

Ethernet Routing Switch 4500 Series



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The Avaya Ethernet Routing Switch 4500 Series is a Stackable system providing high-performance, convergence-ready, secure and resilient Ethernet switching connectivity. Available as a range of 11 model variants supporting 10/100 and 10/100/1000 switching, Power-over-Ethernet and 10 Gigabit Ethernet uplink options, the Ethernet Routing Switch 4500 Series is ideally suited for Enterprise wiring closet and other network edge deployments.

HIGHLIGHTS OF THE ETHERNET ROUTING SWITCH 4500 SERIES

- **Resilient** — Solid stacking, distributed trunking and power redundancy
- **Efficient** — Reduced power consumption, simplified converged deployments through PoE, advanced QoS and IP Phone port auto-configuration
- **Powerful** — Wire-speed performance, high-capacity stacking; 40Gbps per switch and up to 320Gbps per stack, and up to 400 ports
- **Secure** — Comprehensive standards-based 802.1X, advanced filtering and Avaya's Identity Engines and Secure Network Access solutions
- **Flexible** — Mix-and-match stacking capabilities; Fast Ethernet and Gigabit Ethernet in the same stack, and 1GbE and 10GbE uplinks

The Ethernet Routing Switch 4500 series (ERS 4500) provides genuine resilient stacking, Layer 2 switching and Layer 3 routing, and advanced convergence features. This enables the ERS 4500 series to deliver the scalability and resiliency required by today's application-driven enterprise networks while reducing total operational costs. Indeed, ERS 4500 models are up to 40% more energy efficient than competitive products, ensuring superior total cost of ownership.

Convergence-ready

For Businesses looking to bring together their major forms of communication – data, voice and video – onto a single infrastructure, the ERS 4500 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 phones, wireless access points, networked CCTV 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 Avaya's auto-discovery and configuration capability (ADAC), the ERS 4500 can automatically configure the switch to apply the correct Quality-of-Service (QoS) and VLAN settings, making mass IP phone deployments quick and easy. Standards-based 802.1AB auto-discovery can also be used for non-Avaya devices.

Automatic QoS

With Automatic QoS, an Ethernet Routing Switch 4500 supporting certain Avaya Unified Communications solutions automatically recognizes the special, private Differentiated Service Code Point (DSCP) values used by these applications and optimizes the management of egress queues. Without

this automated functionality, operators would need to have detailed knowledge of how QoS works, and also the private DSCP values, to enable manual configuration for optimized queue usage. This feature can help ensure that the process is automated and optimized, and protects against mis-configuration.

Intelligent stacking solution delivering scalability, flexibility, resilience and performance

Avaya'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 switches from within the ERS 4500 range. This creates an ideal solution for enterprises with fast Ethernet or Gigabit Ethernet users – or a combination of both – deployed or planned. 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.

New features for the v5.3 Release

The following new model, features and enhancements have been added to the ERS 4500 capabilities with the release of v5.3 Operating System software:

- ERS 4524GT-PWR model — 24 ports of 10/100/1000BASE-T with PoE, including 2 Combo Uplink ports
- Avaya Automatic QoS
- RADIUS Management Logging
- 802.1X/NEAP Last Assigned VLAN, Guest VLAN and other enhancements
- Show Environmental Command
- SNMP Trap enhancements for Dynamic ARP Inspection, DHCP Snooping and IP Source Guard
- ASCII Download Log
- Web User Interface enhancements
- MLT Trunk Group Disable/Enable command
- Disable CLI Audit Log command
- RADIUS Request Use Management IP Address
- Configurable Asset ID
- MAC Flush command

The ERS 4500 combines high-resiliency with high-performance stacking, delivering up to 320Gbps throughput. Intelligent bi-directional traffic flows between switches, can help ensure that the most efficient paths are used for traffic forwarding. Added to this, the ability to distribute trunks or aggregations across different units in the stack can ensure 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 ERS 4500 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.

THE 'AVAYA EDGE'

Through embedding functionality within its converged networking solutions, Avaya is creating a new operational paradigm built around synergistic, communications-enabled networking and simplicity of design. The 'Avaya Edge' focuses on ensuring that the network is easy to deploy and adds an intelligence that reduces the burden of ongoing manageability, delivering additional benefits to businesses.

Real-time application environments require network intelligence and QoS, allowing the network to understand what to do with high-priority traffic in times of congestion. However, the configuration of QoS across the network can be time-consuming and if incorrectly executed, leads to a sub-standard solution for high-priority traffic. Avaya data, voice and application products can be enabled for optimized QoS across the network through the Avaya Automatic QoS feature.

Enabling the Automatic QoS functionality seamlessly configures QoS on particular Avaya IP Phones, Call Servers and Applications, and Ethernet Switches. This allows network managers to easily configure QoS across a Avaya converged infrastructure through a few simple commands or a single click of the mouse — delivering a consistent and optimized QoS configuration, and simple but effective optimization for end-to-end application performance; a tangible manifestation of the genuine business benefits of Avaya.

