DATASHEET

Data Center Ethernet Switch

Data Center Ethernet Switches

Product Data Sheet

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Product Overview

ETHERNET DATA CENTER series switches are a new generation of high-performance, high-port density, high-security Layer 3 Ethernet switches developed by Apollo Infoways Pvt. Ltd. (hereinafter referred to as WatchDog) using industry-leading ASIC technology, supporting IPv4/IPV6 Dual-stack management and forwarding, support static routing protocols and routing protocols such as RIP, OSPF, BGP, ISIS, etc., and support rich management and security features. It is a Gigabit Layer 3 Ethernet switch product for converged service networks.

ETHERNET DATA CENTER switches series includes the following models:

- WD-GS-24G4C8O: 28 x 10/100/1000BASE-T ports, 4 x 100/1000BASE-X SFP Combo ports, 8 x 10G/1G BASE-X SFP+ ports, 1 x expansion slot, 2 x fan tray slots, 2 x power supply slots;
- WD-GS-48G4O: 48 x 10/100/1000BASE-T ports, 4 x 10G/1G BASE-X SFP+ ports, 1 x expansion slot, 2x fan tray slots, 2 x power supply slots;
- WD-GS-24X4C8O: 24 x 100/1000BASE-X SFP ports, 4 x 10/100/1000BASE-T Combo ports, 8 x 10G/1G BASE-X SFP+ ports, 1 x expansion slot, 2 x fan tray slots, 2 x power supply slots;
- WD-GS-48X4O: 48 x 100/1000BASE-X SFP ports, 4 x 10G/1G BASE-X SFP+ ports, 1 x expansion slot, 2x fan tray slots, 2 x power supply slots;
- WD-GS-28P4C8O: 28 x 10/100/1000BASE-T ports (PoE+), 4 x 100/1000BASE-X SFP Combo ports, 8x10G/1G BASE-X SFP+ ports, 1 x expansion slot, 2 x fan tray slots, 2 x power supply slots;
- WD-GS-48P6O: 48*10/100/1000BASE-T ports (PoE+), 6*10G/1G BASE-X SFP+ ports, 1 × expansionslot, 2 × fan tray slots, 2 × power supply slots;

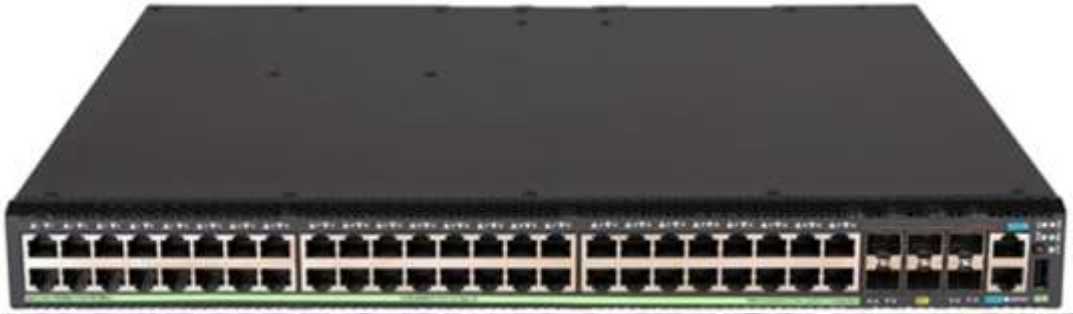
WD-GS-24G4C8O

WD-GS-48G4O

WD-GS-24X4C8O

WD-GS-48X4O

WD-GS-28P4C8O



WD-GS-48P6O

Features and Benefits

High-Performance IPv4/IPv6 Service Capability

ETHERNET DATA CENTER series switches implement a hardware-based IPv4/IPv6 dual-stack platform, support multipletunnel technologies, rich IPv4 and IPv6 Layer 3 routing protocols, multicast technologies and policy routingmechanisms, providing users with complete IPv4/IPv6 solution.

