DELL EMC Z9100-ON SERIES SWITCHES
High-performance 1/10/25/40/50/100GbE multi-rate open networking fixed switch featuring Dell EMC Networking OS9

Data center optimized

The Dell EMC Z9100-ON is a 10/25/40/50/100GbE fixed switch purpose-built for applications in high-performance data center and computing environments.

Leveraging a non-blocking switching architecture, the Z9100-ON delivers line-rate L2 and L3 forwarding capacity to maximize network performance. The compact Z9100-ON design provides industry-leading density of either 32 ports of 100GbE, 64 ports of 50GbE, 32 ports of 40GbE, 128 ports of 25GbE or 128 ports 10GbE and two SFP+ ports of 10GbE/1GbE/100MbE to conserve rack space while enabling denser footprints and simplifying migration to 100Gbps in the data center core. Priority-based flow control (PFC), data center bridge exchange (DCBX) and enhanced transmission selection (ETS) make the Z9100-ON ideally suited for DCB environments. In addition, the Z9100-ON incorporates multiple architectural features that optimize data center network flexibility, efficiency and availability, including redundant, hot-swappable power supplies and fans.

These new offerings provide the flexibility to transform data centers and offer high-capacity network fabrics that are easy to deploy, cost-effective and provide a clear path to a software-defined data center. The Dell EMC Z9100-ON supports the industry standard Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems. Characteristic of any ONIE device, other ONIE load images may be loaded by the operator.

Key applications

- Active Fabric™ implementation using high-density multi-rate 10/25/40/50/100GbE ToR server aggregation in high-performance data center environments at the desired fabric speed
- Small-scale Active Fabric implementation via the Z9100-ON switch in leaf and spine along with S-Series 1/10/40GbE ToR switches enabling cost-effective aggregation of 10/40/50/100GbE uplinks
- High-performance SDN/OpenFlow 1.3.1 enabled with ability to inter-operate with industry standard OpenFlow controllers
- Use as a high-speed VXLAN Layer 2 Gateway that connects the hypervisor based overlay networks with non-virtualized infrastructure

Key features

- 1RU high-density 10/25/40/50/100GbE fixed switch with choice of up to 32 ports of 100GbE (QSFP28), 64 ports of 50GbE (QSFP+), 32 ports of 40GbE (QSFP+), 128 ports of 25GbE (SFP28) or 128+2 ports of 10GbE (using breakout cable)
- Up to 6.4Tbps of switching I/O bandwidth (full duplex) available and non-blocking switching fabric delivering line-rate performance under full load with sub usec latency
- Scalable L2 and L3 Ethernet switching with QoS and a full complement of standards-based IPv4 and IPv6 features, including OSPF and BGP routing support
- L2 multipath support via Virtual Link Trunking (VLT) and multiple VLT (mVLT) multi-chassis link aggregation technology
- VRF-lite enables sharing of networking infrastructure and provides L3 traffic isolation across tenants
- Open Automation Framework adding automated configuration and provisioning capabilities to simplify the management of network environments
- Jumbo frame support for large data transfers
- 128 link aggregation groups with up to sixteen members per group, using enhanced hashing
- Redundant, hot-swappable power supplies and fans
- I/O panel to power supply airflow or power supply to I/O panel airflow
- Tool-less enterprise ReadyRails™ mounting kits reducing time and resources for switch rack installation
- Power-efficient operation up to 45°C helping reduce cooling costs in temperature-constrained deployments
- Converged network support for DCB, with priority flow control (802.1Qbb), ETS (802.1Qaz), DCBx and ISCSI TLV support
- Z9100-ON supports Routable RoCE to enable convergence of compute and storage on Active Fabric
<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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| Z9100-ON     | AC base normal airflow  
32-port 100G QSFP28, 2 AC PS, 5 fan subsys w/ airflow from I/O PNL to PS  
AC base reverse airflow  
32-port 100G QSFP28, 2 AC PS, 5 fan subsys w/ airflow from PS to I/O PNL (TAA versions also available) |
| Fans         | Fan spare normal airflow  
Fan with airflow from I/O PNL to PS  
Fan spare reverse airflow  
Fan with airflow from PS to I/O PNL |
| Power supplies | AC PS spare normal airflow  
AC power supply with airflow from I/O PNL to PS  
AC PS spare reverse airflow  
AC power supply with airflow from PS to I/O PNL  
DC PSU spare normal airflow  
DC PSU with airflow from I/O PNL to PSU  
DC PSU spare reverse airflow  
DC PSU with airflow from PSU to I/O PNL |
| Optics (optional) | Transceiver, 100GbE, SR4 QSFP28  
Transceiver, 100GbE, LR4 QSFP28  
Transceiver, 100GbE, LR4Lite QSFP28  
Transceiver, 100GbE, PSM4 10Km QSFP28  
Transceiver, 100GbE, CWDM4 2Km QSFP28  
Transceiver, 100GbE, PSM4 500m QSFP28  
Transceiver, 40GbE, SR4 optic QSFP+  
Transceiver, 40GbE, eSR4 optic QSFP+  
Transceiver, 40GbE, LR4 optic QSFP+  
Transceiver, 40GbE, ER4 optics QSFP+  
Transceiver, 40GbE, PSM4 10Km, QSFP+  
Transceiver, 40GbE, PSM4-LR MPO 10Km QSFP+ to LC  
Transceiver, 40GbE, LM4 / SM4 Duplex QSFP+ |
| Cables (optional) | 100GbE, 4x25GbE, QSFP28 to 4xSFP28, passive DAC  
100GbE, QSFP28 to QSFP28, active optical  
100GbE, QSFP28 to QSFP28, passive DAC  
100GbE, 2x50GbE, QSFP28 to 2xQSFP28, passive DAC, breakout  
40GbE, QSFP+ to QSFP+, active optical  
40GbE, QSFP+ to QSFP+, passive DAC  
40GbE, MTP to 4xLC optical breakout  
40GbE, 4x10GbE, QSFP+ to 4xSFP+, passive DAC  
Cable management  
Z9100 Cable Breakout Kit, MTP to LC (1RU 64-port LC over MMF)  
Z9100 Cable Breakout Kit, MTP to LC (1RU 64-port LC over SMF)  
Z9100 Cable Breakout Kit, MTP to LC (1RU 48-port LC over MMF) |
| Software     | L3 Dell EMC Networking OS  
Z9100 series: Dell EMC Networking Software License operating system software license for advanced L3 features, latest version  
Dell EMC Networking OS  
Z9100 series: Dell EMC Networking Software License operating system software license, latest version  
Select third-party operating system offerings  
Note: in-field change of airflow direction only supported when unit is powered down and all fan and power supply units are replaced with airflow moving in a uniform direction. |
Redundancy
ReadyRails rack mounting system, no tools required

