Cisco ME 3800X Series Carrier Ethernet Switch Router

Cisco IOS Software Release 12.2(52)EY for Cisco ME 3600X Series Ethernet Access Switches and ME 3800X Series Carrier Ethernet Switch Router

Cisco announces Cisco IOS® Software Release 12.2(52)EY for Cisco® ME 3600X Series Ethernet Access Switches and the Cisco ME 3800X Series Carrier Ethernet Switch Router. This release advances Cisco's leadership role in the carrier Ethernet access and aggregation space by providing enhanced Layer 2 and Layer 3 VPN capabilities. This release introduces support for enhanced Ethernet capabilities, advanced Layer 3 routing, and Multiprotocol Label Switching (MPLS) support.

This product bulletin contains content and delivery information for Cisco IOS Software Release 12.2(52)EY.

New Features

Table 1 shows new features in Cisco IOS Software Release 12.2(52)EY.

Table 1. New Features

Features	Description
Flexible Ethernet Services	• **Ethernet virtual connections (EVCs):** Ethernet services are supported using individual EVCs to carry traffic belonging to a specific service type or end user through the network. • **Flexible VLAN classification:** VLAN classification into Ethernet flow points (EFPs) includes single-tagged VLANs, double-tagged VLANs (QinQ), contiguous VLAN ranges, and noncontiguous VLAN lists. • **Flexible VLAN tag manipulation:** VLAN manipulation includes explicit pop functions (1 or 2) and implicit push (1). QinQ and selective QinQ are also supported. • **IEEE bridging:** The software supports native bridging based on IEEE 802.1Q and QinQ VLAN encapsulation mechanisms.
L2VPN Services	• **Virtual Private WAN Services/Ethernet over MPLS (VPWS/EoMPLS):** EoMPLS transports Ethernet frames across an MPLS core using pseudowires. Individual Ethernet flow points, VLANs, or an entire port can be transported over the MPLS backbone using pseudowires. • **Pseudowire redundancy:** Pseudowire redundancy supports the definition of a backup pseudowire to protect a primary pseudowire that fails. • **Per VLAN MAC learning:** PVL allows to control MAC learning on a per VLAN basis and deactivate learning on a per-L2VPN-services basis. • **EVC MAC limiting:** To limit MAC address entries per Ethernet flow point.
Layer 3 Routing and VPN Services	• **IPv4 routing:** Support for Border Gateway Protocol (BGP), Enhanced Interior Gateway Routing Protocol (EIGRP), Routing Information Protocol (RIP v1 and v2), Intermediate System-to-Intermediate System (IS-IS), Open Shortest Path First (OSPF), static routing, Hot Standby Router Protocol (HSRP), and Virtual Router Redundancy Protocol (VRRP) features. • **MPLS L3VPN:** The IP VPN feature for MPLS allows deploying scalable IPv4 Layer 3 VPN backbone services. • **Multi VRF CE (VRF Lite):** Multi VRF CE allows you to extend VRF concept to the customer edge device (CE) using VLANs to carry VPN information to the provider edge (PE). • **MPLS and MPLS TE:** Support for MPLS protocols such as Traffic Engineering/Fast Reroute (TE-FRR), Resource Reservation Protocol (RSVP), Label Distribution Protocol (LDP), and Targeted Label Distribution Protocol (T-LDP).
Multicast	• **IPv4 Multicast:** IPv4 Multicast supports Internet Group Management Protocol Versions 2 and 3 (IGMPv2/v3), Protocol Independent Multicast (PIM) Source-Specific Multicast (SSM), Sparse Mode (SM), Dense Mode (DM), and Spare Dense Mode (SDM), PIM SSM mapping. • **IGMP v1/v2/v3 snooping:** This Layer 2 mechanism efficiently tracks multicast membership on an L2VPN network. Individual IGMP joins are snooped at the VLAN level, and then results are summarized into a single upstream join message. With IGMP v3 snooping, join and leave requests are processed as v2 joins and leaves.

