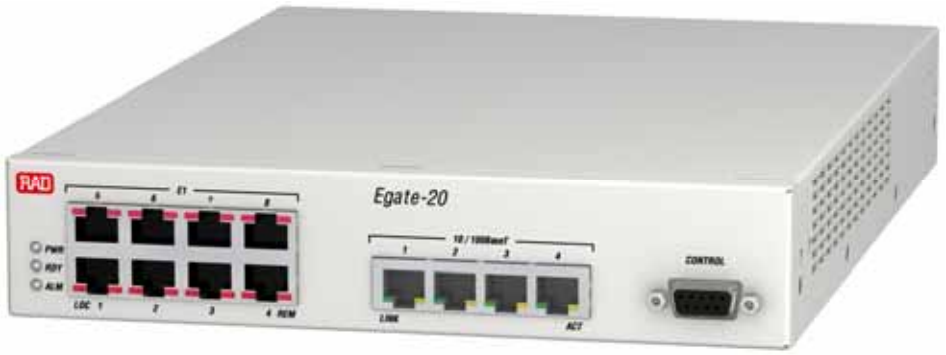
Data Sheet

Egate-20

Channelized Ethernet Gateway

Flexible Ethernet aggregation of Fast Ethernet to eight fully channelized E1 or T1 circuits



- Transparent Ethernet services in point-to-point and point-to-multipoint topologies by using VLAN tagging, stacking and switching
- Efficient utilization of WAN interface at wire-speed
- Equipment and maintenance costs lower than other alternatives
- Four-level QoS according to 802.1p, DSCP, IP Precedence and per port

Egate-20 is a channelized Ethernet gateway for interconnecting PDH and packet-based networks.

The Ethernet gateway aggregates and switches Ethernet traffic into eight channelized E1 or T1 circuits, each supporting up to 248 or 192 Ethernet channels (248 over E1 or 192 over T1). The traffic is combined into channelized E1 or T1 streams, and handed over to the PSN via the unit's Fast Ethernet ports.

Egate-20 replaces current high-priced solutions, such as channelized n × E1/T1 routers or multibox solutions based on cross-connects and switches.

Together with service scalability, small footprint, and low power consumption, Egate-20 significantly reduces equipment cost and simplifies network operation.

Deployed at a central location (see *Figure 1*), Egate-20 aggregates user Ethernet traffic received from remote devices, such as RAD's RICi-E1/T1, FCD, and ASMi, thus completing a full access solution from the service provider central site to the customer premises.

Typical applications include:

- Ethernet private E-line/E-LAN services
- Aggregation of Ethernet traffic over PDH wireless links
- Network management backhauling.

RAD
data communications
The Access Company

Egate-20

Channelized Ethernet Gateway

BRIDGE

Using Egate-20 as a bridge in an SDH/SONET environment, service providers achieve seamless interconnection between customers utilizing different networks (TDM and packet-based), while maintaining the same service level attributes.

The bridge filters and forwards traffic at wire-speed, enabling full utilization of the high-priced WAN circuit.

VLAN tagging, stacking and striping at ingress and egress enable transporting user traffic transparently while keeping all user VLAN settings intact. In addition, the management traffic may be tagged as a different VLAN, fully separating user traffic from management data.

In VLAN-aware mode (IVL), frames are forwarded according to VLAN tags and MAC address.

This allows defining different user traffic domains to create point-to-point (E-Line) or point-to-multipoint (E-LAN) topologies. A VLAN tunnel can be created for separating management and user traffic.

Each bridge port switches and filters any number of VLANs. This enables each remote location to be part of numerous VLAN domains.

In a typical service provisioning structure (see *Figure 2*), Egate-20 links between users connected to the packet-switched network, and users connected to the TDM network. Virtual channels are established between the far-end users by tagging separate user traffic channels with VLANs (B, C and D). These virtual channels transparently forward all user traffic. In addition, all devices are managed over the VLAN A management channel, which enables secure separation between user traffic and management traffic.

QUALITY OF SERVICE (QoS)

Egate-20 provides differentiated services on the same link according to Ethernet or IP marking. Classification is based on 802.1p, IP Precedence, DSCP or per port, while the traffic is forwarded by four strict priority queues.

PROTOCOLS

Egate-20 utilizes native HDLC for encapsulating Ethernet traffic over E1/T1 circuits.

DIAGNOSTICS AND STATISTICS

Comprehensive diagnostic and performance monitoring capabilities include:

- Ping and trace route for IP connectivity checks
- Statistics and alarms for the physical E1/T1 and Ethernet interfaces, and for the internal bridge.

MANAGEMENT

Egate-20 can be managed using different ports and applications:

- Local out-of-band management via an ASCII terminal connected to the RS-232 port
- Remote out-of-band management via one of the four 10/100BaseT ports
- Remote inband management via one of the four Ethernet ports, performed using Telnet, Web browser or RADview, RAD's SNMP-based element management system.

