AVAYA

The Power of We™

Ethernet Routing Switch 4000 Series

The Avaya Ethernet Routing Switch 4000 Series is a Stackable Chassis system providing high-performance, convergence-ready, secure and resilient Ethernet switching connectivity. Available as a range of 17 model variants supporting 10/100 and 10/100/1000 switching and routing, Power-over-Ethernet, Power-over-Ethernet+ and 10 Gigabit Ethernet uplink options, the Ethernet Routing Switch 4000 Series is ideally suited for Enterprise wiring closet and other network edge deployments.

Highlights Of The Ethernet Routing Switch 4000 Series

- **Always-on** – Best in class end-to-end resiliency solution, hot-swappable unit replacement within a Stackable Chassis and integrated power redundancy.
- **Convergence-ready** – Support for PoE and PoE+, optimized for high-definition video surveillance, true plug and play capabilities for IP Phone deployments, advanced QoS capabilities.
- **Energy efficient** – On average 36% more more energy efficient than competitive solutions,[1] energy saver functionality further reduces power consumption for both Switch and IP Phone without losing telephony connectivity.
- **Powerful** – Wire-speed performance, true pay-as-you-grow Stackable Chassis capabilities, delivering up to 400 ports and 384 Gbps of virtual backplane throughput.
- **Secure** – Standards-based 802.1x with integration with Avaya's Identity Engines portfolio for centralized, policy-based authenticated network access.
- **Flexible** – Mix-and-match best-in-class stacking capabilities; PoE and PoE+ and optional 1GbE and 10GbE SFP+ uplinks.
- **Future-ready** – Hardware ready for advanced services such as Wireless Split-Plane and Virtual Services Fabric; emerging technologies in Avaya's Virtual Enterprise Networking Architecture strategy.

The Ethernet Routing Switch 4000 Series provides resilient Stacking Chassis, Layer 2 switching and dynamic Layer 3 routing, plus many industry leading convergence features. This enables the Ethernet Routing Switch 4000 Series to deliver the scalability and resiliency required by today's application-driven enterprise networks while reducing total operational costs.

Intelligent Stackable Chassis solution delivering performance, scalability, resilience and flexibility

No one knows stacking like Avaya. We introduced our first Stackable Chassis product in 1998 and have been perfecting the technology ever since. We were the first and only vendor to break the Terabit

boundary with our ERS 5600 Series products and we've differentiated ourselves in the industry by ensuring that our Stackable Chassis perform like a traditional modular chassis implementation. We offer genuine chassis-like features including true pay-as-you-grow scaling and in service maintenance and restoration. From a management perspective, our Stackable Chassis looks like a single network entity – utilizing only a single IP address to dramatically simplify software upgrades. We also offer true investment protection with the ability to mix-and-match any units within the ERS 4000 Series into a Stackable Chassis.

High performance architecture with true pay-as-you grow scaling

Our Stackable Chassis products combine non-blocking internal switching fabrics with a high-speed virtual backplane architecture to deliver a high performance solution that scales proportionally as new switches are added. The ERS 4000 Series scales up to 384Gbps of virtual backplane throughput by simply cabling together up to 8 units. Adding a new unit to the Stack Chassis is as easy as cabling in a new member then extending the appropriate configuration. The necessary software images and the configuration file are automatically downloaded to the new unit and then brought on-line without any user intervention.

To ensure wire-speed performance, our Stackable Chassis architecture is based on a shortest-path algorithm for optimal data flow across the stack. Unlike competitive solutions that use unwieldy logical ring or token technology, Avaya allows traffic to flow upstream and downstream simultaneously from every switch connected to the virtual backplane, optimizing performance, resiliency,

ERS 4000 Series v5.6 introduces 6 additional models into the ERS 4000 product family.

New Model Highlights:

- IEEE 802.3at-compatible PoE+ for both Fast Ethernet and Gigabit Ethernet connected end points.
- SFP+ ports, supporting 1 and 10 Gigabit connections, on the new 4800 models.
- Redundant field-replaceable AC power supplies on all new models.
- Increased CPU and FLASH memory for greater investment protection.
- Full Stackable Chassis compatibility with all existing 4500 models.
- 4800 models are hardware-ready to support advanced, next-generation network edge technologies such as IPv6, Wireless Split-Plane and the Virtual Services Fabric.