Virtual Switching System (VSS)

ETHERNET DATA CENTER series switches support VSS technology, which is to connect multiple physical devices to each other to make it virtual as a logical device, users can regard these multiple devices as one Manage and use a single device. VSS can bring the following benefits to users:

- Simplified management: VSS architecture is formed, it can be connected to any port of any device to log in to a unified logical device. By configuring a single device, it can manage the entire intelligent elastic system and all member devices in the system. There is no need to physically connect to each member device to configure and manage them individually.
- Simplified service: VSS are also run as a single device. For example, the routing protocol will be

calculated as a single device. With the application of the cross-device link aggregation technology, it can replace the original generation tree protocol, which saves the interaction of a large number of protocol packets between devices, simplifies network operation, and shortens the convergence time when the network is turbulent.

- Elastic expansion: can realize elastic expansion according to user needs and ensure user investment. And new devices can be "hot-swapped" when they join or leave the VSS architecture, without affecting the normal operation of other devices.
- High reliability: high reliability VSS is reflected in three aspects: link, equipment and protocol. The physical ports between member devices support the aggregation function, and the physical connection between the VSS system and the upper and lower-layer devices also supports the aggregation function, which improves the reliability of the link through multi-link backup; the VSS system consists of multiple member devices. Once the master device fails, the system will quickly and automatically elect a new master to ensure uninterrupted services through the system, thus realizing device-level 1:N backup; the VSS system will have a real-time protocol hot backup function responsible for the configuration information of the protocol. Backup to all other member devices to achieve 1:N protocol reliability.
- High performance: For high-end switches, the increase in performance and port density is limited by the hardware structure. The performance and port density of an VSS system is the sum of the performance and port numbers of all devices inside the VSS. Therefore, the VSS technology can easily expand the switching capability of the device and the density of user ports several times, thereby greatly improving the performance of the device.

Complete Security Control Strategy

ETHERNET DATA CENTER series switches support the terminal access control function, and cooperate with the background system to integrate terminal security measures such as terminal antivirus and patch repair withnetwork security measures such as network access control and access authority control into a linked security The system, through the inspection, isolation, repair, management and monitoring of network access terminals, makes the entire network change from passive defense to active defense, from single- point defense to comprehensive defense, and from decentralized management to centralized policy management. , worms and other emerging security threats overall defense capabilities.

ETHERNET DATA CENTER series switches support centralized MAC address authentication, 802.1x authentication, support dynamic or static binding of user identification elements such as user account, IP, MAC, VLAN, andport, and implement user policies (VLAN, QoS, ACL) dynamic distribution; support with WATCHDOG's NMC system for real-time management of online users, timely diagnosis and disintegration of illegal network behavior. ETHERNET DATA CENTER series switches provide enhanced ACL control logic, support large-capacity ingress and egress port ACLs, and support VLAN-based ACL delivery, which simplifies the user configuration process and avoids waste of ACL resources. In addition, ETHERNET DATA CENTER series switches will also support unicast reverse path finding technology (uRPF). The route between the interface and the source address specified in the packet is to verify its authenticity. If it does not exist, the packet is deleted, so that we can effectivelyprevent the source address spoofing that is increasingly flooding in the network.

MACsec

MACsec is a network security standard that operates at the medium access control layer and defines connection less data confidentiality and integrity for media access independent protocols. It provides the following services:

- **Data encryption:** Encrypts data over the Ethernet link to protect data against security issues such as eavesdropping.
- **Anti-replay:** Prevents packets from being intercepted and modified en route to protect the network against unauthorized access.
- **Tampering protection:** prevents packet tampering to protect data integrity.

MACsec supports the following deployments:

- **Client-oriented:** Protects data transmission over the link between the client and its access device.
- **Device-oriented mode:** Protects data transmission over the link between two peering devices.

ETHERNET DATA CENTER series switches support all ports upgraded MACsec encryption technology and use 256-bit encryption algorithm to further improve data security. All ports of the device provide 256-bit MACsec encryption to ensure data security.

