



OcNOS 4.0 Feature Matrix

Release Dates

- October 2015 - 1.0
- March 2016 - 1.1
- June 2016 - 1.2
- Aug 2016 - 1.2.1
- Dec 2016 - 1.2.4
- March 2017 - 1.3
- June 2017 - 1.3.1
- October 2017 - 1.3.2
- December 2018 - SP 1.0 ED1
- May 2019 - SP 1.0 ED2
- June 2019 - SP 1.0 ED 2.1
- June 2019 - SP 1.0 ED 2.1.1
- July 2019 - SP 1.0 ED 2.2
- September 2019 - SP 1.0 ED 2.3
- November 2019 - SP 1.0 ED 2.4 R1
- March 2020 - SP 1.0 ED 2.4 R2
- May 2020 - SP 1.0 ED 2.4 R4
- September 2020 - SP 3.0
- November 2020 - SP 3.1
- January 2021 - 4.0

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Column Headings

Feature name	Name of the feature
Standard	IEEE or IETF standard upon which the feature is based, such as an RFC
Comment	Explanation of the feature
Exceptions	Exceptions to the cited standard or to standard practice
First Version Supported	When the feature became available
Platforms	Whether a given switch model supports the features

Feature by SKU

Feature Name	Standard	First Version Supported	OCNOS-SP-CSR	OCNOS-SP-IPADV-CE-AGGR	OcNOS-SP-IPBASE	OCNOS-SP-MPLS	OCNOS-SP-OLT-LITE	OCNOS-SP-OLT-SA-IPBASE	OCNOS-SP-OLT-SA-IPMPLS
Layer 2									
Virtual Local Area Network (VLAN)									
Virtual LANs with Port-based VLANs	IEEE 802.1Q (2005)	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Routed VLAN interface	IEEE 802.1Q (2005)	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Port based VLAN interface	IEEE 802.1Q (2005)	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Private VLAN	IEEE 802.1Q (2005)	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Ingress and egress VLAN translation for C-VLAN and S-VLAN at PNP	802.1ad	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Cvlan translation at CEP	802.1ad	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Q-in-Q	802.1ad	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
L2PT		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Spanning Tree Protocol (STP)									
STP	IEEE 802.1D (2004)	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Multiple Spanning Tree Protocol (MSTP)	IEEE 802.1Q (2005): Clause 13	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Rapid Spanning Tree (RSTP)	IEEE 802.1D (2004): Clause 17	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Link Layer Discovery Protocol (LLDP)									
LLDP v2	IEEE 802.1ab 2009	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Link Aggregation (L2 only)									
Link Aggregation Control Protocol (LACP)	IEEE802.3ad-2002	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Static link aggregation group	IEEE802.3ad-2002	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Multi-Chassis Link Aggregation									
MC-LAG Active/Standby support as attachment circuit for L2	IPI Proprietary	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
MC-LAG Active/Standby support as attachment circuit for VPWS Pseudowire Redundancy	IPI Proprietary	1.0.0	Yes	No	No	Yes	No	Yes	Yes
Other Layer 2 Features									
BPDU Protect	802.1d	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Root Guard	802.1d	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
MAC Learning Disable	802.1q	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Static MAC Address Assignment	802.1q	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Port based authentication with Radius server	IEEE 802.1x	4.0	Yes	Yes	Yes	Yes	No	No	No
Port Security	IPI Proprietary	4.0	Yes	Yes	Yes	Yes	No	No	No
LACP Force Up	IPI Proprietary	4.0	Yes	Yes	Yes	Yes	No	No	No
Layer 3									
Address Resolution Protocol (ARP)									
Ethernet ARP	RFC 826	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Routing									
Transmission of IP Datagrams over Ethernet	RFC 894	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Congestion Control in IP/TCP Networks	RFC 896	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IP Broadcast	RFC 919	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IP Broadcast in the Presence of Subnets	RFC 922	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IP Subnetting	RFC 950	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Classless Inter-Domain Routing (CIDR)	RFC 1519	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Requirements for IP Version 4 Routers	RFC 1812	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Route Redistribution across RIP, OSPF and BGP	RFC 2328,RFC 4271,RFC2453	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
VLAN Routing	NA	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Ipv6 if mib	RFC 8096 Sec3	4.0	Yes	Yes	Yes	Yes	No	No	No
URPF (Unicast Reverse Path Forwarding)									
Loose mode	RFC 3704	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Loose default mode	RFC 3704	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Strict mode	RFC 3704	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Border Gateway Protocol (BGP)									
Border Gateway Protocol, Version 4	RFC 4271	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP Community Attributes	RFC 1997	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP Route Reflection	RFC 4456	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Autonomous System Confederations for BGP	RFC 5065	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Capabilities Negotiation with BGP-4	RFC 5492	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Applications of BGP-4 in the Internet	RFC 1772	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Protection of BGP Sessions Via the TCP MD5 Signature Option	RFC 2385	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Route Refresh Capability for BGP-4	RFC 2918	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP Support for Four-Octet AS Number Space	RFC 4893	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Subcodes for BGP Cease Notifications	RFC 4486	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGPv4 MD5 Authentication	RFC 2385	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP soft configuration	IPI propretary	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BFD Trigger for BGP	RFC 5882	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Route Target Filter	RFC 4684	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Next Hop Tracking	IPI propretary	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP - Outbound Route Filter	RFC 5292	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP - Labeled Unicast (BGP-LU)	RFC 3107	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP MIB	RFC 4273	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP Graceful-Restart	RFC 4724	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP Dampening	RFC 2439	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP Peer Groups	IPI propretary	SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BGP-IS (Link State)									
BGP Link state distribution (OSPF)	RFC 7752	4.0	Yes	No	No	Yes	No	No	No
BGP Link state distribution (ISIS)	RFC 7752	4.0	Yes	No	No	Yes	No	No	No
BGP Link state distribution for OSPF-SR	draft-ietf-idr-bgp-ls-segment-routing-ext-12	4.0	Yes	No	No	Yes	No	No	No
BGP Link state distribution for ISIS-SR	draft-ietf-idr-bgp-ls-segment-routing-ext-12 draft-ietf-isis-segment-routing-extensions-22	4.0	Yes	No	No	Yes	No	No	No
Routing Information Protocol (RIP)									
RIP Version 1	RFC 1058	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
RIP and RIP Version 2	RFC 2453	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Increment Metrics When Sending Routes, Not When Receiving	RFC 2453	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
RIP-2 MD5 Authentication	RFC 2082	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Open Shortest Path First (OSPF)									
Open Shortest Path First Version 2	RFC 2328	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Applicability statement for OSPF	RFC 1370	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes

Feature by SKU

Feature Name	Standard	First Version Supported	OCNOS-SP-CSR	OCNOS-SP-IPADV-CE-AGGR	OcNOS-SP-IPBASE	OCNOS-SP-MPLS	OCNOS-SP-OLT-LITE	OCNOS-SP-OLT-SA-IPBASE	OCNOS-SP-OLT-SA-IPMPLS
OSPF Opaque LSA	RFC 5250	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
OSPF Graceful Restart	RFC 3623	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
OSPF as PE/CE protocol for BGP/MPLS IP VPN	RFC 4577	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Passive Interface Support for OSPFv2	IPI proprietary	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
OSPF Not-So-Stubby-Area (NSSA) Option	RFC 3101	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IP FRR: OSPF-LFA	RFC 5286	SP1.0 ED2.4	Yes	Yes	Yes	Yes	No	Yes	Yes
Bidirectional Forwarding Detection Trigger for OSPFv2	RFC 5882	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Link Local Signaling	RFC 2328	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Virtual link	RFC 2328	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
OSPF Version 3 for IPv6 Support	RFC 5340	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Passive Interface Support in OSPFv3		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Graceful Restart Mechanism for OSPFv3	RFC 5187	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
BFD Trigger for OSPFv3	RFC 5613	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
OSPFv3 MTU	RFC 5340	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
OSPF LDP Sync	IPI proprietary	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Intermediate System-Intermediate System (ISIS)									
Use of OSI IS-IS for routing in TCP/IP and dual environments	RFC 1195	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Management Information Base (MIB) for ISIS	RFC 4444	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Original ISO specification of IS-IS	ISO 10589	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Dynamic Hostname Exchange Mechanism for IS-IS	RFC 2763	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Restart Signaling (Graceful Restart) for IS-IS	RFC 5306	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Routing IPv6 with IS-IS	RFC 5308	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IS-IS Exponential Back-off of SPF	RFC8541	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Intermediate System to Intermediate System for IPv6		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Passive Interface Support for IS-IS		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Bidirectional Forwarding Detection Trigger for IS-IS	RFC 5882	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IS-IS Mesh Groups	RFC 2973	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Domain-wide Prefix Distribution with Two-Level IS-IS	RFC 2966	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Three-Way Handshake for Intermediate System to Intermediate System (IS-IS) Point-to-Point Adjacencies	RFC 3373	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IS-IS extensions for Traffic Engineering	RFC 3784	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IS-IS Cryptographic Authentication	RFC 3567	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IP Fast Reroute - Loop-Free Alternate for IS-IS	RFC 5286	SP1.0 ED2.4	Yes	Yes	Yes	Yes	No	Yes	Yes
Bidirectional Forwarding Detection (BFD)									
BFD	RFC 5880	1.0.0	Yes	Yes	Yes	Yes	No	No	No
BFD for IPv4 single hop	RFC 5881	1.0.0	Yes	Yes	Yes	Yes	No	No	No
Generic Application for BFD	RFC 5882	1.0.0	Yes	Yes	Yes	Yes	No	No	No
BFD Multi-hop	RFC 5883	SP1.0 ED2.4	Yes	Yes	Yes	Yes	No	No	No
BFD Over BGP / ISIS / OSPF / Static route	RFC 5882	1.0.0	Yes	Yes	Yes	Yes	No	No	No
MIB support for BFD	IPI proprietary	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Virtual Router Redundancy Protocol (VRRP)									
VRRP Version 3 for IPv4	RFC 5798	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
VRRP Version 3 for IPv6	RFC 5798	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
VRRP Interface Tracking	IPI proprietary	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Support for VRRP Active/Standby and Active/Active on MLAG Active/Standby domain	IPI proprietary	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Multi-Protocol Label Switching (MPLS)									
General									
MPLS Architecture	RFC 3031	1.0.0	Yes	No	No	Yes	No	No	Yes
MPLS Label Stack Encoding	RFC 3032	1.0.0	Yes	No	No	Yes	No	No	Yes
Time To Live (TTL) Processing in Multi-Protocol Label Switching (MPLS) Networks	RFC 3443	1.0.0	Yes	No	No	Yes	No	No	Yes
MPLS Diffserv	RFC 3270	1.0.0	Yes	No	No	Yes	No	No	Yes
Multiprotocol Label Switching (MPLS) Label Switching Router (LSR) Management Information Base (MIB)	RFC 3813	1.0.0	Yes	No	No	Yes	No	No	Yes
Multiprotocol Label Switching (MPLS) Forwarding Equivalence Class to Next Hop Label Forwarding Entry (FEC-To-NHLFE) Management Information Base (MIB)	RFC 3814	1.0.0	Yes	No	No	Yes	No	No	Yes
Label Distribution Protocol (LDP)									
LDP	RFC 5036	1.0.0	Yes	No	No	Yes	No	No	Yes
LDP Applicability	RFC 3037	1.0.0	Yes	No	No	Yes	No	No	Yes
Support for LDP TCP-MD5	RFC 5036	1.0.0	Yes	No	No	Yes	No	No	Yes
Definitions of Managed Objects for the MPLS and LDP	RFC 3815	1.0.0	Yes	No	No	Yes	No	No	Yes
LDP Downstream-on-Demand in Seamless MPLS	RFC 7032	1.0.0	Yes	No	No	Yes	No	No	Yes
LDP Extension for Inter-Area Label Switched Paths (LSPs)	RFC 5283	4.0	Yes	No	No	Yes	No	No	Yes
Resource Reservation Protocol (RSVP)									
RSVPv1	RFC 2205	1.0.0	Yes	No	No	Yes	No	No	Yes
RSVP Refresh Overhead Reduction Extensions	RFC 2961	1.0.0	Yes	No	No	Yes	No	No	Yes
Fast Reroute Extensions to RSVP-TE for LSP Tunnels One-to-One Backup	RFC 4090	1.0.0	Yes	No	No	Yes	No	No	Yes
Fast Reroute Extensions to RSVP-TE for LSP Tunnels - Facility Backup	RFC 4090	SP1.0 ED2.4	Yes	No	No	Yes	No	No	Yes
RSVPv1 message processing rules	RFC 2209	1.0.0	Yes	No	No	Yes	No	No	Yes
Entropy label support for RSVP transport	RFC 6790	SP1.0 ED2.4	Yes	No	No	Yes	No	No	Yes
RSVP re-optimization	IPI Proprietary	SP1.0 ED2.4	Yes	No	No	Yes	No	No	Yes
Protocol Extensions for Support of Diff-serv-aware MPLS Traffic Engineering	RFC 4124	1.0.0	Yes	No	No	Yes	No	No	Yes
Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)	RFC 3812	1.0.0	Yes	No	No	Yes	No	No	Yes
RSVP multiple secondary	IPI Proprietary	SP 3.0	Yes	No	No	Yes	No	No	Yes
RSVP Shared Risk Link-Group (SRLG) support	RFC 4203 (Section 1.3)	4.0	Yes	No	No	Yes	No	No	Yes
RSVP MIB	RFC 2206	4.0	Yes	No	No	Yes	No	No	Yes
Layer 2 VPN (VPWS and VPLS)									
Pseudowire Setup and Maintenance using the Label Distribution Protocol	RFC 4447	1.0.0	Yes	No	No	Yes	No	No	Yes
VPLS/VPWS ethernet encapsulation mapping(Service Mapping)									
1> Outer tag Match									
2> Outer & inner tag Match									
3> Outer tag range Match									
4> Untag	IPI Proprietary	1.0.0	Yes	No	No	Yes	No	No	Yes
VPLS/VPWS ethernet action (Service Mapping, Action)									
1> POP outer tag									
2> XLATE outer tag									
3> Push tag	IPI Proprietary	1.0.0	Yes	No	No	Yes	No	No	Yes

