Q&A

Cisco ME 2400 Series Ethernet Access Switches

PRODUCT OVERVIEW

Q. What are the Cisco® ME 2400 Series Ethernet Access Switches?

A. The Cisco ME 2400 Series Ethernet Access Switches are a series of next-generation switches built for converged data, voice, and video (triple-play) services. Their design is based on today's most widely deployed access switches, the Cisco Catalyst® 2950 Series. The Cisco ME 2400 Series provides service provider-friendly hardware plus mission-specific software including a comprehensive security solution for Metro Ethernet access. The Cisco ME 2400 Series is also a cost-effective solution for Ethernet-to-the-home (EttH) service.

Q. What is the market positioning for the Cisco ME 2400 Series?

A. The Cisco ME 2400 Series is positioned as the customer-located equipment (CLE) for the EttH market. It offers a cost-effective solution to replace the Cisco Catalyst 2950 Series for EttH-only deployments.

Q. Are the Cisco Catalyst 3750, Catalyst 3560, Catalyst 2970, and Catalyst 2960 Series also positioned for the Metro Ethernet market?

A. No, the Cisco ME 2400 and ME 3400 and Cisco Catalyst 3750 Metro Series are the only products positioned for the Metro Ethernet market, and only they will have new Metro Ethernet features in the future.

Q. How does the market positioning of the Cisco ME 2400 Series differ from that of the Cisco Catalyst 3750 Metro Series and the Cisco ME 3400 Series?

A. The Cisco Catalyst 3750 Metro Series will continue to be the premier access switch for premium services. The Cisco ME 3400 Series is the successor for the Cisco Catalyst 2950 and Catalyst 3550 Series in both EttH and business Ethernet VPN markets. The Cisco ME 2400 Series is a fixed-configuration, purpose built EttH solution in cost-sensitive markets.

Q. Does the Cisco ME 2400 Series support Cisco Hierarchical Queuing Framework (HQF) or Multiprotocol Label Switching (MPLS) features?

A. No; however, those features are supported on the Cisco Catalyst 3750 Metro Series Switches.

Q. What product numbers are available for the Cisco ME 2400 Series?

A. Table 1 shows the complete list of Cisco ME 2400 Series Ethernet Access Switches and options.

Table 1. Table 1. Cisco ME 3400 Ethernet Access Switches

Product Name	Part Number	Description
Cisco ME 2400-24TS-A Switch	ME-2400-24TS-A	• 24 Ethernet 10/100 ports • 2 Small Form-Factor Pluggable (SFP)-based Gigabit Ethernet and 100BASE-X ports • AC power supply • 6.5-mpps forwarding rate • 1-rack unit (1RU) multilayer switch • Purpose-built Ethernet access switch for the triple-play services

Cisco ME 2400-24TS-D Switch	ME-2400-24TS-D	• 24 Ethernet 10/100 ports • 2 SFP-based Gigabit Ethernet and 100BASE-X ports • DC power supply • 6.5-mpps forwarding rate • 1RU multilayer switch • Purpose-built Ethernet access switch for the triple-play services

Q. Can the Cisco ME 2400 Series run the Cisco IOS® Software feature images for the Cisco ME 3400 Series?

A. No, the Cisco ME 3400 Series software is not compatible with the Cisco ME 2400 Series software.

Q. What versions of software are available for the Cisco ME 2400 Series?

A. The Cisco ME 2400 Series runs only a single version of software. There are no upgrade options available.

TECHNOLOGY OVERVIEW

Q. What hardware features are available on the Cisco ME 2400 Series?

A. Cisco ME 2400 Series hardware is designed to simplify deployment and troubleshooting in the field. It features a compact design and flexible mounting options for deployment where space is limited. The Cisco ME 2400 Series also has all connectors in the front of the chassis for easier cable access. In addition, the switch operates at temperatures up to 122ºF (50ºC) and is suitable for deployments in areas without temperature control.