ACL Support: 3K
QoS: Default 1024 entries scalable to 2.5K
QoS control queues: 12
QoS data queues: 8
CPU memory: 8GB
Packet buffer memory: 16MB
Latency: Sub 500ns
Based on layer 2, IPv4 or IPv6 headers
LAG load balancing:
LAG: 128 groups, 16 members per LAG group
PVST+: 128 instances
MST: 64 instances
Layer 2 VLANs: Standalone 1K/VLT 4K
MST: 64 instances
PvST+: 128 instances
LAG: 128 groups, 16 members per LAG group
LAG load balancing:
Based on layer 2, IPv4 or IPv6 headers
Latency: Sub 500ns
Packet buffer memory: 16MB
CPU memory: 8GB
QoS data queues: 8
QoS control queues: 12
QoS: Default 1024 entries scalable to 2.5K
ACL Support: 3K

IEEE compliance
802.1AB LLDP
802.1D Bridging, STP
802.1p L2 Prioritization
802.1Q VLAN Tagging, Double VLAN Tagging, GVRP
802.1Qbb FTC
802.1Qaz ETS
802.1s MSTP
802.1w RSTP
802.1X Network Access Control
802.3ab Gigabit Ethernet (1000BASE-T) or breakout
802.3ac Frame Extensions for VLAN Tagging
802.3ad Link Aggregation with LACP
802.3ae 10 Gigabit Ethernet (10GBase-X)
802.3ba 40 Gigabit Ethernet (40GBase-SR4, 40GBase-CR4, 40GBase-LR4, 100GBase-SR10, 100GBase-LR4, 100GBase-ER4) on optical ports
802.3bj 100 Gigabit Ethernet
802.3u Fast Ethernet (100BASE-TX) on mgmt ports
802.3x Flow Control
802.3z Gigabit Ethernet (1000Base-X) with QoS
802.3i 802.3z for IPv6

