Key Features

Performance

- 48 1/10GbE ports in 1RU
- Up to 960 Gigabits per second (Gbps)
- Up to 720 Million packets per second
- Hardware based Layer 2/3 switching
- As low as 900 nanosecond latency

Arista Extensible Operating System

- Single binary image for all products
- Fine-grained modularity
- Stateful fault containment (SFC)
- Stateful fault repair (SFR)
- Truly modular network OS
- Access to Linux tools
- Customizable to customer needs

High Software Reliability

- Fine-grained software modularity
- Health monitoring and self-healing
- In-service-software upgrades (ISSU)

Data Center Optimized Design

- 1+1 redundant and hot-swappable power
- N+1 redundant and hot-swappable fans
- Front-to-rear or rear-to-front cooling
- Hot or cold aisle port facing options
- Redundant management ports

Resilient Control Plane

- Dual-core x86 CPU
- 2GB DRAM
- 2GB Flash
- User applications can run in a VM

Advanced Provisioning & Monitoring

- Zero Touch Provisioning (ZTP)
- Latency Analyzer (LANZ)
- VM Tracer
- sFlow
- Self configure and recover from USB

Overview

The Arista 7148S and 7148SX switches are high performance, ultra-low latency layer 2/3/4 10 Gigabit Ethernet data center switches. Offered with 48 1/10GbE ports in a compact 1RU chassis with redundant power and cooling, the Arista 7148S/SX switches feature front-to-rear airflow when mounted in either direction for flexible top of rack server aggregation deployments. All ports accommodate the full range of 10GbE SFP+ or GbE SFP optical or copper physical layer options, allowing for maximum flexibility and investment protection as customers of all sizes migrate server connections from Gigabit to 10 Gigabit Ethernet.

Arista 7148SX: 48-port 10GbE 960Gbps, 720Mpps, L2/3/4, 1U Switch (SFP+)

Arista 7148S: 48-port 10GbE 800Gbps, 600Mpps, L2/3/4, 1U Switch (SFP+)

Arista EOS

All Arista products including the 7124S and 7148SX switches run Arista EOS software. The same binary image supports all Arista products, making it easy for network administrators to standardize the operating system across all switches in the data center simplifying network administration. With Arista EOS, advanced monitoring and automation capabilities such as Zero Touch Provisioning, VM Tracer and Linux based tools can be run natively on the switch.

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. Several Linux based tools can be run directly on the switch, running on a powerful dual-core x86 CPU subsystem.

Latency Analyzer (LANZ)

The 7148S and 7148SX offer advanced capabilities for latency analysis in a network. LANZ enables proactive detection and avoidance of congestion enabling applications to react rapidly to changing network conditions before packets are dropped. For maximum versatility data can be exported in a variety of open standard formants so congestion points can be identified and tracked over time.

Arista EOS Key Features

Arista EOS™ is a highly modular operating system based on a unique multi-process state sharing architecture that completely separates networking state from processing. This enables fault recovery and incremental software updates on a fine-grain process basis without affecting the state of the system. Key EOS attributes include:

• Fine Grained Modularity
• Software Fault Containment (SFC)
• Stateful Fault Repair (SFR)
• In-Service Software Upgrades (ISSU)
• Access to Linux Tools
• Extensible Network Services
• Integration with 3rd Party Applications
• Ample memory for 3rd party applications

Arista 7148S/7148SX Rear View

Arista 7148S/7148SX rear view with two 1+1 redundant , hot-swappable power supplies and 5 N+1 redundant, hot-swappable independent fans.

Cloud Leaf and Spine Network Design
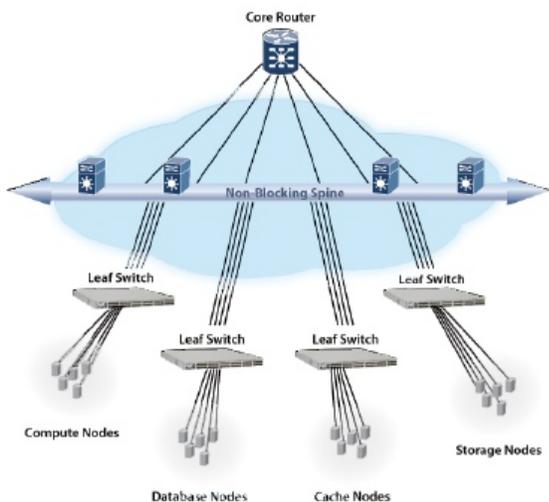
In the data center, there is an architectural migration to two-tiered cloud networking designs. The main building blocks are Cloud Leaves (CL) and Cloud Spines (CS). Cloud Spines forward traffic along optimal paths between nodes at layer 2 or layer 3 while Cloud Leaves control the flow of traffic between servers.

