

Chapter 1

Overview

The Broadband Access Network Device for Intelligent Termination™, also known as the BANDIT™, provides a strong combination of security, diagnostics, and network management features for Virtual Private Network (VPN) applications.

The BANDIT was the original model in the BANDIT product family. This product family now includes the BANDIT, the BANDIT IP, the BANDIT Mini, the BANDIT Plus, the IBR-10, the ILR-100, the VSR-30, the VSR-1200, and the ROHS-compliant BANDIT II and BANDIT III.

Note: This information in this document applies to all BANDIT chassis except the BANDIT II, the BANDIT III, and the VSR-1200. For information about those products, see the *BANDIT II™, BANDIT III™, and VSR-1200™ Document Set*.

When a VPN requires tunnel termination between the central office and its remote user sites, the original BANDIT, the BANDIT IP, the BANDIT Mini, the ILR-100, or the VSR-30 can terminate up to 30 tunnels at remote locations. The BANDIT Plus can terminate up to 100 tunnels. (The IBR-10

does not perform VPN; however, it can use GRE encapsulation to protect data privacy.)

Access to Encore Networks' extensive protocol library provides seamless connection to the Internet. And the BANDIT's automatic dial backup feature guarantees reliable network performance. [Figure 1-1](#) illustrates a typical application in which the BANDIT plays an integral part.

Note: The information in this chapter highlights the information in the overview chapter of the *BANDIT Products Software Configuration and Maintenance Guide*. For more overview information, see that document.

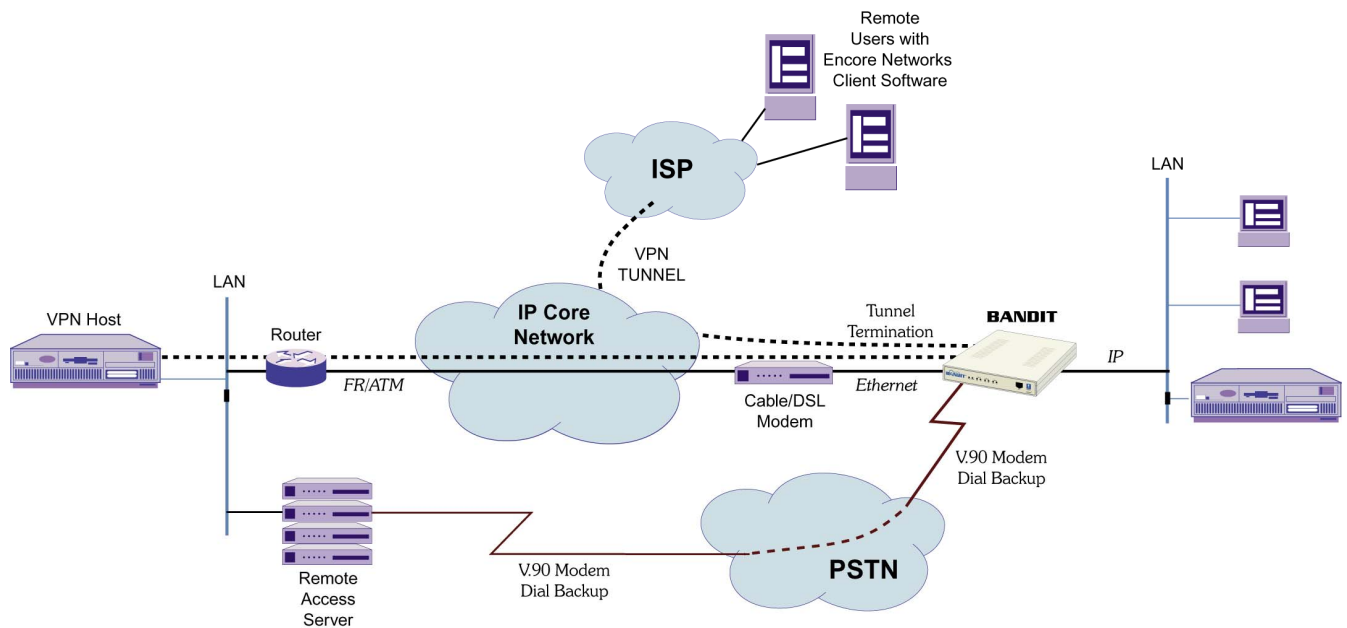


Figure 1-1. Typical VPN Network Application

1.1 Features

All products in the BANDIT family, except the IBR-10, perform VPN. All products in the BANDIT family, except the BANDIT IP and the VSR-30, perform legacy-to-IP protocol encapsulation. The BANDIT product family provides a rich array of features:

- Hardware-assisted VPN security options
- Auto-initiated dial backup

- Extensive statistics for network monitoring
- Remote datascope for port capture
- Generic management capability via comprehensive SNMP and intelligent traps that guarantee data delivery
- Remote software control of clock source (internal clocking or loop-timed clocking) from the network
- RS-232, RS-422, X.21/V.11, and V.35 (with EIA-530 pinout) interface support (DCE or DTE) on all serial ports
- Direct Ethernet connection via 10-Base-T, 10/100-Base-T, or 100/1000-Base-T RJ-45 connectors
- CDMA, GPRS GSM, and EDGE GSM wireless connection
- Data routing over IP (Encapsulates specific protocols within IP packets and routes the IP packets to destination IP addresses.)
- Data routing over Frame Relay (Encapsulates and routes specific protocols over DLCs according to protocol addresses.)
- On the dual T1/E1 expansion port module (available for the BANDIT Plus chassis): Drop-and-insert capability for transmission of data packets and voice packets over a common T1 or E1 line
- Support of legacy protocols transported over IP or Frame Relay
- Dedicated local Supervisory port with menu-driven interface
- Remote configuration and management via Telnet or SNMP, accessed through any IP data stream into the unit
- Multiple levels of password protection
- Reception and transmission of ping in IP environments
- Maintenance of configuration in non-volatile memory, to recover from power outages
- Inclusion of Flash memory to allow easy upgrades
- Connection to external low-voltage power supply for adaptability to 100V AC to 240V AC sources

In addition, the BANDIT products allow you to connect virtually any data communications equipment to access Frame Relay network services. In this way, you can extend the useful life of installed applications and equipment that do not support direct connection to a Frame Relay network.

1.2 **Functionality**

The BANDIT products support IP, Frame Relay, PPP, and X.25. All models that use a modem support a V.90 modem. (The BANDIT II and the BANDIT III can support a V.90 or V.92 modem.) The original BANDIT, the BANDIT IP, the BANDIT Mini, the ILR-100, and the VSR-30 can each initiate or terminate up to 30 tunnels as part of a Virtual Private Network. The BANDIT Plus can initiate or terminate up to 100 VPN tunnels. In addition, each of these chassis supports VPN clients for connection from temporary or permanent remote sites.

The BANDIT, BANDIT IP, and BANDIT Plus can function as any of the following devices:

- Network access device (using its FRAD functionality) to support legacy protocols¹
- IP router
- IP firewall
- Terminal server
- VPN gateway²
- Wireless connectivity³

1.2.1 **The Networking Environment**

The BANDIT products that support legacy-to-IP protocol encapsulation¹ can operate in a broad range of communications environments and can support a wide variety of applications—for example:

- Users with IBM equipment using Synchronous Data Link Control (SDLC) protocol can enjoy the benefits of higher speed, greater reliability, and substantially reduced line costs inherent in most Frame Relay networks.
- Local Area Network (LAN) users can take advantage of built-in IP routing. Multi-port units allow legacy applications such as SNA and asynchronous traffic to be carried along with LAN internetworking traffic through a single Frame Relay network interface.

1. All products except the BANDIT IP and the VSR-30 can support legacy protocols. (A product may need to use a serial expansion port or an RDU to provide legacy-protocol support.)

2. All products except the IBR-10 support VPN functionality.

3. All products except the IBR-10 support wireless connectivity.

- The BANDIT products can use generic route encapsulation (GRE) to carry Frame Relay over the Internet Protocol (IP). With this feature, all legacy protocols that Frame Relay can carry can travel over IP networks, including the internet.
- Equipment using asynchronous protocols through dial back-up modems, such as Unix-to-Unix Copy Program (UUCP), can be connected through a highly reliable digital Frame Relay interface, which can be configured for speeds up to 115.2 kbps.
- Users with an investment in X.25 networking equipment have two options:
 - They can use X.25 as a network protocol in the unit, assigning VCs to Data Link Connection Identifiers (DLCIs) in order to direct data through the network.
 - They can replace the underlying X.25 network with lower-cost, higher-performance Frame Relay service by using the unit to maintain an X.25-compatible interface to the terminal equipment (using the Annex G capability provided in the unit).

1.2.2 Encapsulation, Routing, and Protocol Emulation

The BANDIT provides three levels of support—encapsulation, routing, and protocol emulation—depending on the specific protocol being carried. For details, see the *BANDIT Products Software Configuration and Maintenance Guide*.