New ERS 4500 PoE+ Models for Fast Ethernet Connectivity:

- **Ethernet Routing Switch 4526T-PWR+** - 24 port 10/100 ports with PoE/PoE+ plus 2 10/100/1000/SFP uplink ports.
- **Ethernet Routing Switch 4550T-PWR+** - 48 port 10/100 ports with PoE/PoE+ plus 2 10/100/1000/SFP uplink ports.

New ERS 4800 models for Gigabit Ethernet Connectivity:

- **Ethernet Routing Switch 4826GTS** - 24 ports of 10/100/1000 ports including 2 shared SFP Uplink ports, plus 2 additional SFP+ Uplink ports.
- **Ethernet Routing Switch 4826GTS-PWR+** - 24 ports of 10/100/1000 ports with PoE/PoE+ including 2 shared SFP Uplinks ports, plus 2 additional SFP+ Uplink ports.
- **Ethernet Routing Switch 4850GTS** - 48 ports of 10/100/1000 ports including 2 shared SFP Uplink ports, plus 2 additional SFP+ Uplink ports.
- **Ethernet Routing Switch 4850GTS-PWR+** - 48 ports of 10/100/1000 ports with PoE/PoE+ and 2 shared SFP Uplink ports, plus 2 additional SFP+ Uplink ports.

The v5.6 feature release also includes a wide range of software enhancements including: ECMP (Equal Cost Multi-Path) Support, IGMPv3 Snooping and Proxy, increased VLAN scaling and many more enhancements around convergence, operations and security.

and resource utilization. Avaya has an additional advantage in that we honor Quality-of-Service settings as traffic passes over the stacking connections – providing applications with optimal performance, and a positive end user experience.

All ERS 4000 models come with two in-built Stackable Chassis interfaces for simple, cost-effective and efficient connectivity. Unlike comparative offerings which daisy chain low-speed interfaces, this design frees uplink ports for dedicated connectivity to the backbone. In addition to the stacking cables, a return cable is also used to protect against any port, unit or cable failures.

In-service maintenance and restoration

Virtual hot swap capabilities ensure that a failure in any unit of the Stackable Chassis is quickly and easily rectified. Pioneered in modular switches, virtual hot swap is available in Avaya's Stackable Chassis solutions enabling immediate like-for-like unit replacement without any impact to the existing traffic or any units. If a failure occurs, neighboring switches automatically wrap their fabric connections to help ensure that other switches within the Stackable Chassis are not impacted. The failed unit is simply disconnected from the virtual backplane and, without pre-staging of software or configuration, a like-for-like unit is inserted, cabled, and powered-up. The Automatic Unit Replacement (AUR) process self-manages software and configuration downloads to the new switch then brings it online, without the need for an engineer to configure or manage the process.

Further complementing the Stackable Chassis architecture, the Avaya ERS 4000 Series supports standards-based 802.3ad Link Aggregation as well as its own Multi-Link Trunking technology that allows grouping of ports to form high-speed trunks/aggregations. These bundles or groups of ports can be distributed across different units in the same Stackable Chassis, delivering higher levels of resilience in case of link or Switch failure to help ensure that traffic gets to its destination.

Distributed real-time monitoring of the Stackable Chassis provides an at-a-glance view of operational status and health which further enhances operational and management simplicity.

Centralized management

From a management perspective, our Stackable Chassis appears as a single networking entity – utilizing only a single IP Address. This can significantly reduce the number of switches to be managed within the network as a stack of up to 8 switches can be managed just as easily as a single switch. All Ethernet Routing Switch 4000 models use the same software image, irrespective of model type. The image needs to be loaded only to the base unit of the Stackable Chassis which automatically loads it to other switches.

Flexible options

It's possible to mix and match any member of the ERS 4000 Series into a single Stackable Chassis. This allows customers to create the best mix of ports based on their specific requirements. Fast Ethernet and Gigabit Ethernet models can be interconnected; PoE and PoE+ models can be also be mixed in the same Stackable Chassis. The ERS 4000 Series can scale up to 8 units and 400 ports with up to 384Gbps of virtual backplane bandwidth.