Software upgrades and configuration files can be downloaded to Egate-20 via TFTP or XMODEM.

A dedicated VLAN tunnel is used to secure the management traffic and to separate it from user traffic.

Access to the unit's management software is password-protected. The unit can be managed by and report to up to 16 different managers simultaneously. This enables viewing the network status and managing the unit from different locations.

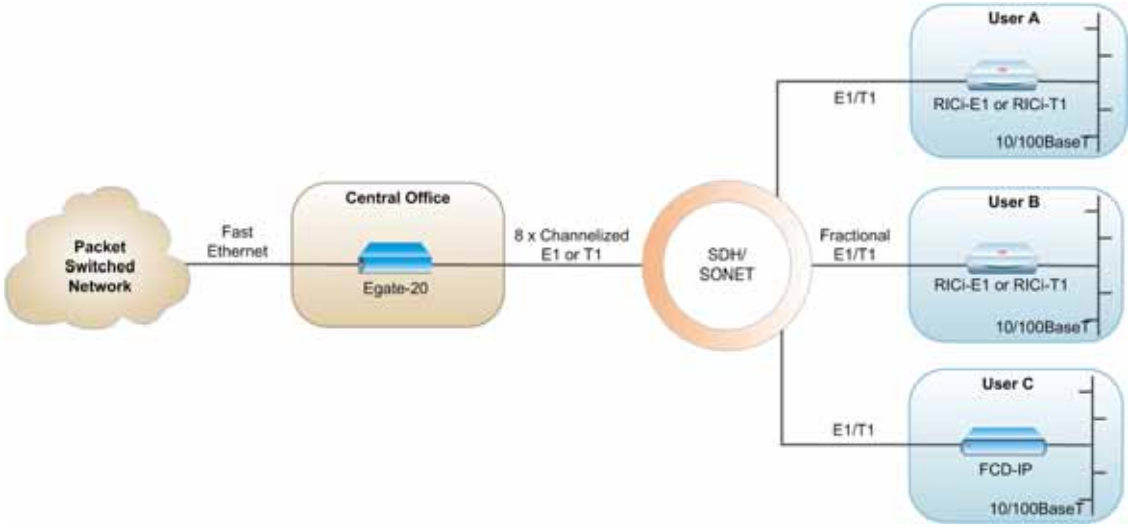


Figure 1. Aggregating Ethernet over E1/T1 Traffic

Specifications

E1 INTERFACE

Number of Ports
8

Compliance
G.703
G.704

Framing
Framed/unframed

Data Rate
2.048 Mbps

Line Coding
HDB3

Line Impedance
120Ω (balanced)
75Ω (unbalanced)

Connector
RJ-45 (balanced)
Coaxial (unbalanced)

T1 INTERFACE

Number of Ports
8

Compliance
ANSI T1.403

Data Rate
1.544 Mbps

Line Code
B8ZS

Framing
D4, ESF (framed)

Line Impedance
100Ω (balanced)

Diagnostics
Remote and FDL loopbacks

Connector
RJ-45

FAST ETHERNET INTERFACE

Number of Ports
4

Compliance

10/100BaseT, conforms to the relevant sections of IEEE 802.3 and 802.3u, 802.1p, and 802.1Q

Data Rate
100 Mbps

Max. Frame Size
1794 bytes

Supported Modes
Autonegotiation, full/half duplex, flow control

Connector
RJ-45

WAN PROTOCOL

Type
HDLC (native HDLC compatible with RAD products)

INTERNAL BRIDGE

LAN Table
Up to 2,048 MAC addresses (learned)