Predictable Latency and Multicast

The ultra-low latency characteristics of the Arista 7148S/7148SX switches are consistent regardless of packet size and port speed, which means customers can reap the benefits of industry leading latency at 1 Gigabit speeds in addition to 10 Gigabit speeds. The 7148S/7148SX latency is also predictable with little variance in environments with random packet sizes which is key to improving and maintaining application performance and server utilization.

Multicast and broadcast throughput is also very consistent at all packet sizes, maintaining line rate performance with no packet drops. This means that multimedia applications such as content delivery and video conferencing can be used in the network in a reliable and effective way.

High Availability

The Arista 7148S/7148SX switches are designed for high availability from both a software and hardware perspective. Key high availability features include:

• Two 1+1 hot-swappable independent power supplies
• Five N+1 hot-swappable independent fans
• Dual management ports
• In-Service Software Upgrades (ISSU)
• Self healing software with Stateful Fault Repair (SFR)
• Up to 16 10GbE ports per link aggregation group (LAG)
• Multi-chassis LAG for active/active L2 multipathing
• 16-way ECMP routing for load balancing and redundancy

Target Positioning

The Arista 7100S Switches are positioned for a variety of places in the network including:

• Top-of-Rack Server Aggregation
• Blade Server Aggregation
• Network Spine and Aggregation
• HPC Cluster Interconnects
• Storage Access
• Cloud Networking Interconnects

10 Gigabit Ethernet is becoming the interconnect of choice in data centers of all sizes providing key improvements in terms of bandwidth, latency, scalability, reliability and application performance. The Arista 7148S/7148SX Series enables a seamless migration path from existing Gigabit Ethernet-based servers to 10 Gigabit Ethernet-based high-performance servers while further enabling the transition to virtualized environments.

Layer 2 Features

- 16K L2 Forwarding Entries
- 802.1w Rapid Spanning Tree
- 802.1s Multiple Spanning Tree Protocol
- Rapid Per VLAN Spanning Tree (RPVST+)
- 802.3ad Link Aggregation/LACP
    - 16 ports/channel
    - 256 groups per system
- Multi-Chassis Link Aggregation (MLAG)
    - Uses IEEE 802.3ad LACP
    - 32 ports per MLAG
- 802.1Q VLANs/Trunking
    - 4096 VLANs
    - 150K VLAN Ports
- 802.1AB Link Layer Discovery Protocol
- Port Mirroring (mirror port or LAG)
- Jumbo Frames (9216 Bytes)
- 802.3x Flow Control
- Q-in-Q
- IGMP v1/v2/v3 snooping
- Storm Control

Layer 3 Features

- 16K IPv4 Routes
- Static Routes
- OSPF
- BGP
- ISIS
- RIPv2
- 16-way Equal Cost Multipath Routing (ECMP)
- Route Maps
- PIM-SM
- Anycast RP (RFC 4610)
- VRRP
- Virtual ARP (VARP)

Monitoring and Provisioning

- Latency Analyzer (LANZ)
- Zero Touch Provisioning (ZTP)
- eAPI
- Restore from USB
- Blue Beacon LED for system identification

Network Management

- 100/1000 Management Port
- RS-232 Serial Console Port
- USB Port
- SNMP v2, v3
- Management over IPv6
- Telnet and SSHv2
- Syslog
- AAA
- Industry Standard CLI

VM Tracer Feature Set

- VMware vSphere support
- VM Auto Discovery
- VM Adaptive Segmentation
- VM Host View

Security Features

- ACLs using L2, L3, L4 fields
- Control Plane Protection (CPP)
- MAC Security
- TACACS+
- RADIUS

Quality of Service (QoS) Features

- Up to 8 queues per port
- Strict priority queueing
- 802.1p based classification
- Per-Priority Flow Control (PFC)
- Data Center Bridging Extensions (DCBX)
- Rate limiting

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
- 802.3ab 1000BASE-T
- 802.3z Gigabit Ethernet
- 802.3ae 10 Gigabit Ethernet

