

## Product Highlights

### Performance

- 150 Terabits per second fabric capacity
- Up to 69 billion packets per second
- Up to 9.6 Terabit per second per slot
- Up to 576 wire-speed 100GbE ports
- 10GbE, 25GbE and 50GbE mode support
- Under 4 microsecond latency (64 bytes)
- 200GbE and 400GbE Ready

### High Hardware Availability

- N+N Grid redundant power system
- 1+1 Supervisor redundancy
- N+1 Fabric module redundancy
- N+1 Fan module redundancy

### Virtualization and Provisioning

- CloudVision
- VXLAN for next generation DC
- LANZ for microburst detection
- VM Tracer
- Zero Touch Provisioning (ZTP)
- Advanced Event Monitoring
- sFlow (RFC3176)
- IEEE 1588 PTP

### Scalable Architecture

- Dense 40GbE and 100GbE
- Flexible support for 25GbE and 50GbE
- Deep packet buffer (24GB per line card)
- 18,432 Virtual Output Queues per port to eliminate head of line blocking

### Resilient Control Plane

- Multi-core Hyper-threaded x86 CPU
- 32GB DRAM / 4GB Flash
- Dual Supervisor modules
- User applications can run in a VM

### Data Center Class Design

- AC and DC power options
- Front-to-rear airflow for optimized cooling
- 25W per 100GbE port typical power
- Up to 864 100GbE ports per 42U rack

### Arista Extensible Operating System

- Single binary image
- Fine-grained truly modular network OS
- Stateful Fault Containment (SFC)
- Stateful Fault Repair (SFR)
- Full access to Linux shell and tools
- Extensible platform - bash, python, C++ , GO, OpenConfig

## Overview

The Arista 7500R Series of purpose built modular switches deliver the industry's highest performance with 150Tbps of system throughput to meet the needs of the largest scale data centers. They combine scalable L2 and L3 resources and high density with advanced features for network monitoring, precision timing and network virtualization to deliver scalable and deterministic network performance while simplifying designs and reducing Opex.

The 7500R can be deployed in a wide range of open networking solutions including large scale layer 2 and layer 3 cloud designs, overlay networks, virtualized or traditional enterprise data center networks. Deep packet buffers and large routing tables allow for internet peering and secure data center interconnect applications and provides complete deployment flexibility.

Available in a compact system design, as a choice of 16, 12, 8 and 4 slot, the Arista 7500R is the next generation of the 7500 Series and delivers seamless upgrades ensuring investment protection of fabric modules, line cards and supervisor modules while setting a new standard for performance, density, reliability, and power efficiency. The 7500R can support up to 576 ports of wire speed 100GbE and 40GbE and offers over 150 Tbps of total capacity with a broad choice of line cards. Standards based QSFP 100GbE interfaces support a choice of speeds including 25GbE and 50GbE providing unparalleled flexibility and the ability to seamlessly transition data centers to the next generation of Ethernet performance.

All components are hot swappable, with redundant supervisor, power, fabric and cooling modules with front-to-rear airflow. The system is purpose built for data centers and is energy efficient with typical power consumption of under 25 watts per 100GbE port for a fully configured chassis. These attributes make the Arista 7500R an ideal platform for building reliable and highly scalable data center networks.



*Arista 7500R Series Modular Data Center Switches*

## Arista EOS

All Arista products including the 7500R Series runs the same Arista EOS software, binary image simplifying network administration with a single standard across all switches. Arista EOS is a modular switch operating system with a unique state sharing architecture that cleanly separates switch state from protocol processing and application logic. Built on top of a standard Linux kernel, all EOS processes run in their own protected memory space and exchange state through an in-memory database. This multi-process state sharing architecture provides the foundation for in-service-software updates and self-healing resiliency together with stateful switchover without the loss of data plane forwarding.

Arista EOS enables advanced monitoring and automation capabilities such as Zero Touch Provisioning, LANZ, VM Tracer and Linux based tools to be run natively on the switch.

## Software Defined Cloud Networks

Arista Software Defined Cloud Networking (SDCN), combines the principles that have made cloud computing the unstoppable force that it is: automation, self service provisioning, and linear scaling of both performance and economics coupled with the trend in Software Defined Networking that delivers: network virtualization, custom programmability, simplified architectures, and lower capital expenditure. This combination creates a best-in-class software foundation for maximizing the value of the network to both the enterprise and service provider data center. A new architecture for the most mission-critical location within the IT infrastructure that simplifies management and provisioning, speeds up service delivery, lowers costs and creates opportunities for competitive differentiation, while putting control and visibility back in the hands of the network and systems administrators.

## The Four Pillars of Arista's Software Defined Cloud Networking:

### Universal Cloud Network

- Scalable standards-based MLAG at Layer 2, ECMP for Layer 3 and VXLAN for network virtualization flexibility
- Non blocking leaf-spine for 50K-1M hosts

### Cloud Control

- Standards based EOS with AEM, ZTP/ZTR, LANZ and DANZ
- Automated Monitoring for visibility and telemetry

### Network Wide Virtualization

- Multi-vendor API Support with eAPI
- Support for VMWare and NSX with VXLAN and VMTracer
- Support for Microsoft OMI and Openstack OVSDB

### Network Applications and Automated Management

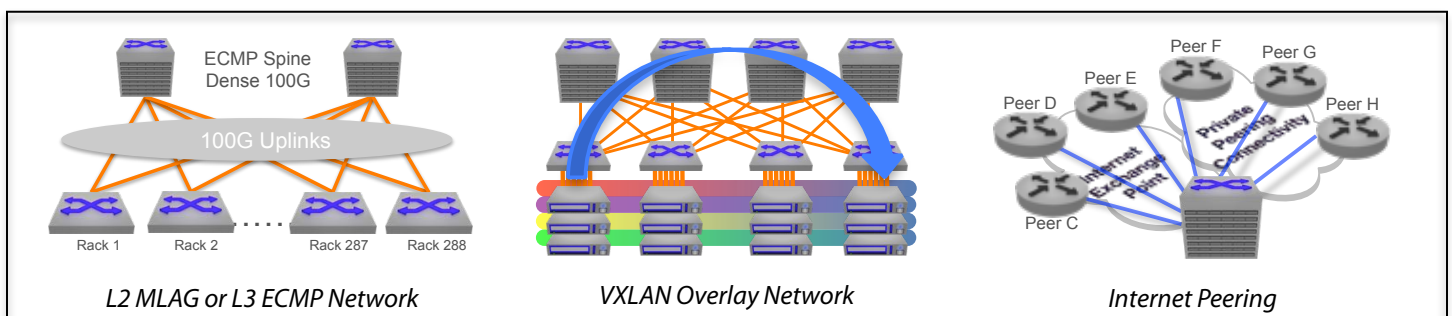
- Single point of network-wide state with Arista CloudVision
- Networked applications for workload mobility, smart systems rollback and upgrades and workflow telemetry
- Open Partner integration

## Scaling Data Center Performance

The Arista 7500R Series deliver non-blocking switching capacity that enables dramatically faster and simpler network designs for data centers and lower both capital and operational expenses. A wide range of modular systems with a single consistent EOS allows for flexible selections at all tiers of the network and deployment scenarios including layer 2 MLAG, layer 3 ECMP, VXLAN Overlay and Internet Peering.

