Cisco 3300 Series Mobility Services Engine: An Open, Appliance-Based Platform for Delivering Mobility Services

Product Overview

The Cisco® 3300 Series Mobility Services Engine (Figure 1) is an open platform that provides a new approach to the delivery of mobility services in a centralized & scalable fashion. A combination of hardware and software, the Cisco 3300 Series Mobility Services Engine (MSE) is an appliance-based solution that supports a suite of software services. The Mobility Services Engine transforms the wireless LAN into a mobility network by abstracting the application layer from the network layer, effectively allowing for the delivery of mobile applications across wired and wireless networks.

Figure 1. Cisco 3300 Series Mobility Services Engine

To deliver true business mobility, IT must take a practical approach focused on unifying networks, managing the wave of mobile devices, and enabling mobile application development. The Cisco 3300 Series Mobility Services Engine is at the heart of this mobility architecture evolution. It provides an open API that allows a broader ecosystem of partners to access network intelligence in developing industry-relevant mobility solutions. The Mobility Services Engine is part of the Cisco Unified Wireless Network, delivering a comprehensive approach to business mobility - an approach that extends applications to the right device at the right time, no matter which network is being used.

Mobility Services Architecture

Cisco Mobility Services are a set of value-added network services that consolidate intelligence from various points in the network to enable and optimize the delivery of business mobility applications. This intelligence has typically been highly distributed throughout the network, resulting in complex service provisioning and management. When services, control, and data planes are combined a single platform, the added complexity limits the network's ability to scale and adapt to new services while maintaining consistent performance.

The answer lies in centralized services architecture. While still critical to the ability of networks to provide the intelligence for the optimal performance of mobile applications, mobility services should be abstracted from the control and data planes in order to be centralized into the services engine. This centralization of services offers several benefits, including scalability and improved provisioning and management. Additionally, centralized services architecture removes the direct linkage between service and network, allowing services to extend across wired and wireless networks.

Increasingly, the mobility network must be able to support a great many applications at once. The true value of mobility services is delivered through their ability to enhance application performance by providing real-time information from the network and related applications. This cross-pollination of network and application intelligence has a synergistic effect, augmenting the richness and breadth of the types of mobility solutions that can be delivered. At the same time, a critical component of services delivery is helping to ensure that third-party applications have a standard interface by which they can access this network and application intelligence. The Cisco Mobility Services Engine supports an open API based on Simple Object Access Protocol/Extensible Markup Language (SOAP/XML), which provides northbound access to these services to an ecosystem of mobility application partners. With service intelligence centralized from the control network into the Mobility Services Engine, IT can open access to the API without concern about disruption to the underlying production network.

Mobility Services Availability

The Cisco 3300 Series Mobility Services Engine is a combination of hardware and software infrastructure that supports a suite of mobility services programs. Designed as an open platform, the Mobility Services Engine supports mobility services software in a modular fashion, with various configuration options based on network topology and the types of services required. The true value of the Mobility Services Engine is delivered through the various mobility services applications. Cisco supports existing and future software, including:

- Context-Aware Software: These programs capture and integrate into business processes detailed contextual information about such things as location, RF interferers, temperature, availability, and applications used. Context-aware applications feature a wide range of location options, including real-time location, presence detection, historical visibility and impact of interferers, and telemetry of an asset. Support for enhanced received signal strength indication (RSSI) and time difference of arrival (TDoA) technology delivers accuracy and performance for a broad range of environments.
- Adaptive Wireless Intrusion Prevention System (wIPS) software provides visibility and comprehensive threat prevention for the mobility network through monitoring, alerts, classifying, and remediation of wireless and wired network vulnerabilities.

These services represent the initial suite of software supported on the Cisco Mobility Services Engine. Mobility Services Engine integrates with Cisco CleanAir technology at a system level to provide crucial forensics and policy enforcement capabilities. These capabilities make it possible for IT to provide mission- critical wireless networking along with quick troubleshooting and problem resolution to create a self- healing, self-optimizing wireless network. Cisco will deliver additional software services in the future. The Cisco Mobility Services Engine, in conjunction with the services provided, increases productivity and improves a return on your investment.