Precision Time Protocol (PTP)

ETHERNET DATA CENTER series switches support the 1588V2 function to meet the high-precision time synchronizationrequirements between network devices. Compared with GPS time synchronization with the same precision,it improves security and lowers deployment costs.

Network Traffic Analyzer

ETHERNET DATA CENTER series switches support Traffic Analyzer provides the following benefits:

- True measurement results— Analyzer measures the service packets directly to calculate packet loss results, thus reflecting the real network quality.
- Wide application range—Applicable to Layer 2 network and Layer 3 IP network. Analyzer supports the network-level and direct link measurement flexibly.
- Fast fault location— Analyzer obtains the packet loss time, packet loss location, and number of lost packets in real time.
- Applicable to different applications—You can apply Analyzer to multiple scenarios, such as point-to-point, point-to-multipoint, and multipoint-to-multipoint.

Multi Chassis Link Aggregation Group (M-LAG)

ETHERNET DATA CENTER series switches support M-LAG, which enables links of multiple switches to aggregate into oneto implement device-level link backup. M-LAG is applicable to servers dual-homed to a pair of access devicesfor node redundancy.

- **Streamlined topology:** M-LAG simplifies the network topology and spanning tree configuration by virtualizing two physical devices into one logical device.
- **Independent upgrading:** The DR member devices can be upgraded independently one by one to minimize the impact on traffic forwarding.
- **High availability:** The DR system uses a keep alive link to detect multi-active collision to ensure that only one member device forwards traffic after a DR system splits.

Visualization Ability

ETHERNET DATA CENTER series switches support Telemetry technology, which can send the switch's real-time resourceinformation and alarm information to the O&M platform through the gRPC protocol.

The platform can realize network quality backtracking, troubleshooting, risk early warning, architecture optimization and other functions to accurately guarantee user experience by analyzing real-time data.

Hardware Specifications

Feature	WD-GS-24G4C8O	WD-GS-48G4O	WD-GS-24X4C8O	WD-GS-48X4O	WD-GS-28P4C8O	WD-GS-48P6O
CPU	Dual Core, 1.2GHz					
SDRAM	4G					
Flash	8G					
Switching Capacity	2.4Tbps					
Latency (64byte/μs)	GE: < 5μs 10GE < 3μs					
Port Switching Capacity	616Gbps	576Gbps	616Gbps	576Gbps	616Gbps	616Gbps
Packet Forwarding Rate	462Mpps	432Mpps	462Mpps	432Mpps	462Mpps	462Mpps
Dimensions (W×D×H) (unit: mm)	440×360×44				440×400×44	

Feature	WD-GS-24G4C8O	WD-GS-48G4O	WD-GS-28X4C8O	WD-GS-48X4O	WD-GS-28P4C8O	WD-GS-48P6O
Weight	≤7kg					
Console Port	1					
Ethernet Port for Management	10/100/1000Base-T port: 1					
USB Port	1					
10/100/1000BASE-T auto-sensing Ethernet Port	28	48	4 (combo)	-	28	48
SFP port	4 (combo)	-	28	48	4 (combo)	-
SFP+ port	8	4	8	4	8	6
Expansion Card Slot	1	1	1	1	1	1
PoE	-	-	-	-	PoE+ Support	PoE+ Support
Input Voltage	AC: Rated voltage range: 100 to 240V AC: 50/60Hz Maximum voltage range: 90V ~ 290V AC, 47 ~ 63Hz				AC: Rated voltage range: 100 to 240V AC: 50/60Hz Maximum voltage range: 90V ~ 290V AC, 47 ~ 63Hz HVDC: Rated voltage: 240V DC Maximum voltage range: 180V ~ 320V DC	
80 PLUS	-				Y（80 PLUS Platinum）	
Power Consumption	MIN Single AC: 38W Dual AC:45W MAX Single AC: 108W Dual AC:114W	MIN Single AC: 41WDual AC:48W MAX Single AC: 105W Dual AC:108W	MIN Single AC: 39W Dual AC:46W MAX Single AC: 119W Dual AC:123W	MIN Single AC: 42W Dual AC:49W MAX Single AC: 137W Dual AC:142W	MIN Single AC: 48W Dual AC:53W MAX Single AC: 938W (PoE 770W) Dual AC: 1046W (with PoE 840W)	MIN Single AC: 52W Dual AC: 59W MAX Single AC: 945W (PoE 770W) Dual AC: 1745W (PoE 1440W)
MTBF(Year)	105.15	101.63	110.74	101.01	32.15	28.62
MTTR(Hour)	1	1	1	1	1	1