Arista's **Multi-Chassis Link Aggregation (MLAG)** technology supports a leaf and spine active/active L2 network topology. An **Equal Cost Multi-Path (ECMP)** design at Layer 3 scales the network in a fully non-blocking, low-latency, two-stage network that provides predictable and consistent application performance. The flexibility of the L2 and L3 multi-path design options combined with support for open standards provides maximum flexibility, scalability and network wide virtualization that scales to hundreds of thousands of hosts in a single two-tier design. Both designs support overlay networks via VXLAN and can integrate with standards-based overlay controller solutions.

The Arista 7500R Series **FlexRoute** engine provides the flexible scalability to support deployment as a routing platform with Internet scale routing. Arista FlexRoute along with EOS NetDB enables innovation not natively available in merchant chipsets. Arista EOS provides operational savings through visibility, automation and improved network operations.



Arista Flexible Network Architectures

## Enhanced Features for High Performance Cloud Networks

The Arista 7500R delivers a suite of advanced traffic control and monitoring features to improve the agility of modern high performance environments, with solutions for automation, data monitoring, precise timing and next-generation virtualization.

Automating the data center enables customers to dynamically provision computing resources in the most efficient manner while also meeting business needs by maintaining service level agreements (SLAs). Arista EOS automates complex IT workflows and simplifies network operations while reducing or even eliminating downtime. Arista EOS rich automation capabilities not only reduce the human error element in network operations but also enable IT operators to make the network work the way they want.

Arista offers solutions for a variety of approaches to cloud-like network automation. Addressing the needs of the largest public cloud environments as well as applying those lessons learned in the turnkey CloudVision automation offering.

### CloudVision

CloudVision is a network-wide approach for workload orchestration and workflow automation as a turnkey solution for Cloud Networking. CloudVision extends the EOS publish subscribe architectural approach across the network for state, topology, monitoring and visibility. This enables enterprises to move to cloud-class automation without needing any significant internal development.

### Arista Event Management (AEM)

Advanced Event Management (AEM), a sub-system of Arista EOS, is a powerful and flexible tool to automate tasks and customize the behavior of EOS and the operation of the overall data center switching infrastructure. Simplifying the overall operations, AEM provides the tools to customize alerts and actions. AEM allows operators to fully utilize the intelligence within EOS to respond to real-time events, automate routine tasks, and automate actions based on changing network conditions.

### Precise Data Analysis

Arista Latency Analyzer (LANZ) and Precision Data Analyzer (DANZ) are integrated features of EOS. DANZ provides a solution to monitoring and visibility challenges at 10/25/40/100Gbps giving IT operations the ability to proactively deliver feedback on congestion events, filter, replicate, aggregate and capture traffic without affecting production performance. LANZ provides precise real-time monitoring of micro-burst and congestion events before they impact applications, with the ability to identify the sources and capture affected traffic for analysis.

### Precision Timing (IEEE 1588)

Arista's hardware derived Precision Time Protocol solution provides a robust mechanism for accurate in-band time distribution in high performance environments. The system clock can be synchronized using the Supervisor module clock input port with a PPS source or IEEE 1588 PTP.

### Virtualization

Supporting next-generation virtualized data centers requires tight integration with orchestration tools and emerging encapsulation technologies such as VXLAN. The 7500R builds on the valuable tools already provided by the Arista VM Tracer suite to integrate directly into encapsulated environments. Offering a wire-speed gateway between VXLAN and traditional L2/3 environments, the 7500R makes integration of non-VXLAN aware devices including servers, firewalls and load-balancers seamless and provides the ability to leverage VXLAN as a standards based L2 extension technology for non-MPLS environments.

### Maximum Network Design Flexibility

- Scalable designs with up to a 128-way ECMP provides flexibility and balances traffic evenly across the largest leaf-spine designs
- MLAG designs are effective at almost any layer of the network and maximize cross-sectional bandwidth with fast failover times measured in 100's of milliseconds for link failures.
- VXLAN gateway, bridging and routing with VMTracer features to enable next generation data center designs
- Scaleable routing tables to support internet route peering
- Wide choice of dense 10G/25G/40G/100G line cards with support for flexible 10GbE, 25GbE or 50GbE modes.
- Support for standards based IEEE 25GbE with mix and match support for both 10G and 25G for simple and cost effective migration
- Virtual output queue (VoQ) architecture and deep packet buffering to eliminate head of line blocking with low latency
- ACL scalability with up to 128K entries per forwarding engine allows for rich policy control
- Flexible allocation of L2 and L3 forwarding table resources for more design choice
- PTP, sFlow, DANZ and multi-port mirroring tools provide network wide visibility and monitoring to detect traffic bursts, monitor latency and congestion and allow capacity planning to improve application performance and availability

## System Overview

The 7500R Series offers complete investment protection with the Arista 7500E Series with seamless upgrade paths for key components and a common system architecture that ensures long term investment protection. The following 7500R chassis options are available:

- **7516R** a 16-slot 29RU chassis that supports up to 16 line cards with both AC or DC power options
- **7512R** a 12-slot 18 RU chassis that supports up to 12 line cards with both AC or DC power options
- **7508R** an 8-slot 13 RU chassis that supports up to 8 line cards with both AC or DC power options
- **7504R** a 4-slot 7 RU chassis that supports up to 4 line cards with both AC or DC power options

The 7500R 4 and 8-slot modular chassis can accommodate any combination of the 7500E line cards or the 7500R line cards providing a rich choice of density and speed. The 7500 12 slot and 16 slots systems support any combination of the 7500R Series line cards, including support for FlexRoute.

