Introducing the
Virtual Services Platform 8400 Series

The Virtual Services Platform 8400 Ethernet Switches are new product offerings from Avaya leveraging the Virtual Services Platform Operating System, combining innovative hardware and next-generation software to redefine operational flexibility and dramatically reduce TCO, offering a highly efficient and effective platform that solves multiple deployment and operational challenges.

Introduction

Ethernet technology is constantly evolving to offer faster speeds than previously imagined. With the rollout of Gigabit Ethernet to the desktop and 10 Gigabit Ethernet to servers, there is a need for aggregating these into higher speed 10 Gigabit, 40 Gigabit, and potentially 100 Gigabit Ethernet links across the backbone of the network. These changes are driving the development and availability of highly integrated ASICs from commercial chipset vendors with the end result being lower cost as well as smaller form-factor Ethernet Switches.

The broader Virtual Services Platform 8000 Series is new family of high-performance Ethernet Switches developed by Avaya to leverage these highly integrated ASICs which, combined with the Virtual Services Platform Operating System, offers our partners and customers the 'Avaya advantage' i.e. a cost-effective, fully featured, flexible, and simple to operate network solution.

With the introduction of the VSP 8404, the VSP 8000 Series is being extended with new, flexible, compact form-factor Switch that redefines operational flexibility by combining innovative hardware and next-generation software. Uniting cost-effective deployment versatility – Campus and Data Center, and wide interface diversity, the VSP 8400 delivers a future-ready hardware architecture, combining with feature-rich software, and a dual Fabric/IP capability.

The VSP 8404 is forecast to be launched early in CY2015 and will implement the proven VOSS feature-set to address the needs of customers that may choose to deploy it either in conventional IP routing network topologies, or as part of an Avaya Fabric Connect solution. The VSP 8400 is interoperable with third party products that implement Standards-compliant IEEE 802.1aq Shortest Path Bridging (SPB).

Product Description

The VSP 8404 is a flexible, compact form-factor Ethernet Switch that features four expansion slots for 8400 Series Ethernet Switch Modules (ESMs). Therefore, in its basic form the 8404 is a "zero port" Ethernet Switch; it includes everything to function as a standalone Switch – switching fabric, memory, power, fans, etc – with the rather obvious exception of physical ports, these being provided by the in-field addition of ESMs. The ESMs that will be made available with the initial product release are:

- 8408QQ – 8-port 40GBASE-QSFP+ Ethernet Switch Module (please refer to explanatory detail in Technical Description)
- 8418XSQ – 16-port 10GBASE-SFP+ and 2-port 40GBASE-QSFP+ Combo Ethernet Switch Module
- 8424XS – 24-port 10GBASE-SFP+ Ethernet Switch Module
- 8424XT – 24-port 10GBASE-T Ethernet Switch Module

It should be noted that 10GBASE-SFP+ ports also support a wide range of Gigabit SFP Transceivers, and 10GBASE-T ports also support 100/1000Mbps connectivity.

The VSP 8404 is primarily targeted as a:

- Core Switch for smaller Campus networks, typically deployed as a high-availability pair, interconnecting multiple Wiring Closets and Server Farms
- "Spine" (or Core) Switch in Spine/Leaf Data Center deployments, featuring low-latency aggregation of multiple Top-of-Rack "Leaf" Switches, ideally the new VSP 7200 Series products
- Distribution/Aggregation Switch in large, distributed Campus environments, supporting multiple, flexible high-speed uplinks and downlinks

The VSP 8404 will be introduced via the VOSS 4.2 software stream. Avaya Networking is currently undertaking a "unification" activity with regards to the various VSP hardware platforms and their operating system software; VOSS 4.1 delivered a single unified image for both the VSP 8200 and VSP 4000 product lines. VOSS 4.2 releases will expand the unification activity to include VSP 8400 and also the new VSP 7200 Series.

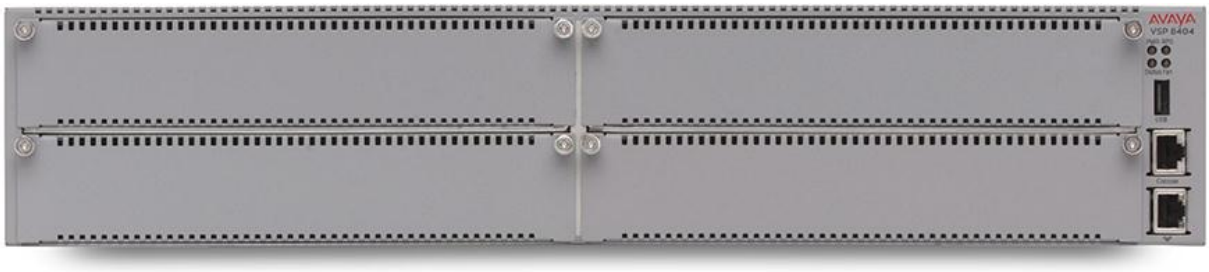
Deployable in various Enterprise environments, the VSP 8404 is equally competent in both Fabric-based and conventional, multi-tier Routed IP networks. The VSP 8404 will have very broad appeal, across any industry vertical, given that it combines innovative hardware and next-generation software designs to redefine operational flexibility.