Feature	WD-GS-24G4C8O	WD-GS-48G4O	WD-GS-28X4C8O	WD-GS-48X4O	WD-GS-28P4C8O	WD-GS-48P6O
Working Temperature	-5 ºC to 55 ºC					
Relative Humidity of Working Environment	5 % to 95 % (non-condensing)					

Software Specifications

Feature	Data Center Ethernet switch series
VLAN	VLAN ID range 0 to 4095(Total 4096) Access/Trunk/Hybrid VLAN Port-based VLAN MAC-based VLAN IP subnet-based VLAN Protocol-based VLAN IEEE 802.1P(CoS priority)Super VLAN Private VLAN Voice VLAN QinQ(802.1Q-in-802.1Q) Vlan mapping Static/Dynamic/Blackhole/Multiport unicast MAC MAC automatic learning and aging Port-based/VLAN-based MAC learning limit MAC filter Port isolation IEEE 802.3x flow control (full duplex) Storm suppression based on port rate percentage PPS -based storm suppression bps -based storm suppression Loop detection(VLAN and VXLAN network) MVRP(Multiple VLAN Registration Protocol) GVRP(Generic VLAN Registration Protocol) STP(Spanning tree protocol) RSTP(Rapid Spanning Tree Protocol) MSTP(Multiple Spanning Tree Protocol) PVST(Per-VLAN Spanning Tree) (compatible with PVST+/RPVST+) BPDU/root/loop/TC-BPDU/PVST BPDU/disputeloopback guard BPDU filter role/TC-BPDU transmission restriction

Feature	Data Center Ethernet switch series
	LLDP(Link Layer Discovery Protocol) and LLDP-MED(Link Layer Discovery Protocol Media Endpoint Discovery) DCBX(Data Center Bridging Exchange Protocol) Broadcast/multicast/unknown unicast storm constrain Jumbo frame Store-and-forward(Default) Cut-through-forward
Ethernet link aggregation	Static aggregation Dynamic aggregation S-MLAG(Simple multichassis link aggregation) 10GE/25G/40GE/100GE port aggregation LACP(Link Aggregation Control Protocol) M-LAG(Multichassis Link Aggregation)
IP Services	Static/Dynamic/Gratuitous/proxy ARP ARP snooping/fast-reply/direct route advertisement/ping ARP attack detection ARP source suppression Ping, Tracert DHCP(Dynamic Host Configuration Protocol) DHCP Server/relay agent/client/snooping DHCP Option 43, Option 82, and Option 184, DNS(Domain Name System) DDNS(Dynamic Domain Name System) mDNS(Multicast Domain Name System) IRDP(ICMP Router Discovery Protocol) UDP helper ND(Neighbor Discovery) ND snooping/proxy/direct route advertisement/ping DHCPv6 Server/relay agent/client/snooping/guard GRE(Generic Routing Encapsulation) HTTP redirect GRE tunneling VXLAN tunneling and VXLAN-DCI tunneling IPv4/IPv6 over IPv4 tunneling, and IPv4/IPv6 over IPv6 tunneling IPv4/IPv6 Fast Forwarding
Routing	Static routing, RIP, OSPF, IS-IS, and BGP IPv6 static routing, RIPng, OSPFv3, IS-ISv6, and BGP4+ IPv4/IPv6 dual stack IPv4/IPv6 ECMP(Equal-cost multi-path routing) IPv4/IPv6 PBR(Policy-based routing) IPv4/IPv6 Routing policy Pingv6, Telnetv6, FTPv6, TFTPv6, DNSv6, ICMPv6 Dual-stack PBR(policy-based routing)