RFC and I-D compliance
General Internet protocols
768 UDP
793 TCP
854 Telnet
959 FTP
General IPv4 protocols
791 IPv4
792 ICMP
826 ARP
1027 Proxy ARP
1035 DNS (client)
1042 Ethernet Transmission
1305 NTPv3
1519 CIDR
1542 BGP/MPLS (relay)
1812 Requirements for IPv4 Routers
1918 Address Allocation for Private Internets
2474 DiffServ Field in IPv4 and IPv6 Headers
2596 Assured Forwarding PHB Group
3164 BSD Syslog
3195 Reliable Delivery for Syslog
3246 Expedited Assured Forwarding
4364 VRF-lite (IPv4 VRF with OSPF and BGP)
5798 VRRP

General IPv6 protocols
1981 Path MTU Discovery Features
2460 Internet Protocol, Version 6 (IPv6)
2464 Transmission of IPv6 Packets over Ethernet Networks
2711 IPv6 Router Alert Option
4007 IPv6 Scoped Address Architecture
4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
4291 IPv6 Addressing Architecture
4443 ICMP for IPv6
4861 Neighbor Discovery for IPv6
4862 IPv6 Stateless Address Autoconfiguration
5096 Degradation of Type 0 Routing Headers in IPv6
IPv6 Management support (telnet, FTP, TACACS, RADIUS, SSH, NTP)
Securit
2404 The Use of HMACSHA-1-96 within ESP and AH
2985 RADIUS
3162 Radius and IPv6
3579 Radius support for EAP
3580 802.1x with RADIUS
3578 EAP
3626 AES Cipher Algorithm in the SNMP User Base Security Model
4250, 4251, 4252, 4253, 4254 SSHv2
4501 Security Architecture for IPSec
4502 IPSec Authentication Header
4503 ESP Protocol
4807 IPSec Security Policy DB MIB
RIP
1058 RIPv1
2453 RIPv2
OSPF (v2/v3)
1587 NSX 1552 Authentication/Authorization
2154 OSPF Digital Signatures Confidentiality for IPv6
2328 OSPFv2 OSPFv3
2370 Opaque LSA 5340 OSPF for IPv6
ISIS
5301 Dynamic hostname exchange mechanism for IPv4
5302 Domain-wide prefix distribution with two-level IS-IS
5303 Three way handshake for IS-IS point-to-point adjacencies
5308 IS-IS for IPv6
BGP
1997 Communities
2385 MD5
2545 BGP-4 Multiprotocol Extensions for IPv6
2439 Route Flap Damping
2796 Route Reflection
2842 Capabilities
2858 Multiprotocol Extensions
2918 Route Refresh
3065 Confederations
4360 Extended Communities
4683 4-byte ASN
5396 4-byte ASN representations
draft-ietf-idr-add-paths-04.txt ADD PATH 4-byte ASN Representation (partial)
draft-ietf-idr-add-attrs-04.txt ADD PATH 4-byte ASN Representation (partial)
draft-ietf-idr-add-attrs-04.txt ADD PATH 4-byte ASN Representation (partial)
Multicast
1112 IGMPv1
2236 IGMPv2
3576 IGMPv3
MSDP
PIM-ASM
PIM-SSM
Data center bridging
802.1Qbb Priority-Based Flow Control
802.1Qaz Enhanced Transmission Selection (ETS)
Data Center Bridging eXchange (DCBx)
DCBX Application TLV (SCSI, FCoE)
Network management
1155 SNMPv1
1157 SNMPv2
1212 Concise MIB Definitions
1215 SNMP Traps
1493 Bridges MIB
1850 OSPFv2 MIB
1901 Community-Based SNMPv2
2011 IPvMIB
2096 IP Forwarding Table MIB
2578 SMIPv2
2579 Textual Conventions for SMIPv2
IT Lifecycle Services for Networking

Experts, insights and ease
Our highly trained experts, with innovative tools and proven processes, help you transform your IT investments into strategic advantages.

Plan & Design
Let us analyze your multivendor environment and deliver a comprehensive report and action plan to build upon the existing network and improve performance.

Deploy & Integrate
Get new wired or wireless network technology installed and configured with ProDeploy. Reduce costs, save time, and get up and running fast.

Educate
Ensure your staff builds the right skills for long-term success. Get certified on Dell EMC Networking technology and learn how to increase performance and optimize infrastructure.

Manage & Support
Gain access to technical experts and quickly resolve multivendor networking challenges with ProSupport. Spend less time resolving network issues and more time innovating.

Optimize
Maximize performance for dynamic IT environments with Dell EMC Optimize. Benefit from in-depth predictive analysis, remote monitoring and a dedicated systems analyst for your network.

Retire
We can help you resell or retire excess hardware while meeting local regulatory guidelines and acting in an environmentally responsible way.

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