Product Architecture

The Cisco 3300 Series Mobility Services Engine provides the following architectural elements:

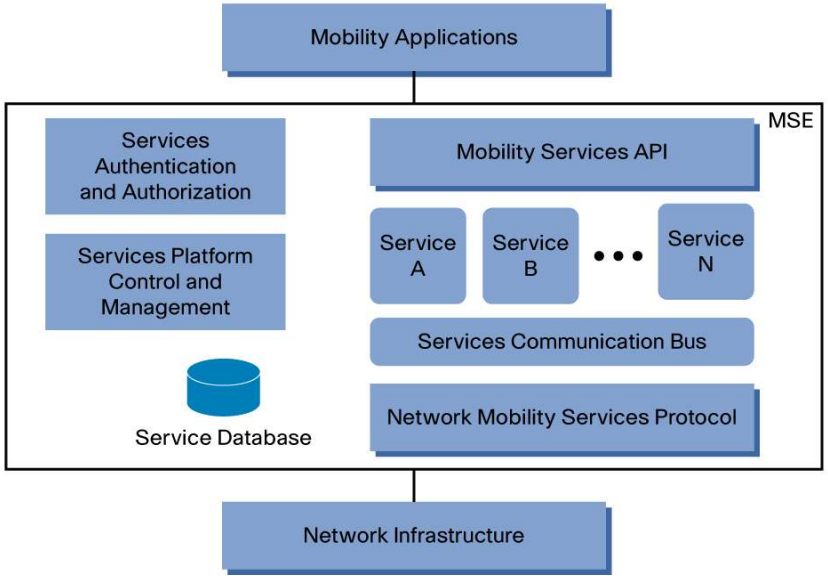
- A common API framework
- A common management plane for services design, deployment, and operation (monitoring, reporting, and troubleshooting)
  - Management of services provided by the Cisco Wireless Control System (WCS)
- Scalable infrastructure to support the instantiation of additional services
  - Architecture allows services to span across multiple engines to facilitate flexibility in deployment
- Loose coupling among services

- Facilitates easy integration into framework (plug and play)
- Message-Based Collaboration-Service Oriented Architecture (SOA) model. Individual services can be managed independently without affecting others

- Integrated with the Cisco Unified Wireless Network

Figure 2 shows the Cisco 3300 Series Mobility Services Engine architecture.

Figure 2. The Mobility Services Engine Architecture



Features and Benefits

The Cisco 3300 Series Mobility Services Engine delivers the following critical features and benefits:

- **Extensible platform for rapid delivery of services and applications**
  - Allows the abstraction of services and applications from control planes and the network so that each may evolve independently.
  - Common framework for hosting multiple mobility services.
  - Open API to support third-party and partner application development.
- **Ecosystem of application partners**
  - To deliver mobility solutions targeted at various industries, including healthcare, retail, education, and manufacturing.
- **Scalability**
  - Multiple services can be deployed on a single Cisco Mobility Services Engine, or a single service can span multiple Cisco Mobility Services Engines.
- **Manageability**
  - The Cisco Mobility Services Engine serves as a single point of integration for the various value-added services.
  - All mobility services are managed centrally through the integration with the Cisco Wireless Control System.

- **Flexibility**
  - The Cisco Mobility Services Engine is an extensible platform capable of supporting a variety of services configurations to meet business requirements. The architecture enables the inclusion of newer technology standards as and when they become available.
- **Return on investment**
  - The Cisco Mobility Services Engine integrates with the Cisco Unified Wireless Network to provide network intelligence, including contextual information to optimize business applications. This architecture builds upon the existing investment in Cisco wireless and mobility solutions and provides a platform that is both flexible and scalable to meet evolving business mobility requirements.

Product Specifications

Table 1 lists product specifications for the two models of the Cisco 3300 Series Mobility Services Engine