Feature	Data Center Ethernet switch series
Multicast	PIM-DM, PIM-SM, PIM-SSM, and Any-RP PIM snooping MSDP(Multicast Source Discovery Protocol) IGMPv1/IGMPv2/IGMPv3 IGMP proxying IGMP Snooping IGMP snooping proxying IGMP Filter and IGMP Fast leave IPv6 PIM-DM, PIM-SM, PIM-SSM, and Any-RP IPv6 PIM snooping MLDv1/MLDV2 MLD proxying MLD Snooping MLD snooping proxying Multicast routing and forwarding Multicast VLAN MVPN(Multicast VPN) Multicast policy and Multicast QoS
ACL/QoS	ACL(Access Control List) advanced ACL User-defined ACL Ingress and Egress ACL Ingress/Egress CAR Diff-Serv QoS Eight queues each interface 802.1P/DSCP Priority marking and remarking 802.1p, TOS, DSCP, and EXP priority mapping Flexible queue scheduling algorithms including SP, WRR, SP+WRR, WFQ, SP+WRR Traffic shaping Time ranges Traffic classification based on source MAC, destination MAC, source IP, destination IP, port, protocol, and VLAN Congestion avoidance, Tail-Drop, RED(Random Early Detection) and WRED(Weighted Random Early Detection)
MPLS	Static LSP(label switched path) LDP(Label Distribution Protocol) IPv6 LDP Tunnel policies VRF(Virtual Routing and Forwarding) MPLS L2VPN MPLS L3VPN MPLS Ping/Tracert MCE(Multi-VPN Instance Customer Edge)

Feature	Data Center Ethernet switch series
	IPv6 MCE MPLS OAM
Security	RBAC(Role-based access control) AAA(Authentication, Authorization, and Accounting) RADIUS(Remote Authentication Dial-In User Service)(include DHCP, Radius, LLDP) TACACS(Terminal Access Controller Access Control System) WDTACACS(WD Terminal Access Controller Access Control System) (Same authentication processes and implementations with TACACS+) User hierarchical management and password protection 802.1X authentication Portal authentication MAC authentication Web authentication Triple authentication Guest VLAN Port security SSH1.x and SSH2.0(Secure Shell) SSL(Secure Sockets Layer) HTTPs Public Key Infrastructure (PKI) Control Plane Protection (CoPP), Wireless Intrusion Prevention System (WIPS) Attack detection and prevention TCP attack prevention IPSG(IP source guard) IPv6 RA Guard ARP attack protection ND attack protection uRPF(Unicast Reverse Path Forwarding) MFF(MAC-forced forwarding) SAVI(Source Address Validation Improvement) FIPS(Federal Information Processing Standards) MACsec(Media Access Control Security) All ports AES256 MACsec Microsegmentation Hierarchical user management and password protection EAD(Endpoint Admission Defense) Basic and advanced ACLs for packet filtering OSPF, RIPv2, BGPv4 plain text and MD5 authentication
High Availability	Ethernet OAM(IEEE 802.3ah) CFD(Connectivity Fault Detection)(IEEE 802.1ag and ITU-T Y.1731) DLDP(Device Link Detection Protocol) RRPP(Rapid Ring Protection Protocol) ERPS(G.8032 Ethernet Ring Protection Switching) Smart Link