Feature by SKU

Feature Name	Standard	First Version Supported	OCNOS-SP-CSR	OCNOS-SP-IPADV-CE-AGGR	OCNOS-SP-IPBASE	OCNOS-SP-MPLS	OCNOS-SP-OLT-LITE	OCNOS-SP-OLT-SA-IPBASE	OCNOS-SP-OLT-SA-IPMPLS
Encapsulation Methods for Transport of Ethernet Over MPLS Networks	RFC 4448	1.0.0	Yes	No	No	Yes	No	No	Yes
Static VPLS	IPI Proprietary	1.0.0	Yes	No	No	Yes	No	No	Yes
Virtual Private LAN Service (VPLS) Using Label Distribution Protocol (LDP) Signaling	RFC 4762	1.0.0	Yes	No	No	Yes	No	No	Yes
Virtual Private LAN Service (VPLS) Using BGP for signaling and auto-discovery	RFC 4761	1.0.0	Yes	No	No	Yes	No	No	Yes
Static pseudowire Setup and Maintenance	IPI Proprietary	1.0.0	Yes	No	No	Yes	No	No	Yes
Pseudowire MIB support	RFC 5601	1.0.0	Yes	No	No	Yes	No	No	Yes
Pseudowire (PW) over MPLS PSN Management Information Base (MIB)	RFC 5602	1.0.0	Yes	No	No	Yes	No	No	Yes
Ethernet Pseudowire (PW) Management Information Base (MIB)	RFC 5603	1.0.0	Yes	No	No	Yes	No	No	Yes
Layer 3 VPN									
Intra-AS	RFC 4364	1.0.0	Yes	No	No	Yes	No	No	Yes
OSPF PE-CE	RFC 4577	1.0.0	Yes	No	No	Yes	No	No	Yes
Intranet VPN	RFC 4364	1.0.0	Yes	No	No	Yes	No	No	Yes
Static route PE-CE	RFC 4364	1.0.0	Yes	No	No	Yes	No	No	Yes
6vPE	RFC 4659	SP1.0 ED2.3	Yes	No	No	Yes	No	No	Yes
6PE	RFC 4798	SP1.0 ED2.3	Yes	No	No	Yes	No	No	Yes
Label Disposition for VPNV4 & 6VPE	RFC 4364,RFC 4659	SP1.0 ED2.3	Yes	No	No	Yes	No	No	Yes
Label Disposition for 6PE	RFC 4798	SP1.0 ED2.3	Yes	No	No	Yes	No	No	Yes
Inter AS support for L3VPN/6VPE/6PE	RFC 4364,RFC 4659,RFC 4798	SP 3.0	Yes	No	No	Yes	No	No	Yes
PER VRF Label support for 6PE	IPI proprietary	SP 3.0	Yes	No	No	Yes	No	No	Yes
LU as transport for 6VPE/VPN	RFC 4659	SP 3.0	Yes	No	No	Yes	No	No	Yes
BGP Peer Group - static	IPI proprietary	SP 3.0	Yes	No	No	Yes	No	No	Yes
Internet access for L3VPN	RFC-4365 section 10.1	SP 3.0	Yes	No	No	Yes	No	No	Yes
L3VPN MIB	RFC 4382	4.0	Yes	No	No	Yes	No	No	Yes
MPLS OAM									
OAM for MPLS networks	RFC 4377	1.0.0	Yes	No	No	Yes	No	No	Yes
A framework for MPLS OAM	RFC 4378	1.0.0	Yes	No	No	Yes	No	No	Yes
Detecting MPLS Data Plane Failures	RFC 4379	1.0.0	Yes	No	No	Yes	No	No	Yes
MPLS PW and LSP Traffic Statistics									
Stats per Label Switched Path (LSP)		1.0.0	Yes	No	No	Yes	No	No	Yes
Stats per Virtual Circuit (VC)		1.0.0	Yes	No	No	Yes	No	No	Yes
L2VPN Statistics MIB	IPI Proprietary	4.0	Yes	No	No	Yes	No	No	Yes
Carrier Ethernet									
Connectivity Fault Management (CFM)									
MD, MA, MIP, Down MEP	IEEE 802.1ag - 2007	1.0.0 ED1	Yes	Yes	No	Yes	No	No	Yes
Continuity check (multicast CCM)	IEEE 802.1ag - 2007	1.0.0 ED1	Yes	Yes	No	Yes	No	No	Yes
Ping (unicast)	IEEE 802.1ag - 2007	1.0.0 ED1	Yes	Yes	No	Yes	No	No	Yes
Link trace	IEEE 802.1ag - 2007	1.0.0 ED1	Yes	Yes	No	Yes	No	No	Yes
Fault reporting (RD), Mac Status defect, CCM Cross Connect Defect, Error CCM Defect)	IEEE 802.1ag - 2007	1.0.0 ED1	Yes	Yes	No	Yes	No	No	Yes
CFM over L2 Bridge with xSTP	IEEE 802.1ag - 2007	1.0.0 ED1	Yes	Yes	No	Yes	No	No	Yes
CCM over VPWS	IEEE 802.1ag - 2007	1.0.0 ED2.1	Yes	Yes	No	Yes	No	No	Yes
Performance Monitoring									
Frame Delay and inter frame delay variation measurement using DMM and DMR over L2 Bridge	Y.1731	SP1.0 ED2.4	Yes	Yes	No	Yes	No	No	Yes
Frame Delay and inter frame delay variation measurement using DMM and DMR over VPWS	Y.1731	SP1.0 ED2.4	Yes	Yes	No	Yes	No	No	Yes
Frame Loss Measurement using LMM/LMR and SLM/SLR over VPWS	Y.1731	SP1.0 ED2.4	Yes	Yes	No	Yes	No	No	Yes
Frame Loss Diagnostics ETH-TST/LCK	Y.1731	4.0	Yes	Yes	No	Yes	No	No	Yes
Ethernet Ring Protection (ERPS)									
ERPS over CFM on Provider/Customer domain	ITU-T G.8032v2	SP1.0 ED2.4	Yes	Yes	No	Yes	No	No	Yes
Sub-ring support (Multiple ring and ladder topologies)	ITU-T G.8032v2	SP1.0 ED2.4	Yes	Yes	No	Yes	No	No	Yes
Support of multiple ERP Instances on single ring	ITU-T G.8032v2	SP1.0 ED2.4	Yes	Yes	No	Yes	No	No	Yes
VXLAN with EVPN									
EVPN for VXLAN	RFC 7348, RFC 7432, draft-ietf-bess-evpn-overlay-04	1.0.0	No	Yes	Yes	Yes	No	Yes	Yes
EVPN Multihoming for VXLAN	RFC 7432, draft-ietf-bess-evpn-overlay-04	SP1.0 ED2.4	No	Yes	Yes	Yes	No	Yes	Yes
VxLAN - QoS	RFC 2474	SP1.0 ED2.4	No	Yes	Yes	Yes	No	Yes	Yes
VxLAN support over SVI interface		SP1.0 ED2.4	No	Yes	Yes	Yes	No	Yes	Yes
Multicast									
Protocol Independent Multicast (PIM)									
PIM - Sparse Mode (PIM-SM)	RFC 4601	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Bootstrap Router (BSR) Mechanism for PIM	RFC 5059	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Static Rendezvous Point Configuration	RFC4601 and RFC 5015	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
PIM - Dense Mode (PIM-DM): Protocol Specification (Revised)	RFC 3973	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
PIM - Source Specific Multicast	RFC 4607	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Multicast Source Discovery Protocol (MSDP)	RFC 3618	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Support for More than 32 PIM Interfaces		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Source-Specific Multicast for IP	RFC 4607	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Source-Specific Protocol-Independent Multicast in 232/8	RFC 4608	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Overview of Source-Specific Multicast	RFC 3569	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Bidirectional Protocol Independent Multicast (BIDIR-PIM)	RFC 5015	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Interoperability between the Virtual Router Redundancy Protocol and PIM	RFC 7910	4.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Internet Group Management Protocol (IGMP)									
IGMP, Version 2	RFC 2236	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IGMP, Version 3	RFC 3376	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Considerations for IGMP Snooping Switches	RFC 4541	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IGMP-based Multicast Forwarding ("IGMP Proxying")	RFC 4605	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Multicast Listener Discovery (MLD)									
Considerations for Multicast Listener Discovery (MLD) Snooping Switches	RFC 4541	SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Quality of Service (QoS)									
General									
DiffServ Field in IPv4/IPv6 Headers	RFC 2474	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Assign matching traffic flow to a specific queue	RFC 2475	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1/2/3 Level queuing hierarchy	RFC 3644	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
L2 and L3 QoS	IEEE 802.1p, RFC 2474	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes

Feature by SKU

Feature Name	Standard	First Version Supported	OCNOS-SP-CSR	OCNOS-SP-IPADV-CE-AGGR	OcNOS-SP-IPBASE	OCNOS-SP-MPLS	OCNOS-SP-OLT-LITE	OCNOS-SP-OLT-SA-IPBASE	OCNOS-SP-OLT-SA-IPMPLS
Shaping per queue, per port	RFC 3644	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Multiple hardware queues per port	IEEE 802.1p, RFC 2474	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
WFO/SP Scheduling Per Queue	RFC 4594	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
WRED	RFC 2309	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
802.1p remarking	RFC 2475	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Classification based on interface, ACL, DSCP, IP precedence, RTP, 802.1p, and VLAN	RFC 2475	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Trust IEEE 802.1p/DSCP	RFC 2475	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Police Rate (SRTCM/TRTCM)	RFC 2697, RFC 4115	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Minimum and Maximum Bandwidth Per Queue	RFC 3644	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Service Queuing (Mapping services to specific vlans and shaping each vian based traffic)		1.0.0 EA	Yes	Yes	Yes	Yes	No	Yes	Yes
Management									
Role based CLI management and access		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
CLI access via console, telnet and SSH		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Authentication using tacacs+/radius client		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Extended ping and traceroute		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
SNMP v1, v2, and v3		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
sFlow		4.0	Yes	Yes	Yes	Yes	No	No	No
Debounce Timer		4.0	Yes	Yes	Yes	Yes	No	No	No
DHCP client		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
DHCP relay		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
NTP Client		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
syslog		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
File Upload/Download using FTP/TFTP/SFTP/SCP		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management VRF		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Ansible		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Yang	RFC 6020	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
NETCONF	RFC 6241	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Upgrade Mechanism from ONIE prompt using onie nos install and from Ocnos shell using sys-update		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zero Touch Provisioning (ZTP)(with IPv4)		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ACL support over Management, VTY and Loopback		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
License Server		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Two-Way Active Measurement Protocol (TWAMP)		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Security									
General									
Secure interface login and password		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Storm control		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Flow control	IEEE 802.3x	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Access Control Lists (ACLs) based on criteria									
Source IP address	RFC2827	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Destination IP address	RFC2827	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
TCP/UDP source port	RFC2827	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
TCP/UDP destination port	RFC2827	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
IP protocol type	RFC2827	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Source MAC address	RFC2827	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Destination MAC address	RFC2827	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Ethertype	RFC2827	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
TCP Flags, Protocol type, IP fragment flags, DSCP, CoS, IP precedence, VLAN	RFC2827	1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Rule prioritization and Re sequence		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
On-fly modification		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Hardware-Specific Features									
General									
Switched port analyzer (SPAN)		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Remote switched port analyzer (RSPAN)		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Load balancing		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
TCAM space monitoring		1.0.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Chassis Monitoring									
Temperature monitor		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fan control		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power Monitoring	PMBus	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CPU load monitoring		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Board information (EEPROM)		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PSU FRU information		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fan FRU information		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hardware MIB and Traps		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Digital Diagnostics Monitoring									
Temperature monitor	SFF-8024, SFF-8436, SFF-8472, SFF-8679	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power Monitoring(Power, Current, Voltage)	SFF-8024, SFF-8436, SFF-8472, SFF-8679	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hardware MIB and Traps		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Timing and Synchronization									
SyncE	G.8262	SP1.0 ED2.3	Yes	No	No	No	No	No	No
ESMC	G.8264	SP1.0 ED2.3	Yes	No	No	No	No	No	No
G.8275.1 (T-BC)	G.8275.1 (T-BC)	SP1.0 ED2.3	Yes	No	No	No	No	No	No
G.8273.2	G.8273.2 (T-BC)	SP1.0 ED2.3	Yes	No	No	No	No	No	No
G.8275.1 (T-GM) with antenna compensation	G.8275.1 (T-GM)	SP1.0 ED3.0	Yes	No	No	No	No	No	No
G.8275.2	G.8275.2 (T-BC-P, T-BC-A)	4.0	Yes	No	No	No	No	No	No
G.8275.2 (T-GM) with antenna compensation	G.8275.2 (T-GM)	4.0	Yes	No	No	No	No	No	No
Subinterface									
L3 Subinterface									
L3 termination of IPv4 and IPv6 packets		SP1.0 ED2.3	Yes	Yes	Yes	Yes	No	Yes	Yes
Subinterface on channel group (LAG)		SP1.0 ED2.3	Yes	Yes	Yes	Yes	No	Yes	Yes
VLAN tagged packet - single / double for 802.1q and 802.1ad and combination		SP1.0 ED2.3	Yes	Yes	Yes	Yes	No	Yes	Yes
VLAN tagged packet- 9100,9200 TPID		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes

Feature by SKU

Feature Name	Standard	First Version Supported	OCNOS-SP-CSR	OCNOS-SP-IPADV-CE-AGGR	OcNOS-SP-IPBASE	OCNOS-SP-MPLS	OCNOS-SP-OLT-LITE	OCNOS-SP-OLT-SA-IPBASE	OCNOS-SP-OLT-SA-IPMPLS
IPv4 & IPv6 Unicast routing		SP1.0 ED2.3	Yes	Yes	Yes	Yes	No	Yes	Yes
IP VRF		SP1.0 ED2.3	Yes	Yes	Yes	Yes	No	Yes	Yes
MPLS support		SP1.0 ED2.3	Yes	Yes	Yes	Yes	No	Yes	Yes
MAC and IPv4 ACL		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
QoS	VRRP	SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
L2 Subinterface									
VLAN tagged packets - single/double for 802.1q and 802.1ad(88a8/9100/9200)		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Untagged & Default		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Static and Dynamic channel-group		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Rewrite operations - PUSH/POP/TRANSLATE for subinterface		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
AC-AC Cross-connect service		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
MAC and IPv4 ACL		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
QoS		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
VLAN range		SP 3.0	Yes	Yes	Yes	Yes	No	Yes	Yes
Optical Line Terminal									
XGS-PON	ITU-G.988, ITU-G.987	SP 3.0	No	No	No	No	Yes	No	No
Multiple OLT support		SP 3.1	No	No	No	No	Yes	No	No
ONU provisioning (manual and automatic modes)	ITU-G.988, ITU-G.987.3	SP 3.0	No	No	No	No	Yes	No	No
1:1 VLAN translation	TR-156	SP 3.0	No	No	No	No	Yes	No	No
N:1 VLAN	TR-156	4.0	No	No	No	No	Yes	No	No
Bandwidth allocation, Traffic shaping & QoS handling	ITU-G.988, ITU-G.987.3	SP 3.0	No	No	No	No	Yes	No	No
DHCP relay Option-82	RFC-3046	SP 3.0	No	No	No	No	Yes	No	No
PON ACL		SP 3.0	No	No	No	No	Yes	No	No
PON and NNI statistics		SP 3.0	No	No	No	No	Yes	No	No
Firmware Upgrade in OLT		4.0	No	No	No	No	Yes	No	No
ONU Auto Finding		4.0	No	No	No	No	Yes	No	No
FEC Enable/Disable		4.0	No	No	No	No	Yes	No	No
Jumbo Frame support		4.0	No	No	No	No	Yes	No	No
sFlow		4.0	No	No	No	No	Yes	No	No
Rogue ONU Detection		4.0	No	No	No	No	Yes	No	No
SNMP		4.0	No	No	No	No	Yes	No	No
TC Layer Encryption		4.0	No	No	No	No	Yes	No	No
MPLS with EVPN									
EVPN MPLS (ELINE and ELAN)	RFC 7432, RFC 8214	4.0	Yes	No	No	Yes	No	No	No
EVPN MPLS Multihoming (ELINE & ELAN)	RFC 7432, RFC 8214	4.0	Yes	No	No	Yes	No	No	No
EVPN MPLS - QoS (ELINE & ELAN)	RFC 3270	4.0	Yes	No	No	Yes	No	No	No
EVPN MPLS - SVI/Subinterface	NA	4.0	Yes	No	No	Yes	No	No	No
Segment Routing									
Support of Segment routing generic base infrastructure.	RFC 8402	4.0	Yes	No	No	Yes	No	No	No
OSPF extensions for Segment-Routing	1.RFC 8665 2.RFC 7684 3.RFC 4970	4.0	Yes	No	No	Yes	No	No	No
ISIS extensions for Segment-Routing	draft-ietf-isis-segment-routing-extensions-07 draft-ietf-spring-conflict-resolution-02	4.0	Yes	No	No	Yes	No	No	No
LDP and SR interworking	draft-ietf-spring-segment-routing-ldp-interop-15	4.0	Yes	No	No	Yes	No	No	No
SR Mapping server	draft-ietf-spring-segment-routing-ldp-interop-15	4.0	Yes	No	No	Yes	No	No	No
Segment-Routing Policy (Traffic Engineering)	draft-ietf-spring-segment-routing-policy-06	4.0	Yes	No	No	Yes	No	No	No
Segment-routing OAM (LSP Ping/Traceroute) for MPLS dataplane	RFC 8287	4.0	Yes	No	No	Yes	No	No	No
Topology Independent Fast Reroute using Segment Routing	draft-ietf-rtwgw-segment-routing-ti-ifa-03	4.0	Yes	No	No	Yes	No	No	No
PCEP (Path Computation Element Protocol)									
Support for path computation element protocol	RFC 5440 RFC 7896	4.0	Yes	No	No	Yes	No	No	No
Support for Stateful PCE	RFC 8281 RFC 8231	4.0	Yes	No	No	Yes	No	No	No
PCEP Extensions for Segment Routing	RFC 8664	4.0	Yes	No	No	Yes	No	No	No