ERS 4000 Stackable Chassis

Highlights of Avaya's Stackable Chassis technology:

True pay-as-you-grow scaling: Extending capacity is easy. Simply cable a new unit into the virtual backplane and the configuration is automatically updated.

Scalable performance: The high performance design of Avaya's Switches along with their high-speed interfaces (up to 384Gbps) helps ensure that the Stackable Chassis scales proportionally as each new unit is added.

Optimal path forwarding: The shortest, most optimal path is chosen for each flow of traffic with QoS being maintained across the virtual backplane.

No single point-of-failure: Stackable Chassis operations are unaffected by the failure of any individual unit and units can easily be replaced within minutes.

Centralized management: Single IP address for the entire Stackable Chassis for simplified management.

Flexible stacking options: Mix-and-match any member of the ERS 4000 Series into a single Stackable Chassis.

Convergence-ready for UnifiedCommunications, High-Definition Video and more

For businesses looking to consolidate all forms of communication – voice, video and data – on a single infrastructure, the Avaya ERS 4000 Series delivers functionality that simplifies convergence of these technologies.

Choice of PoE or PoE+ to power your devices

Through support for both the IEEE 802.3af PoE and 802.3at PoE+ standards, ERS 4000 products are able to power IP phones, wireless access points, networked high-definition CCTV cameras and other devices. This eliminates the need for separate power supplies for each unit, enabling reduced cabling and management costs for adds, moves, or changes.

Customers have the flexibility of choosing a PoE capable device or a PoE/PoE+ capable device. Having PoE+ support gives customers investment protection even though the driver for higher power usage is not present in many of the end devices typically being used.

Plug and play for IP phones

One of the main benefits offered by the ERS 4000 Series is plug and play support for IP phones enabled through a combination of IEEE 802.1ab Link Layer Discovery Protocol (LLDP) and Avaya's Auto Discovery and Auto Configuration (ADAC) capability.

With these features enabled the ERS 4000 can automatically provision end devices such as IP Phones for simplified deployments and moves. The ERS 4000 dynamically applies the correct VLAN and QoS to both the IP phone and the attached edge port. When the phone is moved to another location, the configuration is automatically updated. In addition, QoS is automatically provisioned on the ERS 4000 uplink so that voice is given top priority from the wiring closet to the network core. These features save network operators time and can dramatically reduce the likelihood of a provisioning error during a large IP phone deployment.

The ERS 4000 also learns the identification, configuration, and capabilities of neighboring devices and provides these details to the network management system. This enables the system to have the most up-to-date physical view of the network so that communication configuration mismatches are detected and corrected quickly.

Sophisticated QoS capabilities

The ERS 4000 Series delivers unsurpassed control for networks supporting a wide range of different application types. The ERS 4000 classifies, prioritizes and marks LAN IP traffic using up to eight hardware queues (2 strict priority and 6 weighted round robin) on every port – including our Stackable Chassis ports.

Classification can be done based on MAC address, IP ToS/DSCP marking, IP source /destination address or subnets, TCP/UDP source/destination port/port range, IEEE 802.1p user priority bits, ingress source port, IP Protocol ID (e.g., TCP, UDP, IGMP),

Requirement	ERS 4500 Models	ERS 4500 POE+ Models	ERS 4800 Models
Fast Ethernet to the desktop	Yes	Yes	Yes
Gigabit Ethernet to the desktop	Yes	No	Yes
IEEE 802.3 af PoE	Yes	Yes	Yes
IEEE 802.3 at PoE+	No	Yes	Yes
10 Gig uplink sockets	XFP on certain models	No	SFP+
Redundant power	Yes (available through external RPS 15)	Yes (internal field-replaceable PSU's)	Yes (internal field-replaceable PSU's)
Hardware-ready for advanced services (Wireless Split Plane, Virtual Services Fabric)	No	No	Yes

With 17 different models delivering a broad range of capabilities, the ERS 4000 Series meets diverse edge requirements.

EtherType (e.g., IP, IPX) or the IEEE 802.1Q VLAN ID. Comprehensive traffic policing and traffic shaping are also supported.