Feature	Data Center Ethernet switch series
	Monitor Link VRRPv2(Virtual Router Redundancy Protocol) VRRPv3 BFD(Bidirectional forwarding detection) Hardware BFD BFD for VRRP/BGP/IS-IS/OSPF/RSVP/static routing, with a failover detection time less than 50 milliseconds Track Process redundancy/placement CPU protection Hot patching, online patch upgrade Link aggregation VCT(virtual cable test) Smart-Link ISSU(In-Service Software Upgrade)
Network Management	performance management through gRPC or NETCONF NTP(Network Time Protocol) PTP(Precision Time Protocol) IEEE 1588 version 2/IEEE 802.1AS/SMPTE ST 2059-2/AES67-2015 SNMPv1/SNMPv2c/SNMPv3 RMON(Remote Network Monitoring) and groups 1,2,3 and 9 NETCONF/YANG EAA(Embedded Automation Architecture) Port mirroring SPAN(Switch Port Analyzer)/RSPAN(Remote SPAN) Flow mirroring N:9 port mirroring local and remote port mirroring NetStream/IPv6 NetStream, traffic analysis sampling ratio 1:1 sFlow VCF(Virtual Converged Framework) CWMP(CPE WAN Management Protocol/TR-069) Fault alarm and automatic fault recovery System logs Alarming based on severity Power, fan, and temperature alarming Debugging information output Device status monitoring mechanism, including the CPU engine, backplane, chips and other key components Configuration through GUI, CLI, Telnet, and console port Zero Touch Provisioning

Feature	Data Center Ethernet switch series
	Loading and upgrading through XModem/FTP/TFTP/SFTP/USB Secure Boot Embedded AC, maximum support management 2K AP NMSnetwork management system
Stacking	VSS2(Intelligent Resilient Framework 2) Distributed device management Distributed link aggregation Distributed resilient routing Stacking through standard Ethernet ports Local device stacking and remote device stacking LACP-, BFD-, and ARP-based multi-active detection (MAD)
Automatic Configuration	Server-based automatic configuration USB-based automatic configuration
Programmability and Automation	Ansible Auto DevOps by using Python, NETCONF, TCL, and Restful APIs for automated network programming
Visualization	gRPC(Google remote procedure call) INT(Inband Telemetry) Flow group MOD(Mirror On Drop)
OpenFlow	OpenFlow 1.3 Multiple controllers (EQUAL, master/slave) Multiple tables flow Group table
VXLAN	VXLAN L2 switching VXLAN L3 routing Centralized VXLAN gateway Distributed VXLAN gateway VXLAN M-LAG VXLAN-DCI OVSDB(Open vSwitch Database) VXLAN VTEP MP-BGP EVPN control plane EVPN VXLAN EVPN M-LAG
Intelligent Lossless Network	PFC(Priority-based Flow Control) ECN(Explicit Congestion Notification)
Energy Saving	Port automatic power down function Port timing down function (Schedule job) EEE(802.3az Energy Efficient Ethernet)
EMC	FCC Part 15 Subpart B CLASS A CISPR 32 CLASS A

Feature	Data Center Ethernet switch series
	EN 55035 EN 61000-3-2 EN 61000-3-3 EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-11
Safety	IEC 62368-1 EN 62368-1 EN 60825-1
RoHS	RoHS 2.0

Performance Specification

Entries	Data Center Ethernet switch series
MAC address entries(maximum)	320K
VLAN table（Active VLAN）	4K
VLAN interface	4093
IPv4 routing entries(maximum)	80K
IPv4 ARP entries(maximum)	64K
IPv4 ACL entries	IN: 3.75K EG: 512
IPv4 multicast L2 entries	8K
IPv4 multicast L3 entries	4K
IPv6 unicast routing entries(maximum)	32K
IPv6 ND entries	32K
IPv6 multicast L2 entries	8K
IPv6 multicast L3 entries	4K
QOS forward queues	8
Jumbo frame length	13312
Max Stacking Members	9
Max Stacking Bandwidth	480Gbps

