



Product Bulletin No. 3088

## Cisco IOS Software Release 12.2(25)EX for Cisco ME 3400 and ME 2400 Series Ethernet Access Switches

Cisco Systems® announces new Cisco IOS® Software for Cisco® ME 2400 and ME 3400 Series Ethernet Access Switches. These two product families are designed for service providers offering voice, video, and data (“triple-play”) and VPN services. This product bulletin contains content and delivery information for Cisco IOS Software Release 12.2(25)EX. For more information about the Cisco IOS Software release process, refer to Product Bulletin 537.

As the market leader in Metro Ethernet solutions, Cisco continues to be an innovator. This software release features mission-specific features that simplify management, deployment, and troubleshooting of Metro Ethernet access networks. It is the first Cisco IOS Software release supporting the new Cisco ME 3400 and ME 2400 series switches.

This release introduces software support for two new Metro Ethernet product families and four new products.

### Cisco ME 3400 Series Ethernet Access Switches:

- Cisco ME 3400-24TS AC Ethernet Access Switch (part number ME-3400-24TS-A)
- Cisco ME 3400-24TS DC Ethernet Access Switch (part number ME-3400-24TS-D)

### Cisco ME 2400 Series Ethernet Access Switches:

- Cisco ME 2400-24TS AC Ethernet Access Switch (part number ME-2400-24TS-A)
- Cisco ME 2400-24TS DC Ethernet Access Switch (part number ME-2400-24TS-D)

Any early deployment release of the software should be used in a test network before being deployed in a production network.

This mission-specific software designed for Metro Ethernet access includes many new features and concepts that make the Cisco ME Series the optimal access switch for service providers. Many default behaviors of the software are different from traditional Ethernet switches. These differences make the Cisco ME 3400 Series easier to configure, manage, secure, and troubleshoot. Some of the new key Metro Ethernet features follow:

- User-Network Interface (UNI)/Network Node Interface (NNI)
- Control Plane Security

This release of Cisco IOS Software introduces the concept of UNI/NNI for Ethernet access switches. The ability to identify the application of each port provides ability to set default behaviors that provides many benefits. Table 1 lists some of the key behaviors and benefits of UNI/NNI.

**Table 1.** UNI/NNI Default Behaviors

| Default Behaviors                                  | Benefits  |
|--|---|
| <b>UNI Default: Down</b>                           | Ports must be activated by the service provider before customers can receive service.                                 |
| <b>UNI Default: No Local Switching</b>             | Circuit-like behavior protects each customer's traffic from other customers' traffic.                                 |
| <b>UNI Default: Control Plane Security Enabled</b> | Control plane packet ingresses from the UNI are dropped in hardware to protect against denial of service (DoS).       |
| <b>NNI Default: Up</b>                             | Automated configuration of the switch is enabled through the Dynamic Host Configuration Protocol (DHCP)/BOOTP server. |

Control Plane Security protects the processor from DoS attacks. By default the UNI drops the following control protocols:

- Bridge protocol data unit (BPDU)
- VLAN Trunking Protocol (VTP)
- Cisco Discovery Protocol
- Unidirectional Link Detection Protocol (UDLD)
- Link Aggregation Control Protocol (LACP)
- Port Aggregation Protocol (PAgP)

This feature also provides an option to rate-limit control protocols. If the customers need these protocols tunneled across the network, the service provider can still protect the switch by controlling the number of control protocol ingresses from customers.