Most importantly we make QoS management intuitive through the use of Enterprise Policy Manager.[2] By centralizing QoS management, Enterprise Policy Manager can reduce thousands of CLI or web transactions to a few simple actions through intuitive workflows.

Integrated field replaceable AC power supplies for ERS 4800 and ERS 4500 POE+ models

Always-On Networking

In the era of 24x7 business operation, providing always-on access to applications is of the utmost importance. A pioneer in this area, Avaya provides cost-effective, resilient campus solutions for any size enterprise - from very large to very small.

Multi-link and Distributed Trunking

The ERS 4000 Series supports 802.3ad Link Aggregation Groups as well as its own Multi-Link and Distributed Multi-Link Trunking implementations. Groups of links between the ERS 4000 and another device can be aggregated to enhance bandwidth and resiliency through active redundant links. Additionally, trunked ports can span multiple units of a Stack Chassis enabling fail-safe connectivity to mission-critical servers and the network core.

Distributed Multi-Link Trunking

802.3ad Link Aggregation Groups can be combined with Switch Clustering (leveraging Avaya's Split Multi-Link Trunking technology) on our core products (VSP 9000, ERS 8800/8600/8300 and ERS 5000). This creates a self-healing network that maximizes reliability and availability. Because all ports remain active, multiple connections to the network core enable customers to double their network bandwidth without incurring additional cost.

Virtual Router Redundancy Protocol

The ERS 4000 Series supports the Virtual Router Redundancy protocol. This feature enables automatic assignment of available IP routers to participating hosts which increases the availability and reliability of routing paths via automatic default gateway selections on an IP sub network.

Detection of link failures and loops

The ERS 4000 Series support a number of features that help detect and prevent link failures and loops. Avaya's Virtual Link Aggregation Control Protocol (VLACP) detects end-to-end failures by propagating link status between ports that are logically connected point-to-point across an intermediate network.

For loop detection, the ERS 4000 supports Simple Loop Prevention Protocol (SLLP) Guard. This feature extends Avaya's loop prevention mechanism of SLPP to the edge of the network for improved network resiliency. SLPP-guard operates in conjunction with SLPP in the network core or distribution layer and is designed to detect unusual loop scenarios which are not detected by other methods such as Spanning Tree. SLPP-guard immediately detects loops and disables affected ports according to the configured timer. All SLPP-guard actions are logged via Syslog and SNMP traps so that the cause of the loop can be diagnosed accurately.

Redundant power support

The ERS 4500 PoE+ models and the ERS 4800 models (both PoE/PoE+ and non-power enabled) support field replaceable AC power supplies for improved redundancy and uptime. This power supply design offers N+1 power redundancy and/or supplementary PoE/PoE+ power budget, saving valuable rack space and enabling reduced system, servicing and sparing costs. Non-power models such as the ERS 4826GTS and the ERS 4850GTS utilize two 300 Watt Power Supply Units for redundancy (same as the ERS 5600 Series products) while the PoE/PoE+ devices, such as the ERS 4526T-PWR+, ERS 4550T-PWR+, ERS 4826GTS-PWR+and ERS 4850GTS-PWR+ utilize two 1000 Watt Power Supply Units for redundancy.

The traditional ERS 4500 models support redundant power via Avaya's Redundant Power Supply 15 (RPS 15). This allows the ERS 4500 to deliver the stable, redundant power support required by today's high-availability, mission-critical environments. The RPS 15 Chassis supports up to three 600 watt power supply modules, with each module providing redundant power support to one ERS 4500 PoE Switch or up to four non-PoE models.

Achieve your Green IT initiatives

Energy efficient by design

New regulations and rising awareness of the ever-increasing cost of electrical power keep energy efficiency top of mind. An innovator in this area, Avaya has built energy efficiency into many of its hardware products. In fact, independent testing indicates that Avaya LAN Switches, Call Servers, Gateways, Unified Messaging Servers and Gigabit IP Phones are typically more energy-efficient than competitive equipment. The ERS 4000 Series, for example, was found on average to be 36% more energy efficient than competitive solutions from Cisco, HP, and Juniper.[1] Because most Ethernet Switches operate 24x7, a 36% reduction in energy use goes a long way toward educing yearly total cost of ownership.