1.2.3 Virtual Private Networks

The BANDIT products (except the IBR-10) support IPsec, DES, and 3DES for a virtual private network (VPN). The BANDIT II, the BANDIT III, and the VSR-1200 also support AES.

The maximum number of local tunnel initiations and terminations is 30 tunnels for the BANDIT-IP, the original BANDIT, the BANDIT Mini, the ILR-100, and the VSR-30. The BANDIT Plus can support 100 tunnels.

The BANDIT products use Encore Networks' Selective Layer Encryption™ (SLE™, patent pending) to optimize use of VPNs with the performance-enhancing proxies (PEPs) of satellite networks.

Each BANDIT product uses an MPC 180 chip for hardware assistance. For more information on using the BANDIT products in VPNs, see the *BANDIT Products Software Configuration and Maintenance Guide*.

1.2.4 Firewall Security Protection

The BANDIT products support firewall security protection. See the *BANDIT Products Software Configuration and Maintenance Guide* for details.

1.2.5 TCP/IP Environments

The BANDIT accepts both native IP traffic from a direct Ethernet connection and IP data encapsulated in async/sync PPP (RFC 1331) or SLIP (RFC 1055). IP traffic is encapsulated according to the RFC 1490 standard. The encapsulated packets are then routed based on IP addressing.

In addition, the BANDIT can convert IP over PPP to IP over Frame Relay, which provides non-Frame Relay routers with a means of accessing Frame Relay networks.

The BANDIT products can also use generic route encapsulation (GRE) to carry Frame Relay frames within IP packets. This allows Frame Relay networks another route into IP networks, including the internet.

1.2.6 Frame Relay

Transporting data over a Frame Relay network has many benefits:

- Can carry many connections over a single line.
- Shares bandwidth with multiple applications and/or call sessions.
- Can handle bursty traffic.
- Provides high speed and low delay similar to Time Division Multiplexing (TDM).
- In some areas, access (not based on amount of usage) to public Frame Relay services usually costs less than leased lines.

The BANDIT products provide a cost-efficient means for connecting legacy equipment to a Frame Relay network by translating protocols into a format that can be transmitted over a Frame Relay network. After the BANDIT translates the data, it routes the data across the Frame Relay network to another unit or Frame Relay-compatible device. When the data reach the destination device, they are translated back to the original protocol.

Some products can also concentrate and switch multiple sources of Frame Relay traffic simultaneously.

1.3 Network Management

The BANDIT provides a way to monitor important Frame Relay, IP, and other information. You can establish network management as follows:

- The supervisor port is an RS-232 DCE interface that allows you to connect a PC or other terminal so that you can configure and monitor the BANDIT.
- Using Telnet or HyperTerminal, you have full access to configuration menus and statistics. Local or remote password-protected access is available from the BANDIT device's WAN or LAN port.
- The SNMP agent includes MIB extensions, TRAPs for dynamic alarms, port capture, and guaranteed trap delivery.

1.4 Models

The BANDIT is available in the following models:

- The original BANDIT™ is the original tabletop model.
- The BANDIT IP™ is a streamlined tabletop model.
- The BANDIT Plus™ is a full-featured rackmounted model.
- The BANDIT Mini™, a miniature desktop model, provides VPN and legacy-to-IP support. It connects to DC input power.

Other products in the BANDIT family include the following:

- Encore Networks' IP Routers, which support transport of legacy protocols over IP. The following models are available:
 - The IBR-10™, a legacy-to-IP router, is a tabletop model.
 - The ILR-100™, a legacy-to-IP router, is a miniature desktop model. (This model can also support VPN. Contact your Encore Network sales representative if you wish to include this feature.)
- The VSR™ series, providing IPsec VPN gateways to support transmissions over satellite networks or ground-based networks, or both. The following VSR models are available:
 - The VSR-30™ is a streamlined tabletop model.
 - The VSR-1200™. (Please see the *BANDIT II*, *BANDIT III*, and *VSR-1200 Document Set* for information about the VSR-1200.)

In addition, a Remote Data Unit™ (RDU™), an optional peripheral device for use with the BANDIT Plus or the VSR-1200, provides 12 serial ports for additional functionality.

For more information on these BANDIT models, see [Section 2.1.1, BANDIT Chassis Models](#).

Note: The BANDIT family also includes newer models—the BANDIT II, the BANDIT III, and the VSR-1200. For information on these chassis, see the *BANDIT II™, BANDIT III™, and VSR-1200™ Document Set*.

Note: The BANDIT documents use the term “original BANDIT” to refer to the original chassis. The documents use the general term “BANDIT” to refer to all chassis in the BANDIT family, unless otherwise noted.
