AVAYA

The Power of We™

Avaya Ethernet Routing Switch 5000 Series

Premium Stackable Chassis system providing the resiliency, security and convergence-readiness required for today's high-end wiring closets, high-capacity data centers and network core environments.

ERS 5600 stackable chassis system

The Avaya Ethernet Routing Switch 5000 Series is a high-performance stackable chassis delivering highly available 10/100/1000 Ethernet connectivity for delay-sensitive and business-critical data and voice applications. The first switch to break the Terabit stacking performance boundary, the ERS 5000 can be deployed as a cost-effective data center top-of-rack or network core switch. Its high-performance and high-density also make it ideal for the most demanding converged wiring closet environments.

Highlights

- Best-in-class end-to-end resiliency, with switch clustering and hot-swappable unit replacement within a Stack Chassis

- Comprehensive Layer 3 routing and multicast features enable traffic segregation ideal for data center and network core applications

- High-performance pay-as-you-grow Stack Chassis capacity with up to 400 ports and over 1 Terabit per second of virtual backplane throughput

- Power-over-Ethernet (PoE) with true plug and play and advanced QoS for IP Phone deployments

- 10 model variants with flexible mix-and-match "hybrid" stacking across the ERS 5000 family

- Secure, standard-based 802.1X with integration to Avaya's Identity Engines portfolio for centralized, policy-based authenticated network access.

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 also were the first to break the Terabit boundary with the ERS 5600 Series products. We differentiate ourselves by ensuring that our Stackable Chassis performs like a modular chassis implementation. Our products 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 network upgrades. We also offer true investment protection with the ability to mix-and-match any ERS 5000 model within the Stackable Chassis system.

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 5500 delivers up to 640 Gbps and the ERS 5600 up to 1.152 Tbps 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, and resource utilization. Avaya has an additional advantage in that we honor Quality-of-Service settings as traffic passes over the stacking connections – optimizing performance, and providing a positive end user experience.

All ERS 5000 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 with no impact on 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.

Switch Clustering for Always-on Resiliency

Further complementing the Stackable Chassis architecture, the Avaya ERS 5000 Series supports standards-based 802.3ad Link Aggregation, as well as its own Switch 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 and traffic can be load balanced across ports. Sub-second failover across these ports further enhances the overall resiliency of the stack solution.

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

ERS 5600 Stacking Cable Inteconnection

further enhances operational and management simplicity.

All Ethernet Routing Switch 5000 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 stacking options

It is possible to mix and match any member of the ERS 5000 Series into a single Stackable Chassis. This allows customers to create the best mix of ports based on their specific requirements. The ERS 5000 Series can scale up to 8 units and 400 ports. ERS 5500 models feature a stacking capacity of 80 Gbps per switch and up to 640 Gbps for a full stack. ERS 5600 models offer an enhanced stacking capacity of 144 Gbps per switch and 1.152 Terabits of virtual backplane bandwidth. When an ERS 5600 is connected to an adjacent ERS 5500 in the stack, it automatically adjusts to the ERS 5500's stacking bandwidth of 80 Gbps. This allows mix and match port configuration based on operational needs, while preserving ERS 5500 investments.

Ethernet Routing Switch 5000 deployment scenarios

The ERS 5000 Series is a flexible solution that can be deployed in a variety of enterprise environments. These include:

High-performance data center edge

The high-performance, low-latency and high-availability requirements of the modern data center make the ERS 5000 Series perfect for server access as a top-of-rack solution. By utilizing Avaya's innovative 'horizontal stacking' capability – a switch at the top of each server rack, stacked 'horizontally' – the ERS 5000 series can support cost-effective, high-density server connections. Up to 400 Gigabit ports and multiple 10GbE uplinks per stack can be deployed in this manner (see Figure 1).

Avaya's Switch Clustering technology can further enhance overall resiliency through addition of a second horizontally-stacked 'Top-of-Rack' series of switches. Connected servers can then be 'dual-homed' to separate stacks of ERS 5000 Switches, which in turn appear as a single, logical switch to the rest of the network. This enables active-active connections, load-balancing and sub-second failover across the stacks. These features make the ERS 5000 series a truly cost-effective data center solution that combines always-on resiliency with high-performance connectivity.