Power management solution that keeps all connected devices operational

Building on our energy efficient design, Avaya offers true power management capabilities on ERS 4000 Series switches with our Avaya Energy Saver feature. Avaya Energy Saver aligns consumption of energy with attributes such as building occupancy. Much like a lighting control system, it essentially "dims" energy consumption during off-peak periods.

PoE and PoE+ enabled devices can increase energy conservation because, when IP phones are connected to a PoE or PoE+ port, power consumption by the IP phone is reduced when the network is in to dimmed operation mode. When an Avaya IP phone is connected to the ERS 4000 and Avaya Energy Saver is active, the switch sends a proprietary 802.1AB TLV message to the phone that places the phone in maximum power conservation mode. Unlike some competitive solutions that actually disable the IP phone by turning ports off, IP phones remain operational when in power conservation mode.

Energy conservation by ERS 4000 series switches and the IP phones connected to them can reduce total cost of ownership while helping IT managers achieve their "Green IT" initiatives.

Energy analysis

Avaya Energy Saver can be embedded within the Avaya Enterprise Policy Manager[2] to provided centralized management of power consumption across all devices and endpoints. Network operators can perform energy analysis that not only shows peak energy usage and trending but also calculates real energy savings in terms of dollars and cents. A dashboard through which IT managers can drill down to specific ports and adjust ERS 4000 port speeds, as required, is also available.

Securing access at the edge

The Ethernet Routing Switch 4000 offers the highest level of security with authenticated network access that leverages IEEE 802.1x (Extensible Authentication Protocol (EAP) with extensions or devices MAC Address. Integration into Avaya's Identity Engines portfolio for centralized, policy-based access control is included along with secure management enabled through features such as Secure Shell (SSH), Secure Sockets Layer (SSL), Simple Network Management Protocol (SNMPv3), IP Manager List, Remote Authentication Dial-In User Service (RADIUS), and TACACS+ authentication. The ERS 4000 Series also offers numerous features that help prevent direct Denial of Service Attacks.

Authenticated Network Access

The ERS 4000 offers a wide range of flexible security options to help ensure that only authorized personnel can access the LAN. Through IEEE 802.1x-based EAP client or device MAC Address, network administrators control authentication and authorization for access to network resources. Ethernet Routing Switch 4000 can support authentication of multiple devices/users on a single port.

For example, if a user's PC connects into the network via an IP phone, the PC and the IP phone can be independently authenticated on the same port. And, if your company has visiting users, guest VLAN support allows non-authenticated users to use the network with access to predefined guest resources only, such as Internet access. ERS 4000 Series

also allows configuration of different servers to handle different RADIUS/802.1x functions.

When advanced, policy-based and centralized user/device authentication is required, the Avaya ERS 4000 can be used in conjunction with the innovative Avaya Identity Engines portfolio solution. This easy-to-deploy, policy-based solution assigns network access rights and permissions based on user role, where the user connects (local or remote) and now the user connects (wired or wireless). In this way, each connected device and user are known and are governed by device-specific security policies. For example, based on her network credentials, an employee using a corporate owned device will be granted full corporate access however, while using a non-corporate-owned device, she will be granted limited access.

As the number of employee-owned devices increases, Identity Engines can help network operators retain control and, by running device health checks and verifying user and device credentials, Identity Engines helps ensure that network access permission levels are enforced and adhered to without undue effort on the part of the IT staff.

Secure Management

The ERS 4000 Series supports Secure Shell (SSHv2) for strong authentication and encrypted communication and SSL, which is supported on our web-based Enterprise Device Manager. SNMPv3 provides user authentication and data encryption for secure configuration and monitoring while IP Manager List limits access to ERS 4000 management features via a list of IP Addresses or IP ranges/subnets, providing greater security and manageability.

Preventing Directed Attacks

Through advanced security services, the ERS 4000 Series actively protects against malicious network attacks including protection from snooping of DHCP services, verification and filtering of ARP traffic via in-hardware processing (Dynamic ARP inspection), restriction of IP traffic to registered end devices (IP Source Guard), and control of Spanning Tree BPDU flow within the network (BPDU Filtering). Also supported, MAC Security and Static MAC address assignment have the ability to disable MAC learning if required.