Q. What is UNI/NNI?

A. UNI/NNI is the classification of port types designed for the Metro Ethernet market. UNI, User Network Interface, is the interface that faces the subscriber, and NNI, Network Node Interface, is the interface that faces the service provider network. By labeling each port as UNI or NNI, the software can optimize each port for its role. Table 2 lists some default behaviors for each port type and the benefits.

Table 2. Table 2. UNI/NNI Default Behaviors and Benefits

Default Behaviors	Benefits
UNI Default: Down	Ports are activated when the service provider configures all the parameters and turns on the port, helping prevent unauthorized access to services.
UNI Default: No local switching	This creates circuit-like behavior to protect customers' traffic from each other.
UNI Default: Control Plane Security Enabled	Control plane packet ingresses from UNI are dropped in hardware to protect against denial-of-service (DoS) attacks.
NNI Default: Up	This feature helps enable automated configuration of the switch through the Dynamic Host Configuration Protocol (DHCP)/BOOTP server.

Q. What is the Control Plane Security feature?

A. This feature protects the switch CPU by dropping control protocols on UNIs. It is enabled on the UNI by default. Some of the control protocols that are dropped include bridge protocol data unit (BPDU), Cisco Discovery Protocol, VLAN Trunking Protocol (VTP), Unidirectional Link Detection Protocol (UDLD), and Link Aggregation Control Protocol (LACP). You can also rate-limit ingress on the UNI for some of the control protocols.

Q. What multicast features are supported on the Cisco ME 2400 Series?

A. The Cisco ME 2400 Series offers both granular Internet Group Management Protocol (IGMP) control features and efficient multicast distribution features to support robust video services. For fine control of IGMP messages, the Cisco ME 2400 Series supports the IGMP Fast Leaves feature for quick channel changing, IGMP filtering for control of which groups users can access, and IGMP throttling for control of how many groups users can access. The Cisco ME 2400 Series provides efficient multicast distribution

features such as Multicast VLAN Registration (MVR). The MVR feature reduces duplication of multicast traffic across multiple VLANs in Layer 2 ring networks by centralizing the distribution of multicast traffic in a single video VLAN.

Q. What quality of service (QoS) features are available on the Cisco ME 2400 Series?

A. The Cisco ME 2400 Series offers advanced QoS features to provide differentiated services and the ability to police ingress traffic and shape egress traffic. Each packet that is transmitted through the switch goes through four stages of QoS:

- Stage 1 – Ingress classification: Each packet is classified based on Layer 2–4 information, including 802.1p Class of Service (CoS), differentiated services code point (DSCP), MAC address, IP address, and Layer 4 socket information.
- Stage 2 – Ingress policing: Classified packets are rate-limited to the peak information rate (PIR). In-profile traffic is transmitted while out-of-profile traffic is either dropped or re-marked.
- Stage 3 – Egress queuing: Classified packets are placed in one of the four queues available on each port (three user-configurable queues and one default queue).
- Stage 4 – Shaping and sharing: Queues are serviced by the Shaped Round Robin (SRR) algorithm. They can be shared by the weight configured on the queue or shaped by the bandwidth configured on the queue. One of the queues can be configured as the low-latency queue (LLQ) to provide the lowest delay possible. The LLQ can also have an optional rate-limiting parameter to control the amount of traffic allowed into the queue. This feature provides queue-starvation protections in case of misconfiguration.

Q. What security features are available on the Cisco ME 2400 Series?

A. The Cisco ME 2400 Series provides a comprehensive security solution for Ethernet access products. By dividing security into three portions—subscriber security, switch security, and network security—and providing features for each, the Cisco ME 2400 Series can provide a complete secure solution at the access layer.

Subscriber security helps create protection between users. One concern about sharing a device among multiple users is how to prevent one user from affecting another one. The Cisco ME 2400 Series addresses this concern by providing features such as UNI/NNI, DHCP Snooping, and Private VLAN. The UNI/NNI feature creates a circuit-like behavior to separate users' traffic streams. DHCP Snooping helps service providers identify each user's MAC address, IP address, and port information, and prevents users from attempting DHCP-based attacks.