The Arista 7500R lowers total cost of ownership as it is designed to be efficient with power per port as low as 25W per 100GbE port which combined with front to rear cooling to optimize the data center environment produces the most reliable, dense and power efficient modular switch.

## 7500R Deterministic Network Performance

The Arista 7500 Series uses a deep buffer virtual output queue (VOQ) architecture that eliminates head-of-line (HOL) blocking and virtually eliminates packet drops even in the most congested network scenarios. An advanced traffic scheduler fairly allocates bandwidth between all virtual output queues while accurately following queue disciplines including weighted fair queueing, fixed priority, or hybrid schemes. As a result, the Arista 7500 can handle the most demanding data center requirements with ease, including mixed traffic loads of real-time, multicast, and storage traffic while still delivering low latency.

## 7500R Series Chassis - 16-Slot, 12-slot, 8-slot and 4-slot

The 7500R Series chassis each provide room for two supervisor modules, four, eight, twelve or sixteen line card modules, grid redundant power supply modules, and six fabric modules. Supervisor and line card modules plug in from the front, while the fabric modules and power supplies are inserted from the rear. The system uses a completely passive midplane and provides control plane connectivity to each of the fabric and line card modules. The system design is optimized for data center deployments with front-to-rear airflow.



*Arista 7500R Series Chassis (left to right) - 7516R, 7512R, 7508R and 7504R*



## Line Card Modules

Wire-speed line cards deliver up to 51 Billion packets per second of forwarding with a distributed virtual output queue architecture and lossless fabric that eliminates head-of-line blocking and provides fairness across all ports. Line cards contain up to 24GB of packet memory for approximately 50msec of traffic buffer per ingress port and virtually eliminating packet drops in congestion scenarios. Line cards connect to all fabric modules in a non-blocking full mesh.

The Arista 7500R systems can be populated with any combination of line cards. For environments requiring the highest performance combined with scalability a wide choice of speed and interface options is available with full support for industry standard connections and comprehensive layer 2 and 3 features for flexible deployment.

## 7500R Series Line Cards

The 7500R and 7500R2 Series line cards support industry standard optics for both single and multi-mode fiber along with flexibility for multi-rate configurations. All line cards supporting 100GbE include built-in support for quad 10GbE or 25GbE, dual 50GbE or single 40GbE and 100GbE to ensure future proofing for next generation network architectures. Speed changes and breakout modes are enabled independently of the other ports on the line card. 40GbE ports allow high density 10GbE and the 25GbE and 10GbE SFP+ ports support 1GbE mode offering comprehensive investment protection for both existing and new network designs.

The 7500R2A Series of line cards build on the capability of the 7500R and 7500R2 Series with the addition of Arista AlgoMatch™. AlgoMatch provides flexible pattern matching for access control, policy based forwarding and network telemetry. All variations of the 7500R Series line cards interoperate with the 7500E Series. The large scale 7500R2AK Series of line cards extend FlexRoute to over 2M IPv4 and IPv6 routes.



### 7500R-36CQ: 36 port 100GbE QSFP line card

- Offers 36 wire speed 100G ports with QSFP100 optics
- 5 speeds for flexible 10GbE, 25GbE, 40GbE, 50GbE and 100GbE with optics or cables
- 4.32Bpps of wire speed performance with 24GB of buffer



### 7500R-36Q: 36 port 40GbE QSFP+ line card for 10G/40G and 100GbE

- 36 x 40GbE ports with QSFP+ optics and breakout cables
- Flexible interface combination of 36 x 40GbE, 96 x 10GbE, 6 x 100GbE, 24 x 25GbE
- 1.44Bpps of wire speed performance with 8GB of buffer



### 7500R-48S2CQ: 48 port SFP+ for 1/10GbE and 2 port 100GbE QSFP line card

- Up to 56 10G ports per line card or 48 1/10GbE ports and 2 flexible 40G/100G ports
- Two QSFP100 ports allow choice of 2 x 100GbE, 8x 25GbE, 2 x 40GbE, or 8x 10GbE
- 720Mpps of wire speed performance with 4GB of buffer



### 7500R2A-36CQ and 7500R2-36CQ: 36 port 100GbE QSFP line card

- Offers 36 wire speed 100G ports with QSFP100 optics or 144 25G with FC and RS FEC
- Flexible 10GbE, 25GbE, 40GbE, 50GbE and 100GbE with optics or cables
- 3.34Bpps of wire speed performance with 16GB of buffer and optional AlgoMatch



### 7500R2-18CQ: 18 port 100GbE QSFP line card

- Offers 18 wire speed 100G ports with QSFP100 optics or 72 25G with FC and RS FEC
- Flexible 10GbE, 25GbE, 40GbE, 50GbE and 100GbE with optics or cables
- 1.67Bpps of wire speed performance with 8GB of buffer



### 7500R2AK-36CQ: 36 port 100GbE QSFP line card

- Offers 36 wire speed 100G ports with QSFP100 optics or 144 25G with FC and RS FEC
- 3.34Bpps of wire speed performance with 16GB of buffer and 2M routes
- Power efficient 100G with support for AlgoMatch



### 7500R2AK-48YCQ: 48 port SFP+ and 2 port 100GbE QSFP line card

- Up to 48 10G ports, with 12 ports 25G capable with FC and RS FEC plus 2 ports of 100G
- 837Mpps of wire speed performance with 4GB of buffer, with 2M routes
- Power efficient 10/25G with dedicated 100G ports with AlgoMatch

### Supervisor Module

The supervisor modules for the 7500R series run Arista Extensible Operating System (EOS) and handle all control plane and management functions of the system. One supervisor module is needed to run the system and a second can be added for 1+1 redundancy. The multi-core x86 CPU with 32GB of DRAM and an optional SSD provides the control plane performance needed to run an advanced data center switch scaling to over a 500 physical ports and thousands of virtual ports. A pulse per second clock input port enables synchronizing with an external source to improve the accuracy of monitoring tools.

### Fabric Module

At the heart of the 7500R series is the fabric. It interconnects all line cards in a non-blocking architecture irrespective of the traffic. Each line card module connects to the fabric with multiple links and data packets are spread across the links to fully utilize the fabric capacity. Unlike hash-based selection of fabric links, the 7500R architecture provides 100% efficient connectivity from any port to any other port with no drops. The fabric modules are always active-active, provide N+1 redundancy and can be hot-swapped with zero performance degradation. The Fabric Modules for the each of the 7500 Series are different based on the size of the chassis and all integrate a fan assembly for flexible and redundant cooling.