Securing access at the edge

The ERS 4500 offers a wide range of flexible security options that help 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 specified resources. The ERS 4500 can also be used in conjunction with Avaya's innovative Secure Network Access solution for advanced policy-based and centralized user/device authentication.

For further flexibility, the ERS 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 phone (Figure 1), the PC and the IP phone can both be independently authenticated on that port. Additionally, if your company frequently has visiting users, support for a guest VLAN allows these non-authenticated users to still use the network but to only have access to those resources that have been predefined for the guests, such as Internet access.

Advanced security services also enable the ERS 4500 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 ERS 4500 supports advanced packet classification and deep packet filtering of up to



Figure 1. Typical enterprise converged connectivity

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

Avaya's Ethernet Switch software is supported on all ERS 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 help to 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 via 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 unauthorized intrusion.

The ERS 4500 supports secure 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 ERS 4500 can be managed through a Command Line Interface (CLI), 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 application and web-based interfaces for ease of use.

Redundant power support

Adding Avaya's Redundant Power Supply 15 (RPS 15) allows the ERS 4500 to deliver the stable, redundant power support crucial for today's high-availability, mission-critical environments. The RPS 15 chassis can support up to three 600-watt power supply modules. Each module can provide redundant power support to one ERS 4500 PoE switch or up to four non-PoE models.¹

Deployments in converged networks are greatly simplified through dynamic power management of the PoE ports, with the load sharing and redundant power offered by Avaya's RPS 15. Combined, these features

are designed to allow that devices requiring PoE can be added to the network without power ever becoming an issue.

Lifetime warranty

All ERS 4500 switches come with a lifetime warranty. An Avaya 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 Avaya warranty support is limited to five (5) years from this date.

Summary

Avaya is uniquely positioned to provide an end-to-end solution for converged networks. The Ethernet Routing Switch 4500 series, along with other Avaya products, can increase profitability, streamline business operations, increase productivity, lower costs and help gain a competitive edge.

Learn more

To learn more about the Ethernet Routing Switch 4500 series, please contact your Avaya Account Manager or Avaya Authorized Partner. Or, visit us online at avaya.com.

Avaya Ethernet Routing Switch 4500 Series	
Model	Link and Uplink Ports ²
ERS 4526FX	24 x 100BASE-FX plus 2 x Combo 10/100/1000BASE-T or 100/1000BASE-SFP
ERS 4526T	24 x 10/100BASE-TX plus 2 x Combo 10/100/1000BASE-T or 100/1000BASE-SFP
ERS 4526T-PWR	24 x 10/100BASE-TX PoE plus 2 x Combo 10/100/1000BASE-T or 100/1000BASE-SFP
ERS 4550T	48 x 10/100BASE-TX plus 2 x Combo 10/100/1000BASE-T or 100/1000BASE-SFP
ERS 4550T-PWR	48 x 10/100BASE-TX PoE plus 2 x Combo 10/100/1000BASE-T or 100/1000BASE-SFP
ERS 4524GT	24 x 10/100/1000BASE-T, including 4 x Combo 10/100/1000BASE-T or 100/1000BASE-SFP
ERS 4524GT-PWR (New model)	24 x 10/100/1000BASE-T PoE, including 4 x Combo 10/100/1000BASE-T or 100/1000BASE-SFP
ERS 4548GT	48 x 10/100/1000BASE-T, including 4 x Combo 10/100/1000BASE-T or 1000BASE-SFP
ERS 4548GT-PWR	48 x 10/100/1000BASE-T PoE, including 4 x Combo 10/100/1000BASE-T or 1000BASE-SFP
ERS 4526GTX	24 x 10/100/1000BASE-T, including 4 x Combo 10/100/1000BASE-T & 1000BASE-SFP, plus 2 x 10GBASE-XFP
ERS 4526GTX-PWR	24 x 10/100/1000BASE-T PoE, including 4 x Combo 10/100/1000BASE-T or 1000BASE-SFP, plus 2 x 10GBASE-XFP

¹ A DC connecting cable is required to connect from an ERS 4500 to an RPS 15 power supply; for non-PWR models, a DC-DC converter is also required.

² ERS 4500 Series models that support the 100/1000BASE-X SFP capability, namely 4526FX, 4526T, 4526T-PWR, 4550T, 4550T-PWR, 4524GT, 4524GT-PWR, also support the T1 Ethernet over TDM Pluggable Transceiver.

About Avaya

Avaya is a global leader in enterprise communications systems. The company provides unified communications, contact centers, and related services directly and through its channel partners to leading businesses and organizations around the world. Enterprises of all sizes depend on Avaya for state-of-the-art communications that improve efficiency, collaboration, customer service and competitiveness. For more information please visit www.avaya.com.



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References to Avaya include the Nortel Enterprise business, which was acquired as of December 18, 2009.

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