



Product Brief

Nortel Secure Router 4134

A unified communications integrated branch solution

Give your employees a high quality of experience, regardless of which applications or services are enabled across the network.

Consolidate branch networking functions into fewer integrated devices to reduce network complexity and streamline capital and operational costs.

Do it all with a powerful modular system that converges routing, security and unified communications services in a single, competitively-priced platform.

The Nortel Secure Router 4134 is a modular, multi-service platform that integrates multiple networking functions, including routing, WAN, Ethernet switching, security and Voice over IP (VoIP) into a single device. The platform's design ensures the consistently high throughput required by voice, data or unified communications applications. It also features an embedded server module to simplify deployment of unified communications

applications. This multi-service integration can reduce the number of devices needed at the branch or regional site, generating substantial operational and capital cost savings for your business.

As part of Nortel's Secure Router family, the 4134 delivers the same superior low latency and small packet throughput as provided by other Secure Router models

— and as demanded by real-time voice and multimedia applications. The Secure Router 4134 offers the performance and connectivity that enable it to not only handle the demands of the integrated branch, but also act as the regional or headquarters router for many enterprises. In doing so, it can cost-effectively and securely concentrate traffic from hundreds of remote sites.

Features

Multi-service platform

- > Full IPV4/IPV6 routing, IPSec, VLAN and firewall
- > Voice media gateway services, including support for digital and analog trunks, analog phones, fax machines and modems
- > Wide range of WAN connectivity, including DS3, HSSI, Channelized DS3, T1/E1, ISDN, Serial and ADSL2+
- > High-density Ethernet switching with built-in Power over Ethernet (PoE)

Voice Media Gateway

- > Range of integrated voice interfaces — including T1/E1 PRI, BRI, FXS/DID and FXO/CAMA — enable connection to the PSTN or analog telephony devices
- > SIP survivable gateway ensures business continuity for SIP devices
- > Up to 128 simultaneous voice (DSP) channels can handle voice gateway needs of small to large branch sites

Integrated Unified Communications (UC) Services

- > Integrated server module allows hosting of UC applications, including Nortel's Software Communication System (SCS) and Microsoft OCS Mediation Services
- > All-in-one communications solution that can reduce costs and simplify network operations

Robust routing

- > Low-latency, high-packet throughput ideal for VoIP and multimedia transport
- > IPv4 or IPv6 with BGP-4 and Multicast services (PIM-SM, DVMRP)

Integrated security

- > Stateful packet inspection firewall
- > VPN hardware acceleration and IPSec VPN services for secure voice and data transport



Nortel Secure Router 4134

Integrated Unified Communications Services for Microsoft and Nortel

The Secure Router 4134 can uniquely host unified communications (UC) services on a dedicated co-processor module — allowing these services to be combined with the Secure Router 4134's voice media gateway, routing, switching and security functions in a single integrated device. This combination can simplify operations and is ideal for enterprises considering deploying UC services to their branch or remote sites. The Secure Router 4134 supports hosting of either Microsoft Office Communications Server (OCS) or Nortel Software Communication System (SCS) unified communications software. For Microsoft OCS, the Secure Router 4134 provides OCS mediation services functions, allowing Microsoft OC clients to gateway to the PSTN or to other non-OC clients. For Nortel SCS, the Secure Router 4134 hosts call server, unified messaging, conferencing and presence applications for up to 250 SCS users, while being able to simultaneously provide voice PSTN gateway, data and security services to the SCS user community.

Voice media gateway services

The Secure Router 4134 can connect to the PSTN as well as support conventional TDM-based telephony devices through a set of integrated voice interfaces. T1/E1, FXS and FXO interfaces are all available for flexible telephony connection. With its integrated media gateway services, the Secure Router 4134 can connect local IP phones, SIP clients as well as analog telephony devices directly to the PSTN, eliminating the need to route voice traffic back to a central site, saving on transmission costs. Secure Router 4134 media gateway services are also interoperable with Nortel's Communication Server 1000/2000/2100, Microsoft OCS and other third-party SIP call servers, including Broadsoft, for additional telephony deployment options.