### Power Supply Modules

The 7500R series switches are equipped with redundant and hot-swappable AC or DC power supplies with an internal variable speed fan. Each system supports N+N power redundancy with a choice of 3000W AC or DC power supplies. The AC supplies are Titanium climate saver rated and have an efficiency of over 94% with single stage conversion to the internal 12V DC voltage. The DC power supplies use -40 to -72V direct current inputs.

### 7500R High Availability

The Arista 7500R Series are designed for continuous operations with system wide monitoring of both hardware and software components, simple serviceability and provisioning to prevent single points of failure. The hardware supports high-availability with hot-swap of all components with redundant supervisors, power supplies, fabric and cooling modules. Fabric N+1 redundancy provides zero loss of performance with deterministic degradation and integrated fan systems provide dynamic temperature control combined with N+1 redundancy. The 7500R Series offer power redundancy that supports both power source and power supply redundancy. The Arista EOS software supports stateful failover (\*) between the dual redundant supervisors as well as self-healing stateful fault containment (SFC), stateful fault repair (SFR) and live patching through in-service-software updates to help ensure continuous service.

### AlgoMatch

AlgoMatch is a unique Arista innovation for modern cloud networks, combining both software and hardware to enable more flexible and scalable solutions for access control, policy based forwarding and network telemetry. By combining general purpose memory with advanced software algorithms AlgoMatch delivers higher scale, performance and efficiency with lower power and is more cost effective than traditional solutions. AlgoMatch provides a more efficient packet matching algorithm that in turn enables flow matching for access control, policy and visibility. The net benefits are a high performance policy engine with both increased functionality and scale in a cost and power efficient solution.

- AlgoMatch enables IPv4 and IPv6 access control at the same scale
- L4 rule ranges are programmed efficiently without expansion or reduced capacity
- Multiple actions can be performed on a single packet or flow
- User defined filters allow flexible packet classification based on offsets for custom actions
- Supports rich policy with consistent semantics that would exhaust classical resources

### 7500R Accelerated sFlow

sFlow is a powerful tool used commonly by network operators for advanced network telemetry, capacity planning, security analysis and quality of experience monitoring. All members of the 7500R Series enable sFlow utilizing the high performance CPU. Within modern high performance systems, traffic sampling requires the capability to both sample and process packet rates of hundreds of millions of packets per second. With the 7500R Series Accelerated sFlow feature the sampling and processing of flow samples into sFlow datagrams is handled via integrated sFlow engines capable of generating up to 1.6Mpps of sFlow data, and of supporting 1:1000 sampling rates on of full wire speed systems or even higher rates with selective sampling based on triggers and filters. All sFlow v5 information is included in the sFlow records ensuring integration with standard sFlow collection and analysis tools and no loss of key information.

## Layer 2 Features

- 802.1w Rapid Spanning Tree
- 802.1s Multiple Spanning Tree Protocol
- Rapid Per Vlan Spanning Tree (RPVST+)
- 4096 VLANs
- Q-in-Q
- 802.3ad Link Aggregation/LACP
  - 64 Ports / Channel
  - 256 groups per system (1152 groups)
- MLAG (Multi-Chassis Link Aggregation)
  - Uses IEEE 802.3ad LACP
  - 128 ports per MLAG
- 802.1Q VLANs/Trunking
- 802.1AB Link Layer Discovery Protocol
- 802.3x Flow Control
- Jumbo Frames (9216 Bytes)
- IGMP v1/v2/v3 snooping
- Storm Control \*
- 802.1 AVB \*
- SMPTE-2059-2

## Layer 3 Features

- Static Routes
- Routing Protocols: OSPF, OSPFv3, BGP, MP-BGP, IS-IS, and RIPv2
- 128-way Equal Cost Multipath Routing (ECMP)
- VRF
- Bi-Directional Forwarding Detection (BFD)
- Unicast Reverse Path Forwarding (uRPF)
- VRRP
- Virtual ARP (VARP)
- Policy Based Routing (PBR)
- Route Maps

## Multicast

- IGMP v2/v3
- Protocol Independent Multicast (PIM-SM / PIM-SSM)
- PIM-BiDir \*
- Anycast RP (RFC 4610)
- Multicast Source Discovery Protocol (MSDP)

## Advanced Monitoring and Provisioning

- Latency Analyzer and Microburst Detection (LANZ)
  - Configurable Congestion Notification (CLI, Syslog) \*
  - Streaming Events (GPB Encoded) \*
  - Capture/Mirror of congested traffic \*
- Zero Touch Provisioning (ZTP)
- Advanced Mirroring
  - Port Mirroring (16 sessions)
  - Enhanced Remote Port Mirroring
  - SPAN/TAP M:N Aggregation
  - L2/3/4 Filtering
- Advanced Event Management suite (AEM)
  - CLI Scheduler
  - Event Manager
  - Event Monitor
  - Linux tools
- Integrated packet capture/analysis with TCPDump

- Restore and Configure from USB
- RFC 3176 sFlow
- Optional SSD for logging and data capture
- IEEE 1588 PTP

## Virtualization Support

- VXLAN Gateway (draft-mahlingam-dutt-dcops-vxlan-01)
- VXLAN Tunnel Endpoint
- VXLAN Bridging
- VXLAN Routing (VRF, MLAG)
- VM Tracer VMware Integration

## Security Features

- PDP
- Service ACLs
- Ingress / Egress ACLs using L2, L3, L4 fields <sup>1</sup>
- Ingress / Egress ACL Logging and Counters <sup>1</sup>
- MAC ACLs \* <sup>1</sup>
- ACL Deny Logging <sup>1</sup>
- ACL Counters <sup>1</sup>
- DHCP Relay / Snooping
- MAC Security <sup>1</sup>
- TACACS+
- RADIUS
- ARP trapping and rate limiting

## Quality of Service (QoS) Features

- Up to 8 queues per port
- Strict priority queueing
- 802.1p based classification
- DSCP based classification and remarking
- Egress shaping / Weighted round robin (WRR)
- Policing / Shaping
- Rate limiting \*
- Explicit Congestion Notification (ECN) marking
- 802.1Qbb Per-Priority Flow Control (PFC)
- 802.1Qaz Enhanced Transmission Selection (ETS)\*
- Data Center Bridging Extensions (DCBX)\*

## Network Management

- CloudVision
- Configuration rollback and commit
- 100/1000 Management Port
- RS-232 Serial Console Port
- USB Port
- SNMP v1, v2, v3
- Management over IPv6
- Telnet and SSHv2
- Syslog
- AAA
- Industry Standard CLI
- Beacon LED for system identification
- System Logging
- Environment monitoring