The ERS 4000 supports advanced packet classification and deep packet filtering of up to 128 bytes, helping block unwanted network traffic while forwarding mission-critical traffic efficiently.

The ERS 4000 is PCI 2.0 compliant and, as per the PCI 2.0 specification, authentication and logging takes place and can be captured and reported to mitigate any security risk of shared maintenance accounts.

Secure and simplified network management

Creating a flexible operational environment, the ERS 4000 Series can be managed by a variety of management tools:

- Highly intuitive industry-aligned Command Line Interface (CLI) that eases the transition from one vendor to another.
- GUI and Web-based, Enterprise Device Manager (EDM) is an element management tool that enables quick, easy configuration changes to a single device through a pictorial view of that device using either HTTP or HTTPS (Secure Web).

Consumerized IT

The move to “consumerized” IT has been described as penetration of the corporate network by employee-purchased mobile devices like iPhone, iPad, and Android phones. Whereas at one time employees had, at most, one device connecting to the corporate network, that number is expected to grow to 3, even 4 devices. Avaya Identity Engines helps network operators manage level of network access for this increasing number of devices by running device health checks and by verifying credentials of both user and device. Cost effective and easy to use, Avaya Identity Engines works in a multivendor environment.

- SNMP-based management (SNMP v1, 2 and 3) that provides an alternative standards based management approach and an interface for Configuration and Orchestration Manager.

- A wide array of Avaya management platforms that can be chosen based on the tasks the customer wishes to perform and the size of their environment.

These platforms include:

- **Configuration and Orchestration Manager (COM)** - Simplifies multi-element configuration via wizards and templates and provides network discovery, device backup, audits configuration changes, and bulk configuration management.

- **Enterprise Device Manager** – Simple on-switch GUI-based interface enabling simple device based provisioning.

- **Virtualization Performance and Fault Manager[2] (VPFM)** - Monitors and audits network performance, provides discovery and inventory, and troubleshoots network issues, which can minimize events and reduce network downtime. VPFM supports multi-vendor environments and proactive monitoring, helping to identify issues before they affect the network.

- **Enterprise Policy Manager[2] (EPM)** - Enables end-to-end policy provisioning to optimize network performance, define QoS filters, and deploy traffic and security filtering.

- **IP Flow Manager[2] (IPFM)** - Provides insight into network utilization, top applications, peak usage, and traffic patterns to help diagnose problems at the network and application level through use of standards-based IPFIX.

Designed for the next-generation edge

ERS 4800 models have been architected to support the advanced services required in a next-generation campus edge solution including support for IPv6 routing and advanced innovative Avaya services such as Wireless Split-Plane and the Virtual Services Fabric.

Avaya Virtual Services Fabric[3]

The ERS 4800 models are hardware-ready to support the Avaya Virtual Enterprise Network Architecture (VENA) Virtual Services Fabric which will extend the reach of Virtualized Services from the Data Center all the way to the campus edge. This provides a consistent enterprise-wide virtualization architecture that is simpler, more adaptive and more reliable – while avoiding the complexity associated with interconnecting different forms of technology for different areas of the network. Furthermore, as Virtual Desktop Infrastructure becomes more prevalent, extension of the Virtual Services Fabric to the campus edge will create the most efficient user-to-server interconnection and enabling enterprises to present business applications (that reside in the Data Center) transparently to thin clients with optimal performance. Ultimately, this will allow enterprises to save money budgeted for desktop support and maintenance costs without sacrificing desktop application performance.

Avaya Wireless Split-Plane[3]

The campus edge of the future will to need to address two major transitions: (1) wireless displacing wired as the primary means of network access (2) a proliferation of high-definition video applications. Wireless Split-Plane, an Avaya innovation, helps enterprises prepare for these changes by decoupling the wireless control functionality from the application data. This architecture, which can be imbedded directly into the Ethernet Switch infrastructure, eliminates the performance bottleneck inherent in today's centralized Wireless LAN architectures (traffic hair pinning through controllers) and ensures that wireless data traffic takes the most optimal path from source to destination. And, because it enables common hardware reuse, fewer network components, and optimized scalability, it can lower operating costs.