PoE Power Capacity

Power supply 1	Power supply 2	WD-GS-28P4C8O		WD-GS-48P6O	
		Total PoE power capacity	PoE Ports Quantity	Total PoE power capacity	PoE Ports Quantity
WDPSR600	/	450W	15.4W (802.3af): 28 30W (802.3at): 15	450W	15.4W (802.3af): 28 30W (802.3at): 15
WDPSR920	/	770W	15.4W (802.3af): 28 30W (802.3at): 25	770W	15.4W (802.3af): 28 30W (802.3at): 25
WDPSR1600 (Input Voltage: 90V AC~176VAC)	/	770W	15.4W (802.3af): 28 30W (802.3at): 25	770W	15.4W (802.3af): 28 30W (802.3at): 25
WDPSR1600 (Input Voltage:176V AC~290V AC or 180VDC~320VDC)	/	840W	15.4W (802.3af): 28 30W (802.3at): 28	1440W	15.4W (802.3af): 48 30W (802.3at): 48
WDPSR600	WDPSR600	840W	15.4W(802.3af): 28 30W (802.3at): 28	1020W	15.4W (802.3af): 48 30W (802.3at): 34
WDPSR600	WDPSR920	840W	15.4W (802.3af): 28 30W (802.3at): 28	1020W	15.4W (802.3af): 48 30W (802.3at): 34
WDPSR600	WDPSR1600	840W	15.4W (802.3af): 28 30W (802.3at): 28	1020W	15.4W (802.3af): 48 30W (802.3at): 34
WDPSR920	WDPSR920	840W	15.4W (802.3af): 28 30W (802.3at): 28	1440W	15.4W (802.3af): 48 30W (802.3at): 48
WDPSR920	WDPSR160	840W	15.4W (802.3af): 28 30W (802.3at): 28	1440W	15.4W (802.3af): 48 30W (802.3at): 48
WDPSR1600	WDPSR1600	840W	15.4W (802.3af): 28 30W (802.3at): 28	1440W	15.4W (802.3af): 48 30W (802.3at): 48

Standards And Protocols Compliance

Organization	Standards And Protocols
IEEE	IEEE 802.1D (STP) IEEE 802.1p (CoS) IEEE 802.1Q (VLANs) IEEE 802.1s (MSTP) IEEE 802.1w (RSTP) IEEE 802.1X (Security) IEEE 802.3ad (LACP) IEEE 802.1ae (MACsec) IEEE 802.3u (Fast Ethernet) IEEE 802.3ab (1000BASE-T) IEEE 802.3x (Flow Control) IEEE 802.3z (1000BASE-SX, 1000BASE-LX)
RFC	RFC1771 (BGPv4) RFC1772 (Application of the BGP) RFC1965 (BGPv4 autonomous system confederations) RFC1997 (Communities attribute) RFC2385 (Transmission Control Protocol (TCP) MD5 authentication for BGP) RFC2439 (Route flap dampening) RFC2796 (Route reflection) RFC1657 (Definitions of Managed Objects for BGPv4) RFC2328 (OSPF v2) RFC1587 (OSPF NSSA) RFC2370 (OSPF opaque link-state advertisement (LSA) option) RFC1850 (OSPF v2 Management Information Base (MIB), traps) ISO10589 (IS-IS) RFC1195 (IS-IS) RFC2973 (IS-IS mesh groups) RFC1058 (RIP v1) RFC1723 (RIP v2) RFC2453 (RIP v2) RFC2083 (PNG (Portable Network Graphics) Specification Version)

	RFC791 (IP) RFC792 (ICMP) RFC793 (TCP) RFC768 (UDP) RFC826 (ARP) RFC783 (TFTP) RFC854 (Telnet) RFC894 (IP Over Ethernet) RFC950 (Internet Standard Subnetting Procedure) RFC959 (FTP) RFC1141 (Incremental updating of the Internet checksum) RFC1122 (Requirements for Internet Hosts -Communication Layers) RFC1256 (ICMP Router Discovery Messages) RFC1393 (Trace route Using an IP Option) RFC 1812 (IPv4) RFC 2338 (VRRP) RFC 2787 (Definitions of Managed Objects for VRRP) RFC 2474 (Diffserv) RFC 2131 (DHCP) RFC 2132 (DHCP and BOOTP Extension) RFC2280 (Routing Policy Specification Language (RPSL)) RFC1305 (NTPv3) RFC1157 (SNMP) RFC857 (Telnet Echo Option) RFC858 (Telnet Suppress Go Ahead Option) RFC1093 (NSFNET routing architecture) RFC 2138 (Radius Authentication) RFC 2139 (Radius Accounting) RFC1492 (TACACS) RFC 1518, 1519 (CIDR) RFC 2622 (Routing policy) RFC 2338 (VRRP) RFC 1112 (Host extensions for IP multicasting) RFC 2236 (Internet Group Management Protocol, Version 2)

