

RESILIENT, AVAILABLE AND AFFORDABLE DESKTOP SWITCHING



NORTEL

Product Brief

Nortel Ethernet Routing Switch 4500

The Nortel Ethernet Routing Switch 4500 (ERS 4500) product family is a stackable system providing high-performance, convergence-ready, secure and resilient Ethernet switching connectivity. Available in a range of models supporting 10/100 and 10/100/1000 switching, Power over Ethernet and 10 Gigabit uplinks, the ERS 4500 is ideally suited for enterprise wiring closet and network edge deployments.

Nortel Ethernet Routing Switch 4500 highlights

- Simplified converged deployments through PoE, Advanced QoS and IP Handset port autoconfiguration
- High-density desktop connectivity supporting up to 400 user ports
- Resilience through fail-safe stacking, distributed trunking and power redundancy
- Lower total cost of ownership with industry-leading energy efficiency
- Flexible mix-and-match stacking capabilities to best meet customers' requirements

Consuming up to 40 percent less power than competing products, the Ethernet Routing Switch 4500 also provides advanced resilient stacking, Layer 2/ Layer 3 switching and convergence features, enabling it to deliver the scalability and resiliency required by today's application-driven enterprise networks while reducing total operational costs.

Convergence-ready

For businesses looking to bring together their major forms of communication — voice, video and data — onto a single infrastructure, the Ethernet Routing Switch 4500 series delivers the functionality that makes converging these technologies simple.

Through support for standards-based Power over Ethernet (IEEE 802.3af PoE), power can be delivered to IP-based phones, wireless access points, cameras and other powered devices. This eliminates the need to have separate power supplies for each unit, thereby reducing cabling and management costs when there are adds, moves or changes. Additionally, with Nortel's auto-discovery (ADAC), the Ethernet Routing Switch 4500 can automatically configure the switch to ensure the right quality of service (QoS) and VLAN settings are applied, making mass IP phone deployments quick and easy. Standards-based 802.1AB auto-discovery can also be used for non-Nortel devices.



Ethernet Routing Switch 4500 Series

Intelligent stacking solution delivering scalability, flexibility, resilience and performance

Nortel's intelligent stacking architecture not only provides high-bandwidth unit-to-unit connections without consuming user ports, but it also allows flexible stacking of any combination of up to eight models within the Ethernet Routing Switch 4500 family. This creates an ideal solution for enterprises with Fast Ethernet, Gigabit users or a combination of both deployed or planned in the future. As a single stacked entity, all switches are managed via a single IP address and offer the same high resilience and common feature set, simplifying management and deployment across the network and the enterprise.

The Ethernet Routing Switch 4500 family combines high resiliency with high-performance stacking, delivering up to 320-Gbps throughput. Intelligent bi-directional traffic flows between switches, ensuring that the highest performance and most efficient paths are used for traffic flows. Added to this, the ability to distribute trunks or aggregations across different units in the stack ensures that even in the unlikely event of a switch or link failure, traffic continues to flow virtually uninterrupted for the remaining units in the stack.

For seamless scalability, the Ethernet Routing Switch 4500 series can deliver up to 400 ports, meeting almost any wiring closet requirements of scalability and port speed flexibility, allowing the network infrastructure to grow as the business requirements change.

Securing access at the edge

The Ethernet Routing Switch 4500 offers a wide range of flexible security options to ensure that only authorized personnel gain access to a company's

LAN. Whether it is through use of an IEEE 802.1X-based EAP client or through a device's MAC address, network managers can validate that only those who have successfully been authenticated have access to their specified resources. The ERS 4500 can also be used in conjunction with Nortel's Secure Network Access solution for advanced policy-based and centralized user/device authentication.

For further flexibility, the Ethernet Routing Switch 4500 can support the authentication of multiple devices/users on a single port. For example, if a user's PC connects into the network via an IP handset (Figure 1), the PC and the IP Phone can be authenticated for authorized use to that port. Additionally, if your company frequently has visitors, support for a Guest VLAN allows nonauthenticated users to still use the network but to only have access to those resources that have been pre-specified for the Guest VLAN, such as Internet access.