Platform Support Matrix

Platform	OCNOS_SP_IPADV_CE_AGGR	OCNOS_SP_MPLS	OCNOS_SP_IPBASE	OCNOS_SP_CSR	OCNOS_SP_OLT_LITE	OCNOS_SP_OLT_SA_IPBASE	OCNOS_SP_OLT_SA_MPLS
DELL_S4248-ON	✓	✓	✓	✗	✗	✗	✗
DELTA_AGC7648A	✓	✓	✓	✗	✗	✗	✗
EC_AS5912-54X	✓	✓	✓	✗	✗	✓	✓
EC_AS5916-54XKS	✓	✓	✓	✗	✗	✗	✗
EC_AS7316-26XB	✗	✗	✗	✓	✗	✗	✗
UFI_S9500-30XS	✗	✗	✗	✓	✗	✗	✗
EC_ASXVOLT16	✗	✗	✗	✗	✓	✗	✗
TIBIT XGS-PON 10G SFP+ OLT	✗	✗	✗	✗	✓	✗	✗

Feature by Platform

Feature Name	Standard	Comments	First Version Supported	Dell S4248-FB/FBL-ON	Delta-Agema AGC-7648A	UFISpace S9500-30XS	EdgeCore AS5912-54X	EdgeCore AS7316-26XB	EdgeCore AS5916-54XKS	EdgeCore vOLT ASXvOLT16	TIBIT XGS-PON 10G SFP+ OLT
Layer 2											
Virtual Local Area Network (VLAN)											
Virtual LANs with Port-based VLANs	IEEE 802.1Q (2005)		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Routed VLAN interface	IEEE 802.1Q (2005)		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Port based VLAN interface	IEEE 802.1Q (2005)		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Private VLAN	IEEE 802.1Q (2005)		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Ingress and egress VLAN translation for C-VLAN and S-VLAN at PNP	802.1ad		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Cvlan translation at CEP	802.1ad		1.0.0	yes	yes	Yes	yes	yes	Yes	No	No
Q-in-Q	802.1ad		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
L2PT			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Spanning Tree Protocol (STP)											
STP	IEEE 802.1D (2004)		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Multiple Spanning Tree Protocol (MSTP)	IEEE 802.1Q (2005): Clause 13	Maximum number of MSTP instances is 64	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Rapid Spanning Tree (RSTP)	IEEE 802.1D (2004): Clause 17		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Link Layer Discovery Protocol (LLDP)											
LLDP v2	IEEE 802.1ab 2009		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Link Aggregation (L2 only)											
Link Aggregation Control Protocol (LACP)	IEEE802.3ad-2002		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Static link aggregation group	IEEE802.3ad-2002		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Multi-Chassis Link Aggregation											
MC-LAG Active/Standby support as attachment circuit for L2	IPI Proprietary		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MC-LAG Active/Standby support as attachment circuit for VPWS Pseudowire Redundancy	IPI Proprietary		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Other Layer 2 Features											
BPDU Protect	802.1d		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Root Guard	802.1d		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MAC Learning Disable	802.1q		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Static MAC Address Assignment	802.1q	At interface level we are not allowed to change the MAC address	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Port based authentication with Radius server	IEEE 802.1x		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Port-Security	IPI Proprietary		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
LACP Force-up	IPI Proprietary		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Layer 3											
Address Resolution Protocol (ARP)											
Ethernet ARP	RFC 826	Supports proxy ARP and Local proxy ARP	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Routing											
Transmission of IP Datagrams over Ethernet	RFC 894		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Congestion Control in IP/TCP Networks	RFC 896		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IP Broadcast	RFC 919		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IP Broadcast in the Presence of Subnets	RFC 922		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IP Subnetting	RFC 950		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Classless Inter-Domain Routing (CIDR)	RFC 1519		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Requirements for IP Version 4 Routers	RFC 1812		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Route Redistribution across RIP, OSPF and BGP	RFC 2328,RFC 4271,RFC2453		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
VLAN Routing	NA		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Ipv6 if mib	RFC 8096 Sec3		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
URPF (Unicast Reverse Path Forwarding)											
Loose mode	RFC 3704		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Loose default mode	RFC 3704		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Strict mode	RFC 3704		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Border Gateway Protocol (BGP)											
Border Gateway Protocol, Version 4	RFC 4271		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP Community Attributes	RFC 1997		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP Route Reflection	RFC 4456		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Autonomous System Confederations for BGP	RFC 5065	Support only for IPv4 and IPv6 unicast address family	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Capabilities Negotiation with BGP-4	RFC 5492		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Applications of BGP-4 in the Internet	RFC 1772		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Protection of BGP Sessions Via the TCP MD5 Signature Option	RFC 2385		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Route Refresh Capability for BGP-4	RFC 2918	Support only for IPv4 and IPv6 unicast address family	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP Support for Four-Octet AS Number Space	RFC 4893		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No

Feature by Platform

Feature Name	Standard	Comments	First Version Supported	Dell S4248-FB/FBL-ON	Delta-Agema AGC-7648A	UFISpace S9500-30XS	EdgeCore AS5912-54X	EdgeCore AS7316-26XB	EdgeCore AS5916-54XKS	EdgeCore vOLT ASXvOLT16	TIBIT XGS-PON 10G SFP+ OLT
Subcodes for BGP Cease Notifications	RFC 4486		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGPv4 MD5 Authentication	RFC 2385		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP soft configuration	IPI propretary	Inbound soft reconfiguration is not supported	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BFD Trigger for BGP	RFC 5882		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Route Target Filter	RFC 4684	Support only for IPv4 and IPv6 unicast address family	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Next Hop Tracking	IPI propretary	Support only for IPv4 and IPv6 unicast address family	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP - Outbound Route Filter	RFC 5292	Support only for IPv4 and IPv6 unicast address family	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP - Labeled Unicast (BGP-LU)	RFC 3107	Support only for IPv4	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP MIB	RFC 4273	Support only for IPv4 and IPv6 unicast address family	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP Graceful-Restart	RFC 4724		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP Dampening	RFC 2439		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP Peer Groups	IPI propretary	Support only for IPv4 Unicast and IPv4 Labeled-Unicast address-families. Only static peer group	SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP-LS (Link State)											
BGP Link state distribution (OSPF)	RFC 7752		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP Link state distribution (ISIS)	RFC 7752		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP Link state distribution for OSPF-SR	draft-ietf-idr-bgp-ls-segment-routing-ext-12		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP Link state distribution for ISIS-SR	draft-ietf-idr-bgp-ls-segment-routing-ext-12 draft-ietf-isis-segment-routing-extensions-22		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Routing Information Protocol (RIP)											
RIP Version 1	RFC 1058		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
RIP and RIP Version 2	RFC 2453		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Increment Metrics When Sending Routes, Not When Receiving	RFC 2453		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
RIP-2 MD5 Authentication	RFC 2082		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Open Shortest Path First (OSPF)											
Open Shortest Path First Version 2	RFC 2328		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Applicability statement for OSPF	RFC 1370		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
OSPF Opaque LSA	RFC 5250		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
OSPF Graceful Restart	RFC 3623		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
OSPF as PE/CE protocol for BGP/MPLS IP VPN	RFC 4577		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Passive Interface Support for OSPFv2	IPI propretary		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
OSPF Not-So-Stubby-Area (NSSA) Option	RFC 3101		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IP FRR: OSPF-LFA	RFC 5286	Virtual link over LFA is not supported. OSPF V3 LFA not supported.	SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Bidirectional Forwarding Detection Trigger for OSPFv2	RFC 5882		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Link Local Signaling	RFC 2328		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Virtual link	RFC 2328		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
OSPF Version 3 for IPv6 Support	RFC 5340	OSPFv3 authentication is not supported. Section 4.9: No support for multiple interfaces on the same link	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Passive Interface Support in OSPFv3			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Graceful Restart Mechanism for OSPFv3	RFC 5187	Only planned restart is supported.	4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BFD Trigger for OSPFv3	RFC 5613		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
OSPFv3 MTU	RFC 5340		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
OSPF LDP Sync	IPI propretary		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Intermediate System-Intermediate System (ISIS)											
Use of OSI IS-IS for routing in TCP/IP and dual environments	RFC 1195		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Management Information Base (MIB) for ISIS	RFC 4444		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Original ISO specification of IS-IS	ISO 10589		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Dynamic Hostname Exchange Mechanism for IS-IS	RFC 2763		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Restart Signaling (Graceful Restart) for IS-IS	RFC 5306	Only planned restart is supported.	4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Routing IPv6 with IS-IS	RFC 5308		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No