	RFC 2715 (Interoperability Rules for Multicast Routing Protocols) RFC 2362 (PIM-SM) Draft (PIM-DM:draft-ietf-idmr-pim-dm-06) RFC 2283 (Multi-protocol Extensions for BGPv4) RFC 2267 (Network Ingress Filtering) RFC2474 (Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers) RFC2475 (Architecture for Differentiated Service) RFC3168 (The Addition of Explicit Congestion Notification (ECN) to IP) RFC2702 (Requirements for Traffic Engineering Over MPLS) RFC3031 (Multi-protocol Label Switching Architecture) RFC3032 (MPLS Label Stack Encoding) RFC3033 (The Assignment of the Information Field and Protocol Identifier in the Q.2941 Generic Identifier and Q.2957 User-to-user Signaling for the Internet Protocol) RFC3036 (LDP Specification) RFC3037 (LDP Applicability) RFC2547 (BGP/MPLS VPN) RFC2764 (A Framework for IP Based Virtual Private Networks) RFC2796 (BGP Route Reflection - An Alternative to Full Mesh IBGP) RFC2842 (Capabilities Advertisement with BGPv4) RFC2858 (Multi-protocol Extensions for BGPv4) RFC2917 (A Core MPLS IP VPN Architecture) RFC2918 (Route Refresh Capability for BGPv4) RFC3107 (Carrying Label Information in BGPv4) Draft (Draft-martini-l2circuit-trans-mpls-08.txt) Draft (Draft-martini-l2circuit-encap-mpls-04.txt) Draft (Draft-kompella-ppvpn-l2vpn-01.txt) RFC2080 (RIPng for IPv6) RFC1981 (Path MTU Discovery for IP version 6) RFC2460 (Internet Protocol, Version 6 (IPv6) Specification) RFC2461 (Neighbor Discovery for IP Version 6 (IPv6)) RFC2462 (IPv6 Stateless Address Auto configuration) RFC2463 (Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification) RFC2545 (BGP support IPv6) RFC2740 (OSPF for IPv6)

	RFC3513 (Internet Protocol Version 6 (IPv6) Addressing Architecture) RFC3596 (DNS Extensions to Support IP Version 6) Draft (Draft-ietf-isis-ipv6-04.txt) RFC 1493 (Bridge MIB) RFC 2674 (VLAN MIB Extension) RFC 1573 (Private IF MIB) RFC 1213 (MIB II) RFC 1724 (RIP Version 2 MIB Extension) RFC 1850 (OSPF Version 2 MIB Extension) RFC 2787 (VRRP MIB) RFC 2618 (RADIUS Authentication Client MIB) RFC 2620 (RADIUS Accounting Client MIB) RFC 1155 (Structure and Mgmt Information (SMIv1)) RFC 1157 (SNMPv1/v2c) RFC 1213, 1573 (MIB II) RFC 1901-1907 (SNMPv2c, SMIv2 and Revised MIB-II) RFC 2271 (FrameWork) RFC 2578-2580 (SMIv2) RFC 2819 (RMON) RFC 2668 (IEEE 802.3 MAU MIB) RFC 2665 (Pause control) RFC 2233 (Interfaces MIB) RFC2452 (MIB for TCP6) RFC2454 (MIB for UDP6) RFC2466 (MIB for ICMP6) RFC 5905 (NTPv4)

For More Information
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