

The EdgeMarc 4500 Series combines multiple voice and data features into a single, easy to use converged networking router. It includes models that have up to 4 T1 WAN interfaces or a single Ethernet WAN, a 4 port managed VLAN switch, optional 802.11 Wireless Access Point and integrated analog phone and line ports.

The EdgeMarc 4500 Series is a flexible, application ready platform that can be deployed initially as a low-cost WAN access router and expanded to other applications such as hosted VoIP, SIP trunking and enterprise video over IP. It is the ideal platform for service providers offering SIP trunking services, hosted VoIP and other managed enterprise products and services.

- ➢ **Multiple T1 or Ethernet WAN router**

- ➢ **Managed VLAN switch**

- ➢ **Multi-protocol ALG (SIP, MGCP and H.323)**

- ➢ **IAD (Integrated Access Device)**

- ➢ **Phone ports: 6 or 2 x FXS for analog phone or key system connections**

- ➢ **Line ports: 2 or 6 x FXO for analog connections to the PSTN**

- ➢ **VPN hardware accelerator**

- ➢ **802.11 wireless access point for data (45xxT4W)**

Feature Rich, Simple to Use - *Key Features*

- ✛ *Expands to 4 X T1 with software license key upgrade*

- ✛ *Integrated FXS and FXO ports*

- ✛ *VoIP survivability (local)*

- ✛ *Integrated VoIP failover to PSTN*

- ✛ *Integrated 4 port managed Ethernet switch with VLAN support*

- ✛ *VoIP-aware VPN/Firewall*

- ✛ *VoIP application layer gateway (SIP, MGCP 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

All-in-one - One box for your data router, Ethernet switch, analog ports, WiFi, firewall, VoIP ALG – with a single management interface.

Scalability – Whether you need a single T1 or a 4 X T1 interface, the 4508T4 is cost optimized for businesses of all sizes. Additional T1 interfaces are enabled through software license keys.

Survivability – VoIP calls can be re-routed locally or over the PSTN during WAN link failures - using one device.

Quality of Service – Packet prioritization and data traffic shaping for VoIP calls.

Plug & Dial – Interoperates with top softswitch vendors to configure IP phones and the integrated analog ports in minutes, not hours.

Simplified troubleshooting – MOS statistics, call monitoring, LAN/WAN problem isolation from the router, TCPdump, ping, Traceroute and more.

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Specifications

Interfaces	
T1 WAN	Up to 4
Framing	ESF/D4
Line coding	B8ZS/AMI
Line Build Out	0, -7.5, -15db
Connector	RJ45
PPP	Yes
MLPPP	Yes
MLPPPoFR	Yes
Frame Relay	Yes
HDLC/cHDLC	Yes
Ethernet WAN	1
Autosensing	Yes
10/100 Mbps	Yes
Duplex	Full or half
Ethernet LAN	4
Autosensing	Yes
10/100 Mbps	Yes
Duplex	Full or half
Managed VLAN	Yes
Phone/FXS	6 or 2
Connector	RJ11
Loop start	Yes
Ringer Equivalency Number (REN)	5 per port; 20 per system
Ringing voltage: >= 50Vrms at 20 Hz sinusoidal waveform	Yes
Selectable resistive and complex impedances for global usage	Yes
48V on-hook voltage	Yes
24mA off-hook current	Yes
Line/FXO	2 or 6
Connector	RJ11
Loop start	Yes
Far end disconnect supervision - battery reversal	Yes
Far end disconnect supervision - RTP silence detection	Yes
802.11 Wireless Access Point for Data	Yes
a/b/g	Yes
WEP	Yes
WPA	Yes
AES	Yes
USB ports	2
Console	
Connector	DB9 Male

Power and Dimensions	
Power Supply (AC) - external brick	12V, 3.0A
Dimensions (H/W/L)	1.7"/10"/7"
Weight	2 lbs.

Certifications	
UL	Yes
CE	Yes
FCC Part 68	Yes
FCC Part 15	Yes
Industry Canada	Yes
CB	Yes

Management	
Web GUI	Yes
CLI	Yes
http, https	Yes
SSH, Telnet	Yes
SNMP V1	Yes
SNMP V3	Yes
TCPdump, Traceroute, Ping, Syslog	Yes
Configuration backup/restore	Yes
Remote Upgrades (FTP)	Yes

VoIP	
SIP ALG	Yes
MGCP ALG	Yes
H.323 ALG	Yes
NAT for SIP	Yes
NAT for MGCP	Yes
NAT for H.323	Yes
Survivability (SIP) - station to station	Yes
Survivability (SIP) - PSTN failover	Yes
SIP registration pacing	Yes
Softswitch redundancy	Yes
Proxy mode	Yes
Multi-homed proxy mode	Yes
Transparent 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
MGCP RFC 2705	Yes
MGCP RFC 2327	Yes
MGCP RFC 3550 (updated 1889)	Yes
H.323 version 4	Yes
H.225.0v5	Yes
H.245.0v10	Yes

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Specifications

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

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
IPSec	Yes
IKE key management	Yes
3DES	Yes
AES	Yes
SHA-1	Yes
MD-5	Yes
IPSec Hardware acceleration	Yes
Number of tunnels	Up to 32

