WEB RANger-II

Internet Access Router

Wide-ranging
Internet and voice
connectivity for
small or medium size
offices

WEBRANger-II

- IP/IPX routing and standard bridging
- Data services over E1/T1, fractional E1/T1, Frame Relay, ISDN, DDS and leased line
- Digital and analog voice interfaces, including optional sub-E1/T1 or analog drop & insert ports for voice connectivity over E1/T1 services
- One or two WAN ports and one or two Ethernet LAN interfaces
- Connection on demand (COD) and bandwidth on demand (BOD)
- Solid firewall protection (session-based)

WEB RANger-II is an access router, connecting small or medium-sized offices to the Internet over a variety of WAN interfaces, including V.35, V.24, V.36, X.21 and RS-530.

The supported WAN services include:

- E1 or fractional E1, with or without LTU, operating at rates of up to 2.048 Mbps
- T1 or fractional T1 CSU/DSU, operating at rates of up to 1.544 Mbps
- Frame Relay with auto learn of DLCI and maintenance protocol
- ISDN BRI
- DDS (56 kbps)
- Leased line.

Internet access capabilities are enhanced through:

- IP Service Access Authentication provided by PAP/CHAP
- Solid firewall for protecting an office LAN from undesired intrusion from the Internet
- NAT for sharing of several legal IP addresses between the various LAN users
- DHCP server for the sharing of IP address pools between DHCP clients on the LAN.

RAD
data communications
The Access Company

WEB RANger-II
Internet Access Router

- Single IP address translation for connecting a small or medium office LAN to the Internet, using a single dynamically or statically allocated IP address.

E1 and T1 Capabilities

The unit's E1 and T1 capabilities include:

- Integral E1 with or without LTU or integral T1 CSU/DSU

- Optional sub-E1 or sub-T1 drop & insert port for PBX connectivity

- Fail-safe bypass for the sub-E1 or sub-T1 link.

Analog Voice Capabilities

WEB RANger-II supports up to four analog channels, using three interfaces:

- 2-wire FXS

- 2 wire FXO

- 2-wire or 4-wire E&M.

The analog interfaces utilize the PCM-encoded, A-Law or μ-Law modulation methods.

A Reliable Routing Unit

WEB RANger-II supports IP/IPX routing and bridging.

The quad analog voice or sub-E1/T1 drop & insert ports provide toll-quality voice transmission. Fail-safe bypass of the sub-E1/T1 link ensures the continuity of voice services in case of power supply failures.

The ISDN or PSTN backup channel, which is established using am external dial-up modem, ensures continuity and integrity of all data services.

Connection On Demand (COD) and Bandwidth On Demand (BOD), together with advanced filtering, reduce communication expenses of ISDN services.

Easy configuration through a quick setup menu is performed via a terminal attached to the control port, or via Telnet access to the device over LAN or WAN.

Management

The WEB RANger-II internal SNMP agent provides management by RADview or any other standard SNMP management station.

Access to WEB RANger-II via Telnet or SNMP is password-protected. The two-level management authentication allow users to route configuration parameters, while restricting access to network configuration parameters.

Software download is available via the control port using XMODEM, and via LAN/WAN using TFTP.