Survivable SIP gateway

The Secure Router 4134 supports a survivable SIP gateway feature that facil-

itates connectivity of SIP-based registered clients, allowing enterprises to take full advantage of VoIP and other advanced SIP services. This feature further provides business continuity (or survivability) for SIP devices via failover to the Secure Router's PSTN interfaces in case of loss of the primary IP connection.

Reliable performance for converged branch applications

The Secure Router 4134 is a dependable solution that can be deployed in a variety of configurations to maximize uptime with no single points of failure. Data, voice, video and other multimedia applications perform more smoothly without the latency, packet loss and jitter encountered with other solutions, resulting in the ability to provide the same enterprise-class service and quality of experience to remote sites and branch offices as is available at corporate headquarters.

Robust routing

Routing services include a full IPv4 and IPv6 protocol set, including BGP-4 and multicast capabilities. A full-function IPv6 implementation also enables deployment into environments that require extended IP addressing with the same routing services — all without any additional system memory requirements.

Integrated Ethernet switching

Integrated high-density Ethernet switching, including Gigabit, Fast Ethernet and Power over Ethernet (PoE) connectivity, enables flexible connection of local area network (LAN) devices, such as powered services for IP telephony devices. A variety of Ethernet switching modules enables up to 54 Gigabit, 72 Fast Ethernet or 72 PoE ports. The Ethernet switch ports can operate at either Level 2 or Level 3, enabling dynamic connectivity of devices and subnets across your network.

Integrated security

Powerful, fully-integrated security features include VPN and firewalls for increased reliability and user confidence. Capabilities include stateful packet firewall, detection and prevention of more

than 60 Distributed Denial of Service (DDoS) attacks, VPN hardware acceleration for hub and spoke deployment over IPSec and VPN tunnels, and IPSec VPN data-encryption services with AES, 3DES, DES, SHA-1, MD-5 and Diffie-Hellman support.

Advanced quality of service

Quality of service goes beyond Layer 3 flow-based support by including Layer 2 class-based queuing. The highest granularity of priorities (eight levels) provides maximum performance with the lowest latency for voice, video and other high-priority traffic while guaranteeing bandwidth among all classes.

Multi-link capabilities

Secure Router 4134 provides best-in-class MLPPP and MFR (FRF.16 and FRF.15) support to allow bonding of T1/E1, T3 and other WAN interfaces to create a single virtual interface capable of transmitting at the maximum bandwidth available. Multi-linking enables hassle-free bandwidth scalability, high-speed video, voice and data transfer while securing connectivity from individual link failures.

Simple to install, simple to scale modular platform

The Secure Router 4134 provides advanced operational features while simplifying, or eliminating, time-consuming and confusing installation tasks. The router's unique chassis has four small module slots and three medium ones to support the dynamic demands of growing businesses. Four small slots support low-density data or voice modules. Medium slots can be used for WAN, Ethernet or voice carrier modules. A voice carrier module also hosts up to four small voice modules (FXS or FXO) in a single medium module slot and can thereby increase total voice port capacity. The modular and flexible Secure Router 4134 can support:

- Up to 72 Power over Ethernet 10/100 Mbps ports
- Up to 58 Gigabit Ethernet switching ports
- Up to 64 FXS or FXO ports
- Microsoft Mediation Services Module

- Up to 3 Clear or Channelized DS3/T3 ports
- Up to 31 T1/E1 ports
- Up to 7 Serial or ISDN BRI/PRI ports
- Up to 3 HSSI ports
- Up to 4 ADSL2+ ports

Management

The Secure Router 4134 employs an industry-aligned command line interface (CLI) that makes it easy to set up and manage. Features include:

- On-Premise, Console and Command Line Interface; Telnet, Events, Syslog
- Remote SSHv2 provides secure communication for configuration and maintenance

The Secure Router family

The Secure Router 4134, with its modular design, high throughput and reliable performance, is complemented by Nortel's Secure Router 1000, 2330 and 3120 family of products. Deployed in combination with these other Secure Router models, the Secure Router 4134 can connect remote sites and also act as a central-site router for most enterprises.