Avaya's product numbering logic is based on "typical deployment role"; that is, where most mainstream users will deploy products, and therefore the new VSP 8404 product is being introduced as a mid-range Core Switch alongside the existing VSP 8284XSQ, and the perennial ERS 8800. It should be noted that all VSP 8000 Series product share a common different hardware platform, common system software, and therefore have many features and capabilities in common. The VSP 8404, with Ethernet Switch Module support, is notable for it's inherent flexibility.

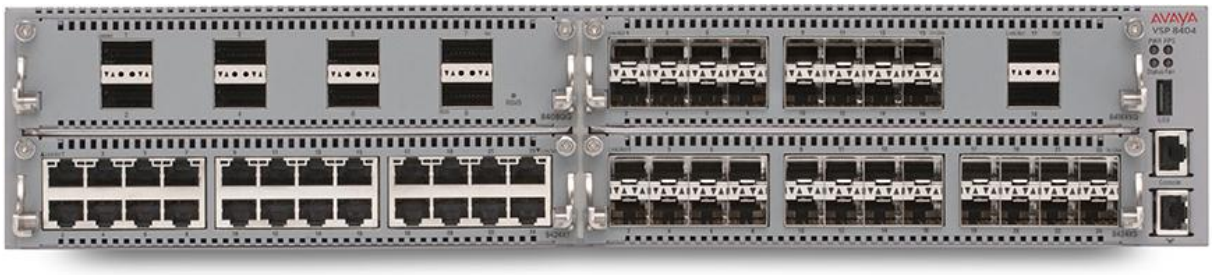
Technical Description

The VSP 8404 platform is a non-blocking 2.56Tbps Ethernet Switch that is equipped with four slots for use with the VSP 8400 Series Ethernet Switch Modules (ESMs). It supports high-availability AC or DC power (1+1), field-replaceable fan trays, and front-to-back airflow. The system runs the proven and feature-rich Virtual Services Platform Operating System.

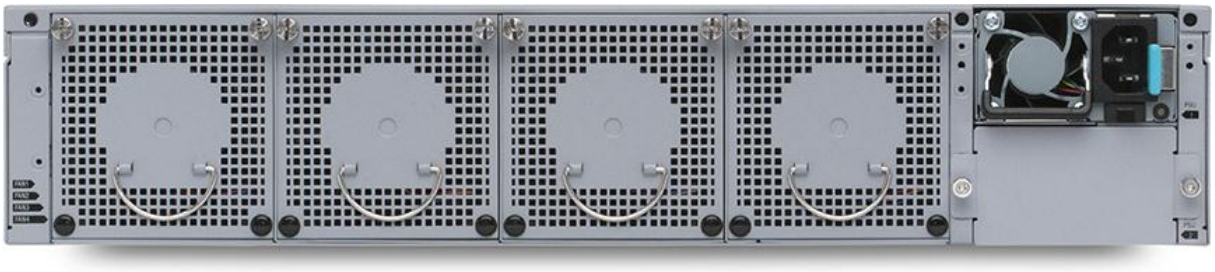
Various views of VSP 8404, and the initial ESMs, are presented as follows. The front of the VSP 8404 features four ESM slots, and the Serial, Ethernet, and USB management interfaces.



A VSP 8404 fully populated with a variety of ESM:



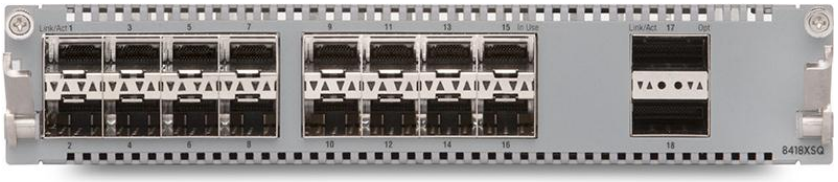
The rear of the VSP 8404 features Power Supply access (one AC or DC unit required and supplied by default, and an optional second provides high-availability), and Fan Module access (all four included by default).



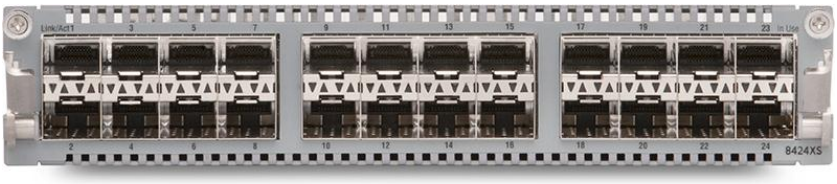
The four initial ESMs are shown below:

8408QQ – 8-port 40GBASE-QSFP+ Ethernet Switch Module

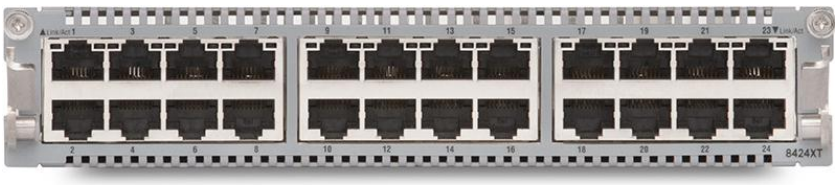
8418XSQ – 16-port 10GBASE-SFP+ and 2-port 40GBASE-QSFP+ Combo Ethernet Switch Module



8424XS – 24-port 10GBASE-SFP+ Ethernet Switch Module



8424XT – 24-port 10GBASE-T Ethernet Switch Module



Physical Dimensions

The VSP 8404 4-Slot Ethernet Switch base unit is 440mm/17.3in wide (fitted for 19 inch racks), 667mm/26.125in deep, and 88mm/3.5in tall (2U). The VSP 8404 weighs 15.13kg/33.35lbs empty and up to 15.99kg/35.25lbs fully populated.