Avaya VENA Virtual Services Fabric: Simple, Dynamic, Adaptive

Deploying Avaya's Virtual Services Fabric allows enterprises to greatly simplify creation and configuration of their next generation networks. It creates a multipath Ethernet network that relies on Intermediate System-to-Intermediate System (IS-IS), a proven carrier-grade link state protocol, to dynamically build the topology between nodes – which keeps provisioning at the edge of the network. This can save network administrators time and effort, and virtually eliminate human error.

This architecture gives network operators the flexibility they need to add network capacity or a new link, and have them be automatically discovered with no impact on any existing services. Adding new services or changing existing services can be completed more quickly and easily by provisioning each end point. The network does the rest.

Lifetime warranty

Avaya includes industry-leading warranty services for our portfolio of Stackable Chassis Switches, including Avaya ERS 4000 Series products. The warranty includes complimentary next-business-day shipment of failed units for the life of the product (including fans and power supplies), next-business-day shipping worldwide on replacement of failed hardware, and basic technical support as follows: Level 1 for the supported lifecycle of the product and up to Level 3 for the first 90 days after purchase. This includes support for the shipped software version, with an option to purchase the Software Release Service for access to new feature releases and additional advanced hardware replacement programs.

Summary

Avaya is positioned to provide an end-to-end solution for today's converged networks and for tomorrow's networks. The Ethernet Routing Switch 4000 Series, along with other Avaya products, can increase profitability and productivity, streamline business operations, lower costs and help your business gain a competitive edge.

Learn more

To learn more about the Ethernet Routing Switch 4000 series, please contact your Avaya Account Manager or Avaya Authorized Partner. Or, visit us online at **avaya.com**.

Ordering Information

ERS 4500 Series Models	
AL4500?01-E6	ERS 4526FX featuring 24 100BASE-FX ports, plus 2 Combo 10/100/1000/SFP Uplink ports
AL4500?03-E6	ERS 4526T featuring 24 10/100BASE-TX ports, plus 2 Combo 10/100/1000/SFP Uplink ports
AL4500?13-E6	ERS 4526T-PWR featuring 24 10/100BASE-TX ports supporting 802.3af PoE, plus 2 Combo 10/100/1000/SFP Uplink ports
AL4500?02-E6	ERS 4550T featuring 48 10/100BASE-TX ports, plus 2 Combo 10/100/1000/SFP Uplink ports
AL4500?12-E6	ERS 4550T-PWR featuring 48 10/100BASE-TX ports supporting 802.3af PoE, plus 2 Combo 10/100/1000/SFP Uplink ports
AL4500?05-E6	ERS 4524GT featuring 24 10/100/1000BASE-T ports, including 4 shared SFP Uplink ports
AL4500?15-E6	ERS 4524GT-PWR featuring 24 10/100/1000BASE-T ports supporting 802.3af PoE, including 4 shared SFP Uplink ports
AL4500?04-E6	ERS 4548GT featuring 48 10/100/1000BASE-T ports, including 4 shared SFP Uplink ports
AL4500?14-E6	ERS 4548GT-PWR featuring 48 10/100/1000BASE-T ports supporting 802.3af PoE, including 4 shared SFP Uplink ports
AL4500?06-E6	ERS 4526GTX featuring 24 10/100/1000BASE-T 802.3af PoE ports and 4 shared SFP ports, plus 2 10 Gig XFP ports
AL4500?16-E6	ERS 4526GTX-PWR featuring 24 10/100/1000BASE-T ports supporting 802.3af PoE, including 4 shared SFP Uplink ports, plus 2 10 Gig XFP Uplink ports

Notes:

- Each Switch ships with the Base Software License, a 46 cm Stackable Chassis cable and an RPS slot.
- The seventh character (?) of the order number must be replaced with the proper letter to indicate desired product nationalization.