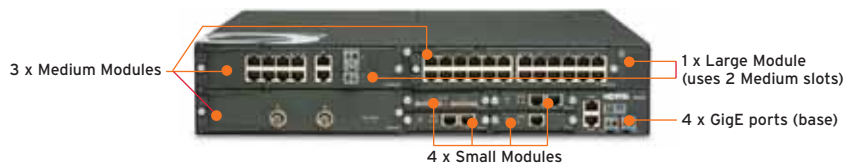
An easy choice

Secure Router 4134 is a high-performance branch convergence solution that brings together feature-rich VoIP and feature-rich data into a common platform for simplified management, greater cost savings and a high quality of user experience.

A unified communications-ready platform

The Secure Router 4134 is designed to deliver highly-reliable unified communications and voice gateway functions, including support for both Microsoft and Nortel environments. The Secure Router 4134 notably integrates Microsoft Mediation technology enabling Microsoft OC clients in the branch to communicate with other SIP or analog-based devices through the Secure Router 4134. The Secure Router 4134 can also host Nortel's Software Communication System (SCS) application suite and provide full UC services for up to 250 users along with voice gateway and data connectivity. This integration can benefit enterprises who want to extend unified communications applications to their remote sites while eliminating the need for multiple network devices. With its high performance, reliability and flexibility, the Secure Router 4134 delivers on the promise of a leading-edge integrated unified communications platform for the branch.





Secure Router 4134 modular options








Multislot chassis with 4 10/100/1000 Mbps Ethernet ports (2 UTP + 2 SFP), console/AUX port, USB and compact flash, redundant AC or DC power.

- > Supports up to 3 medium modules
- > Supports up to 4 small modules
- > Supports 1 large module

Medium Modules:

-  8-port T1/E1 (software selectable)
-  1-port Channelized T3/DS3
1-port Clear Channel T3/DS3
-  1-port High-Speed Serial Interface (HSSI)
-  10-port 10/100/1000 Mbps Ethernet
-  24-port Power over Ethernet
24-port Fast Ethernet
-  Mediation Services Module for OCS
Server Module with SCS
-  Carrier Module for Voice
Hosts up to 4 x FXS or FXO modules
(photo shows carrier module with 4 voice modules installed)

Small Modules:

-  1-port T1/E1
2-port T1/E1
-  2-port ISDN BRI S/T
2-port ISDN BRI U
-  1-port Serial
2-port Serial
-  2-port FXS/DID
4-port FXS/DID
-  2-port FXO/CAMA
4-port FXO/CAMA
- 1-port ADSL2+ (picture not shown)