\* Not currently supported in EOS

Note 1: Supported only on 7500RA and 7500RAK

## High Availability

- L2 Stateful Switchover (SSO) \*
- L3 Stateful Switchover (SSO) \*
- SSU Spine

## Extensibility

- Linux Tools
  - Bash shell access and scripting
  - RPM support
  - Custom kernel modules
- Software Defined Networking (SDN)
  - eAPI
  - OpenStack Neutron Support
- Programmatic access to system state
  - Python
  - Chef
  - Puppet
  - C++
  - eAPI
  - OpenStack Neutron Plug-in support
- Native KVM/QEMU support

## Line card Features

- 8 Priority Queues per Port
- 1152 Link Aggregation Groups (LAG)
- 32 Ports per LAG

## Fabric Features

- Up to 153 Terabit/sec Capacity
- 9.6 Terabit/sec per Line card
- Up to 25 Terabit/sec per Fabric Module
- N+1 Redundant
- Non-blocking
- Virtual Output Queueing
- Self-healing
- Distributed Scheduler
- WFQ, CIR\*, ETS\*, Fixed Priority

## Standards Compliance

- 802.1D Bridging and Spanning Tree
- 802.1p QOS/COS
- 802.1Q VLAN Tagging
- 802.1w Rapid Spanning Tree
- 802.1s Multiple Spanning Tree Protocol
- 802.1AB Link Layer Discovery Protocol
- 802.3ad Link Aggregation with LACP
- 802.3x Flow Control
- 802.3ab 1000BASE-T
- 802.3z Gigabit Ethernet
- 802.3ae 10 Gigabit Ethernet
- 802.3by 25 Gigabit Ethernet
- 802.3ba 40 Gigabit Ethernet
- 802.3ba 100 Gigabit Ethernet
- RFC 2460 Internet Protocol, Version 6 (IPv6) Specification

- RFC 2461 Neighbor Discovery for IP Version 6 (IPv6)
- RFC 2462 IPv6 Stateless Address Autoconfiguration
- RFC 2463 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification
- IEEE 1588-2008 Precision Time Protocol

## SNMP MIBs

- RFC 3635 EtherLike-MIB
- RFC 3418 SNMPv2-MIB
- RFC 2863 IF-MIB
- RFC 2864 IF-INVERTED-STACK-MIB
- RFC 2096 IP-FORWARD-MIB
- RFC 4363 Q-BRIDGE-MIB
- RFC 4188 BRIDGE-MIB
- RFC 2013 UDP-MIB
- RFC 2012 TCP-MIB
- RFC 2011 IP-MIB
- RFC 2790 HOST-RESOURCES-MIB
- RFC 3636 MAU-MIB
- RMON-MIB
- RMON2-MIB
- HC-RMON-MIB
- LLDP-MIB
- LLDP-EXT-DOT1-MIB
- LLDP-EXT-DOT3-MIB
- ENTITY-MIB
- ENTITY-SENSOR-MIB
- ENTITY-STATE-MIB
- ARISTA-ACL-MIB
- ARISTA-QUEUE-MIB
- RFC 4273 BGP4-MIB
- RFC 4750 OSPF-MIB
- ARISTA-CONFIG-MAN-MIB
- ARISTA-REDUNDANCY-MIB
- RFC 2787 VRRPv2MIB
- MSDP-MIB
- PIM-MIB
- IGMP-MIB
- IPMROUTE-STD-MIB
- SNMP Authentication Failure trap
- ENTITY-SENSOR-MIB support for DOM (Digital Optical Monitoring)
- User configurable custom OIDs

See EOS release notes for latest supported MIBs



Chassis	DCS-7516N	DCS-7512N	DCS-7508N	DCS-7504N	DCS-7508	DCS-7504
Supervisor slots	2	2	2	2	2	2
Linecard Slots	16	12	8	4	8	4
Fabric Module Slots	6	6	6	6	6	6
Power Supply Slots	20	12	8	4	4	4
Physical Dimensions (HxWxD)	50.3x19x37.1" (128.9 x 48.3 x 94.1cm) / 29RU	31.5 x 19 x 33.4" (80.1x48.3x 84.8cm) / 18RU	22.75x 19 x 31.3" (57.8x48.3 x 79.5cm) / 13RU	12.25 x 19 x 31.3" (31.2 x 48.3 x 79.5cm) / 7RU	19.1 x 19 x 30" (48.5 x 48.3 x 76.2cm) / 11RU	12.25 x 19 x 30" (31.2 x 48.3 x 76.2cm) / 7RU
Weight (Chassis only)	295 lbs (134 kg)	185 lbs (84 kg)	95 lbs (43.1 kg)	76.5 lbs (34.7 kg)	95 lbs (43.1 kg)	76.5 lbs (34.7 kg)
Weight (Full System)	1025lbs (465 kg)	661 lbs (300 kg)	400 lbs (182 kg)	222 lbs (101 kg)	300 lbs (136 kg)	210 lbs (95 kg)
Maximum 10GbE Density	2,304 Ports	1,728 Ports	1,152 Ports	576 Ports	1,152 Ports	576 Ports
Maximum 25GbE Density	2,304 Ports	1,728 Ports	1,152 Ports	576 Ports	1,152 Ports	576 Ports
Maximum 40GbE Density	576 Ports	432 Ports	288 Ports	144 Ports	288 Ports	144 Ports
Maximum 50GbE Density	1,152 Ports	864 Ports	576 Ports	288 Ports	576 Ports	288 Ports
Maximum 100GbE Density	576 Ports	432 Ports	288 Ports	144 Ports	288 Ports	144 Ports
Maximum Throughput/PPS	150Tbps/69Bpps	115Tbps/51Bpps	75Tbps/34.5Bpps	38 Tbps/17.3Bpps	75Tbps/34.5Bpps	38 Tbps/17.3Bpps
Max Power Consumption	22,032W (est)	17,814W	11,484W	5,940W	8,700W	5,800W

