The 5842 and 5844 Multiport Routers

When price and performance count.

Main Benefits:

- Lowers cost of ownership through integrated routing, CSU/DSU, optional Quality of Service, and network monitoring capabilities
- Improves network reliability and performance through load sharing and load balancing in a multihoming environment
- Offers flexible interfaces that can be deployed as independent links or bundled into one or more MLPPP or MLFR bundles
- Supports broad range of routing protocols such as static routing, RIP1, RIP2, OSPF, optional BGP-4, IGMPv3, and GRE
- Reduces access cost by integrating NAT services for Internet access
- Better performance than many traditional branch office routers due to integrated hardware and software architecture

Quick Eagle Networks' 5842 and 5844 Multiport Routers are ideal for medium-sized businesses and enterprise branch offices that require high performance and high port density at lower cost.

The *5842 Multiport Router™* comes standard with 2 x T1/E1 WAN ports enabled. However, its unique design allows your network to grow with your business: it can be upgraded to 4 x T1/E1 WAN ports through software. No waiting for hardware, no engineering time to perform the upgrade, and no lengthy system downtime is required. The *5844 Multiport Router™* comes with all 4 T1/E1 WAN ports activated[1].

Both routers deliver all the functions that you need in a branch office router: The ability to configure static routes, and one or more dynamic routing protocols like RIP1, RIP2, OSPF, and optional BGP-4, enables the routers to link small and large enterprise networks with advanced IP routing services, such as multipaths and path redundancy.

Static NAT, dynamic NAT, and overloading (NAPT) lets you access the Internet using your private IP addresses. A stateful inspection firewall permits or denies access based on source and destination IP addresses. The embedded network performance monitoring features enable protocols and applications monitoring (RMON-1, RMON-2) and Frame Relay Service Level Verification.

Multilink PPP (RFC1990) and Multilink Frame Relay (FRF.16.1) protocols provide the 5842 and 5844 Multiport Routers with the capability to bond multiple T1/E1s into a single high-speed virtual link or enable load balancing applications. The 5842 and 5844 Multiport Routers can also be deployed as a MAC Learning Bridge (IEEE 802.1d) over Frame Relay or PPP.

With optional standard-based DiffServ QoS (Differentiated Services/Quality Of Service) capabilities the 5842 and 5844 Multiport Routers allow you to control and manage the bandwidth on your WAN connection, eliminating bottlenecks for your business-critical applications such as ERP and CRM. In addition, DiffServ QoS enables delay-sensitive voice and video-over-IP services, while dedicating enough bandwidth for lower priority traffic.

With their virtually wire-speed performance, scalability in routing protocols, breadth of features, and competitive pricing, there are now alternatives to those traditional, high cost, proprietary branch office routers.

[1] For customers looking to expand beyond 4xT1/E1 WAN ports, please refer to Quick Eagle's 5840 Multiport Router.

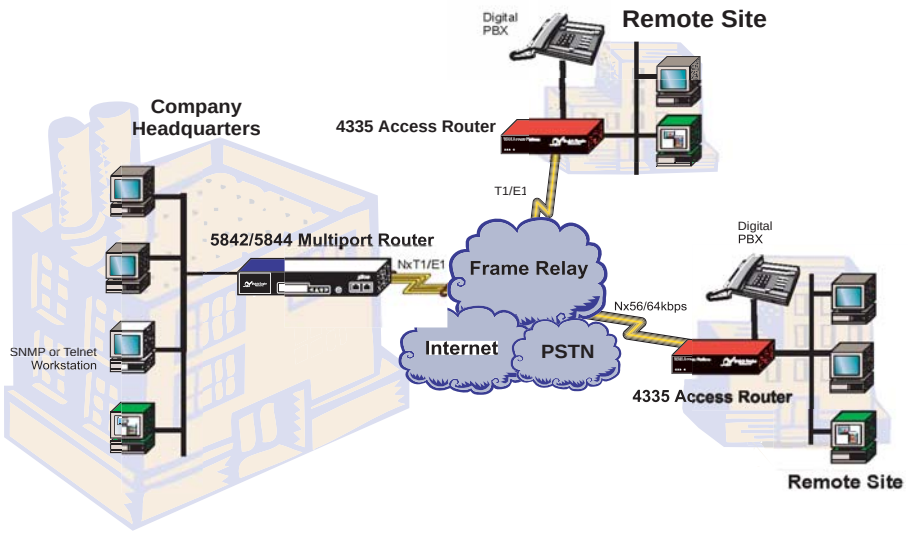
A sophisticated product architecture.