The Ethernet Routing Switch 4500's advanced security services also enable the switches to actively protect the network against malicious network attacks by protecting DHCP services (DHCP Snooping), verifying and filtering ARP traffic via in-hardware processing (Dynamic ARP inspection), restricting IP traffic to registered end devices (IP Source Guard) as well as controlling the flow of spanning tree BPDUs within the network (BPDU Filtering).

The Ethernet Routing Switch 4500 supports advanced packet classification

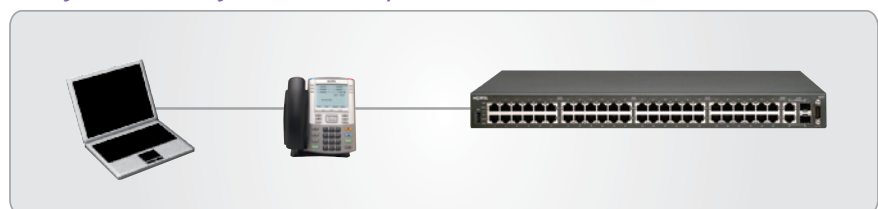
and deep packet filtering of up to 128 bytes. These powerful filtering capabilities can block unwanted network traffic while ensuring that mission-critical traffic is forwarded with minimum delay.

Secure and simplified network management

Nortel's Ethernet Switch Software is supported on all Ethernet Routing Switch 4500 models delivering simplified network operations and management by having a single image operate on any mixture of models in a stack. This eliminates the need to worry about different software versions and capabilities on different products. The software image needs only to be loaded to the base unit of the stack, which automatically loads it to other switches. Even as switches are added to an existing stack, the ERS 4500 software will ensure that the new switch diagnostics and software are appropriately upgraded to the software running on the stack.

The on-board USB port enables network administrators to quickly and easily upload or download a configuration file onto a USB stick. This allows the same configuration to either be deployed across several switches, making configuration of new switches seamless or serving as a backup in case a switch were to fail. The USB port also allows for quick upload of new software images or quick staging of new units through a simplified configuration capability. For added security, both the USB and consoles ports can be locked to prevent unwanted intrusion.

Figure 1. Converged connectivity



The Ethernet Routing Switch 4500 supports secure switch management through access control lists, Simple Network Management Protocol (SNMPv3), Secure Shell (SSHv2), and RADIUS and TACACS+ authentication when connecting to the switch or stack.

The Ethernet Routing Switch 4500 can be managed through Nortel's enterprise-class Command Line Interface (NNCLI), which provides a common industry look and feel to CLI commands, helping to reduce training and operational costs. The ERS 4500 also provides GUI-based management via its Device Manager tool and web-based interfaces for ease of use.

Redundant power support

Nortel's Redundant Power Supply (RPS15) delivers stable, redundant Ethernet Routing Switch 4500 power support crucial for today's high-avail-

ability, mission-critical environments. The RPS15 chassis can support up to three 600-watt power supply modules. Each power module can provide redundant power support to one ERS 4500 PWR model or up to four ERS 4500 non-PWR switches.*

Deployments in converged networks are greatly simplified through dynamic power management of the PoE ports, with the load sharing and redundant power offered by Nortel's RPS15. Combined, these features are designed to ensure that devices requiring PoE can be added to the network without power ever becoming an issue.

Lifetime warranty

All Ethernet Routing Switch 4500 switches offer a lifetime warranty. A Nortel product hardware warranty is

supported for as long as the original end user continues to own or use the product, including fan and power supply. In the event of a discontinuance of product manufacture, the Nortel warranty support is limited to five (5) years from the announcement of discontinuance.

Summary

With more than 100 years in telecommunications, Nortel is uniquely positioned to provide an end-to-end solution for your converged network. Let us show you how the Ethernet Routing Switch 4500 family, along with other Nortel products, can increase your profitability, streamline your business operations, increase productivity, lower costs and help you gain a competitive edge.