Fabric Module	DCS-7516R-FM	DCS-7512R-FM	DCS-7508R-FM	DCS-7504R-FM
Redundancy	5+1	5+1	5+1	5+1
Dimensions (HxWxD)	TBD	2.5 x 21 x 10.25" (6.4 x 53 x 26cm)	2.5 x 14 x 10.25" (6.4 x 35.6 x 26cm)	2.5 x 8.5 x 10.25" (6.4 x 21.6 x 26cm)
Weight	36 lbs (16.4 kg)	25 lbs (11.4 kg)	13.4 lbs (6.1 kg)	7.5 lbs (3.4 kg)
Typical Power (Max) *	570W (770W)	570W (680W)	224W (298W)	121W (163W)
Integrated Fan Module	Yes	Yes	Yes	Yes
Chassis Support	DCS-7516N	DCS-7512N	DCS-7508, DCS-7508N	DCS-7504, DCS-7504N

\* Typical power consumption measured at 25C ambient with 50% load on all ports  
7500N Chassis are recommended for all new installations

7500R Series	7500R-36CQ	7500R-36Q	7500R-48S2CQ
Ports	36 QSFP100	36 QSFP+	48 SFP+ and 2 QSFP100
Max 10GbE	144	96	56 (48 SFP+ and 8 Breakout)
Max 25GbE	144	24	8
Max 40GbE	36	36	2
Max 50GbE	72	12	4
Max 100GbE	36	6	2
AlgoMatch	No	No	No
Accelerated sFlow	No	No	No
Port Buffer	24GB	8GB	4GB
Weight	16.1 lbs (7.3 kg)	12.5 lbs (5.7 kg)	11.5 lbs (5.2 kg)
Typical (Max) Power *	713W (820W)	346W (378W)	190W (208W)
Dimensions (WxHxD)	17.5" x 1.75" x 23" (44.5 x 4.5 x 58.4cm)		
Chassis Support	DCS-7516N, DCS-7512N, DCS-7508N, DCS-7504N and DCS-7504, DCS-7508		

7500R2 Series	7500R2A-36CQ	7500R2-36CQ	7500R2-18CQ
Ports	36 QSFP100	36 QSFP100	18 QSFP100
Max 10GbE	144	144	72
Max 25GbE	144	144	72
Max 40GbE	36	36	18
Max 50GbE	72	72	36
Max 100GbE	36	36	18
Port Buffer	16GB	16GB	8GB
AlgoMatch	Yes	No	No
Accelerated sFlow	Yes	No	No
Weight	16.1 lbs (7.3 kg)	16.1 lbs (7.3 kg)	11.5 lbs (5.2 kg)
Typical (Max) Power *	830W (894W)	565W (621W)	313W (341W)
Dimensions (WxHxD)	17.5" x 1.75" x 23" (44.5 x 4.5 x 58.4cm)		
Chassis Support	DCS-7516N, DCS-7512N, DCS-7508N, DCS-7504N and DCS-7504, DCS-7508		

\* Typical power consumption measured at 25C ambient with 50% load on all ports

7500R2AK Series	7500R2AK-36CQ	7500R2AK-48YCQ
Ports	36 QSFP100	48 SFP+, 2 QSFP100
Max 10GbE	144	56 (48 SFP+ and 8 Breakout)
Max 25GbE	144	12 + 8
Max 40GbE	36	2
Max 50GbE	72	4
Max 100GbE	36	2
Port Buffer	24GB	4GB
AlgoMatch	Yes	Yes
Accelerated sFlow	Yes	Yes
Weight	16.1 lbs (7.3 kg)	11.5 lbs (5.2 kg)
Typical (Max) Power *	830W (894W)	209W (229W)
Dimensions (WxHxD)	17.5" x 1.75" x 23" (44.5 x 4.5 x 58.4cm)	
Chassis Support	DCS-7516N, DCS-7512N, DCS-7508N, DCS-7504N and DCS-7504, DCS-7508	

Linecard Resources <sup>1</sup>	7500R	7500R2	7500R2A	7500R2AK
MAC Addresses	768K	768K	768K	768K
IPv4 Host Routes	768K	768K	768K	768K
IPv6 Unicast Host Routes	768K	768K	768K	768K
IPv4 Unicast LPM Routes	Over 1M	1.3M	1.3M	2M
IPv6 Unicast LPM Routes	1M	1.3M	1.3M	2M
Multicast Routes	Up to 768K	Up to 768K	Up to 768K	Up to 768K
ACL Entries (per Forwarding Engine) <sup>2</sup>	NA	NA	24K	24K

1. Maximum values dependent on shared resources in some cases
2. International customers contact sales for more information

\*Typical power consumption measured at 25C ambient with 50% load on all ports

Supervisor Module	DCS-7500-SUP2	DCS-7516-SUP2
Processor	1.9Ghz, Multi Core, x86, 64-bit	1.9Ghz, Multi Core, x86, 64-bit
System Memory	32 GB	64 GB
Flash Storage Memory	4 GB	4 GB
RS-232 Serial Ports	One (RJ-45)	One (RJ-45)
100/1000 Management Ports	Two (RJ-45)	Two (RJ-45)
USB 2.0 Interface	Two	Two
SSD Storage	120GB Optional	120GB Optional
Physical Dimensions (WxHxD)	8.5" x 1.75" x 23" (21.6 x 4.4 x 58.4cm)	17.5" x 1.75" x 23" (44.45 x 4.4 x 58.4cm)
Weight	5 lbs (2.4 kg)	12 lbs (5.4 kg)
Typical Power (Maximum)	80W (120W)	120W (150W)
Chassis Support	DCS-7508, DCS-7504, DCS-7512N, DCS-7508N DCS-7504N	DCS-7516N

Power Supply Specifications	PWR-3KT-AC-RED	PWR-3K-DC-RED	PWR-2900AC
Input Circuit (Max)	200 - 240V, 16A (20A UL)	-48-60V DC, 80A	200 - 240V, 16A (20A UL)
Input Frequency	50-60 Hz, single phase AC	DC	50-60 Hz, single phase AC
Output Power	3000W	3000W	2900W
Input Connector	IEC 60320 C20	AWG #4 - #3	IEC 60320 C20
Size (WxHxD)	2.75" x 4.13" x 11.65" (7.0 x 10.5 x 29.6cm)	2.75" x 4.13" x 11.65" (7.0 x 10.5 x 29.6cm)	4.25" x 3.25" x 10" (10.8 x 8.3 x 25.4cm)
Weight	5.5 lbs (2.49 kg)	5.5 lbs (2.49 kg)	5.3 lbs (2.4 kg)
Chassis Support	DCS-7516N, DCS-7512N, DCS-7508N, DCS-7504N		DCS-7508, DCS-7504,