Operation Modes
VLAN-aware, VLAN-unaware

Filtering and Forwarding
Transparent or filter at wire-speed

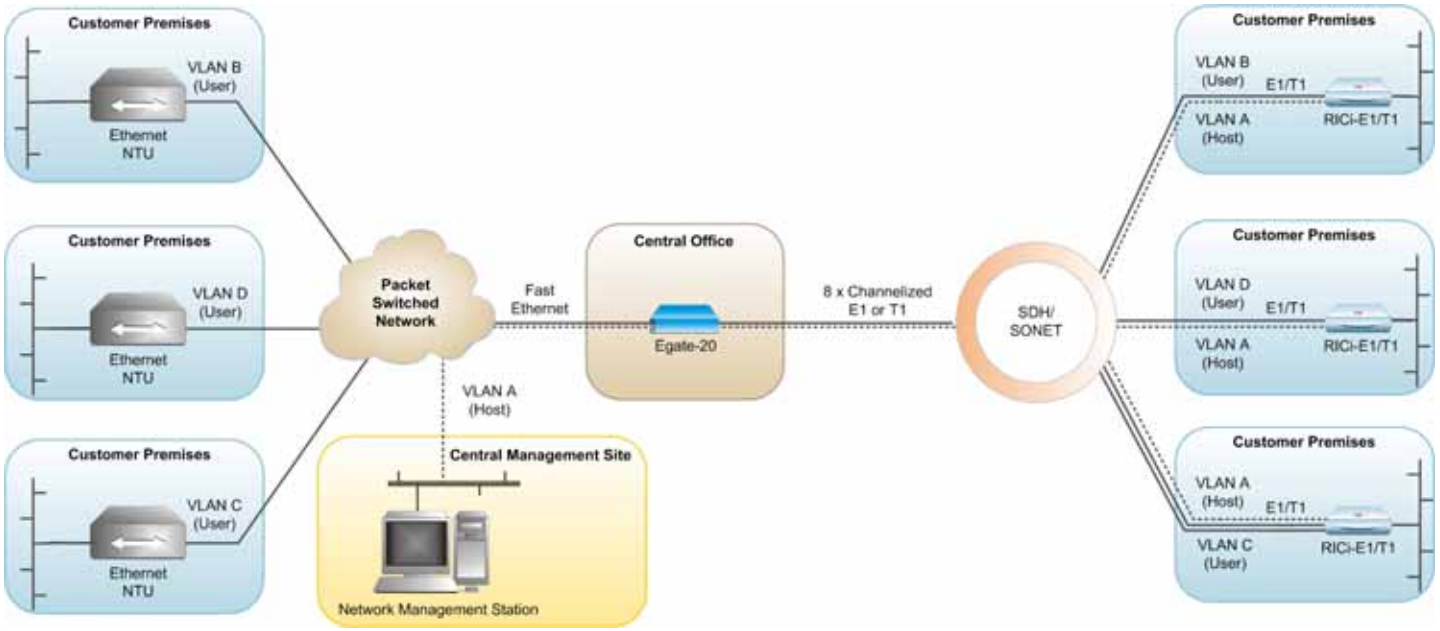


Figure 2. VLAN-Based Service Provisioning over Packet and TDM Networks

Data Sheet

Egate-20

Channelized Ethernet Gateway

CONTROL PORT

Interface
RS-232/V.24 (DCE asynchronous)

Data Rate
9.6, 19.2, 115.2 kbps

Connector
9-pin, D-type, female

GENERAL

Indicators
PWR (green) – Power status
RDY (green) – Ready indicator
ALM (red) – Alarm status

Diagnostics
E1: Remote loopback
T1: Remote and FDL loopbacks

Power
AC: 100 to 240 VAC (±10%), 50 to 60 Hz
DC: -48 VDC nominal

Power Consumption
9W max

Environment
Temperature: 0°–50°C (32°–122°F)
Humidity: Up to 90%, non-condensing

Physical
Height: 43.7 mm (1.7 in / 1U)
Width: 215.9 mm (8.5 in)
Depth: 300.0 mm (11.8 in)
Weight: 2.2 kg (4.7 lb)

Ordering

Egate-20/C/$

Legend

C Interface:
- **CH** Channelized

$ Port:
- **E1** Balanced E1 port
- **E1U** Unbalanced E1 port
- **T1** T1 port

Note: *Unbalanced E1 interface is provided via an adapter cable.*

SUPPLIED ACCESSORIES

AC power cord
DC adapter plug

CBL-RJ45/2BNC/E1
Interface adapter for converting a balanced E1 RJ-45 connector to a pair of BNC unbalanced coaxial connectors (if an unbalanced E1 interface is ordered)

OPTIONAL ACCESSORIES

RM-35/@
Hardware kit for mounting one or two Egate-20 units into a 19-inch rack

@ Rack mounting kit

(Default = both kits):
- **P1** Mounting one unit
- **P2** Mounting two units

WM-35
A hardware kit for mounting one Egate-20 unit on a wall

CBL-DB9F-DB9M-STR
DB-9 to DB-9 control port cable

Product Comparison Table

Feature	Egate-100 (Ver. 3.0) 	RICi-E1, RICi-T1 (Ver 2.1) 	Egate-20 (Ver. 1.1) 
Protocol type	HDLC GFP (ITU-T G.8040) PPP/BCP (RFC 1661, RFC 3518) MLPPP (BCP) as per RFC 1661, RFC 1990, RFC 3518	HDLC HDLC IS GFP (G.8040, G.7041/Y.1303)	HDLC
MAC address table	64000	1024	2048
QoS	802.1p DSCP IP precedence	802.1p IP precedence	802.1p DSCP IP precedence Per port
QoS mechanism	Strict	Strict	Strict
Number of queues	4	4	4
Hot-swappable power supplies	Yes	No	No
Host VLAN	Yes	Yes	Yes
VLAN tagging and stacking	Yes	Yes	Yes

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