Base Hardware Configuration

VSP 8404 Ethernet Switch with 4 ESM slots, 1 x 800W AC or DC with Front-to-Back airflow and, if applicable, region-specific power cord, 4 x field-replaceable Fan Trays, RJ-45 Serial Console port, 10/100/1000BASE-T Out-of-Band Management Ethernet port, and USB 2.0 port.

40 Gigabit Channelization

The 40 Gigabit Ethernet ports delivered on VSP 8400 ESMs are hardware-ready of Channelization and this capability will be delivered in the initial VOSS 4.2 release. The intention of Channelization is to provide additional interface flexibility, with one (40G) port having the ability to be converted from a single 40G connection to multiple (4) 10G

connections, without changing hardware. This can be achieved through the use of Avaya-supplied Break-Out Cables (BOCs), which are copper cabling assemblies used for short distance attachment (typically to Servers), or by using the Avaya-supplied 1xSR4/4xSR QSFP+ Optical Transceiver – in combination with commercially available MPO ribbon fiber cabling – for longer distance runs.

MACsec
MACsec – Media Access Control Security, as per 802.1AE, providing link layer encryption – is supported on the 10 Gigabit port, and on 40 Gigabit ports when these are configured in Channelized mode.

8408QQ Port Availability
The 8408QQ Ethernet Switch Module is equipped with eight physical 40GBASE-QSFP+ ports; however when initially made available for and deployed in the VSP 8404 platform, ports 7 and 8 will not be available for use; support for all eight ports will come with a follow-on VSP 8400 Series product.

Optional Hardware
It's recommended that operators purchase a second Power Supply Unit – AC or DC, as appropriate – for power resiliency, and perhaps replacement/spare Fan Modules so that these are readily at hand in the case of a failure.

Power Supplies
The VSP 8404 is available with either AC or DC power, and currently only the Front-to-Back Airflow option is supported. These are actually shared with the VSP 8284XSQ, the initial VSP 8200 Series mode, and also the new VSP 7200 models. Currently, it is not possible to mix AC and DC supplies in the same unit.

Software Licensing
The Base Software License is included with the base hardware purchase and covers most software features. The notable exception is the L3 VSN feature, being covered by the Premier Software License, and in jurisdictions where this it permitted, to enable MACsec link layer encryption.

Warranty
Unlike the VSP 8284XSQ, the VSP 8404 is not covered by Avaya's Lifetime Warranty, and is offered with a 12-months hardware warranty equivalent to that offered for the VSP 9000.

VSP 8400 Software Features as of VOSS 4.2

- Operations & Management
    - COM
    - EDM On/Off-Box
    - SNMP v1/2/3
    - ACLI
    - RADIUS, Community-based Users
    - Terminal Access Controller Access-Control System, TACACS+*
    - Key Health Indicator (KHI)
    - Flight Recorder
    - Logging (log to file and syslog)
    - RMON
    - Mirroring (port- and flow-based)
    - Telnet Server/Client
    - Trivial File Transfer Protocol (TFTP) Server/Client
    - File Transfer Protocol (FTP) Server/Client
    - Secure Shell (SSH) v1 & v2 Server/Client
    - Secure Copy (SCP)
    - Remote Shell (RSH) Server/Client
    - Remote Login (Rlogin) Server/Client
    - Domain Name Service (DNS) Client
    - Network Time Protocol (NTP)
    - SoNMP (Avaya Topology Discovery Protocol)
    - Avaya Virtual Link Aggregation Control Protocol (VLACP)
    - Avaya Simple Loop Prevention Protocol (SLPP)
    - IEEE 802.1ag Connectivity Fault Management
        - L2 Ping
        - TraceRoute
        - TraceTree
- Layer 1
    - 40 Gigabit Channelization
- Layer 2
    - Spanning Tree Protocols (STP)
        - Multiple Spanning Tree (MSTP)
        - Rapid Reconfiguration of Spanning Tree (RSTP)
    - Multi-Link Trunking (MLT) / Link Aggregation (LAG)
    - Avaya Switch Cluster (Multi-Chassis LAG)
        - Virtualized Inter-Switch Trunk (vIST)
    - Microsoft Network Load-Balancing Service (NLBS)
        - Unicast mode