Switch security is about protecting the switch from attacks. The Cisco ME 2400 Series offers features to protect the CPU and configuration files from attacks. The CPU of an Ethernet switch is responsible for process control protocols such as Spanning Tree Protocol; if the CPU is under DoS attack, those control packets could be dropped, resulting in network outage. Features such as Control Plane Security and Storm Control help protect the CPU against malicious attacks. Port Security allows service providers to control how many MAC addresses are allowed from each subscriber. This protects switch memory from being overwhelmed.

Network security consists of features that filter all incoming traffic to allow only valid traffic through the switch. The Cisco ME 2400 Series uses features such as access control lists (ACLs) and IEEE 802.1x to identify users who are allowed to transmit traffic through the switch.

Q. What SFPs are supported on the Cisco ME 2400 Series?

A. Cisco ME 2400 Series supports both 100- and 1000-MB SFPs. The options include Cisco 100BASE-LX, 100BASE-FX, 100BASE-BX, 1000BASE-LX, 1000BASE-SX, 1000BASE-ZX, and 1000BASE-T SFPs plus coarse wavelength-division multiplexing (CWDM) SFPs.

MANAGEMENT OVERVIEW

Q. What are the management capabilities of the Cisco ME 2400 Series?

A. The Cisco ME 2400 Series supports numerous management features. Support for Simple Network Management Protocol versions (SNMPv1, v2c, and v3) and Telnet interface support deliver comprehensive in-band management, and a command-line-based management console provides detailed out-of-band management. The Cisco ME 2400 Series also supports the Cisco CNS 2100 Series Intelligence Engine, a hardware appliance supporting a suite of Cisco CNS products (intelligent agents) that function with device agents to create a programmable network. Cisco CNS extends the management plane of Cisco devices to a shared "programmable network" composed of three functional areas:

- Cisco CNS Intelligent Peer: Network provisioning and monitoring
- Cisco CNS Intelligence Engines: Fault, configuration, accounting, performance, and security (FCAPS) engines and a subscriber policy server tightly coupled with the device agents
- Cisco CNS Integration Bus: A single open, programmatic interface to the entire network

CiscoWorks network-management software provides management capabilities to the Cisco ME 2400 Series on a per-port and per-switch basis, providing a common management interface for Cisco routers, switches, and hubs.

WARRANTY AND SERVICE

Q. What is the warranty for the Cisco ME 2400 Series?

A. The Cisco ME 2400 Series Switch includes the Cisco 90 Days Limited Warranty.

Q. What types of services and support packages are available for the Cisco ME 2400 Series?

A. A full complement of lifecycle service and support is available for the Cisco ME 2400 Series. From implementation to operation and optimization, Cisco offers technical support services and advanced services delivered either directly or through one of its partners.

Cisco SP Base support, offered for service providers as part of Cisco Technical Support Services, is specifically designed to provide enhancement and maintenance support resources during the operational lifetime of your Cisco network. It extends and enhances the operational lifetime of your Cisco networking devices and Cisco IOS Software, and it protects your network investment with Cisco Technical Support Services. Cisco SP Base support helps improve productivity and increase your operational efficiency by complementing your in-house resources with Cisco networking expertise. Cisco SP Base support can also help maximize availability and minimize risks for systems running mission-critical applications by delivering:

- Ongoing Cisco IOS Software updates, allowing you to efficiently evolve your network infrastructure to meet your changing business needs
- Rapid technical problem resolution with 24-hour global access to expert technical engineers, online or on the telephone
- Knowledge transfer of Cisco expertise, enhancing in-house technical skills
- Advance hardware replacement, reducing the risk of network downtime
- Registered access to an array of powerful online tools, allowing you to more quickly address common network problems
- 24-hour access to comprehensive technical information and a collection of configuration, installation, troubleshooting, and service request management tools
- A broad base of expertise in networking technology, including data, voice, and video communications

For more information about Cisco SP Base support, visit:
http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/ps2960/serv_home.html

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