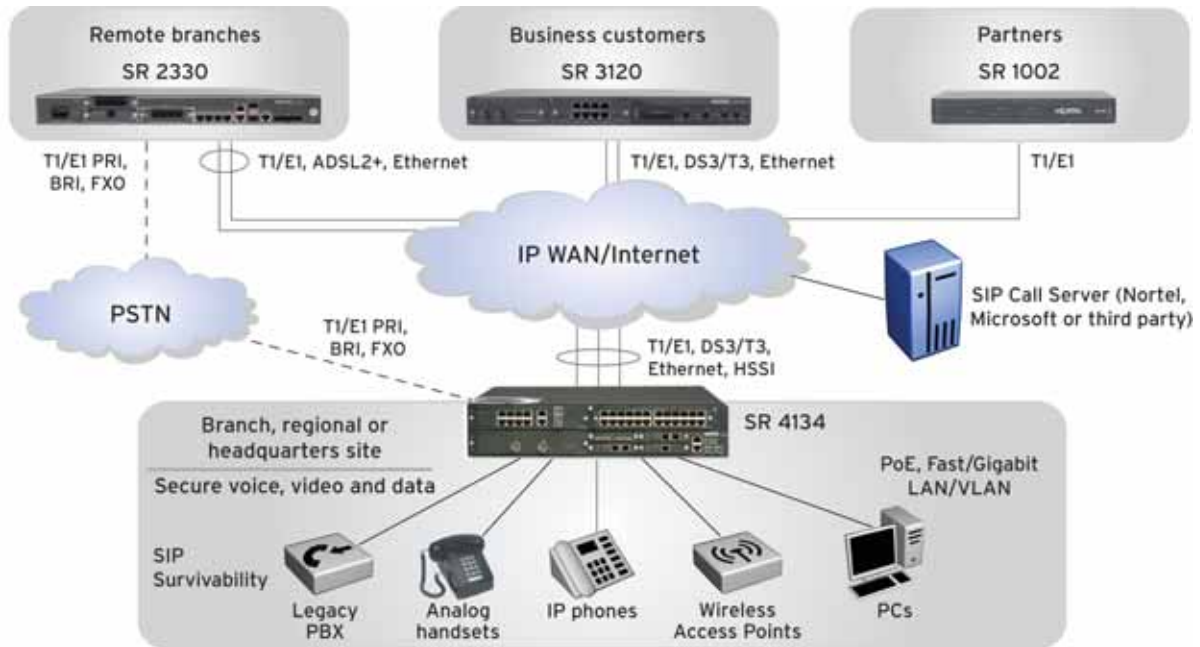
Large Module:

44-port 10/100/1000 Mbps Ethernet



Figure 1. Branch/remote office architecture with Secure Router 4134

The Secure Router 4134 provides high-quality data, voice and multimedia performance with advanced security features, low total cost of ownership, flexible deployment options and fast, reliable application delivery. It can be deployed along with other Secure Router family products for remote site WAN connectivity.



Secure Router 4134 technical specifications

Features

Internet Routing

- IPv4 and IPv6 support, including IPv4-IPv6 tunnels
- Static routing, RIPv1/2, RIPng for IPv6, OSPFv2 and v3, BGP4/4+
- Policy-based routing
- Inter-VLAN routing
- High availability: VRRP, redundant router connections
- GRE and IP-IP Tunneling

Ethernet LAN

- 10/100 Base-TX
- 10/100/1000 Base-TX
- 1000 Mbps Optical SFP
- IEEE 802.1x port authentication
- IEEE 802.1p
- IEEE 802.1Q
- IEEE 802.3ad LACP
- IEEE 802.1s MSTP
- IEEE 802.3x VLAN
- GVRP
- Port mirroring
- Jumbo frames
- Ethernet Connectivity Fault Management (CFM)

WAN

- T1/E1, including ISDN PRI
- ISDN BRI (U and S/T), both data and voice
- ADSL2+ (Annex A and B)
- High-Speed Serial Interface (HSSI)
- DS3/T3 – Channelized with 28 DS1/T1 (1.544 Mbps) multiplexed circuits
- DS3/T3 – Clear-Channel with sub-rate DS3 support
- Serial (V.35, RS-232/V.28, RS-449/V.11, EIA-530/A and X.21/RS-422)
- Point-to-Point Protocol (PPP), including PPP over Ethernet (PPPoE)
- Frame Relay (including FRF.12 fragmentation)
- HDLC
- Bridge Control Protocol (BCP)
- Multilink PPP (MLPPP)
- Multilink Frame Relay (MFR), including FRF.15 and FRF.16

IP Multicast

- IGMPv1/2/3 for IPv4; MLDv1/2 for IPv6
- IGMP Proxy
- IGMP Snooping
- PIM-SM for IPv4/v6
- DVMRPv3 for IPv4