  - Extensible Authentication Protocol (aka 802.1X)
  - Non-EAPoL MAC RADIUS Authentication
- Avaya Fabric Connect (extended 802.1aq Shortest Path Bridging)
  - L2 Virtual Service Networks (VSN)
  - L3 Virtual Service Networks (VSN)*
  - Inter-VSN Routing
  - IP Shortcut Routing including ECMP
  - Transparent UNI (delivered in VOSS 4.2.1)*
  - Customer VLAN UNI with Avaya Switch Cluster
  - Equal Cost Trees (ECT)
  - Multicast-over-Fabric Connect, with L2 VSNs and IP Shortcut Routing*
  - Fabric Attach*
- Layer 3 IP Routing Services
  - Static Routing
  - Route Information Protocol (RIP)
  - Open Shortest Path First (OSPF), including OSPF for IPv6
  - Equal Cost Multiple Path (ECMP)
  - IP Route Policies
  - L3 Switch Cluster (Routed SMLT)
    - Virtualized IST (vIST)
  - Virtual Router Redundancy Protocol (VRRP), including VRRPv3 for IPv6*
    - Backup Master
  - ARP
    - Static Address Resolution Protocol (ARP)
    - Proxy ARP
  - Internet Control Message Protocol (ICMP), plus ICMP for IPv6*
  - Dynamic Host Configuration Protocol (DHCP) Relay, DHCP Option 82, plus DHCPv6*
  - Virtualization with IPv4 Virtual Routing and Forwarding (VRF)
    - Local Routing
    - Static Routing
    - RIPv1/2
    - OSPFv2
    - Route Policies
    - Inter-VRF Routing (static, dynamic, and policy)
    - VRRP
    - ARP
    - DHCP Relay
- IP Multicast
  - Internet Group Management Protocol (IGMP) v1/2/3*
  - Protocol Independent Multicast, Sparse Mode (PIM-SM)*
  - Multicast-over-Fabric Connect, with L2 VSNs and IP Shortcut Routing*

- Quality-of-Service & Filtering
    - Differentiated Services (DiffServ) including Per-Hop Behavior (PHB)
    - Access Control List (ACL)-based filtering
        - Port
        - VLAN
        - Ingress ACLs
        - Egress ACLs
        - L2-L4 Filtering
    - L2-L4 Ingress Port Rate Limiter
    - Egress Port Shaper
    - Avaya Auto QoS

* Indicates a new or changed feature for VOSS 4.1/4.2

VSP 8400 Software Target Scaling

The table below details the target scaling information for VOSS 4.2 release. The numbers are subject to change as the product goes through the software test cycle prior to general availability. Final scaling numbers will be documented in the product release notes.

- Operation & Management
  - Mirrored Ports: up to 83, and up to 95 when all 40 Gigabit ports are Channelized*
  - SSH Server Sessions: 8
  - Rlogin Server Sessions: 8
  - Avaya VLACP Instances: 84
  - Avaya SLPP Instances: 128*
- Layer 2
  - Forwarding Database Entries: 224,000 MAC Addresses
    - L2 VSN 112,000 MACs
  - Port-based VLANs: 4,059*
  - MSTP Instances: 64
  - Links per Switch Cluster/Multi-Chassis LAG: 16
  - MLT Groups: up to 96*
  - MLT Links per Group: 8
- Avaya Fabric Connect (extended Shortest Path Bridging)
  - IS-IS Interfaces/Adjacencies: 96*
  - SPB Nodes BMAC Endpoints: 2,000*
  - L2 Virtual Service Network IDs: 4,060
  - L3 Virtual Service Network IDs: 24*
  - Multicast IDs: 6,000*
  - IP Shortcut Routing: 16,000 routes shared with other IPv4 VRFs and the GRT
  - Equal Cost Trees (ECT): 2
- Layer 3 IP Routing & Routing Services
  - ARP Entries: 32,000 per System*
  - Static ARP Entries: 2,000 per VRF, or 10,000 per System
  - IP UDP Forwarding Entries: 256 per VRF, or 512 per System*
  - DHCP Relay: 1,024 per System*
  - BRouter ports: 84*
  - IP Static Routes: 1,000 per VRF, or 5,000 per System*
  - Circuitless IP Interfaces: 64 per System*
  - Routing Interfaces: 506 per System*
  - RIP Interfaces: 200 per System
  - OSPF Interfaces: 500 per System*
  - OSPF Neighbors: 500 per System*
  - OSPF Areas: 12 per Instance, or 80 per System
  - OSPF Routes: 16,000

  - BGP RIB Routes: 16,000*
  - RSMLT Interfaces: 256*
  - VRRP Virtualization: 64 per VRF, or 128 per System*
  - Equal Cost Multiple Path (ECMP) Routes: 16,000
  - ECMP Unique Groups: 1,000
  - ECMP Paths per Route: 8
  - IP Route Policies: 500 per VRF or 5,000 per System
  - IP Route Policy Prefix Lists: 500
  - IP Route Policy Prefix Entries: 25,000
  - IPv6 Interfaces: 507*
  - IPv6 Routes: 8,000 where the network prefix is ≤64 bits, and 4,000 where the network prefix is >64 bits*
  - IPv6 Static Routes: 1,000*
  - IPv6 Configured Tunnels: 256*
  - VRFs: 24
  - RIPv1/2 Virtualized Instances: 24
  - OSPFv2 Virtualized Instances: 24
- IP Multicast
  - IGMP Interfaces: 4,059*
  - PIM Active Interfaces: 128*
  - PIM Passive Interfaces: 500*
  - Multicast Streams: 6,000*
- QoS & Filtering
  - Ingress ACLs: 256 total
    - 256 Security, or
    - 128 QoS, or
    - Combination of up to 256 per System
  - Egress ACLs: 126 per System; Security only*
  - ACEs:
    - Total IPv4 Ingress Rules (Port/VLAN-based, Security/QoS Filters): 766*
    - Total IPv4 Egress Rules (Port/VLAN-based, Security/QoS Filters): 252*
    - Total IPv6 Ingress Rules (Port/VLAN-based, Security/QoS Filters): 256*
  - Unique Redirect Next-Hop Values for ACE actions: 511
  - L2-L4 Ingress Port Rate Limiters: 96*
  - Egress Port Shaper Shaping Granularity: 1,000kbps to 40,000,000kbps per Port

