

DELL EMC NETWORKING OS10.4 ENTERPRISE EDITION SOFTWARE SPECIFICATIONS

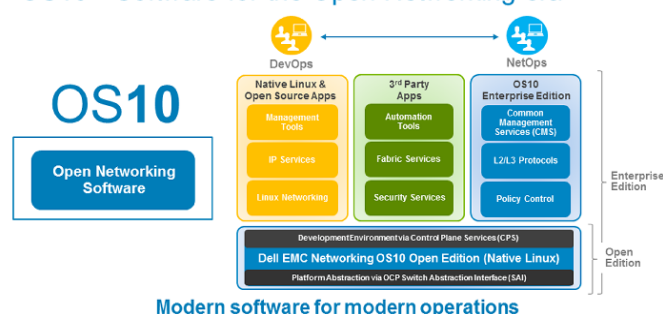
The Dell EMC Networking OS10 Enterprise Edition is a Network Operating System supporting multiple architectures and environments. The OS10 solution is designed to allow multi-layered disaggregation of network functions. OS10 contributions to Open Source provide users freedom and flexibility to pick their own 3rd party networking, monitoring, management and orchestration applications, while OS10 Enterprise Edition bundles an industry-hardened networking stack featuring standard L2 and L3 protocols over well accepted Northbound interfaces like CLI, SNMP & REST. The Switch Abstraction Interface (SAI) and Control Plane Services (CPS) abstraction layers provide disaggregation at the Network Processing Unit (NPU), as well as for the software applications written on top of linux kernel.

Feature rich OS10 Enterprise Edition software allows users to build fault-tolerant, scalable Layer 2 and Layer 3 network fabric designs. Modular and disaggregated, yet offered as a single-binary, OS10 offers integration with a variety of management and monitoring tools to help orchestrate network updates and fabric life-cycle management.

Key features of Dell EMC Networking OS10

- Standard networking features, interfaces and scripting functions for legacy network operations integration
- Standards-based switching hardware abstraction via Switch Abstraction Interface (SAI)
- Consistent DevOps framework across compute, storage and networking elements
- Pervasive, unrestricted developer environment via Control Plane Services (CPS)
- Layer 2 and 3 switching and routing protocols with integrated IP services, quality of service, manageability and automation features

OS10—Software for the Open Networking era



- Leverage common open source tools and DevOps best practices (unified data models, commit scratchpad)
- Increase VM Mobility region by stretching L2 VLAN within or across two DCs with unique VLT capabilities
- Scalable L2 and L3 Ethernet Switching with QoS, ACL and a full complement of standards based IPv4 and IPv6 features
- Enhanced mirroring capabilities including local mirroring, Remote Port Mirroring (RPM), and Encapsulated Remote Port Mirroring (ERPM)
- Programmatic APIs and CLI automation using batch and aliases to simplify configuration management
- Converged network support for Data Center Bridging, with priority flow control (802.1Qbb), ETS (802.1Qaz), DCBx and iSCSI TLV

Specifications

Supported Platforms

IEEE Compliance

802.1AB	LLDP
TIA-1057	LLDP-MED
802.1D	Bridging, STP
802.1p	L2 Prioritization
802.1Q	VLAN Tagging
802.1Qbb	PFC
802.1Qaz	ETS
802.1X	Network Access Control
802.3x	Flow Control
802.3ac	Frame Extensions for VLAN Tagging
802.3ad	Link Aggregation

Layer2 Protocols

802.1D	Compatible
802.1p	L2 Prioritization
802.1Q	VLAN Tagging
802.1s	MSTP
802.1w	RSTP
802.1t	RPVST+
VLT (Virtual Link Trunking)	
VRRP Active/Active	
RSTP & RPVST+	
Port Mirroring on VLT ports	
DCB, iSCSI, FSB on VLT	
RPM/ERPM over VLT	
VLT Minloss upgrade	

RFC Compliance

768	UDP
793	TCP
854	Telnet
959	FTP
1321	MD5
1350	TFTP
2474	Differentiated Services
2698	Two Rate Three Color Marker
3164	Syslog
4254	SSHv2