Parameter file download and upload is available via LAN or WAN using TFTP.
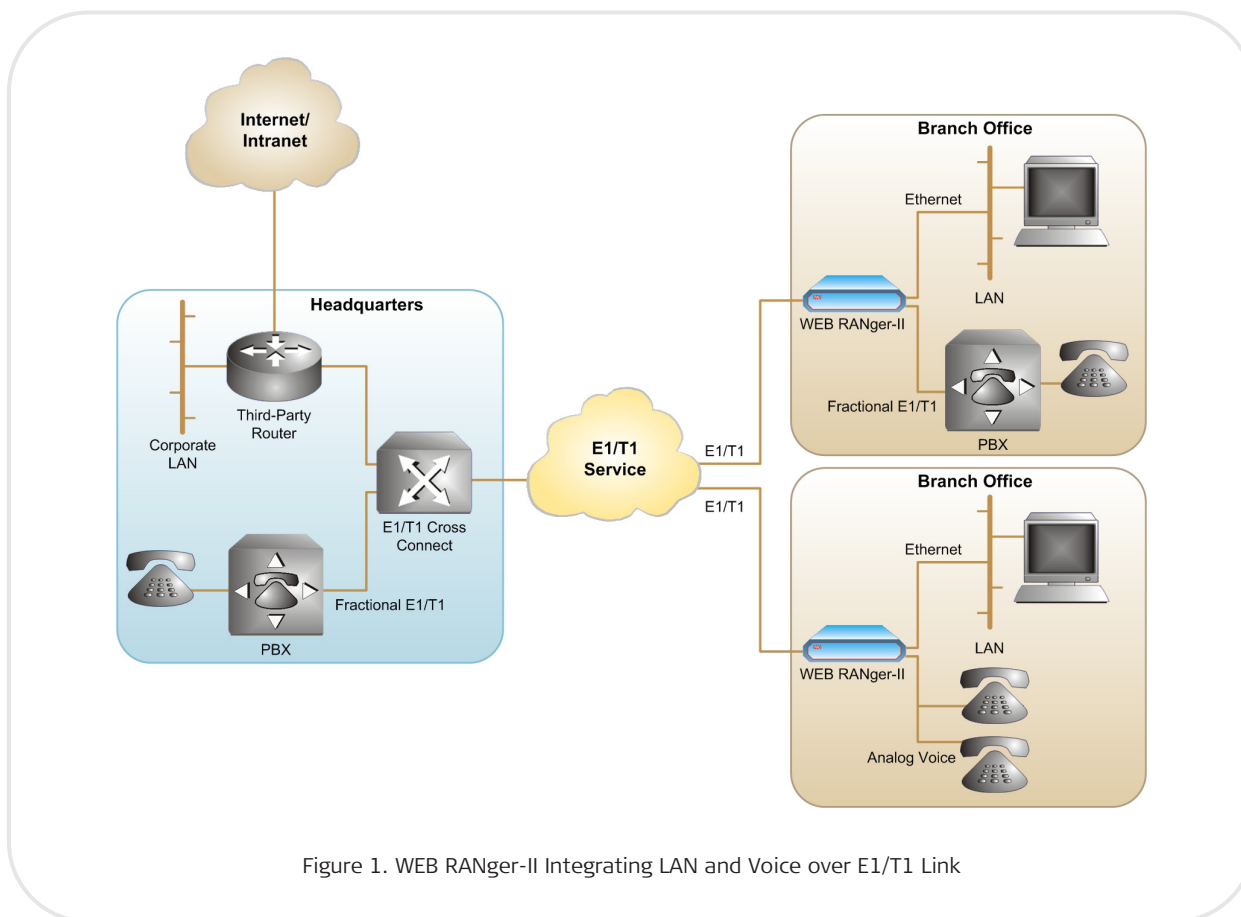

Figure 1. WEB RANger-II Integrating LAN and Voice over E1/T1 Link

Specifications

E1 INTERFACE

Framing
256N (no MF, CCS)
256N (no MF, CCS) with CRC-4
256S (TS16 MF, CAS)
256S (TS16 MF CAS) with CRC-4

Data Rate
2.048 Mbps

Line Code
AMI

Zero Suppression
HDB3

Impedance
120Ω, balanced
75Ω, unbalanced

Signal Level
Receive:
    0 to -36 dB, with LTU
    0 to -12 dB, without LTU

Transmit:
    3V (±10%), balanced
    2.37V (±10%), unbalanced

Jitter Performance
According to ITU G.823

Compliance
ITU G.703, G.704, G.706, G.732

Diagnostics
User activated local and remote loopbacks

Connectors
RJ-45, balanced
Two BNC coaxial, unbalanced

T1 INTERFACE

Framing
D4, ESF

Data Rate
1.544 Mbps

Line Code
AMI

Zero Suppression
Transparent, B7ZS, B8ZS

Impedance
100Ω, balanced

Signal Level
Receive:
    0 to -36 dB (CSU)
    0 to -10 dB (DSU)

Transmit:
    0, -7.5, -15, -22.5 dB (CSU)
    Soft adjustable at 0 to 655 ft (DSU)

Jitter Performance
According to AT&T TR-62411

Compliance
AT&T TR 62411, ANSI T1.403

Diagnostics
User activated local and remote loopbacks

Network activated loops and FDL loops
(RLB, LLB)