Highly scalable small core

The ERS 5000 Series can also serve as a high-performing, feature-rich small Core solution. With high-density 10GbE and SFP ports (up to 64 10GbE and 192 SFP ports per stack), the ERS 5530-24TFD and 5632FD models are particularly well-suited to small core applications. Coupled with dynamic routing protocol support (RIP/ OSPF) – and field-replaceable, redundant power in the 5600 models — the ERS 5000 series can provide low-cost, resilient small core solutions.

The ERS 5000 Series can also act as a Switch Cluster supporting other ERS 3500, 4000 or third-party access switches (see Figure 2) using Avaya's Switch Clustering technology (SMLT). ERS 5000s in this configuration can provide up to 800 ports and over 2.3 Terabits of always-on performance – while enabling full use of all switches and links across the network.

A comprehensive suite of Layer 3 Routing protocols helps ensure that the ERS 5000 Series can be a truly effective core switch for the smaller network. IPv4 is supported along with IPv6 Static Routes, Auto-Address Assignment, and IPv4/ IPv6 Tunneling. Multicast support includes PIM-SM/SSM capabilities across the stack, along with full IGMPv3 support.

High-density wiring closet

With its non-blocking design, high-density GbE and integrated 10GbE port options, the Ethernet Routing Switch 5000 Series is perfectly suited as a high-performance, highly available connectivity solution in the wiring closet. Up to eight ERS 5000 Switches can be combined into a single stack with each ERS 5600 unit providing two 10GbE XFP ports for high-capacity uplinks to the core or aggregation layers of the network. ERS 5698 models provide even

Avaya's Innovative, Resilient 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 1.152 terabits) help ensure that the Stackable Chassis scales proportionally as each new unit is added.

Switch Clustering: Based on Avaya's unique Switch Multi-Link Trunking (SMLT) technology, switch clustering enables load balancing and sub-second failover to enhance the overall resiliency of the stack solution.
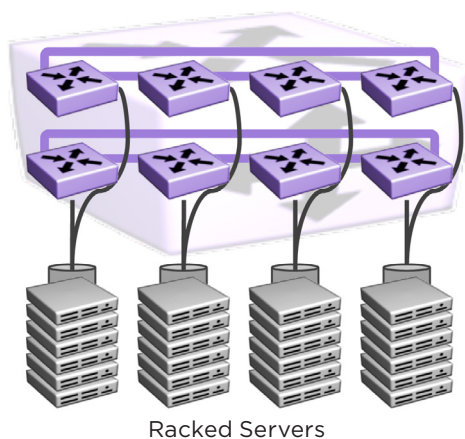
Optimal path forwarding: The shortest, most optimal path is chosen for each flow of traffic with QoS being maintained across the virtual backplane.

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 5000 Series into a single Stackable Chassis.

ERS 5000s configured as Top-of-Rack switches in a Horizontal Stack

Creates a virtual backplane across multiple server racks

Racked Servers

Figure 1: ERS 5000 as a Horizontal Stacking / Top-of-Rack Solution

ERS 3500 or 4000 Series edge switches

Trunks connecting edge
switches to ERS 5000
switch cluster

ERS 5000 Switch Cluster
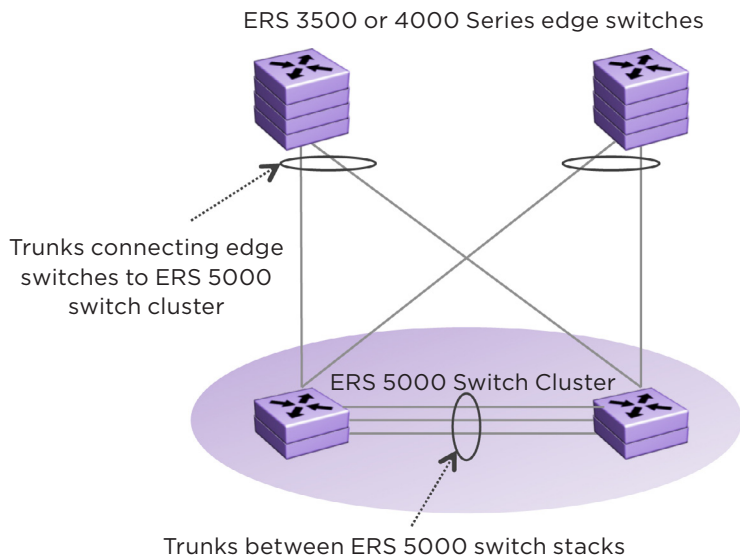
Trunks between ERS 5000 switch stacks