ERS 4500 Series PoE+ Models	
AL4500?23-E6	ERS 4526T-PWR featuring 24 10/100BASE-TX ports supporting 802.3at PoE+, plus 2 Combo 10/100/1000/ SFP Uplink ports
AL4500?22-E6	ERS 4550T-PWR featuring 48 10/100BASE-TX ports supporting 802.3at PoE+, plus 2 Combo 10/100/1000/ SFP Uplink ports

Notes:

- Each Switch ships with the Base Software License, a 46 cm Stackable Chassis cable and 1 field-replaceable 1000W Power Supply Unit.
- The seventh character (?) of the order number must be replaced with the proper letter to indicate desired product nationalization.

ERS 4800 Series Models	
AL4800?79-E6	ERS 4826GTS featuring 24 10/100/1000BASE-T ports, including 2 shared SFP Uplink ports, plus 2 additional SFP+ Uplink ports
AL4800?89-E6	ERS 4826GTS-PWR+ featuring 24 10/100/1000BASE-T ports supporting 802.3at PoE+, including 2 shared SFP Uplink ports, plus 2 additional SFP+ Uplink ports
AL4580?78-E6	ERS 4850GTS featuring 48 10/100/1000BASE-T ports, including 2 shared SFP Uplink ports, plus 2 additional SFP+ Uplink ports
AL4800?88-E6	ERS 4850GTS-PWR+ featuring 48 10/100/1000BASE-T ports supporting 802.3at PoE+, including 2 shared SFP Uplink ports, plus 2 additional SFP+ Uplink ports

Notes:

- Each Switch ships with the Base Software License, a 46 cm Stackable Chassis cable and 1 field-replaceable 300W PSU (for non-powered devices) and one field-replaceable 1000W PSU (for powered devices).
- The seventh character (?) of the order number must be replaced with the proper letter to indicate desired product nationalization.

Redundant Power for the ERS 4500 Models	
AA0005017-E5	Redundant Power Supply 15 Chassis - Supports up to three RPS 15 Power Supplies
AA0005?19-E5	Redundant Power Supply 15 - 600 Watt Power Supply Module up to three can be installed in Chassis
AA0005018-E6	Redundant Power Supply 15 - Connecting Cable (1.8m/6ft) for a Single ERS 4626T-PWR, 4550T-PWR, 4526GTX-PWR, 4548GT-PWR, 5520-24T-PWR, 5520-48T-PWR, 5530 – (Does not require separate DC-DC converter)
AA0005020-E6	Redundant Power Supply 15 - Long Connecting Cable (7.6m/25ft) for up to 4 x ERS 4526FX, 4526T, 4550T, 4524GT, 4526GTX, 4548GT, 5510-24T, 5510-48T (Requires separate DC-DC converter for connection switch)
AA0005021-E6	Redundant Power Supply 15 - Short Connecting Cable (3m/10ft) for up to 4 x ERS 4526FX, 4526T, 4550T, 4524GT, 4526GTX, 4548GT, 5510-24T, 5510-48T. (Requires separate DC-DC converter for connection switch)

Notes:

- The seventh character (?) of the order number must be replaced with the proper letter to indicate desired product nationalization.

Power Supplies for ERS 4500 PoE+ and ERS 4800 Models	
AL1905?21-E6	1000W AC PoE+ Power Supply. For use in ERS 4000 PWR+ models (ERS 4526T-PWR+, 4550T-PWR+, 4826GTS-PWR+, 4850GTS-PWR+)
AL1905A08-E5	300W AC Power Supply. For use in the ERS 4826GTS, 4850GTS and WL8180, WL8180-16L wireless controllers

Notes:

- The seventh character (?) of the order number must be replaced with the proper letter to indicate desired product nationalization.

Software	
AL4516001	Advanced License for 1 Switch/Stackable Chassis
AL4516002	Advanced License for up to 10 Switches/Stackable Chassis

Footnotes:

[1] Miercom, August 2011

[2] Device support limited to traditional ERS 4500 series models. Support for ERS 4500 PoE+ and ERS 4800 models to be added at a later date.

[3] Future capability on ERS 4800 Series Models

About Avaya

Avaya is a global provider of business collaboration and communications solutions, providing unified communications, contact centers, data solutions and related services to companies of all sizes around the world. For more information please visit **www.avaya.com**.

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