Connector
RJ-45, balanced

SYNCHRONOUS WAN INTERFACE

Types
V.35 with 34-pin female

V.24/RS-232 or RS-530 with 25-pin
D-type, female

X.21 with 15-pin D-type, female

V.36/RS-422 with 37-pin D-type, female

Note: When WEB RANger-II includes primary and
secondary WAN interfaces, all synchronous data
ports are equipped with 25-pin D-type, female
connectors. Adapter cables can be ordered from
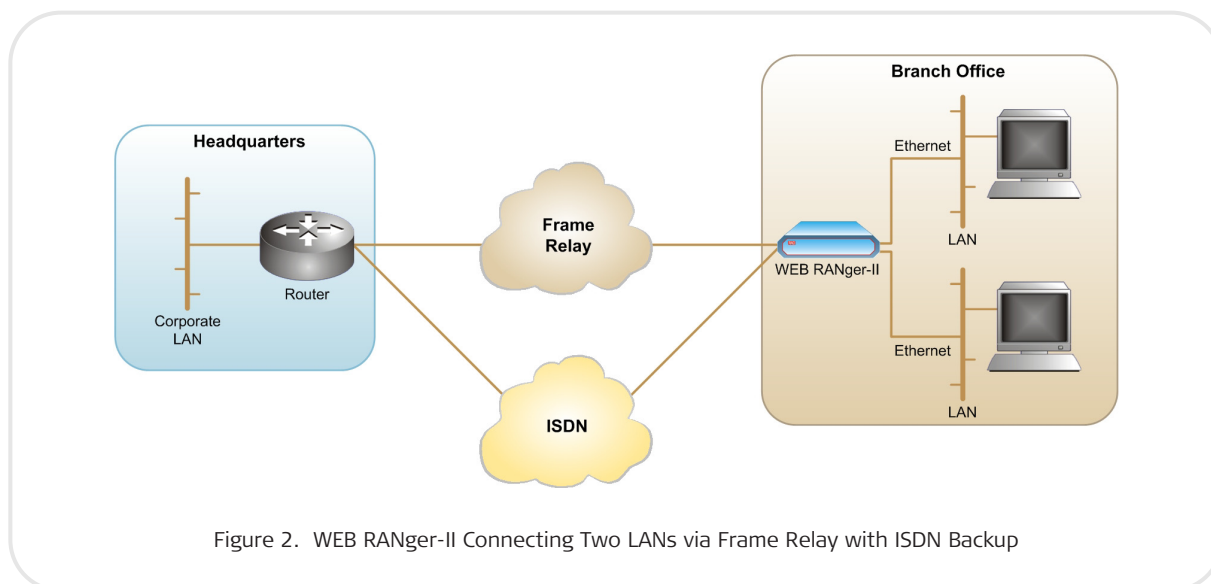RAD for V.35, V.36 and X.21 interfaces (see
Optional Accessories in Ordering).

Figure 2. WEB RANger-II Connecting Two LANs via Frame Relay with ISDN Backup

ANALOG VOICE INTERFACE

Number of Voice Channels
4

Modulation Method
PCM (per ITU-T G.711 and AT&T PUB-43801), µ-Law or A-Law

Connection Types
E&M:
    2-wire or 4-wire, supporting different types of E&M signaling: RS-464 Types I, II, III and V, and BT SSDC5, software-configured

FXS:
    Loop start, WINK start (reverse polarity) for direct connection to a 2-wire telephone

FXO:
    Loop start, WINK start (reverse polarity) connection to a 2-wire telephone exchange subscriber line

Impedance
600Ω (nominal)

Signal Levels
Nominal level: 0 dBm

Return loss: (ERL), better than 20 dB

Frequency response (Ref: 1020 Hz):
    ±0.5 dB, 300 to 3000 Hz
    ±1.1 dB, 250 to 3400 Hz

Signal to total distortion, G.712, G.713 method 2:
    0 to -30 dBm0: better than 33 dB
    +3 to -45 dBm0: better than 22 dB
    Idle channel noise:
        better than -70 dBm0 (+20 dBrnc)