**Table 2.** Key Features of Software Feature Images

| Feature                                     | Cisco ME 2400 Series |     | Cisco ME 3400 Series METROBASE |     | Cisco ME 3400 Series METROACCESS |     | Cisco ME 3400 Series METROIPACCESS |     |
|---|----------------------|-----|--------------------------------|-----|----------------------------------|-----|------------------------------------|-----|
|   | UNI                  | NNI | UNI                            | NNI | UNI                              | NNI | UNI                                | NNI |
| <b>Rapid Spanning Tree (802.1w)</b>         |                      | X   |                                | X   |                                  | X   |                                    | X   |
| <b>Multiple Spanning Tree (802.1s)</b>      |                      | X   |                                | X   |                                  | X   |                                    | X   |
| <b>Cisco EtherChannel® Technology</b>       | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>802.3ad</b>                              |                      | X   |                                | X   |                                  | X   |                                    | X   |
| <b>802.1Q Trunking</b>                      | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>Port Security</b>                        | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>MAC Address Notification</b>             | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>Private VLAN</b>                         | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>802.1x</b>                               | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>Secure Shell (SSH) Protocol (v1.5/2)</b> | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>Unicast MAC Filtering</b>                | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>Kerberos</b>                             | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>TACAS+/RADIUS</b>                        | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>Dynamic ARP Inspection</b>               |                      |     |                                |     | X                                | X   | X                                  | X   |
| <b>IP Source Guard</b>                      |                      |     |                                |     | X                                | X   | X                                  | X   |
| <b>DHCP Snooping</b>                        | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| <b>Port Access Control List (PACL)</b>      | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |

| Feature   | Cisco ME 2400 Series |     | Cisco ME 3400 Series METROBASE |     | Cisco ME 3400 Series METROACCESS |     | Cisco ME 3400 Series METROIPACCESS |     |
|---|----------------------|-----|--------------------------------|-----|----------------------------------|-----|------------------------------------|-----|
|   | UNI                  | NNI | UNI                            | NNI | UNI                              | NNI | UNI                                | NNI |
| Storm Control   | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| Control Plane Security  | X                    |     | X                              |     | X                                |     | X                                  |     |
| Ingress Policing  | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| Egress Shaping  | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| Configurable Per-VLAN MAC Learning                                      |                      |     |                                |     | X                                | X   | X                                  | X   |
| Flex Link   |                      |     |                                |     | X                                | X   | X                                  | X   |
| Multicast VLAN Registration (MVR)                                       | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| Internet Group Management Protocol (IGMP) Snooping Versions 1, 2, and 3 | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| IGMP Filtering  | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| IGMP Throttling   | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| IGMP Fast-Leave   | X                    | X   | X                              | X   | X                                | X   | X                                  | X   |
| 802.1Q Tunneling  |                      |     |                                |     | X                                | X   | X                                  | X   |
| Layer 2 Protocol Tunneling (L2PT)                                       |                      |     |                                |     | X                                | X   | X                                  | X   |
| Static Routing  |                      |     |                                |     |                                  |     | X                                  | X   |
| Routing Information Protocol (RIP) Versions 1 and 2                     |                      |     |                                |     |                                  |     | X                                  | X   |
| Enhanced Interior Group Routing Protocol (EIGRP)                        |                      |     |                                |     |                                  |     | X                                  | X   |
| Open Shortest Path First (OSFP)   |                      |     |                                |     |                                  |     | X                                  | X   |
| Border Gateway Protocol Version 4 (BGP4)                                |                      |     |                                |     |                                  |     | X                                  | X   |
| Routed Access Control List (RACL)                                       |                      |     |                                |     |                                  |     | X                                  | X   |
| Multi-VRF CE (VRF-Lite)   |                      |     |                                |     |                                  |     | X                                  | X   |
| Hot Standby Router Protocol (HSRP)                                      |                      |     |                                |     |                                  |     | X                                  | X   |
| Policy-Based Routing (PBR)  |                      |     |                                |     |                                  |     | X                                  | X   |

## Availability

CISCO IOS Software Release 12.2(25)EX will be available in November 2005.

## Ordering Information

Table 3 gives ordering information for the Cisco ME 3400 Series software feature images.