Figure 2: ERS 5000 as a Small Core Solution for edge switches

greater cost, space and energy efficiency with 96 x Gigabit-to-the-Desktop ports per unit with the flexibility of up to 6 SFP ports per switch for long-reach fiber optic connections. With Power-over-Ethernet (PoE) across all its ports, the ERS 5000 Series is an effective and flexible wiring closet/edge solution in support of desktop and powered devices.

Convergence Ready for Unified Communications, Video and more

For businesses looking to consolidate all forms of communication – voice, video and data – on a single infrastructure, the Avaya ERS 5000 Series delivers functionality that simplifies convergence of these technologies.

Power-over-Ethernet

Through support of the IEEE 802.3af PoE standard, ERS 5000 Series PoE models 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, reducing cabling and management costs for adds, moves and changes.

Plug and play for IP phones

One of the key benefits of ERS 5000 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 5000 can automatically provision end devices such as IP Phones for simplified deployments and moves. The ERS 5000 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 5000 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 5000 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 5000 Series delivers unsurpassed control for networks supporting a wide range of different application types. The ERS 5000 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), EtherType (e.g., IP, IPX) or the IEEE 802.1Q VLAN ID. Comprehensive traffic policing and traffic shaping are also supported.

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 5000 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 5000 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.

802.3ad Link Aggregation Groups can be further combined with Switch Clustering (leveraging Avaya's Split Multi-Link Trunking technology) to create 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 5000 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 5000 Series supports 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 5000 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 5600 models support integrated AC or DC power supplies for improved redundancy and uptime. ERS 5632FD and 5650TD models support two and ERS 5698TFD models support three integrated, field-replaceable supplies. This power supply design not only offers N+1 power redundancy and/ or supplementary PoE power, it also saves valuable rack space and reduces system, servicing and sparing costs.

The ERS 5500 models support redundant power via Avaya's Redundant Power Supply 15 (RPS 15). The RPS 15 chassis requires additional rack space, but can support up to three 600 watt power supply modules and provide redundant power to multiple ERS 5500 units.

Security to Safeguard the Network

Protecting the network against both external and increasingly prevalent internal attacks is a critical part of every IT manager's job. The ability to do this requires simple-to-manage, yet intelligent context-aware security solutions that not only look at the identity of the person logging in, but also at the device connecting into the network. This network access control approach helps to ensure that only authorized individuals and properly scanned/secured devices are allowed to join the network.

Authenticated Network Access

The ERS 5000 offers a range of security options to help ensure that only authorized personnel gain access to the LAN. Through IEEE 802.1x-based EAP client or device MAC Address, network administrators control authentication and authorization for access to network resources.

The ERS 5000 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. The ERS 5000

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 5000 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 how the user connects (wired or wireless). In this way, each connected device and user are known and governed by device-specific security policies.

Avaya Energy Saver

The Avaya Energy Saver solution aligns the consumption of energy to the use of devices and building occupancy. It manages the power that devices consume, "dimming" consumption during off-peak periods - much like a lighting control system - even turning off low-priority devices that are not needed after-hours. The energy usage profile of the typical enterprise indicates that there is great potential to deliver additional incremental energy efficiency - up to 20% more - by intelligently pruning off-peak power consumption, all without the need for any hardware change or investment overhead.

Avaya offers a complete solution of energy-efficient equipment with the tools needed to align energy consumption of the network with its genuine usage requirements. By combining efficiencies embedded into the ERS 5000 Series products with intelligent management of the network via Energy Saver, Avaya achieves some of the highest levels of energy-efficiency possible.

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.

Preventing Directed Attacks

Through advanced security services, the ERS 5000 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. In addition, the ERS 5000 supports advanced packet classification and deep packet filtering of up to 128 bytes, helping block unwanted network traffic while forwarding mission-critical traffic efficiently.