The 5842 and 5844 Multiport Routers provide the following features:

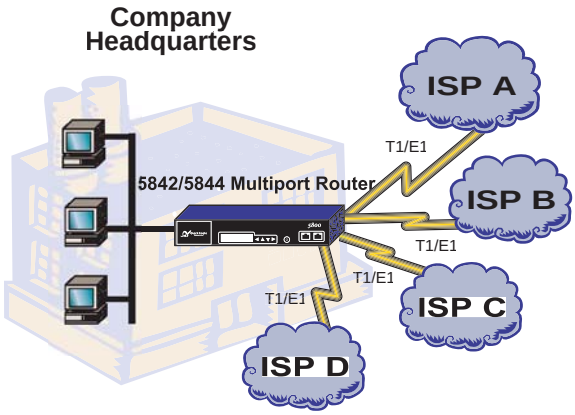
- Support for a wide variety of WAN protocols such as PPP, Frame Relay, Multilink PPP, Multilink Frame Relay FRF.16.1, and MAC Learning Bridging for point-to-point and point-to-multipoint applications to the Internet, private or public Frame Relay networks
- Advanced IP / Frame Relay Router capabilities with:
    - Standard-based IP-over-Frame Relay encapsulation, RFC-2427 compliant
    - Link Management Interface (LMI): ANSI AnnexD, ITU Annex A, and FRF Rev 1.0
    - Static and dynamic configuration of up to 1024 DLCIs
    - Static and dynamic mapping of DLCI to IP Subnets using InverseARP
- Dynamic routing protocols RIP1, RIP2, OSPF, and optional BGP-4 (I-BGP and E-BGP)
- Dynamic load balancing, using OSPF or optional BGP-4 (I-BGP and E-BGP)
- Optional DiffServ-compliant QoS capabilities:
    - Ability to assign maximum bandwidth to each traffic class
    - Traffic metering, shapes or drops “out-of-profile” traffic
    - Prevents lower classes of traffic from being bandwidth starved
    - Enables QoS per routing interface in incoming and outgoing direction
    - Novice user configuration with presets; advanced user to optimize resources and throughput; statistics reports on QoS
- Network Address Translation (NAT) and port translation (NAPT)
- Remote configuration and management through Telnet (Terminal User Interface menus), Command Line Interface (CLI), and SNMPv3
- MAC Bridging features: VLAN MPLS tag transparency
- Basic device configuration and T1/E1 loopback diagnostics through front panel
- Full range of network performance monitoring and troubleshooting features that enable you to accurately measure end-to-end performance of the network, including RMON-1 statistics, RMON-2 applications and protocol monitoring, and Frame Relay SLA FRF.13.
- Multilink Frame Relay (FRF.16.1) and MLPPP (RFC1990) support
- Stateful Inspection Firewall with TCP, UDP, ICMP, DNS, SMTP, FTP, and HTTP protocol handling capabilities
- Menu access for layer-3 and above statistics
- Multiple multilink bundles and support of MLPPP / MLFR bundle classes A, B & C
- Support of DHCP server and DHCP relay agent

The following diagrams show some of the applications supported by the 5842 and 5844 Multiport Routers:

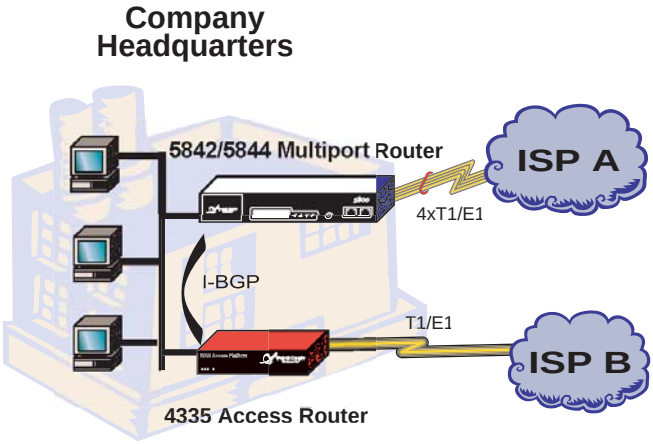
Application 1: Bundled voice, corporate Frame Relay and Internet access services



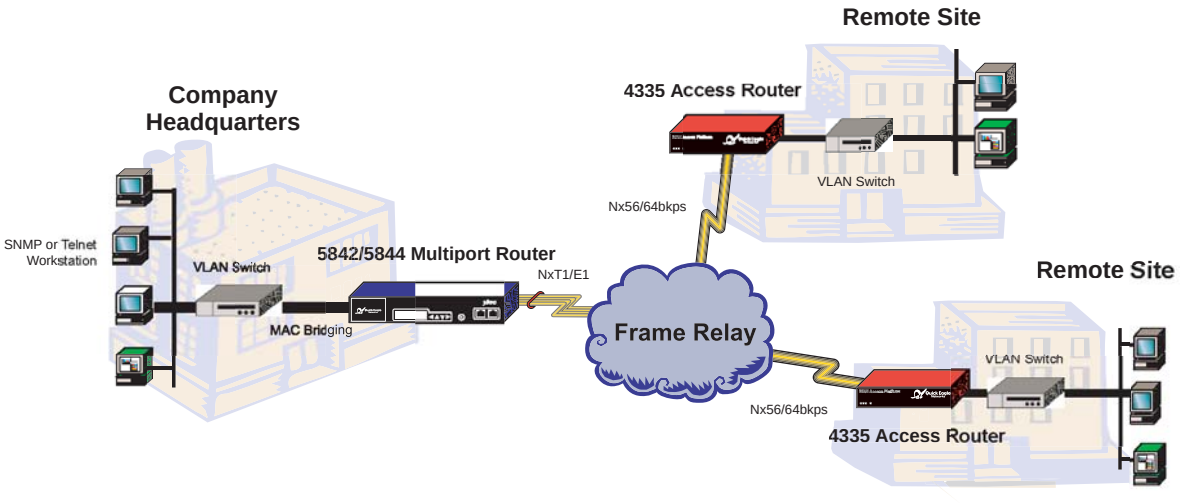
Application 2: Multihoming with independent ISP links between four ISPs using load balancing



Application 3: Multihoming with primary high bandwidth access



Application 4: Enterprise LAN extension services: Extending LANs and VLANs through the WAN networks



Common Features:

WAN Protocols

Independent Frame Relay or PPP links

Multilink Frame Relay FRF.16.1

MLPPP (RFC1990)

MAC Learning Bridge (IEEE 802.1d) over Frame Relay (RFC2427) or PPP

MPLS VLAN tag transparency and bridging

VLAN 802.1q

Multiple multilink bundles and support of MLPPP / MLFR bundle classes A,B & C

IP Based DiffServ QoS (Optional)

Standard-based DiffServ compliant (RFCs: 2475, 2597, 2598)

Priority queues (WRR, CBQ), Congestion control (WRED)

Six forwarding classes (EF, AF1, AF2, AF3, AF4, BE)
Traffic metering

Multifield classifier (Src/Dest IP address, protocols, and applications ports)

Frame Relay

UNI-U and UNI-N interfaces

1024 DLCIs

LMI: ANSI (Annex D), ITU (Annex A), and FRF Rev 1.0

Routing Protocols

Static routing

RIP1, RIP2, OSPF, optional BGP-4 (I-BGP and E-BGP)

IP Fast Forwarding

DHCP server, DHCP relay

IGMPv3, IGMP proxy, IGMP-PIM

VRRP, GRE

Security and Management

Classless IP addressing

NAT (1:1), NAPT (overloading, port translation)