* Indicates a new or changed feature or value for VOSS 4.1/4.2

VSP 8400 Standards Compliance

The VSP 4.2 Software release will provide compliance with the following IEEE and IETF standards:

- IEEE
  - 802.1 Bridging (Networking) and Network Management
    - 802.1D MAC Bridges (a.k.a. Spanning Tree Protocol)
    - 802.1p Traffic Class Expediting and Dynamic Multicast Filtering (a.k.a. Priority)
    - 802.1w Rapid Reconfiguration of Spanning Tree (RSTP)
    - 802.1Q Virtual Local Area Networking (VLAN)
    - 802.1s Multiple Spanning Trees (MSTP)
    - 802.1v VLAN Classification by Protocol and Port
    - 802.1ag Connectivity Fault Management
    - 802.1aq Shortest Path Bridging (SPB) MAC-in-MAC
    - 802.1Qbp Equal-Cost Multi-Path (Shortest Path Bridging)
    - 802.1X Port-Based Network Access Control (a.k.a. EAPoL)*
    - 802.1AE Media Access Control Security*
    - 802.1AX Link Aggregation (f.k.a. 802.3ad)
  - 802.3 Ethernet
    - 802.3 CSMA/CD Ethernet (ISO/IEC 8802-3)
    - 802.3i 10BASE-T 10Mbit/s over Twisted Pair
    - 802.3u 100BASE-TX Fast Ethernet 100Mbit/s with Auto-Negotiation
    - 802.3x Full Duplex and Flow Control
    - 802.3z 1000BASE-X Gigabit Ethernet over Fiber
    - 802.3ab 1000BASE-T Gigabit Ethernet over Twisted Pair
    - 802.3z 1000BASE-CWDM Ethernet
    - 802.3z 1000BASE-LX Ethernet
    - 802.3z 1000BASE-SX Ethernet
    - 802.3z 1000BASE-ZX Ethernet
    - 802.3ae 10 Gigabit Ethernet over Fiber
      - 10GBASE-SR, 10GBASE-LR, 10GBASE-ER, 10GBASE-SW, 10GBASE-LW, 10GBASE-EW
    - 802.3an 10GBASE-T 10 Gigabit Ethernet over Twisted Pair
    - 802.3ba 40 Gigabit and 100 Gigabit Ethernet over Copper and Fiber
      - 40 Gigabit, implemented as 40BASE-QSFP+
- IETF
  - Generic
    - 768 UDP
    - 783 TFTP
    - 791 IP
    - 792 ICMP

- 793 TCP
- 826 ARP
- 854 Telnet
- 894 Transmission of IP Datagrams over Ethernet Networks
- 896 Congestion Control in IP/TCP internetworks
- 950 Internet Standard Sub-Netting Procedure
- 951 BOOTP Relay Agent only
- 1027 Using ARP to Implement Transparent Subnet Gateways
- 1058 RIP
- 1256 ICMP Router Discovery
- 1305 NTP v3
- 1340 Assigned Numbers
- 1519 CIDR
- 1541 DHCP
- 1583 OSPFv2
- 1587 OSPF NSSA Option
- 1591 DNS Client
- 1723 RIPv2 Carrying Additional Information
- 1812 Router Requirements
- 1866 HTMLv2
- 1981 Path MTU Discovery for IPv6*
- 2068 HTTP
- 2138 RADIUS Authentication
- 2139 RADIUS Accounting
- 2236 IGMPv2 Snooping*
- 2328 OSPFv2
- 2362 PIM-SM*
- 2453 RIPv2
- 2460 IPv6 Basic Specification*
- 2464 Transmission of IPv6 Packets over Ethernet Networks*
- 2740 OSPF for IPv6*
- 2992 ECMP Algorithm
- 3046 DHCP Relay Agent Information Option 82
- 3056 Connection of IPv6 Domains via IPv4 Clouds*
- 3162 RADIUS and IPv6*
- 3315 DHCPv6*
- 3376 IGMPv3
- 4007 IPv6 Scoped Address Architecture*
- 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers*
- 4291 IPv6 Addressing Architecture*
- 4861 Neighbor Discovery for IPv6*