Secure, Simplified Management

The ERS 5000 Series supports Secure Shell (SSHv2) for strong authentication and encrypted communication. SSL is further supported on our web-based Enterprise Device Manager (EDM). SNMPv3 also provides user authentication and data encryption for secure configuration and monitoring while IP Manager List limits access to ERS 5000 management features via a list of IP Addresses or IP ranges/subnets, providing greater security and manageability.

BootP and TFTP support allow centralized Switch IP address assignment, software upgrades and SNMP agent updates over the network. RADIUS-based security features also can be used to authenticate local console and TELNET logins.

The ERS 5000 provides a number of additional advanced management tools and features, including:

- IPv6 management. The ERS 5000 Series supports either IPv4 or IPv6-based management. Simply select whether the switch/stack should be managed via IPv4 or IPv6, enter the switch/stack IP address in the right format, and the appropriate management paradigm becomes operational.

- Many-to-many port mirroring. This feature provides the ability to have multiple instances (up to four) of many-to-one port mirroring. Flows can be captured simultaneously to traffic analyzers, call recorders, IDS/IPS devices, etc., for enhanced control and visibility in complex networks.

- GUI and Web-based Enterprise Device Manager (EDM). Included with all Avaya Ethernet Routing Switches, EDM enables quick, easy configuration changes to a single device through a pictorial view of that switch using either HTTP or HTTPS (Secure Web.)

Features	ERS 5698	ERS 5650	ERS 5632	ERS 5530	ERS 5520-PWR	ERS 5510
10/100/1000 ports	96 (6 Combo)	48	—	24 (12 Combo)	24 / 48	24 / 48
GbE SFP ports	6 Combo	—	24	12 Combo	4	2
10Gbps XFP ports	2	2	8	2	—	—
Power-over-Ethernet	96 (5698TFD-PWR)	48 (5650TD-PWR)	—	—	24 / 48	—
Resilient FAST architecture	Yes	Yes	Yes	Yes	Yes	Yes
Stack capacity	1.152Tbps	1.152Tbps	1.152Tbps	640Gbps	640Gbps	640Gbps
Number of Switches supported by an RPS 15 Module	—	—	—	1	1	Up to 4
Number of AC or DC Modular Supplies	Up to 3	Up to 2	Up to 2	—	—	—
Typical deployments	Desktop Connectivity with optional PoE	Desktop Connectivity with optional PoE and Server Aggregation	Small Core and Fiber Aggregation	Small Core and Server Aggregation	Desktop Connectivity, PoE for Convergence Devices	Desktop Connectivity and Server Aggregation

- Command Line Interface (CLI). A highly intuitive industry aligned interface that eases the transition from one vendor to another.

- SNMP-based management (SNMP v1, 2 and 3). Provides an alternative standards-based management approach and an interface used by both Avaya's COM and VPFM Unified Management tools (see below).

The ERS 5000 Series can also be centrally managed using Avaya's Unified Management products, including:

- Configuration and Orchestration Manager (COM) – Provides multi-element, multi-switch configuration via wizards and templates, network discovery, device backup, bulk configuration management and auditing, among many other features.

- Virtualization Performance and Fault Manager (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.

- IP Flow Manager (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.

Lifetime warranty

Avaya offers industry-leading lifetime warranty services for our portfolio of Stackable Chassis Switches, including Avaya ERS 5000 Series products. The warranty includes complimentary next-business-day delivery of replacement hardware (in cases of hardware failure) for the life of the product, including fans and power supplies. It also includes complimentary basic technical support for the life of the product.

This includes the shipped software version and those updated through optional support contracts. Avaya also offers optional service contracts for enhanced software functionality and extended hardware and technical support.

Summary

The Ethernet Routing Switch 5000 Series can be a highly effective high-performance solution for wiring closets, data centers and small core installations with its always-on resiliency, advanced security and Layer 3 features. Deployed along with other Avaya products, it can increase profitability, streamline business operations, lower costs and help your business gain a competitive edge.

Learn more

To learn more about the Ethernet Routing Switch 5000 Series, please contact your Avaya Account Manager or Avaya Authorized Partner. Or, visit us online at **avaya.com**.