Traffic Management/QoS/Routing

Class-based queuing	Yes
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
VLAN - 802.1Q	Up to 16

System Services

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

Calling Features - Phone & Line Ports

SIP User Agent	Yes
SIP PSTN gateway	Yes
Transfer	Yes
Hold	Yes
Conference	Yes
Caller id	Yes
Call waiting	Yes
T.38 fax support	Yes
G711 u-law	Yes
G711 a-law	Yes
G729	Yes
G728	Yes
G726-16	Yes
G726-24	Yes
G726-32	Yes
G726-40	Yes
Inbound PSTN calling line port	Yes
Inbound PSTN calling line port - forwarded phone number or extension	Yes
Inbound PSTN calling line port - 2 stage dialing (survivable mode)	Yes
Outbound calling line port - PSTN failover (survivable mode)	Yes
Outbound calling line port - local enterprise gateway	Yes

Ordering Information

Product	Part Number	Ethernet WAN	T1 WAN	Ethernet LAN	802.11 WAP	Phone Ports (FXS)	Line Ports (FXO)	WAN Calls
4500								
EdgeMarc 2	EM-4500-02	•	-	4	-	-	-	2
EdgeMarc 5	EM-4500-05	•	-	4	-	-	-	5
EdgeMarc 10	EM-4500-10	•	-	4	-	-	-	10
EdgeMarc 15	EM-4500-15	•	-	4	-	-	-	15
EdgeMarc 30	EM-4500-30	•	-	4	-	-	-	30
4500T4								
VPN router, Single T1	EM-4500T4-0-1	•	1	4	-	-	-	-
EdgeMarc 5T, Single T1	EM-4500T4-05-1	•	1	4	-	-	-	5
EdgeMarc 15T, Single T1	EM-4500T4-15-1	•	1	4	-	-	-	15
EdgeMarc 30T, Single T1	EM-4500T4-30-1	•	1	4	-	-	-	30
		•						
VPN router, Dual T1	EM-4500T4-0-2	•	2	4	-	-	-	-
EdgeMarc 5T, Dual T1	EM-4500T4-05-2	•	2	4	-	-	-	5
EdgeMarc 15T, Dual T1	EM-4500T4-15-2	•	2	4	-	-	-	15
EdgeMarc 30T, Dual T1	EM-4500T4-30-2	•	2	4	-	-	-	30
		•						
VPN router, Quad T1	EM-4500T4-0-4	•	4	4	-	-	-	-
EdgeMarc 5T, Quad T1	EM-4500T4-05-4	•	4	4	-	-	-	5
EdgeMarc 15T, Quad T1	EM-4500T4-15-4	•	4	4	-	-	-	15
EdgeMarc 30T, Quad T1	EM-4500T4-30-4	•	4	4	-	-	-	30
4508T4								
EdgeMarc 15T, Single T1	EM-4508T4-15-1	•	1	4	-	6	2	15
EdgeMarc 30T, Single T1	EM-4508T4-30-1	•	1	4	-	6	2	30
EdgeMarc 15T, Dual T1	EM-4508T4-15-2	•	2	4	-	6	2	15
EdgeMarc 30T, Dual T1	EM-4508T4-30-2	•	2	4	-	6	2	30
EdgeMarc 15T, Quad T1	EM-4508T4-15-4	•	4	4	-	6	2	15
EdgeMarc 30T, Quad T1	EM-4508T4-30-4	•	4	4	-	6	2	30
4508T4W								
EdgeMarc 15T, Single T1, WAP	EM-4508T4W-15-1	•	1	4	•	6	2	15
EdgeMarc 30T, Single T1, WAP	EM-4508T4W-30-1	•	1	4	•	6	2	30
EdgeMarc 15T, Dual T1, WAP	EM-4508T4W-15-2	•	2	4	•	6	2	15
EdgeMarc 30T, Dual T1, WAP	EM-4508T4W-30-2	•	2	4	•	6	2	30
EdgeMarc 15T, Quad T1, WAP	EM-4508T4W-15-4	•	4	4	•	6	2	15
EdgeMarc 30T, Quad T1, WAP	EM-4508T4W-30-4	•	4	4	•	6	2	30
4562T4W								
EdgeMarc 15T, Single T1, WAP	EM-4562T4W-15-1	•	1	4	•	2	6	15
EdgeMarc 30T, Single T1, WAP	EM-4562T4W-30-1	•	1	4	•	2	6	30
EdgeMarc 15T, Dual T1, WAP	EM-4562T4W-15-2	•	2	4	•	2	6	15
EdgeMarc 30T, Dual T1, WAP	EM-4562T4W-30-2	•	2	4	•	2	6	30
EdgeMarc 15T, Quad T1, WAP	EM-4562T4W-15-4	•	4	4	•	2	6	15
EdgeMarc 30T, Quad T1, WAP	EM-4562T4W-30-4	•	4	4	•	2	6	30
4508E								
EdgeMarc 15	EM-4508E-15	•	-	4	-	8	-	15
EdgeMarc 30	EM-4508E-30	•	-	4	-	8	-	30