- 4862 IPv6 Stateless Address Auto-Configuration*
- 5308 Routing IPv6 with IS-IS*
- 5340 OSPF for IPv6#
- 5798 VRRPv3 for IPv4 and IPv6#
- 6329 IS-IS Extensions supporting Shortest Path Bridging

- Quality-of-Service
  - 2474 Differentiated Services Field Definitions in IPv4 & IPv6 Headers*
  - 2475 Architecture for Differentiated Service
  - 2597 Assured Forwarding PHB Group
  - 2598 Expedited Forwarding PHB
- Network Management
  - 959 FTP
  - 1155 Structure and Identification of Management Information for TCP/IP-based Internets
  - 1157 SNMP
  - 1215 Convention for Defining Traps for use with the SNMP
  - 1258 BSD Rlogin
  - 1305 NTP – Client / Unicast mode only
  - 1350 TFTPv2
  - 1907 SNMPv2
  - 2571 Architecture for Describing SNMP Management Frameworks
  - 2572 Message Processing and Dispatching for SNMP
  - 2573 SNMP Applications
  - 2574 User-based Security Model for SNMPv3
  - 2575 View-based Access Control Model for SNMP
  - 2576 Coexistence between v1, v2, & v3 of the Internet-standard Network Management Framework
  - 2616 HTTPv1.1
  - 2819 RMON
  - 3596 DNS Extensions to support IPv6
  - 4250 SSH Assigned Numbers
  - 4251 SSH Protocol Architecture
  - 4252 SSH Authentication Protocol
  - 4253 SSH Transport Layer Protocol
  - 4254 SSH Connection Protocol
  - 4255 DNS to Securely Publish SSH Key Fingerprints
  - 4256 Generic Message Exchange Authentication for SSH
  - 4443 ICMP for IPv6 (ICMPv6)*
- Management Information Base
  - 1156 MIB for Network Management of TCP/IP
  - 1212 Concise MIB Definitions
  - 1213 TCP/IP MIB

- 1213 MIB II
- 1271 RMON MIB
- 1398 Ethernet MIB
- 1442 SMIv2 of SNMPv2
- 1450 SNMPv2 MIB
- 1573 Interface MIB
- 1650 Definitions of Managed Objects for the Ethernet-like Interface Types
- 1850 OSPF MIB
- 2021 RMON MIB using SMIv2
- 2454 IPv6 MIB for UDP*
- 2465 MIB for IPv6: Textual Conventions and General Group*
- 2466 MIB for IPv6: ICMPv6 Group*
- 2578 SMIv2
- 2674 Bridges with Traffic MIB
- 2787 Definitions of Managed Objects for VRRP
- 2863 Interface Group MIB
- 2925 Remote Ping, TraceRoute, & Lookup Operations MIB
- 2933 IGMP MIB*
- 2934 PIM MIB for IPv4*
- 3416 Protocol Operations for SNMPv2
- 4022 TCP MIB*
- 4087 IP Tunnel MIB*
- 4113 UDP MIB
- 4293 MIB for IP[#]
- 4363 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual LAN Extensions

* Indicates a new or changed feature or value for VOSS 4.1/4.2

[#] Indicates planned future support

Ordering Information

Important ordering/hardware installation considerations:

- Must choose the model number that corresponds to the regional power cord required.
- Should order a second option power supply unit, as required, for power resiliency.
- Customers must order a slide rack mount kit with every unit; the 300-900mm kit is designed to fit within most 4-post rack mount systems. The use of just two-post rack mounting ears will likely cause warping of the rack due to the weight of the unit and is therefore not recommended. Customers are advised to use mounting ears only in conjunction with a supporting shelf.
- Units do not ship with Console Cables and must be ordered separately.

The table below shows the list of VSP 8400 Series product components and accessories.

Order Code	Description
EC8400?01-E6	**Virtual Services Platform 8404** 4-Slot Ethernet Switch. Includes single **800W AC Power Supply**, four Fan Modules, and Base Software License. Slide Rack Mount Kit sold separately.
EC8400001-E6	**Virtual Services Platform 8404** 4-Slot Ethernet Switch. Includes single **800W DC Power Supply**, four Fan Modules, and Base Software License. Slide Rack Mount Kit sold separately.
VSP 8400 Series Ethernet Switch Modules	
EC8404003-E6	**8-port 40GBASE-QSFP+** Ethernet Switch Module for VSP 8400 Note: Ports 7 & 8 are disabled when used in VSP 8404.
EC8404005-E6	**16-port 10GBASE-SFP+ and 2-port 40GBASE-QSFP+ Combo** Ethernet Switch Module for VSP 8400. SFP+ ports also support selected 1000BASE-SFP.
EC8404001-E6	**24-port 10GBASE-SFP+** Ethernet Switch Module for VSP 8400. Ports also support selected 1000BASE-SFP.
EC8404002-E6	**24-port 10GBASE-T** Ethernet Switch Module for VSP 8400. Ports also support 100/1000Mbps connectivity.
VSP 8400 Series Accessories	
Power Supplies	
EC8005?01-E6	**800W 100-240V AC** Power Supply **Front-to-Back Airflow**, for use with **VSP 7200/8000**.
EC8005001-E6	**800W DC** Power Supply **Front-to-Back Airflow**, for use with **VSP 7200/8000**.
Fans	
EC8011004-E6	Single Replacement/Spare Fan Module for VSP 8400.
Software Licenses	
380176	**Premier** Software License for VSP 7200/8000, **MACsec-Disabled.**
380177	**Premier** Software License for VSP 7200/8000, **MACsec-Enabled.**
Miscellaneous	
EC8011002-E6	Long Chassis Slide Rack Mount Kit (300-900mm) for VSP 8000.
EC8011003-E6	Power Supply Filler Panel for VSP 8000.
Console Cables	
AL2011020-E6	Avaya DB-9 Female to RJ-45 Console Connector (RED). Note: converts a DB-9 Male to RJ-45 Serial port. Can be used for PC or device with DB-9 Male Console port for use with a Cat 5 RJ-45 straight cable to provide Console connection.