* A DC cable connector cable is required to connect from an Ethernet Routing Switch 4500 to an RPS15 power supply; for non-PoE models, a DC-DC converter is also required.

Ordering information

Switch versions

Order code	Description
AL4500?01-E6	Ethernet Routing Switch 4526FX with 24 100BASE-FX ports plus 2 combo 10/100/1000/SFP ports, Hi-Stack ports and RPS slot. Includes Base Software License Kit and 46cm stack cable.
AL4500?02-E6	Ethernet Routing Switch 4550T with 48 10/100 BASE-TX ports plus 2 combo 10/100/1000/SFP ports, Hi-Stack ports and RPS slot. Includes Base Software License Kit and 46cm stack cable.
AL4500?03-E6	Ethernet Routing Switch 4526T with 24 10/100 BASE-TX ports plus 2 combo 10/100/1000/SFP ports, Hi-Stack ports and RPS Slot. Includes Base Software License Kit and 46cm stack cable.
AL4500?04-E6	Ethernet Routing Switch 4548GT with 48 10/100/1000 BASE-T ports and 4 shared SFP ports, plus Hi-Stack ports and RPS slot. Includes Base Software License Kit and 46cm stack cable.
AL4500?05-E6	Ethernet Routing Switch 4524GT with 24 10/100/1000 BASE-T ports and 4 shared SFP ports (including 100FX SFP support), Hi-Stack ports and RPS Slot. Includes Base Software License Kit and 46cm stack cable.
AL4500?06-E6	Ethernet Routing Switch 4526GTX with 24 10/100/1000 BASE-T ports and 4 shared SFP ports, plus 2 10GE XFP slots, Hi-Stack ports and RPS Slot. Includes Base Software License Kit and 46cm stack cable.
AL4500?12-E6	Ethernet Routing Switch 4550T PWR with 48 10/100 802.3af PoE ports plus 2 combo 10/100/1000/SFP ports, Hi-Stack ports and RPS connector. Includes Base Software License Kit and 46cm stack cable.
AL4500?13-E6	Ethernet Routing Switch 4526T-PWR with 24 10/100 802.3af PoE ports plus 2 combo 10/100/1000/SFP ports, Hi-Stack ports and RPS Slot. Includes Base Software License Kit and 46cm stack cable.
AL4500?14-E6	Ethernet Routing Switch 4548GT PWR with 48 10/100/1000 802.3af PoE ports and 4 shared SFP ports, plus Hi-Stack ports and RPS connector. Includes Base Software License Kit and 46cm stack cable.
AL4500?16-E6	Ethernet Routing Switch 4526GTX-PWR with 24 10/100/1000 802.3af PoE ports and 4 shared SFP ports, plus 2 10GE XFP slots, Hi-Stack ports and RPS Slot. Includes Base Software License Kit and 46cm stack cable.

- ? The seventh character (?) of the switch order number must be replaced with the proper code to indicate desired product nationalization:
- "A" - No power cord included
 - "B" - Includes European "Schuko" power cord common in Austria, Belgium, Finland, France, Germany, The Netherlands, Norway, and Sweden
 - "C" - Includes power cord commonly used in the United Kingdom and Ireland
 - "D" - Includes power cord commonly used in Japan
 - "E" - Includes North American power cord
 - "F" - Includes Australian power cord, also commonly used in New Zealand and the People's Republic of China