Transformer isolation: 1500 VRMS

Diagnostics
Local digital loopback towards the analog side

Remote analog loopback towards the remote side, activated from the local side

1 kHz tone injection towards the analog side

Activity LED indicators

Connectors
E&M: RJ-45, 8-pin
FXS, FXO: RJ-11, 6-pin

ISDN INTERFACE

Types
ISDN BRI, "S" and "U"

Compliance
ETS 300012, I.430, NTT, 5ESS, DMS-100, NI1

LAN INTERFACE

Number of Ports
1 or 2

Type
10Base2 or 10BaseT

Compliance
IEEE 802.3

Connector
10Base2: coaxial
10BaseT: RJ-45

WAN PROTOCOL

Types
PPP and MLPPP
Frame Relay (RFC 1490)
HDLC

ROUTING

Type
Static, RIP-I, RIP-2, RIP/SAP

ARP Table
Up to 300 MAC addresses

GENERAL

LED Indicators
POWER (green): Power supply status

READY (green): Self-test result

LAN DATA (yellow): Data traffic status on the LAN side

LAN ERROR (red): Error detected on the LAN side

LINK DATA (yellow): Data traffic status on the WAN side

LINK ERROR (red): Error detected on the WAN side

RED ALARM (red): Red alarm detected at the T1 interface

YEL ALARM (yellow): Yellow alarm detected at the T1 interface

LOCAL SYNC LOSS (red): Local loss of synchronization detected at the E1 interface

REMOTE SYNC LOSS (red): Remote loss of synchronization detected at the E1 interface

Power
AC: 100 to 240 VAC, 50/60 Hz
DC: 24/48 VDC

Power Consumption
AC: 13 VA max
DC: 10W max

Physical
Height: 4.37 cm (1.7 in)
Width: 21.59 cm (8.5 in)
Depth: 24.0 cm (9.6 in)
Weight: 1.16 kg (2.55 lb)

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Ordering

WR2/~/$/#/+/*

Legend

~ DC power supply type (optional; leave empty for AC power)
    DC   24/48 VDC

$ Primary WAN interface type:
E1	E1 or fractional E1
E1/#	E1 or fractional E1 with optional second data port
T1	T1 or fractional T1
T1/#	T1 or fractional T1 with optional second data port
IBE/#	ISDN "S" interface
IBU/#	ISDN "U" interface
DDS	AT&T DDS services interface
V24	V.24/RS-232 interface
V24D	Dual V.24/RS-232 interface
V35	V.35 interface
V35D	Dual V.35 interface
530	RS-530 interface
530D	Dual RS-530 interface
V36	V.36/RS-449 interface
V36D	Dual V.36/RS-449 interface
X21	X.21 interface
X21D	Dual X.21 interface
V35/V24	V.35 and V.24 interface combination

Optional secondary WAN interface type (specify next to primary; see the **$** codes above):
V24	V.24/RS-232 interface
V35	V.35 interface
530	RS-530 interface
V36	V.36/RS-422/RS-449 interface
X21	X.21 interface

Note: When WEB RANger-II includes primary and secondary WAN interfaces, all synchronous data ports are equipped with 25-pin D-type, female connectors. Adapter cables can be ordered from RAD for V.35, V.36 and X.21 interfaces.

+ LAN interface type:
U	10BaseT (UTP, RJ-45)
2U	2 × 10BaseT (UTP, RJ-45)

* Optional sub-E1/T1, analog voice or ISDN backup interfaces for E1/T1:
S	Sub-E1/T1
FXS	4 FXS voice channels
FXO	4 E&M voice channels
E&M	4 E&M voice channels
IBE	ISDN "S" interface
IBU	ISDN "U" interface

Notes:

1. *The second WAN option is not available when configuring E1/T1 with an ISDN backup.*

2. *The dual LAN configuration is not available when configuring E1/T1 with an ISDN backup.*

3. *The sub-E1/T1, FXS, FXO or E&M interfaces are available only with an E1 or T1 main link.*

OPTIONAL ACCESSORIES

CBL-530/V35/F
Adapter cable with one male DB-25 to one female 34-pin (V.35) connector

CBL-530/449/F
Adapter cable with one male DB-25 to one female DB-37 (V.36) connector

CBL-530T/21C/F
Adapter cable with one male DB-25 to one female DB-15 (X.21) connector

RM-17
Hardware kit for mounting one WEB RANger-II unit into a 19-inch rack