AL2011021-E6	Avaya DB-9 Male to RJ-45 Console Connector (BLUE). Note: converts DB-9 Female to RJ-45 serial port. Can be used to convert DB-9 of AL2011013-E6 Console cable to RJ-45, a Cat 5 RJ-45 straight cable can then connect to RJ-45 Console port.
AL2011022-E6	Avaya RJ-45/DB-9 Integrate Console Cable. Note: 1.5m cable with DB-9 Female for PC and RJ-45 for device Console port.

Where applicable the seventh character (?) of the Product Code is replaced to indicate the required product nationalization:

A No Power Cord option.
B European “Schuko” Power Cord, common in Austria, Belgium, Finland, France, Germany, Netherlands, Norway, & Sweden.
C Power Cord used in UK and Ireland.
D Power Cord used in Japan.
E Power Cord used in North America.
F Power Cord used in Australia, New Zealand and People’s Republic of China.

Supported Transceivers

The VSP 8400 series will operate in strict mode for pluggable transceivers i.e. non-Avaya branded optics will not be recognized or supported. Exceptions are third party Direct Attach Cables (DAC) – while not supported in the event of issues, the use of these third party DACs will be permitted, similar to the situation for the VSP 9000 platform.

The table below shows the planned transceivers support as per the VOSS 4.2 Software release. Please refer to the product release notes for the latest information at the time of general availability.

Order Code	Description
40 Gigabit Ethernet	
AA1404005-E6	40GBASE-SR4/4x10GBASE-SR QSFP+ Transceiver. MPO connector, MMF, 850nm wavelength, up to 150m.
AA1404001-E6	40GBASE-LR4 QSFP+ Transceiver. Duplex LC connector, SMF, 1310nm wavelength, up to 400m.
AA1404029-E6	40GBASE-QSFP+ Direct Attach Cable. Passive, 1m.
AA1404031-E6	40GBASE-QSFP+ Direct Attach Cable. Passive, 3m.
AA1404032-E6	40GBASE-QSFP+ Direct Attach Cable. Passive, 5m.
AA1404033-E6	40GBASE-QSFP+-to-4x10GBASE-SFP+ Break-Out Cable. Passive, 1m.
AA1404035-E6	40GBASE-QSFP+-to-4x10GBASE-SFP+ Break-Out Cable. Passive, 3m.
AA1404036-E6	40GBASE-QSFP+-to-4x10GBASE-SFP+ Break-Out Cable. Passive, 5m.
10 Gigabit Ethernet	
AA1403015-E6	10GBASE-SR SFP+ Transceiver. Duplex LC connector, MMF, 850nm wavelength, up to 300m.
AA1403017-E6	10GBASE-LRM SFP+ Transceiver. Duplex LC connector, MMF, 1310nm wavelength, up to 220m.
AA1403011-E6	10GBASE-LR SFP+ Transceiver. Duplex LC connector, SMF, 1310nm wavelength, up to 10km.
AA1403013-E6	10GBASE-ER/EW SFP+ Transceiver. Duplex LC connector, SMF, 1550nm wavelength, up to 40km.
AA1403016-E6	10GBASE-ZR/ZW SFP+ Transceiver. Duplex LC connector, SMF, up to 80km.
AA1403019-E6	10GBASE-SFP+ Direct Attach Cable. 3m.
AA1403020-E6	10GBASE-SFP+ Direct Attach Cable. 5m.
AA1403018-E6	10GBASE-SFP+ Direct Attach Cable. 10m.
AA1403153-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1470nm wavelength, up to 40km.
AA1403154-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1490nm wavelength, up to 40km.
AA1403155-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1510nm wavelength, up to 40km.
AA1403156-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1530nm wavelength, up to 40km.
AA1403157-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1550nm wavelength, up to 40km.
AA1403158-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1570nm wavelength, up to 40km.
AA1403159-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1590nm wavelength, up to 40km.
AA1403160-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1610nm wavelength, up to 40km.
AA1403161-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1470nm wavelength, up to 70km.
AA1403162-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1490nm wavelength, up to 70km.