Feature by Platform

Feature Name	Standard	Comments	First Version Supported	Dell S4248-FB/FBL-ON	Delta-Agema AGC-7648A	UFISpace S9500-30XS	EdgeCore AS5912-54X	EdgeCore AS7316-26XB	EdgeCore AS5916-54XKS	EdgeCore vOLT ASXvOLT16	TIBIT XGS-PON 10G SFP+ OLT
IS-IS Exponential Back-off of SPF	RFC8541	Only exponential back-off delay is supported	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Intermediate System to Intermediate System for IPv6			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Passive Interface Support for IS-IS			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Bidirectional Forwarding Detection Trigger for IS-IS	RFC 5882		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IS-IS Mesh Groups	RFC 2973		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Domain-wide Prefix Distribution with Two-Level IS-IS	RFC 2966		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Three-Way Handshake for Intermediate System to Intermediate System (IS-IS) Point-to-Point Adjacencies	RFC 3373		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IS-IS extensions for Traffic Engineering	RFC 3784	Following configurations are supported: 1) Maxium Link Bandwidth 2) Reservable Bandwidth 3) Administrative Group Constraints	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IS-IS Cryptographic Authentication	RFC 3567		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IP Fast Reroute - Loop-Free Alternate for IS-IS	RFC 5286	IPv6 LFA is not supported	SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Bidirectional Forwarding Detection (BFD)											
BFD	RFC 5880	BFD authentication is not supported for IPV4 single hop , supported only for IPV4 multihop and IPV6 Bfd sessions BFD demand mode is not supported Veera	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BFD for IPV4 single hop	RFC 5881		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Generic Application for BFD	RFC 5882		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BFD Multi-hop	RFC 5883	Software BFD is supported	SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BFD Over BGP / ISIS / OSPF / Static route	RFC 5882		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MIB support for BFD	IPI proprietary		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Virtual Router Redundancy Protocol (VRRP)											
VRRP Version 3 for IPv4	RFC 5798		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
VRRP Version 3 for IPv6	RFC 5798		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
VRRP Interface Tracking	IPI proprietary		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Support for VRRP Active/Standby and Active/Active on MLAG Active/Standby domain	IPI proprietary		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Multi-Protocol Label Switching (MPLS)											
General											
MPLS Architecture	RFC 3031		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MPLS Label Stack Encoding	RFC 3032		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Time To Live (TTL) Processing in Multi-Protocol Label Switching (MPLS) Networks	RFC 3443		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MPLS Diffserv	RFC 3270		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Multiprotocol Label Switching (MPLS) Label Switching Router (LSR) Management Information Base (MIB)	RFC 3813		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Multiprotocol Label Switching (MPLS) Forwarding Equivalence Class to Next Hop Label Forwarding Entry (FEC-To-NHLFE) Management Information Base (MIB)	RFC 3814		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Label Distribution Protocol (LDP)											
LDP	RFC 5036	Not supported: ATM Label TLV [Section 3.4.2.2] Frame Relay TLV [Section 3.4.2.3] LDP Vendor Private Extension [Section 3.6.1]	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
LDP Applicability	RFC 3037		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Support for LDP TCP-MD5	RFC 5036		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Definitions of Managed Objects for the MPLS and LDP	RFC 3815		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
LDP Downstream-on-Demand in Seamless MPLS	RFC 7032	Independent mode not supported	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
LDP Extension for Inter-Area Label Switched Paths (LSPs)	RFC 5283	DOD mode is not supported	4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Resource Reservation Protocol (RSVP)											
RSVPv1	RFC 2205		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
RSVP Refresh Overhead Reduction Extensions	RFC 2961		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Fast Reroute Extensions to RSVP-TE for LSP Tunnels One-to-One Backup	RFC 4090		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Fast Reroute Extensions to RSVP-TE for LSP Tunnels - Facility Backup	RFC 4090		SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
RSVPv1 message processing rules	RFC 2209		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No

Feature by Platform

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Entropy label support for RSVP transport	RFC 6790		SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
RSVP re-optimization	IPI Proprietary	This is a proprietary solution and does not conform to any RFC	SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Protocol Extensions for Support of Diff-serv-aware MPLS Traffic Engineering	RFC 4124		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)	RFC 3812	The following traps are not supported. 1. MPLS Tunnel Rerouted 2. MPLS Tunnel Reoptimized	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
RSVP multiple secondary	IPI Proprietary	The following attributes are not supported for MSP 1) include any/all 2) exclude any/all	SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
RSVP Shared Risk Link-Group (SRLG) support	RFC 4203 (Section 1.3)	This is supported for IGP as OSPFv2 only.	4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
RSVP MIB	RFC 2206	A Few OID's are not supported. Please refer Release notes for the OID details.	4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Layer 2 VPN (VPWS and VPLS)											
Pseudowire Setup and Maintenance using the Label Distribution Protocol	RFC 4447		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
VPLS/VPWS ethernet encapsulation mapping(Service Mapping) 1> Outer tag Match 2> Outer & inner tag Match 3> Outer tag range Match 4> Untag	IPI Proprietary		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
VPLS/VPWS ethernet action (Service Mapping, Action) 1> POP outer tag 2> XLATE outer tag 3> Push tag	IPI Proprietary		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Encapsulation Methods for Transport of Ethernet Over MPLS Networks	RFC 4448	Not Supported: Frame ordering [Section 4.4.3] Sequencing of Frames using Control word [Section 4.6]	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Static VPLS	IPI Proprietary		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Virtual Private LAN Service (VPLS) Using Label Distribution Protocol (LDP) Signaling	RFC 4762	Not Supported: Generalized Pwid fec element [Section 6.1] VPLS encapsulation actions [Section 7.1] Multi-domain VPLS Service [Section 10] Hierarchical VPLS Model Using Ethernet Access Network - Dual homing and failure recovery [Section 11]	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Virtual Private LAN Service (VPLS) Using BGP for signaling and auto-discovery	RFC 4761	Not Supported: 1)Multi-AS VPLS [Section 3.4] 2)Multi-homing Path Selection [Section 3.5] 3)Hierarchical BGP VPLS [Section 3.6]	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Static pseudowire Setup and Maintenance	IPI Proprietary		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Pseudowire MIB support	RFC 5601	The following SNMP traps are not supported. 1. PW Down NOTIFICATION-TYPE 2. PW Up NOTIFICATION-TYPE 3. PW Deleted NOTIFICATION-TYPE	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Pseudowire (PW) over MPLS PSN Management Information Base (MIB)	RFC 5602	The following SNMP traps are not supported. 1. PW to Non-TE mapping Table. 2. PW to TE MPLS tunnels mapping Table	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Ethernet Pseudowire (PW) Management Information Base (MIB)	RFC 5603	Ethernet PW Statistics Table is not supported.	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Layer 3 VPN											