**Table 3.** Ordering Information for Cisco ME 3400 Series Software Feature Images

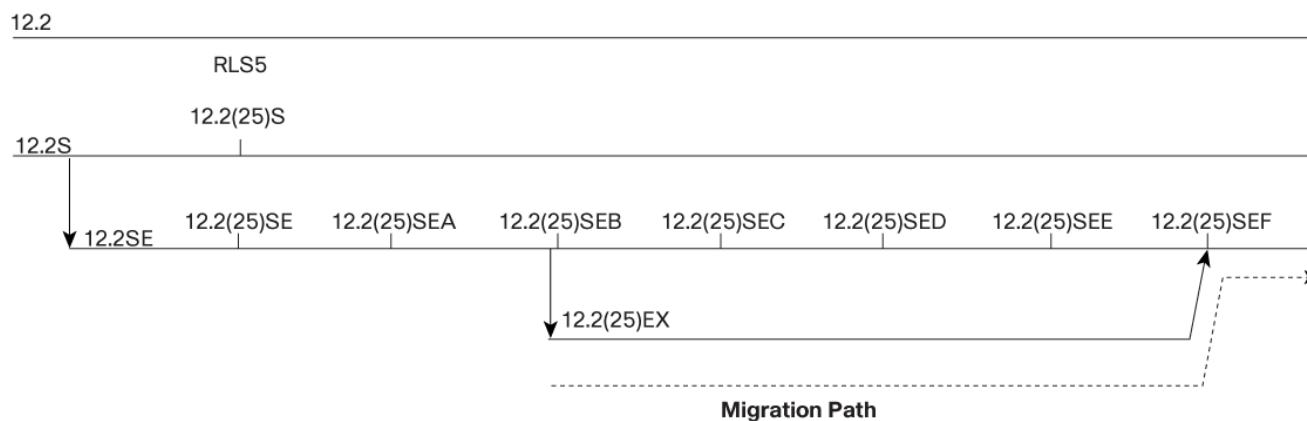
| Image Name                 | Description                                     | Part Number       |
|----------------------------|---|-------------------|
| me340x-metrobase-tar       | Cisco ME 3400 Series IOS METROBASE              | S340XBT-12225EX   |
| me340x-metrobasek9-tar     | Cisco ME 3400 SERIES IOS METRO BASE CRYPTO      | S340XBK9T-12225EX |
| me340x-metroaccess-tar     | Cisco ME 3400 SERIES IOS METRO ACCESS           | S340XAT-12225EX   |
| me340x-metroaccessk9-tar   | Cisco ME 3400 SERIES IOS METRO ACCESS CRYPTO    | S340XAK9T-12225EX |
| me340x-metroipaccess-tar   | Cisco ME 3400 SERIES IOS METRO IP ACCESS        | S340XIT-12225EX   |
| me340x-metroipaccessk9-tar | Cisco ME 3400 Series IOS METRO IP ACCESS CRYPTO | S340XIK9T-12225EX |

## Software Image Migration Guide

Figure 1 displays Cisco IOS Software Release 12.2(25)EX functions relative to the 12.2S and 12.2SE releases and identifies the recommended migration path. For more information about the Cisco IOS Software release process, refer to the Cisco IOS Reference Guide white paper at [http://www.cisco.com/en/US/products/sw/iosswrel/ps1828/products\\_white\\_paper09186a008018305e.shtml](http://www.cisco.com/en/US/products/sw/iosswrel/ps1828/products_white_paper09186a008018305e.shtml).

**Figure 1**

Cisco IOS Software Release 12.2 Release Train



## For More Information

Additional product information is available at the following URLs:

- Cisco ME 3400 Series Ethernet Access Switches: <http://www.cisco.com/en/US/products/ps6580/>
  - Release Note: [http://www.cisco.com/en/US/prod/collateral/switches/ps6568/ps6580/prod\\_bulletin0900aecd8034ff2d.html](http://www.cisco.com/en/US/prod/collateral/switches/ps6568/ps6580/prod_bulletin0900aecd8034ff2d.html)
- Cisco ME 2400 Series Ethernet Access Switches: <http://www.cisco.com/en/US/products/ps6581/index.html>
  - Release Note: [http://www.cisco.com/en/US/prod/collateral/switches/ps6568/ps6581/prod\\_bulletin0900aecd8035cfc5.html](http://www.cisco.com/en/US/prod/collateral/switches/ps6568/ps6581/prod_bulletin0900aecd8035cfc5.html)

**Corporate Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

**European Headquarters**

Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
www-europe.cisco.com  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

**Americas Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

**Asia Pacific Headquarters**

Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
www.cisco.com  
Tel: +65 6317 7777  
Fax: +65 6317 7799

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