AA1403163-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1510nm wavelength, up to 70km.
AA1403164-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1530nm wavelength, up to 70km.
AA1403165-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1550nm wavelength, up to 70km.
AA1403166-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1570nm wavelength, up to 70km.
AA1403167-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1590nm wavelength, up to 70km.
AA1403168-E6	10GBASE-CWDM DDI SFP+ Transceiver. Duplex LC connector, SMF, 1610nm wavelength, up to 70km.
Gigabit Ethernet	
AA1419013-E5	1000BASE-SX SFP Transceiver. Duplex LC connecter, MMF, 850nm wavelength, up to 550m.
AA1419014-E5	1000BASE-SX SFP Transceiver. Duplex MT-RJ connector, MMF, 850nm wavelength, up to 550m.
AA1419015-E5	1000BASE-LX SFP Transceiver. Duplex LC connector, MMF/SMF, 1310nm wavelength, up to 550m/10km.
AA1419025-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1470nm wavelength, up to 40km.
AA1419026-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1490nm wavelength, up to 40km.
AA1419027-E5	1000BASE-CWDM SFP Transceiver. LC Duplex connector, SMF, 1510nm wavelength, up to 40km.
AA1419028-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1530nm wavelength, up to 40km.
AA1419029-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1550nm wavelength, up to 40km.
AA1419030-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1570nm wavelength, up to 40km.
AA1419031-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1590nm wavelength, up to 40km.
AA1419032-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1610nm wavelength, up to 40km.
AA1419033-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1470nm wavelength, up to 70km.
AA1419034-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1490nm wavelength, up to 70km.
AA1419035-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1510nm wavelength, up to 70km.
AA1419036-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1530nm wavelength, up to 70km.
AA1419037-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1550nm wavelength, up to 70km.
AA1419038-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1570nm wavelength, up to 70km.
AA1419039-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1590nm wavelength, up to 70km.
AA1419040-E5	1000BASE-CWDM SFP Transceiver. Duplex LC connector, SMF, 1610nm wavelength, up to 70km.
AA1419043-E6	1000BASE-T SFP Transceiver. RJ-45 connector, Cat 5E Unshielded Twisted Pair, up to 100m.
AA1419048-E6	1000BASE-SX DDI SFP Transceiver. Duplex LC connector, MMF, 850nm wavelength, up to 550m.
AA1419049-E6	1000BASE-LX DDI SFP Transceiver. Duplex LC connector, MMF/SMF, 1310nm wavelength, up to 550m/10km.
AA1419050-E6	1000BASE-XD DDI SFP Transceiver. Duplex LC connector, SMF, 1310nm wavelength, up to 40km.

AA1419051-E6	1000BASE-XD DDI SFP Transceiver. Duplex LC connector, SMF, 1550nm wavelength, up to 40km.
AA1419052-E6	1000BASE-ZX DDI SFP Transceiver. Duplex LC connector, SMF, 1550nm wavelength, up to 70km.
AA1419053-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1470nm wavelength, up to 40km.
AA1419054-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1490nm wavelength, up to 40km.
AA1419055-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1510nm wavelength, up to 40km.
AA1419056-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1530nm wavelength, up to 40km.
AA1419057-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1550nm wavelength, up to 40km.
AA1419058-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1570nm wavelength, up to 40km.
AA1419059-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1590nm wavelength, up to 40km.
AA1419060-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1610nm wavelength, up to 40km.
AA1419061-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1470nm wavelength, up to 70km.
AA1419062-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1490nm wavelength, up to 70km.
AA1419063-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1510nm wavelength, up to 70km.
AA1419064-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1530nm wavelength, up to 70km.
AA1419065-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1550nm wavelength, up to 70km.
AA1419066-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1570nm wavelength, up to 70km.
AA1419067-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1990nm wavelength, up to 70km.
AA1419068-E6	1000BASE-CWDM DDI SFP Transceiver. Duplex LC connector, SMF, 1610nm wavelength, up to 70km.
AA1419069-E6	1000BASE-BX SFP Transceiver. Single LC connector, SMF, 1310nm wavelength, up to 10km. Must pair with AA1419070-E6.
AA1419070-E6	1000BASE-BX SFP Transceiver. Single LC connector, SMF, 1490nm wavelength, up to 10km. Must pair with AA1419069-E6.
AA1419071-E6	1000BASE-EX DDI SFP Transceiver. Duplex LC connector, SMF, 1550nm wavelength, up to 120km.
AA1419076-E6	1000BASE-BX SFP Transceiver. Single LC connector, SMF, 1310nm wavelength, up to 40km. Must pair with AA1419077-E6.
AA1419077-E6	1000BASE-BX SFP Transceiver. Single LC connector, SMF, 1490nm wavelength, up to 40km. Must pair with AA1419076-E6.

Conclusion

The Avaya VSP 8400 Series unites cost-effective deployment versatility for the Campus and Data Center, and interface diversity that spans 100Mbps through to 40Gbps, and ultimately 100Gbps. A future-ready hardware architecture combines with feature-rich software and a dual-stack Fabric/IP capability to redefine operational flexibility. Creating operational flexibility dramatically reduces TCO; one highly efficient and effective platform solves multiple deployment and operational challenges.

Avaya believes that the introduction of the Virtual Services Platform 8400 Series of Ethernet Switches will enable our Business Partners to expand their potential sales base, deliver shorter sales and implementation cycles, and therefore increasing their revenue, margin, and support opportunities.

Disclaimer

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