### Environmental Characteristics

Operating Temperature	0 to 40°C (32 to 104°F) <small>Note 1</small>
Storage Temperature	-40 to 70°C (-40 to 158°F)
Relative Humidity	5 to 90%
Operating Altitude	0 to 10,000 ft, (0-3,000m)

### Standards Compliance

EMC	FCC, EN55022, EN61000-3-2, EN61000-3-3 or EN61000-3-11, EN61000-3-12 (as applicable)
Immunity	EN55024 EN300 386
Safety	UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences
Certifications	North America (NRTL) European Union (EU) BSMI (Taiwan) C-Tick (Australia) CCC (PRC) MSIP (Korea) EAC (Customs Union) VCCI (Japan)
European Union Directives	2006/95/EC Low Voltage Directive 2004/108/EC EMC Directive 2011/65/EU RoHS Directive 2012/19/EU WEEE Directive

### Supported Optics and Cables

Interface Type	100G QSFP Ports
100GBASE-SR4	70m OM3 / 100m OM4 Parallel MMF
100GBASE-SWDM4	70m OM3 / 100m OM4 Parallel MMF
100GBASE-LR4	10km SM Duplex
100GBASE-LRL4	2km SM Duplex
100GBASE-CWDM4	2km SM duplex
100GBASE-ERL4	40km SM Duplex
100GBASE-AOC	3m to 30m
100GBASE-CR4	QSFP to QSFP: 1m to 5m
25GBASE-CR	QSFP to SFP25: 1m to 3m lengths

### Supported Optics and Cables

Interface Type	QSFP+ ports
40GBASE-CR4	QSFP+ to QSFP+: 0.5m-5m
40GBASE-AOC	3m to 100m
40GBASE-UNIV	150m (OM3) / 150m (OM4), 500m (SM)
40GBASE-SRBD	100m (OM3) /150m (OM4)
40GBASE-SR4	100m (OM3) / 150m (OM4)
40GBASE-XSR4	300m (OM3) / 400m (OM4)
40GBASE-PLRL4	1km (1km 4x10G LR/LRL)
40GBASE-PLR4	10km (10km 4x10G LR/LRL)
40GBASE-LRL4	1km
40GBASE-LR4	10km
40GBASE-ER4	40km

Interface Type	25G SFP ports
25GBASE-CR	SFP25 to SFP25: 1m-5m
25GBASE-AOC	SFP+ to SFP+: 3m-30m
25GBASE-SR	70m
25GBASE-LR	10km

Interface Type	SFP+ ports
10GBASE-CR	SFP+ to SFP+: 0.5m-5m
10GBASE-AOC	SFP+ to SFP+: 3m-30m
10GBASE-SRL	100m
10GBASE-SR	300m
10GBASE-LRL	1km
10GBASE-LR	10km
10GBASE-ER	40km
10GBASE-ZR	80km
10GBASE-DWDM	80km
100Mb TX, 1GbE SX/LX/TX	Yes

Note 1 - DCS-7508 rated to 35C with 7500R Series line cards



Product Number	Product Description
DCS-7516R-BND	Arista 7516R Chassis bundle. Includes 7516N chassis, 12x3kW PS, 6xFM-R, 1x7516-Sup2
DCS-7512R-BND	Arista 7512R Chassis bundle. Includes 7512N chassis, 8x3kW PS, 6xFM-R, 1xSup2
DCS-7508R-BND	Arista 7508R Chassis bundle. Includes 7508N chassis, 6x3kW PS, 6xFM-R, 1xSup2
DCS-7504R-BND	Arista 7504R Chassis bundle. Includes 7504N chassis, 4x3kW PS, 6xFM-R, 1xSup2
DCS-7516R-BND-D	Arista 7516R Chassis bundle. Includes 7516N chassis, 12x3kW PS, 6xFM-R, 1x7516-Sup2-D
DCS-7512R-BND-D	Arista 7512R Chassis bundle. Includes 7512N chassis, 8x3kW PS, 6xFM-R, 1xSup2-D
DCS-7508R-BND-D	Arista 7508R Chassis bundle. Includes 7508N chassis, 6x3kW PS, 6xFM-R, 1xSup2-D
DCS-7504R-BND-D	Arista 7504R Chassis bundle. Includes 7504N chassis, 4x3kW PS, 6xFM-R, 1xSup2-D
DCS-7516R-BND-DC	Arista 7516R Chassis bundle. Includes 7516N chassis, 12xDC PS, 6xFM-R, 1x7516-Sup2
DCS-7512R-BND-DC	Arista 7512R DC Chassis bundle. Includes 7512N chassis, 8xDC PS, 6 FM-R, 1xSup2
DCS-7508R-BND-DC	Arista 7508R DC Chassis bundle. Includes 7508N chassis, 6xDC PS, 6 FM-R, 1xSup2
DCS-7504R-BND-DC	Arista 7504R DC Chassis bundle. Includes 7504N chassis, 4xDC PS, 6 FM-R, 1xSup2
DCS-7516-SUP2	Supervisor-2 module for 7516 Series (spare)
DCS-7500-SUP2	Supervisor-2 module for 7500 Series (spare)
DCS-7516-SUP2-D	Supervisor-2 module for 7516 Series, with SSD (spare)
DCS-7500-SUP2-D	Supervisor-2 module for 7500 Series, with SSD (spare)
<b>100Gbps Line Cards</b>	
DCS-7500R-36CQ-LC	7500R Series 36 port 100GbE QSFP100 wirespeed line card
DCS-7500R2-36CQ-LC	7500R2 Series 36 port 100GbE QSFP100 wirespeed line card
DCS-7500R2A-36CQ-LC	7500R2 Series 36 port 100GbE QSFP100 AlgoMatch wirespeed line card
DCS-7500R2AK-36CQ-LC	7500R2 Series 36 port 100GbE QSFP100 AlgoMatch, 2M routes, wirespeed line card
DCS-7500R2-18CQ-LC	7500R2 Series 18 port 100GbE QSFP100 wirespeed line card
<b>40Gbps Line Cards</b>	
DCS-7500R-36Q-LC	7500R Series 36 port 40GbE QSFP+ (6 port 100GbE) wirespeed line card
<b>10/25Gbps Line Cards</b>	
DCS-7500R-48S2CQ-LC	7500R Series 48 port 1/10GbE SFP+ and 2 port 100GbE QSFP wirespeed line card
DCS-7500R2AK-48YCQ-LC	7500R2 Series 48 port 10/25GbE SFP+ and 2 port 100GbE QSFP AlgoMatch, 2M routes, wirespeed line card