Secure Router 4134 technical specifications

MPLS Label Edge Routing (LER) services

- Label Distribution Protocol (LDP)
- RSVP-TE, OSPF-TE
- MPLS Fast Reroute
- MPLS Martini Pseudo-wire (Ethernet, PPP, HDLC over MPLS)

Quality of Service/Traffic Management

- RED, WRED, DiffServ, bandwidth guarantee/sharing, flow monitoring, traffic policing
- 8 level Priority Class Based Queuing
 - Per IP address/subnets, ports, DSCP and ToS bits, VLAN ID (802.1Q), VLAN Priority (802.1p)
- Frame Relay traffic shaping and policing
- VLAN Classification (port, subnet or protocol-based)

Firewall

- Stateful Packet Inspection Firewall
- 25-zone support (including Corporate, Internet, DMZ)
- Access Control Lists (ACL)
- NAT, including policy-based NAT/PAT
- 60+ Distributed Denial of Service (DDoS) Attack Preventions
- 30+ ALG support (including H.323/SIP)
- Pass through IPSec, L2TP, PPTP

Voice signaling support

- T1/E1 ISDN PRI (User side)
- ISDN BRI (User side)
- T1 CAS
- E1 R2 CAS
- Q Signaling (QSIG)
- FXS (Foreign Exchange Station)
- FXO (Foreign Exchange Office)
- Direct Inward Dialing (DID)
- Centralized Automated Message Accounting (CAMA)
- Emergency calling

SIP survivability features

- SIP proxy and registrar functionality
- Inbound/outbound PSTN dialing
- Local dialing within the branch
- E911

Codecs supported

- G.711 - A-law and u-law
- G.726 - 16, 24, 32 Kbps
- G723.1 - 5.3, 6.3 Kbps
- G.729A - 8 Kbps

DSP features

- TDM to IP, IP to TDM conversion
- ITU G.168 Echo Cancellation
- Voice Activity Detection/Comfort Noise Generation
- DTMF digit detection
- Caller ID generation and detection
- T.38 fax relay / Fax and Modem Pass-through
- Up to 128 DSP channels

“VoIP-friendly” features

- Low-latency packet forwarding
- SIP ALG for NAT and Firewall
- Cone NAT (for Nortel UNISim protocol) with NAT hairpinning
- Frame Relay fragmentation (FRF.12)
- Compressed RTP (cRTP)

VPN

- Optional VPN acceleration hardware
- IPSec VPN
- DES / 3DES, AES, SHA1, MD5
- Nortel VPN Client support
- NAT-Traversal
- 1000 VPN tunnels

Service provisioning

- Management: Telnet, SSHv2, SFTP, PAP, CHAP, SNMPv2, DHCP, DNS Proxy, SNTP, RADIUS, TACACS+
- Monitoring: Syslog, statistics, RMON, alarm
- Diagnostics: BERT, loopback testing, trace route, packet capture (PCAP)

Physical specifications

Chassis

- Height x Width x Depth: 3.5” H x 17.3” W x 19.7” D
- Weight with Power Supply: 22 lbs (10.0 kg)
- Chassis Slots:
 - 3 medium module slots
 - 4 small module slots
 - 1 large module slot (combining 2 medium slots)
 - All slots are hot swappable
- 2 x 10/100/1000 Ethernet copper / 2 x GigE SFP Fiber ports
- Management ports:
 - Compact Flash
 - USB
 - Fast Ethernet
 - Auxiliary and Console ports RJ-45

Redundant power options

- AC Power Supply – 50-60 Hz 90-269 VAC, 250 Watts
- AC Power Supply with PoE – 50-60 Hz 90-269 VAC, 250 Watts; separate +54VDC supply isolated from main AC supply: AC input between 90 and 269 VAC, 410 Watts.
- DC Power Supply – 40 to 72 VDC, 250 Watts

Environmental

- Operating temperature: 32° to 104°F (0° to 40°C)
- Relative humidity: 0 to 95% (non-condensing)