SFP/XFP Modules

Order code	Description
AA1419015-E5	1-port 1000Base-LX SFP (connector: LC).
AA1419025-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1470nm Wavelength, 40km.
AA1419026-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1490nm Wavelength, 40km.
AA1419027-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1510nm Wavelength, 40km.
AA1419028-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1530nm Wavelength, 40km.
AA1419029-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1550nm Wavelength, 40km.
AA1419030-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1570nm Wavelength, 40km.
AA1419031-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1590nm Wavelength, 40km.
AA1419032-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1610nm Wavelength, 40km.
AA1419033-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1470nm Wavelength, 70km.
AA1419034-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1490nm Wavelength, 70km.
AA1419035-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1510nm Wavelength, 70km.
AA1419036-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1530nm Wavelength, 70km.
AA1419037-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1550nm Wavelength, 70km.
AA1419038-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1570nm Wavelength, 70km.
AA1419039-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1590nm Wavelength, 70km.
AA1419040-E5	1-port 1000BaseCWDM SFP (connector: LC) - 1610nm Wavelength, 70km.
AA1419048-E6	1-port 1000Base-SX DDI SFP (connector type: LC)
AA1419049-E6	1-port 1000Base-LX DDI SFP (connector type: LC)
AA1419069-E5	1-port 1000Base-BX SFP (connector type: LC) - 1310nm Must be paired with AA1419070-E5
AA1419070-E5	1-port 1000Base-BX SFP (connector type: LC) - 1490nm Must be paired with AA1419069-E5
AA1419074-E6	1-port 100 Base-FX SFP (connector: LC). For use only in the ERS 4526FX, 4526T, 4526T-PWR, 4550T, 4550T-PWR and 4524GT.
AA1419075-E6	1-port T1 SFP. For use only in the ERS 4526FX, 4526T, 4526T-PWR, 4550T, 4550T-PWR and 4524GT.
AA1403001-E5	1-port 10GBase-LR/LW XFP. SMF up to 10km
AA1403005-E5	1-port 10GBase-SR XFP. Supports MMF up to 300m.
AA1403006-E5	1-port 10GBase-ZR/ZW XFP. Supports SMF up to 80km.
AA1403007-E6	1-port 10GBase-LRM XFP.

SFP/XFP Modules

Order code	Description
AL4511001-E6	Ethernet Routing Switch 4500 Rack Mount Kit (Spare).
AL4518001-E6	4500-SSC Hi-Stack Stacking Cable 46cm (1.5ft) for Ethernet Routing Switch 4500 series (for use as spare).
AL4518002-E6	4500-SSC Hi-Stack Stacking Cable 1.5m (5ft) for Ethernet Routing Switch 4500 series (spare or for use as return cable for resiliency).
AL4518003-E6	4500-SSC Hi-Stack Stacking Cable 3m (10ft) for Ethernet Routing Switch 4500 series (spare or for use as return cable for resiliency).
AL4518004-E6	4500-SSC Hi-Stack Stacking Cable 5m (16.4ft) for Ethernet Routing Switch 4500 series (spare or for use as return cable for resiliency).

Redundant Power Supply

Order code	Description
AA0005017-E5	Redundant Power Supply 15 Chassis (up to three RPS 15 power supplies can be installed in the chassis).
AA0005719-E5	Redundant Power Supply 15 600-watt RPS power supply (1 DC cable per RPS module required).
AA0005018-E6	Redundant Power Supply 15 - Connecting Cable (6ft / 1.8m) for a single ERS 4526T-PWR, 4550T-PWR, 4526GT-PWR or 4548GT-PWR.
AL1904007-E6	DC-to-DC converter for use with RPS 15. Connection cable AA005020-E6 or AA005021-E6. (For installation in the ERS 4526FX, 4526T, 4550T, 4524GT, 4526GT or 4548GT.)
AA0005020-E6	Redundant Power Supply 15 - Long Connecting Cable (7.6m/25ft) for up to 4 x ERS 4526FX, 4526T, 4550T, 4524GT, 4526GT or 4548GT.
AA0005021-E6	Redundant Power Supply 15 - Short Connecting Cable (3m/10ft) for up to 4 x ERS 4526FX, 4526T, 4550T, 4524GT, 4526GT or 4548GT.

Maintenance Services

Order code	Description
GE5300xxx	Technical Support Service
GL5300xxx	Return & Replace Service
GF5300xxx	Managed Spares Services Pack - Next Business Day
GG5300xxx	Managed Spares Second Business Day
GH5300xxx	Managed Spares Services Pack - 4 Hour 7x24
GJ5300xxx	Managed On-Site with Spares Services Pack - Next Business Day
GK5300xxx	Managed Onsite with Spares SBD Svc Pack
GN5300xxx	Managed On-Site with Spares Services Pack - 4 Hour 7x24

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