SNMP MIBs

- ARISTA-SMI-MIB
- ARISTA-PRODUCTS-MIB
- 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
- User configurable custom OIDs

* Not yet supported in EOS

Environmental Characteristics

Operating Temperature	0 to 40C
Storage Temperature	-40C to 70C
Relative Humidity	5 to 95%
Operating Altitude	0 to 10,000 ft

Power Specifications

Max Output Power	760W
Input Voltage	100-240AC
Input Current (Max)	4-8A
Input Frequency	50-60Hz
Input Connector	IEC 320-C13

Standards Compliance

EMI	FCC Part 15 Class A ICES-003 Class A VCCI Class A
Safety	IEC/UL/CSA/EN 60950 CE, UL, TUV Mark
Other	ROHS-5 Compliant

Physical Characteristics

Size (WxHxD)	17.4" x 1.75" x 20.25" (44.0 x 4.4 x 51.5 cm)
Weight	29 lbs (13.2 kg)

Model Comparison

	7148S	7148SX
Port count	48	48
Interface Type	SFP/SFP+	SFP/SFP+
Throughput	800 Gbps	960Gbps
Packets/Second	600 Mpps	720Mpps
Latency	900 nsec	1200 nsec
CPU	Dual-Core x86	Dual-Core x86
System Memory	2 Gigabytes	2 Gigabytes
Flash Storage Memory	2 Gigabytes	2 Gigabytes
10/100/1000 Mgmt Ports	2	2
RS-232 Serial Ports	1 (RJ-45)	1 (RJ-45)
USB Ports	1	1
Hot-swappable PSU	2 (1+1 redundant)	2 (1+1 redundant)
Hot-swappable Fans	5 (N+1 redundant)	5 (N+1 redundant)
Reversible Airflow Option	Yes	Yes
Typical Power Draw	360W	600W

Supported SFP Optics and Cables

Interface Type	Media	Max Distance
10GBASE-CR	Twinax Copper	7m
10GBASE-SRL	50 micron MMF	100m
10GBASE-SR	50 micron MMF	300m
10GBASE-LRM	62.5 micron MMF	220m
10GBASE-LRL	9 micron SMF	1km
10GBASE-LR	9 micron SMF	10km
10GBASE-ER	9 micron SMF	40km
10GBASE-ZR	9 micron SMF	80km
10G-DWDM	9 micron SMF	80km
1000BASE-SX	50 micron MMF	550m
1000BASE-LX	9 micron SMF	10km
1000BASE-T	Category 5 Copper	100m

* Typical power consumption measured at 25C ambient with 50% load

Product Number	Product Description
DCS-7148S-F	Arista 7148S 48-port 10GbE switch (SFP+), front-to-rear fans*, 2xAC, 2xC13-C14 cords **
DCS-7148S-R	Arista 7148S 48-port 10GbE switch (SFP+), rear-to-front fans*, 2xAC, 2xC13-C14 cords **
DCS-7148SX-F	Arista 7148SX 48-port 10GbE switch (SFP+), front-to-rear fans*, 2xAC, 2xC13-C14 cords **
DCS-7148SX-R	Arista 7148SX 48-port 10GbE switch (SFP+), rear-to-front fans*, 2xAC, 2xC13-C14 cords **
FAN-7100-F	Spare fan module for Arista 7048 / 7100 switches (front-to-rear airflow) *
FAN-7100-R	Spare fan module for Arista 7048 / 7100 switches (rear-to-front airflow) *
PWR-760AC	Spare 760 Watt AC power supply for Arista 7100 Switches
LIC-FIX-2-E	Enhanced L3 License for Arista Fixed switches, 40-64 port 10G (BGP, OSPF, ISIS, PIM, NAT)
LIC-FIX-2-V	Virtualization license for Arista Fixed switches 40-64 port 10G (VMTracer)
LIC-FIX-2-Z	Monitoring & provisioning license for Arista Fixed switches 40-64 port 10G (ZTP, LANZ, API)
KIT-7100	Spare accessory kit for Arista 7000 / 7100 switches

* Front-to-rear implies airflow from the port side to the fan side. Rear-to-front implies airflow from the fan side to the port side.
** All Arista 7100 Series switches ship with two meter C13-C14 power cables. Other power cables must be ordered separately.

Warranty

The Arista 7148S/7148SX switches include a 1 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

Additional support services including next business day and 4-hour advance hardware replacement are available.

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