Regulatory approvals

- Safety: CTUVus and GS Certification: UL60950-1, EN60950-1 and IEC60950-1 (International CB Report)
- EMC: Class A Product, FCC Part 15, ICES-003, EN300386, EN550022, EN55024, VCCI
- Telecom : TIA-968-A, CS-03, ETSI TBR 3/4, 12/13, JATE, A-Tick

Secure Router 4134 ordering information

Nortel Order Code	Description	Nortel Order Code	Description
Base Unit		Medium Modules	
SR0000?002E5 *	Secure Router 4134 chassis, operating software, 128 MB Compact Flash, 1GB DDR RAM, fan tray, and dual AC NON-PoE power supply. Power cord included as designated below.	SR0000011E5	8-port T1/E1 module
SR0002?002E5 *	Secure Router 4134 chassis, operating software, 128 MB Compact Flash, 1GB DDR RAM, fan tray, and single AC PoE power supply. Power cord included as designated below.	SR0000013E5	1-port Channelized T3/DS3 module
SR0002?003E5 *	Secure Router 4134 chassis, operating software, 128 MB Compact Flash, 1GB DDR RAM, fan tray, and dual AC PoE power supply. Power cord included as designated below.	SR0000014E5	1-port HSSI module
SR0005?005E5 *	Secure Router 4134 chassis, operating software, 128 MB Compact Flash, 1GB DDR RAM, fan tray, and single AC NON-PoE power supply. Power cord included as designated below.	SR0000015E5	24-port 10/100 Fast Ethernet Switch module
* ? = power cord type (see table at right)	A = No power cord B = Euro power cord (10A/200-230V) C = UK/Ireland power cord (10A/240V) D = Japan power cord (7A/100V) E = North America power cord (10A/110-120V) F = Australia power cord (10A/240V) H = India and South Africa power cord (10A/220-230V)	SR0000016E5	24-port 10/100 Fast Ethernet PoE Switch module
		SR0000017E5	10-port 10/100/1000 Gigabit Ethernet Switch module
		SR2104018E5	1-port Clear Channel T3/DS3 module
		SR0000051E5	UC Mediation Services module for OCS
		SR0004002E5	4-slot Carrier module for Voice
		Server Modules (use a medium module slot)	
		SR0000051E6	Mediation Services module for Microsoft OCS
		SR4309001E6	Server module with Software Communication System (SCS) / 50-user SCS license included
		SR4304004E6	Server module with Software Communication System (SCS) / no SCS user licenses
		Large Module	
		SR0000018E5	44-port 10/1000/1000 Gigabit Ethernet Switch module
		VPN Encryption	
		SR0000025E5	IPSec VPN Encryption module 1000 IPSec Tunnels
		Packet Voice Module	
		SR3704001E6	Packetized Voice (DSP) module (8 voice/fax channels activated).
		SR4304001	Software upgrade license for 16 voice/fax channels
		SR4304002	Software upgrade license for 32 voice/fax channels
		SR4304003	Software upgrade license for 64 voice/fax channels
		SR0000052	Software upgrade license for 128 voice/fax channels
		SR3716002	SIP Survivability Mode (SSM) upgrade license to 100 users (25-user SSM license in base router s/w)
		SR3716006	SIP Survivability Mode (SSM) upgrade license to 300 users (25-user SSM license in base router s/w)
		Small Modules	
SR0000005E5	1-port T1/E1 module / supports ISDN-PRI		
SR0000006E5	2-port T1/E1 module / supports ISDN-PRI		
SR0000007E5	1-port Serial module		
SR0000008E5	2-port Serial module		
SR0000009E5	2-port ISDN BRI (S/T) module		
SR0000010E5	2-port ISDN BRI (U) module		
SR0000042E5	2-port FXO module		
SR0000044E5	4-port FXO module		
SR0000046E5	2-port FXS module		
SR0000048E5	4-port FXS module		
SR0004060E6	1-port ADSL2+ Annex A module		
SR0004061E6	1-port ADSL2+ Annex B module		

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NN122081-092509

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