Ordering Information

ERS 5600 Series Models	
AL1001?11-E5	ERS 5698TFD-PWR with 96 x 10/100/1000Base-T IEEE 802.3af PoE ports, plus 6 x shared 1000Base-T/SFP ports, plus 2 x 10GBase-XFP Uplink ports, and 1000W AC Integrated Power Supply
AL1001?12-E5	ERS 5698TFD with 96 x 10/100/1000Base-T ports, plus 6 x shared 1000Base-T/SFP ports, plus 2 x 10GBase-XFP 10 Uplink ports, and 300W AC Integrated Power Supply
AL1001?13-E5	ERS 5650TD-PWR with 48 x 10/100/1000Base-T IEEE 802.3af PoE ports, plus 2 x 10GBase-XFP Uplink ports, and 600W AC Integrated Power Supply
AL1001?14-E5	ERS 5650TD with 48 x 10/100/1000Base-T ports, plus 2 x 10GBase-XFP Uplink ports, and 600W AC Integrated Power Supply
AL1001?15-E5	ERS 5632FD with 24 x 10/100/1000 SFP ports, plus 8 x 10GBase-XFP 10 Uplink ports, and 300W AC Integrated Power Supply

Notes:
- Each Switch ships with the Base Software License and a 46 cm Stackable Chassis cable

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

ERS 5500 Series Models	
AL1001?03-E5	ERS 5510-48T with 48 x 10/100/1000Base-T ports, plus 2 x Combo 1000Base-T/SFP Uplink ports
AL1001?04-E5	ERS 5510-24T with 24 x 10/100/1000Base-T ports, plus 2 x Combo 1000Base-T/ SFP Uplink ports
AL1001?05-E5	ERS 5520-48T-PWR with 48 x 10/100/1000Base-T IEEE 802.3af Power over Ethernet ports, plus 4 x Combo 1000Base-T/SFP Uplink ports
AL1001?06-E5	ERS 5520-24T-PWR with 24 x 10/100/1000Base-T IEEE 802.3af Power over Ethernet ports, plus 4 x Combo 1000Base-T/SFP Uplink ports
AL1001?07-E5	ERS 5530-24TFD with 24 x 10/100/1000BaseT ports, plus 12 x Shared 1000BaseT/SFP ports, plus 2 x 10GBase-XFP Uplink ports

Notes:
- Each Switch ships with the Base Software License, a 46 cm Stackable Chassis cable and a RPS slot

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

Power Supplies for ERS 5600 Models	
AL1905?01-E5	1000W AC power supply for use in the ERS 5698TFD-PWR.
AL1905?02-E5	600W AC power supply for use in the ERS 5650TD-PWR.
AL1905?03-E5	300W AC power supply for use in the ERS 5698TFD, 5650TD, and 5632FD

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

Redundant Power Supplies for the ERS 5500 Models	
AA0005017-E5	Redundant Power Supply 15 Chassis - Supports up to three RPS 15 Power Supplies
AA0005018-E6	Redundant Power Supply 15 - Connecting Cable (1.8m/6ft) for 5520-24T-PWR, 5520-48T-PWR, 5530-24TFD units – (Does not require separate DC-DC converter)
AA0005?19-E5	Redundant Power Supply 15 - 600 Watt Power Supply Module up to three can be installed in Chassis
AA0005020-E6	Redundant Power Supply 15 - Long Connecting Cable (7.6m/25ft) for up to 4 x 5510-24T, 5510-48T units (Requires separate DC-DC converter for connection switch)
AA0005021-E6	Redundant Power Supply 15 - Short Connecting Cable (3m/10ft) for up to 4 x 5510-24T, 5510-48T units. (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

Licenses	
AL1016001	ERS 5000 Series Advanced License. Enabled features include SMLT, OSPF, ECMP, VRRP, PIM-SM/SSM and IPv6 Static Routing. (One license required per stack or standalone unit).
AL1016005	ERS 5000 Series Premier License. Enabled features include all Advanced License features, plus VRF-Lite. (Available for ERS 5600 models only. One license required per stack or standalone unit).

Notes:
• Not all Advanced License features are supported on ERS 5500 Models.
  Please check with your Avaya representative as to features available on specific ERS 5500 models

About Avaya

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

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