Stateful Packet Inspection designed for ICSA compliance

Radius Authentication, Secure Shell (SSH)

Router Command Line Interface (CLI)

RFC-868 Time Sync and Local Time Zone capability

Performance Monitoring

RMON-1: PPP and Frame Relay adapted

RMON-2: Protocol directory, network layer host, protocol distribution, application layer host, network layer matrix, application layer matrix

Ethernet Interface

10/100 Base T

Connector: RJ-45 socket

Local Management

RS232C COMM Port (VT 100 emulation)

Connector: RJ-48C socket

Remote Management

Telnet (in-band and out-of-band via SLIP)

SNMPv3

Service Level Agreement Verification

Frame Relay SLA FRF.13 compliant:

Frame Delivery Ratio (FDR),

Data Delivery Ratio (DDR),

Frame Transfer Delay,

Service Availability

Physical

Dimensions: 1 RU, rack mountable

43.69 cm (17.2 in) W, x 40.64 cm (16 in) D, x 4.45 cm (1.75 in) H

Weight: 5.45 kg (12 lbs.)

Power Requirements

Voltage: 100 VAC to 240 VAC, 50-60 Hz or -40 VDC to -72 VDC (both on the same platform)

Consumption: 30W maximum

Model Specific Features:

Model	5842/5844 T	5842/5844 E
Network Interface		
Ports	2xT1 ANSI T1.403 ports, max. 4xT1	2xE1 G.703 ports, max. 4xE1
Line Rate	T1 (1.544 Mbps ± 50 bps)	E1 (2.048 Mbps ± 50 bps)
Connector Type	100 ohm RJ-48C socket	120 ohm RJ-48C socket
Line Code	B8ZS	HDB3
Framing	ESF	ITU-T G.704/CTR 12
Output Level	0 db, -7.5 db, or -15 db LBO or DSX-1	ITU-T G.703/CTR 12
Input Level	DSX -1 to -26 db	0 to 20 dB
System Timing	T1 Network, internal, external T1 source	E1 Network, internal, external E1 source
Regulatory	FCC Part 15, FCC Part 68, UL 1950 Third Edition, Industry Canada CS-03 VCCI Class 1 CAN/CSA C22.2 No. 950-95	European harmonized standards 73/23 EEC, 91.31/EED, 89/336/EED, 93/68/EEC, and 91/263/EEC; UL 1950 3rd Ed.; CAN/CSA C22.2 No. 950-95; Comision Federal de Telecommunica-ciones; CISPR 22 Level B (EN 55022)
Diagnostics		
Loopback Tests	T1 network, T1 payload, fractional T1 payload, loop-up/loop-down commands	E1 network, E1 payload, fractional E1 payload, loop-up/loop-down commands
Loopback Control	T1 set/reset codes, ESF FDL per AT&T 54016 and ANSI T1.403 Annex B	E1 set/reset codes
Test Patterns	1:1, 1:2, 1:4, 1:7, 3:24, QRW, all 0s, all 1s, two user-programmable 24-bit patterns bit error injection	1:1, 1:2, 1:4, 1:7, 3:24, QRW, all 0s, all 1s, two user-programmable 24-bit patterns bit error injection
Network Alarms	Loss of signal, loss of frame, remote alarm indication, alarm indication signal, CRC6, BPV, OOF	Loss of signal, loss of frame, remote alarm indication, alarm indication signal, CRC4, CV, FE
Front-panel Status VFD and tri-color LED	Power/test, network line status, network loopback, loopback acknowledge, IP address, SW version level	Power/test, network line status, network loopback, loopback acknow-ledge, IP address, SW version level
Bantom test jacks	Non-intrusive monitor send/receive selectable per T1 line	Not applicable
Environmental		
Operating Temperature	0º - 50º C	0º - 50º C
Storage Temperature	-20º - 60º C	-20º - 60º C
Relative Humidity	0 - 95% non-condensing	0 - 95% non-condensing
Maximum Altitude	4.6 Km (15,000 ft)	3.05 Km (10,000 ft)

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