Feature by Platform

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Intra-AS	RFC 4364	Relevant sections of RFC 4364 supported to achieve basic L3VPN within same AS	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
OSPF PE-CE	RFC 4577		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Intranet VPN	RFC 4364		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Static route PE-CE	RFC 4364		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
6vPE	RFC 4659		SP1.0 ED2.3	Yes	Yes	Yes	Yes	Yes	Yes	No	No
6PE	RFC 4798		SP1.0 ED2.3	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Label Disposition for VPNV4 & 6VPE	RFC 4364,RFC 4659	Default is per-vrf	SP1.0 ED2.3	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Label Disposition for 6PE	RFC 4798		SP1.0 ED2.3	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Inter AS support for L3VPN/6VPE/6PE	RFC 4364,RFC 4659,RFC 4798	IPv4 core only supported. Options A,B,C are supported LU supported as transport for VPN and 6VPE services.	SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
PER VRF Label support for 6PE	IPI proprietary		SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
LU as transport for 6VPE/VPN	RFC 4659		SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
BGP Peer Group - static	IPI proprietary	IPv4 unicast and Label addressfamilies supported in default instance	SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Internet access for L3VPN	RFC-4365 section 10.1	Static route based internet access supported	SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
L3VPN MIB	RFC 4382	Few OID's are not supported. Please refer Release notes for the OID details.	4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MPLS OAM											
OAM for MPLS networks	RFC 4377		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
A framework for MPLS OAM	RFC 4378		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Detecting MPLS Data Plane Failures	RFC 4379		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MPLS PW and LSP Traffic Statistics											
Stats per Label Switched Path (LSP)			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Stats per Virtual Circuit (VC)			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
L2VPN Statistics MIB	IPI Proprietary		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Carrier Ethernet											
Connectivity Fault Management (CFM)											
MD, MA, MIP, Down MEP	IEEE 802.1ag - 2007		1.0.0 ED1	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Continuity check (multicast CCM)	IEEE 802.1ag - 2007		1.0.0 ED1	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Ping (unicast)	IEEE 802.1ag - 2007		1.0.0 ED1	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Link trace	IEEE 802.1ag - 2007		1.0.0 ED1	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Fault reporting (RDI, Mac Status defect, CCM Cross Connect Defect, Error CCM Defect)	IEEE 802.1ag - 2007		1.0.0 ED1	Yes	Yes	Yes	Yes	Yes	Yes	No	No
CFM over L2 Bridge with xSTP	IEEE 802.1ag - 2007		1.0.0 ED1	Yes	Yes	Yes	Yes	Yes	Yes	No	No
CCM over VPWS	IEEE 802.1ag - 2007		1.0.0 ED2.1	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Performance Monitoring											
Frame Delay and inter frame delay variation measurement using DMM and DMR over L2 Bridge	Y.1731		SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Frame Delay and inter frame delay variation measurement using DMM and DMR over VPWS	Y.1731		SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Frame Loss Measurement using LMM/LMR and SLM/SLR over VPWS	Y.1731		SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Frame Loss Diagnostics ETH-TST/LCK	Y.1731		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Ethernet Ring Protection (ERPS)											
ERPS over CFM on Provider/Customer domain	ITU-T G.8032v2		SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Sub-ring support (Multiple ring and ladder topologies)	ITU-T G.8032v2		SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Support of multiple ERP Instances on single ring	ITU-T G.8032v2		SP1.0 ED2.4	Yes	Yes	Yes	Yes	Yes	Yes	No	No
VXLAN with EVPN											
EVPN for VXLAN	RFC 7348, RFC 7432, draft-ietf-bess-evpn-overlay-04	Routing over Vxlan not supported. Default Gateway extended community, Auto RD/RT generation is not supported. Static vxlan multicast not supported	1.0.0	Yes	Yes	No	Yes	No	Yes	No	No
EVPN Multihoming for VXLAN	RFC 7432, draft-ietf-bess-evpn-overlay-04	ActiveStandby not supported. CE can be multihomed to two PEs. Support for Multihoming is experiemantal.	SP1.0 ED2.4	Yes	Yes	No	Yes	No	Yes	No	No
VxLAN - QoS	RFC 2474		SP1.0 ED2.4	Yes	Yes	No	Yes	No	Yes	No	No

Feature by Platform

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VxLAN support over SVI interface			SP1.0 ED2.4	Yes	Yes	No	Yes	No	Yes	No	No
Multicast											
Protocol Independent Multicast (PIM)											
PIM - Sparse Mode (PIM-SM)	RFC 4601		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Bootstrap Router (BSR) Mechanism for PIM	RFC 5059		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Static Rendezvous Point Configuration	RFC4601 and RFC 5015		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
PIM - Dense Mode (PIM-DM): Protocol Specification (Revised)	RFC 3973		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
PIM - Source Specific Multicast	RFC 4607		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Multicast Source Discovery Protocol (MSDP)	RFC 3618		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Support for More than 32 PIM Interfaces			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Source-Specific Multicast for IP	RFC 4607		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Source-Specific Protocol-Independent Multicast in 232/8	RFC 4608		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Overview of Source-Specific Multicast	RFC 3569		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Bidirectional Protocol Independent Multicast (BIDIR-PIM)	RFC 5015		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Interoperability between the Virtual Router Redundancy Protocol and PIM	RFC 7910		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Internet Group Management Protocol (IGMP)											
IGMP, Version 2	RFC 2236		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IGMP, Version 3	RFC 3376		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Considerations for IGMP Snooping Switches	RFC 4541	IGMP Multicast Router Discovery [MRDISC] is not supported	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IGMP-based Multicast Forwarding ("IGMP Proxying")	RFC 4605		1.0.0	Yes	Yes	No	Yes	Yes	Yes	No	No
Multicast Listener Discovery (MLD)											
Considerations for Multicast Listener Discovery (MLD) Snooping Switches	RFC 4541		SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Quality of Service (QoS)											
General											
DiffServ Field in IPv4/IPv6 Headers	RFC 2474		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Assign matching traffic flow to a specific queue	RFC 2475		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1/2/3 Level queuing hierarchy	RFC 3644	1 Level with fixed hierarchy	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
L2 and L3 QoS	IEEE 802.1p, RFC 2474		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Shaping per queue, per port	RFC 3644		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Multiple hardware queues per port	IEEE 802.1p, RFC 2474	Quman has only 8 queues (Multicast and Unicast traffic goes to the same queue)	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
WFQ/SP Scheduling Per Queue	RFC 4594		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
WRED	RFC 2309		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
802.1p remarking	RFC 2475		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Classification based on interface, ACL, DSCP, IP precedence, RTP, 802.1p, and VLAN	RFC 2475		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Trust IEEE 802.1p/DSCP	RFC 2475		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Police Rate (SRTCM/TRTCM)	RFC 2697, RFC 4115		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Minimum and Maximum Bandwidth Per Queue	RFC 3644	Qumran supports only Maximum bandwidth	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Service Queuing (Mapping services to specific vlans and shaping each vlan based traffic)		Configuring four queues per service is supported. Supported for VPLS/VPWS, PB, L3VPN (SVI interface and L3 Subinterface)	1.0.0 EA	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Management											
Role based CLI management and access			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
CLI access via console, telnet and SSH			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Authentication using tacacs+/radius client			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Extended ping and traceroute			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
SNMP v1, v2, and v3			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
sFlow			4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Debounce Timer			4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
DHCP client		Support for IPv6 is experimental	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
DHCP relay		Option 82 supported	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
NTP Client			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
syslog			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
File Upload/Download using FTP/TFTP/SFTP/SCP			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management VRF		Only Host Protocols and LLDP support on "management" VRF.	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ansible			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No