Features	Description
QoS	• **QoS:** Comprehensive QoS support with support for thousands of queues and hierarchical QoS with ingress policing, marking, and egress shaping. • **Ingress QoS:** Advanced ingress classification including Layer 2 and Layer QoS access control list (ACL), classification based on inner and outer class of service (CoS), or VLAN ID. Ingress policing with 2-rate 3-color (2R3C) policers for enhanced L2VPN definition. Ingress marking including outer CoS, DSCP, MPLS exp bits, and QoS group. • **Egress QoS with 3 level hierarchy (H-QoS)** with egress shaping per port and per queue, class-based weighted fair queuing (CBWFQ), and priority queuing • **Cisco Modular QoS CLI (MQC).** Modular CLI is used to configure various QoS features on various Cisco platforms.
OAM	• **E-OAM (IEEE 802.1ag):** Ethernet Connectivity Fault Management is a subset of Ethernet Operations, Administration, and Maintenance (EOAM) protocol that provides numerous mechanisms and procedures for the discovery and verification of the path through 802.1 bridges and LANs. • **E-OAM (IEEE 802.3ah):** Ethernet link layer OAM provides physical-link OAM to monitor link health and assist in fault isolation. • **MPLS OAM:** This protocol supports label-switched-path (LSP) ping, LSP TraceRoute, and virtual circuit connectivity verification (VCCV). • **Ethernet E-LMI:** Support for E_LMI CE and PE for exchange of an EVC state and attributes between the provider edge (PE) and customer edge (CE). E-LMI interaction with CFM (IEEE 802.1ag) extends the status of the EVC and remote UNI to the CE device.
HA	• **IEEE 802.1s Multiple Spanning Tree (MST):** MST extends the 802.1w Rapid Spanning Tree Protocol (MSTP) to multiple spanning trees, providing rapid convergence and load balancing. • **Cisco Resilient Ethernet Protocol (REP):** REP provides fast convergence for layer 2 deployment in ring topologies. REP support in this release includes REP Edge No Neighbor feature to interact with non-REP devices. • **Flexlink for dual homing:** Used in hub-and-spoke topology with dual homing, Flexlink provides fast convergence in Layer 2 topologies. Flexlink supports active-active links with VLAN load balancing. • **MPLS TE FRR:** MPLS Traffic Engineering (TE) Fast Reroute (FRR) delivers Layer 3 protection switching for networks currently configured with MPLS LSPs. MPLS TE FRR provides temporary rerouting around a failed link or node. • **Bidirectional Forwarding Detection (BFD):** BFD is a detection protocol that is designed to provide fast-forwarding path failure detection times for all media types, encapsulations, topologies, and routing protocols. • **Standard IEEE 802.3ad link aggregation bundles:** A bundle of multiple links can be supported to provide added resiliency and the ability to load balance traffic over multiple member links.
Manageability	• **Cisco Active Network Abstraction (ANA):** Cisco ANA is a flexible, vendor-neutral network resource-management solution for a multitechnology, multiservice network environment. • **CiscoWorks LAN Management Solution:** CiscoWorks LAN Management Solution 3.2 is an integrated suite of management functions that simplifies the configuration, administration, monitoring, and troubleshooting of an end-to-end borderless network.
Security	• **Layer 2 ACLs:** You can use this security feature to filter packets. • **Layer 3 ACLs:** This feature matches ACLs by IPv4 protocol packet attributes.

Supported Products

Table 2 lists the part numbers for the Metro Ethernet switches supported in Release 12.2(52)EY.

Table 2. Part Numbers for Cisco ME 3600X and ME 3800X Series

Cisco ME 3600X Series Switches and Software Licenses	Cisco ME 3800X Series Switches and Software Images
• ME-3600X-24TS-M • ME-3600X-24FS-M • ME3600X-I • ME3600X-A • ME3600X-LIC= • S360XVT-12252EY • S360XVK9T-12252EY	• ME-3800X-24FS • ME-3800X-E • ME-3800X-I • ME-3800X-A • ME-3800X-I-A • ME-3800X-LIC= • S380XVT-12252EY • S380XVK9T-12252EY

Additional Resources

Software Downloads

Software is available for download from the following site: www.cisco.com/cisco/web/download/index.html

Product Information

Additional product information is available at the following sites:

- Cisco ME 3600X Series Ethernet Access Switches: www.cisco.com/en/US/products/ps10956/index.html
- Cisco ME 3800X Series Carrier Ethernet Switch Router: www.cisco.com/en/US/products/ps10965/index.html

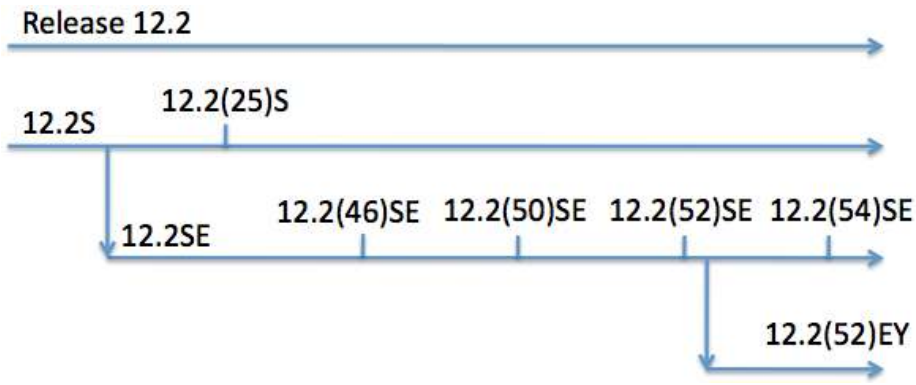
Support

Cisco IOS Software Release 12.2(52)EY follows the standard Cisco support policy. For more information, visit www.cisco.com/en/US/products/products_end-of-life_policy.html.

Software Image Migration Guide

Figure 1 displays Cisco IOS Software Release 12.2(52)EY functions for Releases 12.2S and 12.2SE and identifies the recommended migration path.

Figure 1. Cisco IOS Software 12.2 Release Train



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
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Singapore

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