General IPv4 Protocols

791	IPv4
792	ICMP
826	ARP
1027	Proxy ARP
1035	DNS (client)
1042	Ethernet Transmission
1191	Path MTU Discovery
1305	NTPv4
1519	CIDR
1812	Requirements for IPv4 Routers
1858	IP Fragment Filtering
1918	Address Allocation for Private Internets
2131	DHCPv4 (server and relay)
2474	Diffserv Field in IPv4 and Ipv6 Headers
2597	Assured Forwarding PHB Group
3021	31-bit Prefixes
3195	Reliable Delivery for Syslog
3246	Expedited Forwarding PHB Group
5798	VRRPv3

* partial support

General IPv6 Protocols

1981	Path MTU for IPv6
2372	IPv6 Addressing
2460	IPv6 Protocol Specification
2461	Neighbor Discovery
2462	Stateless Address AutoConfig
2463	ICMPv6
2464	Transmission of IPv6 Packets over Ethernet Networks
2675	IPv6 Jumbograms
2711	IPv6 Router Alert Option
3484	Default Address Selection
3493	Basic Socket Interface
4291	Addressing Architecture
3542	Advanced Sockets API
3587	Global Unicast Address Format
4291	IPv6 Addressing
4007	IPv6 Scoped Address Architecture
4213	Transition Mechanisms for IPv6 Hosts and Routers
IPv6 Static Routes	

OSPF

1745	OSPF/BGP interaction
1765	OSPF Database overflow
2154	OSPF with DigitalSignatures
2328	OSPFv2
2370	Opaque LSA
3101	OSPF NSSA
4552	OSPFv3 Authentication
5340	OSPF for IPv6 (OSPFv3)

Multicast

2236	IGMPv2 Snooping
3810	MLDv2 Snooping

Security

1492	TACACS (Authentication) Control Plane, VTY ACLs
2865	RADIUS
3162	Radius and IPv6
3579	Radius support for EAP
3580	802.1X with RADIUS
3826	AES Cipher in SNMP
IP Access Control Lists	

BGP

1997	Communities
2385	MD5
2439	Route Flap Damping
2545	BGP-4 Multiprotocol Extensions for IPv6
Inter-Domain Routing	
2858	Multiprotocol Extensions
2796	Route Reflection
2918	Route Refresh
3065	Confederations
4271	BGP-4
4360	Extended Communities
4893	4-byte ASN
5396	4-byte ASN Representation
5492	Capabilities Advertisement
draft-ietf-idr-add-paths-04.txt ADD PATH	

Linux Distribution

Debian Linux version 8
Linux Kernel 3.16

Network Management and Monitoring

SNMPv1/2c
IPv4/IPv6 Management support (Telnet, FTP, TACACS, RADIUS, SSH, NTP)
Syslog
Port Mirroring
RPM/ERPM
3176 SFlow
Support Assist (Phone Home)
RestConf APIs (Layer 2 features)
XML Schema
CLI Commit (Scratchpad)
Uplink Failure Detection
Object Tracking
Management VRF

Automation

Control Plane Services APIs
Linux Utilities and Scripting Tools
CLI Automation (Multiline Alias)
Ansible, Puppet, Chef, SaltStack

Quality of Service

Prefix List
Route-Map
Rate Shaping (Egress)
Rate Policing (Ingress)
Scheduling Algorithms
Round Robin
Weighted Round Robin
Deficit Round Robin
Strict Priority
Weighted Random Early Detect

Data center bridging

802.1Qbb Priority-Based Flow Control
802.1Qaz Enhanced Transmission Selection (ETS)
Explicit Congestion Notification
Data Center Bridging eXchange (DCBx)
DCBx Application TLV (iSCSI, FCoE)

FiberChannel

FCF F-Port
FC Zoning
FIP Snooping

MIBS

IP MIB
IP Forward MIB
Host Resources MIB
IF MIB
LLDP EXT1/3 MIB
Entity MIB
LAG MIB
Dell-Vendor MIB
TCP MIB
UDP MIB
SNMPv2 MIB

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