## Note:

- Arista 7500 and 7500N switches ship with four, six, 8 or 12 C19-C20 power cables (2m). Other power cables must be ordered separately
- Front-to-rear means the air flows from the switch port side to the fan side

## Optional Components and Spares

DCS-7516N-CH	Arista 7516N empty chassis, 2 Supervisor slots, 8 line card slots, 6 Fabric Module slots, AC or DC option
DCS-7512N-CH	Arista 7512N chassis, 2 supervisor slots, 12 line card slots, 6 fabric slots, AC or DC power (ordered separately)
DCS-7508N-CH	Arista 7508N chassis, 2 supervisor slots, 8 line card slots, 6 fabric slots, AC or DC power (ordered separately)
DCS-7504N-CH	Arista 7504N chassis, 2 supervisor slots, 4 line card slots, 6 fabric slots, AC or DC power (ordered separately)
DCS-7508-CH	Arista 7508 chassis, 2 supervisor slots, 8 line card slots, 6 fabric slots
DCS-7504-CH	Arista 7504 chassis, 2 supervisor slots, 4 line card slots, 6 fabric slots
DCS-7516R-FM	7500R Series Fabric (integrated fan) Module for 7516 Chassis, required for fabric slots 1-6
DCS-7512R-FM	7500R Series Fabric (integrated fan) Module for 7512 Chassis, required for fabric slots 1-6
DCS-7508R-FM	7500R Series Fabric (integrated fan) Module for 7508 and 7508N Chassis, required for fabric slots 1-6
DCS-7504R-FM	7500R Series Fabric (integrated fan) Module for 7504 and 7504N Chassis, required for fabric slots 1-6
DCS-7500-SCVR	Blank cover for 7500 supervisor slot
DCS-7500-LCVR	Blank cover for 7500 line card slot
LIC-MOD-1-E	Enhanced Software License for Arista Modular switches - 4 slots (OSPF, BGP, ISIS, PIM)
LIC-MOD-2-E	Enhanced Software License for Arista Modular switches - 8 slots (OSPF, BGP, ISIS, PIM)
LIC-MOD-3-E	Enhanced Software License for Arista Modular switches - 12 slots (OSPF, BGP, ISIS, PIM)
LIC-MOD-4-E	Enhanced Software License for Arista Modular switches - 16 slots (OSPF, BGP, ISIS, PIM)
LIC-MOD-1-V	Virtualization license for Arista Modular switches - 4 slots (VM Tracer and VXLAN)
LIC-MOD-2-V	Virtualization license for Arista Modular switches - 8 slots (VM Tracer and VXLAN)
LIC-MOD-3-V	Virtualization license for Arista Modular switches - 12 slots (VM Tracer and VXLAN)
LIC-MOD-4-V	Virtualization license for Arista Modular switches - 16 slots (VM Tracer and VXLAN)
LIC-MOD-1-Z	Monitoring & provisioning license for Arista Modular switches - 4 slots (ZTP, LANZ, API, TapAgg)
LIC-MOD-2-Z	Monitoring & provisioning license for Arista Modular switches - 8 slots (ZTP, LANZ, API, TapAgg)
LIC-MOD-3-Z	Monitoring & provisioning license for Arista Modular switches - 12 slots (ZTP, LANZ, API, TapAgg)
LIC-MOD-4-Z	Monitoring & provisioning license for Arista Modular switches - 16 slots (ZTP, LANZ, API, TapAgg)
LIC-MOD-1-FLX	FLX License for Arista Modular switches, 4 slots - OSPF, ISIS, BGP, PIM, AlgoMatch, 256K-2M Routes, EVPN, VXLAN, SR and MPLS
LIC-MOD-2-FLX	FLX License for Arista Modular switches, 8 slots - OSPF, ISIS, BGP, PIM, AlgoMatch, 256K-2M Routes, EVPN, VXLAN, SR and MPLS
LIC-MOD-3-FLX	FLX License for Arista Modular switches, 12 slots - OSPF, ISIS, BGP, PIM, AlgoMatch, 256K-2M Routes, EVPN, VXLAN, SR and MPLS
LIC-MOD-4-FLX	FLX License for Arista Modular switches, 16 slots - OSPF, ISIS, BGP, PIM, AlgoMatch, 256K-2M Routes, EVPN, VXLAN, SR and MPLS
LIC-MOD-1-FLX-L	FLX-Lite License for Arista Modular switches, 4 slots - OSPF, ISIS, BGP, PIM Up to 256K Routes, EVPN, VXLAN
LIC-MOD-2-FLX-L	FLX-Lite License for Arista Modular switches, 8 slots - OSPF, ISIS, BGP, PIM, Up to 256K Routes, EVPN, VXLAN

## Optional Components and Spares

LIC-MOD-3-FLX-L	FLX-Lite License for Arista Modular switches, 12 slots - OSPF, ISIS, BGP, PIM, Up to 256K Routes, EVPN, VXLAN
LIC-MOD-4-FLX-L	FLX-Lite License for Arista Modular switches, 16 slots - OSPF, ISIS, BGP, PIM, Up to 256K Routes, EVPN, VXLAN
PWR-3KT-AC-RED	Spare 3kW Titanium AC Power Supply for 7300 and 7500N series (red handle)
PWR-3K-DC-RED	Spare 3kW DC Power Supply for 7300 and 7500N series (red handle)
PWR-2900AC	2900W AC power supply for 7500 series (7508 and 7504 chassis)
DCS-7300-PCVR	Blank cover for 7300 and 7500N power supply slot
KIT-7516	Spare accessory kit for Arista 7516N. Includes 12xC19-C20 power cords, 4 post mounting brackets
KIT-7512	Spare accessory kit for Arista 7512N. Includes 8xC19-C20 power cords, 2 & 4 post mounting brackets
KIT-7508	Spare accessory kit for Arista 7508 and 7508N. Includes 4xC19-C20 power cords, 2 & 4 post mounting brackets
KIT-7504	Spare accessory kit for Arista 7504 and 7504N. Includes 4xC19-C20 power cords, 2 & 4 post mounting brackets
CAB-C19-C20	Power cord, C19 to C20 (2m)
CAB-C19-L6-20	Power cord, C19 to L6-20 (2.5m)

## Warranty

The Arista 7500R Series switches come with a one-year limited hardware warranty, which covers parts, repair, or replacement with a 10 business day turn-around after the unit is received.

## Service and Support

Support services including next business day and 4-hour advance hardware replacement are available. For service depot locations, please see: <http://www.arista.com/en/service>

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