Feature by Platform

Feature Name	Standard	Comments	First Version Supported	Dell S4248-FB/FBL-ON	Delta-Agema AGC-7648A	UFISpace S9500-30XS	EdgeCore AS5912-54X	EdgeCore AS7316-26XB	EdgeCore AS5916-54XKS	EdgeCore vOLT ASXvOLT16	TIBIT XGS-PON 10G SFP+ OLT
Yang	RFC 6020	Only LLDPv2 and interface yang models are supported as part of SP 3.0. Supported Yang modules: ipi-llldpv2.yang, ipi-if-ethernet.yang, ipi-if-ip.yang, ipi-if-types.yang, ipi-interface.yang, ipi-llldp-types.yang.	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
NETCONF	RFC 6241		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Upgrade Mechanism from ONIE prompt using onie nos install and from OcnOS shell using sys-update			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zero Touch Provisioning (ZTP)(with IPv4)		IPI Proprietary solution	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
ACL support over Management, VTY and Loopback			SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
License Server			SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Two-Way Active Measurement Protocol (TWAMP)		Light mode is supported	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Security											
General											
Secure interface login and password			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Storm control			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Flow control	IEEE 802.3x		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Access Control Lists (ACLs) based on criteria											
Source IP address	RFC2827		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Destination IP address	RFC2827		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
TCP/UDP source port	RFC2827		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
TCP/UDP destination port	RFC2827		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IP protocol type	RFC2827		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Source MAC address	RFC2827		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Destination MAC address	RFC2827		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Ethertype	RFC2827		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
TCP Flags, Protocol type, IP fragment flags, DSCP, CoS, IP precedence, VLAN	RFC2827		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Rule prioritization and Re sequence			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
On-fly modification			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Hardware-Specific Features											
General											
Switched port analyzer (SPAN)			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Remote switched port analyzer (RSPAN)			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Load balancing		Fields: L2 MAC addresses, ether type, L3 IP addresses, IP protocol type, and TCP/UDP port numbers, labels	1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
TCAM space monitoring			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Chassis Monitoring											
Temperature monitor			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fan control			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power Monitoring	PMBus		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CPU load monitoring			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Board information (EEPROM)			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
PSU FRU information			1.0.0	Yes	Yes	Yes	No	No	No	No	No
Fan FRU information			1.0.0	Yes	No	No	No	No	No	No	No
Hardware MIB and Traps			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Digital Diagnostics Monitoring											
Temperature monitor	SFF-8024, SFF-8436, SFF-8472, SFF-8679		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power Monitoring(Power, Current, Voltage)	SFF-8024, SFF-8436, SFF-8472, SFF-8679		1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hardware MIB and Traps			1.0.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Timing and Synchronization											
SyncE	G.8262		SP1.0 ED2.3	No	No	Yes	No	Yes	No	No	No
ESMC	G.8264	LAG not supported	SP1.0 ED2.3	No	No	Yes	No	Yes	No	No	No
G.8275.1 (T-BC)	G.8275.1 (T-BC)	LAG supported	SP1.0 ED2.3	No	No	Yes	No	Yes	No	No	No
G.8273.2	G.8273.2 (T-BC)		SP1.0 ED2.3	No	No	Yes	No	Yes	No	No	No
G 8275.1 (T-GM) with antenna compensation	G 8275.1 (T-GM)		SP1.0 ED3.0	No	No	Yes	No	No	No	No	No
G.8275.2	G.8275.2 (T-BC-P, T-BC-A)		4.0	No	No	Yes	No	Yes	No	No	No
G 8275.2 (T-GM) with antenna compensation	G 8275.2 (T-GM)		4.0	No	No	Yes	No	No	No	No	No

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Subinterface											
L3 Subinterface											
L3 termination of IPv4 and IPv6 packets			SP1.0 ED2.3	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Subinterface on channel group (LAG)			SP1.0 ED2.3	Yes	Yes	Yes	Yes	Yes	Yes	No	No
VLAN tagged packet - single / double for 802.1q and 802.1ad and combination		802.1aq supported from OcNOS SP 3.0	SP1.0 ED2.3	Yes	Yes	Yes	Yes	Yes	Yes	No	No
VLAN tagged packet- 9100,9200 TPID		8100 - default TPID Only 2 TPID per parent interface are supported at a time	SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IPv4 & IPv6 Unicast routing		ISIS IPv6 is not supported BFD IPv6 is not supported	SP1.0 ED2.3	Yes	Yes	Yes	Yes	Yes	Yes	No	No
IP VRF			SP1.0 ED2.3	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MPLS support		Following are supported: LDP RSVP L3VPN service	SP1.0 ED2.3	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MAC and IPv4 ACL			SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
QoS	VRRP	Following are supported: dscp-to-queue dscp-to-dscp Policer & Remarking	SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
L2 Subinterface											
VLAN tagged packets - single/double for 802.1q and 802.1ad(88a8/9100/9200)		8100 - default TPID	SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Untagged & Default			SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Static and Dynamic channel-group			SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Rewrite operations - PUSH/POP/TRANSLATE for subinterface			SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
AC-AC Cross-connect service			SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
MAC and IPv4 ACL			SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
QoS		Following are supported: cos-to-queue queue-color-to-cos Policer & Remarking	SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
VLAN range			SP 3.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Optical Line Terminal											
XGS-PON	ITU-G.988, ITU-G.987		SP 3.0	No	No	No	No	No	No	Yes	Yes
Multiple OLT support			SP 3.1	No	No	No	No	No	No	No	Yes
ONU provisioning (manual and automatic modes)	ITU-G.988, ITU-G.987.3		SP 3.0	No	No	No	No	No	No	Yes	Yes
1:1 VLAN translation	TR-156		SP 3.0	No	No	No	No	No	No	Yes	Yes
N:1 VLAN	TR-156		4.0	No	No	No	No	No	No	Yes	Yes
Bandwidth allocation, Traffic shaping & QoS handling	ITU-G.988, ITU-G.987.3		SP 3.0	No	No	No	No	No	No	Yes	Yes
DHCP relay Option-82	RFC-3046		SP 3.0	No	No	No	No	No	No	Yes	Yes
PON ACL			SP 3.0	No	No	No	No	No	No	Yes	No
PON and NNI statistics			SP 3.0	No	No	No	No	No	No	Yes	Yes
Firmware Upgrade in OLT			4.0	No	No	No	No	No	No	No	Yes
ONU Auto Finding			4.0	No	No	No	No	No	No	Yes	Yes
FEC Enable/Disable			4.0	No	No	No	No	No	No	Yes	Yes
Jumbo Frame support			4.0	No	No	No	No	No	No	Yes	Yes
sFlow			4.0	No	No	No	No	No	No	Yes	Yes
Rogue ONU Detection			4.0	No	No	No	No	No	No	Yes	No
SNMP			4.0	No	No	No	No	No	No	Yes	Yes
TC Layer Encryption			4.0	No	No	No	No	No	No	Yes	Yes
MPLS with EVPN											
EVPN MPLS (ELINE and ELAN)	RFC 7432, RFC 8214	Routing over MPLS-VPN not supported. Default Gateway extended community, Auto RD/RT generation is not supported.	4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
EVPN MPLS Multihoming (ELINE & ELAN)	RFC 7432, RFC 8214	Active-Standby not supported. CE can be multihomed to two PEs.	4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
EVPN MPLS - QoS (ELINE & ELAN)	RFC 3270		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
EVPN MPLS - SVI/Subinterface	NA		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Segment Routing											
Support of Segment routing generic base infrastructure.	RFC 8402		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
OSPF extensions for Segment-Routing	1.RFC 8665 2.RFC 7684 3.RFC 4970		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No

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ISIS extensions for Segment-Routing	draft-ietf-isis-segment-routing-extensions-07 draft-ietf-spring-conflict-resolution-02		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
LDP and SR interworking	draft-ietf-spring-segment-routing-ldp-interop-15		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
SR Mapping server	draft-ietf-spring-segment-routing-ldp-interop-15		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Segment-Routing Policy (Traffic Engineering)	draft-ietf-spring-segment-routing-policy-06		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Segment-routing OAM (LSP Ping/Traceroute) for MPLS dataplane	RFC 8287		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Topology Independent Fast Reroute using Segment Routing	draft-ietf-rtgwg-segment-routing-ti-lfa-03	Node protection is not supported	4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
PCEP (Path Computation Element Protocol)											
Support for path computation element protocol	RFC 5440 RFC 7896		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Support for Stateful PCE	RFC 8281 RFC 8231		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No
PCEP Extensions for Segment Routing	RFC 8664		4.0	Yes	Yes	Yes	Yes	Yes	Yes	No	No