Table 1. Cisco 3300 Series Mobility Services Engine Product Specifications

Feature	Cisco 3310 Mobility Services Engine	Cisco 3355 Mobility Services Engine
Supported Services	• Context-aware software to track up to 2000 devices • Adaptive wireless intrusion prevention system software to support up to 2000 monitor mode access points or Enhanced Local Mode (ELM) access points	• Context-aware software to track up to 18,000 devices • Adaptive wireless intrusion prevention system software to support up to 3000 monitor mode or Enhanced Local Mode (ELM) access points
Evaluation Support	• Customers who purchase a mobility service have the option to trial other mobility services on their MSE at the following scale: • Context-aware client tracking: 100 clients • Context-aware tag tracking: 100 tags • Adaptive wireless intrusion prevention: 20 monitor mode access points	• Customers who purchase a mobility service have the option to trial other mobility services on their MSE at the following scale: • Context-aware client tracking: 100 clients • Context-aware tag tracking: 100 tags • Adaptive wireless intrusion prevention: 20 monitor mode or Enhanced Local Mode access points
Processor	(1) Dual-Core Intel Processor 1.8 GHz	(2) Quad-Core Intel Nehalem Processor 2.0 GHz, 4-MB cache
Memory	4-GB PC2-5300 (4 x 1 GB)	16-GB DDR3 (2 x 8 GB)
Hard Disk	(2) Fixed 247-GB Serial ATA-150/SATA drives with up to 300MBps transfer rates	(4) Hot-swappable 146-GB SAS drives with up to 6Gbps transfer rate
Removable Media	DVD/CD-RW combo drive	DVD-ROM drive
Ports	• Serial: One 9-pin connector • RJ-45: Two RJ-45 connectors for connection to two Gigabit Network Adapters • Three USB 2.0 ports: (1) front, and (2) rear accessible ports • Two PS2 ports: One mouse and one keyboard • One VGA port	• Four USB ports: two in front, two in back • Two VGA ports: one in front and one in back • One RJ-45 management port for out-of-band management • RJ-45: Two rear RJ-45 connectors for connection to two Gigabit Network Adapters
Connectivity	Network: Two embedded Multifunction Gigabit Network Adapters	Network: Two embedded Multifunction Gigabit Network Adapters with TCP/IP Offload Engine
Management	SNMP v1, v2c, and v3	SNMP v1, v2c, and v3
Management Interface	Cisco WCS Mobility Services Version 5.2 or later running Internet Explorer 6.0/Service Pack 1 or later	Cisco WCS Mobility Services Version 7.1 or later running Internet Explorer 6.0/Service Pack 1 or later
Network Devices	Cisco 2100, 4400, and 5500 Series Wireless LAN Controllers; Cisco Catalyst® 6500 Series Wireless Services Module, Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for integrated services routers; Cisco Aironet® lightweight access points	Cisco 2100, 4400, and 5500 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module, Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for integrated services routers; Cisco Aironet lightweight access points
Programming Interfaces	SOAP/XML APIs	SOAP/XML APIs
Form Factor	• 1RU	• 1RU

Feature	Cisco 3310 Mobility Services Engine	Cisco 3355 Mobility Services Engine
Physical Dimensions	• Height: 1.70 in. (4.32 cm) • Width: 16.78 in. (42.62 cm) • Depth: 20 in. • Weight: 15 lbs maximum	• Height: 1.69” (43mm) • Width: 17.3” (440mm) • Depth: 28.0” (711.4mm) • Weight: 28 (minimum) - 35.1 lb (maximum) (12.7 - 15.9 kg)
Power	• AC power supply wattage: 540W • AC power supply voltage: 100-120V at 50-60 Hz; 200 240V at 50-60 Hz	• AC power supply wattage: 625W • AC power supply voltage: 100-120V at 50-60 Hz; 200-240V at 50-60 Hz • 92% efficient • Auto switching, hot-swappable • Redundant power supplies
Cooling Fans	Total of three fans	Total of six fans, 3+3 redundant configuration
Environmental	• Operating temperature: 50 to 95℉ (10 to 35℃) at se a level • Nonoperating: -40 to 158℉ (-40 to 70℃) Maximum ra te of change is 20℃/hr (36℉/hr)	• Operating temperature: ◦ 50 to 95℉ (10 to 35℃) up to 3,000 ft/914.4 m ◦ 50 to 90℉ (10 to 32℃) 3000 ft to 7000 ft/914.4m t o 2133m • Nonoperating: -40 to 140℉ (-40 to 60℃) Maximum ra te of change is 20℃/hr (36℉/hr) **Environment:** v Air temperature: • Server on: 10℃ to 35℃ (50℉ to 95℉); altitude: 0 to 914.4 m (3000 ft), decrease system temperature by1.0℃ for every 1000-foot increase in altitude • Server off: 5℃ to 45℃ (41℉ to 113℉); maximum altitude: 3048 m (10000 ft) • Shipment: -40℃ to 60℃ (-40℉ to 140℉); maximum altitude: 3048 m (10000 ft) v Humidity: • Server on: 20% to 80%; maximum dew point: 21℃; maximum rate of change: 5 ℃/hr • Server off: 8% to 80%; maximum dew point: 27℃
Approvals and Compliance	• Safety UL 60950 • CAN/CSA -C22.2 No. 60950 • EN60950 • IEC 60950: EMC FCC Part 15 (CFR 47) Class A • ICES-003 Class A • EN 55022 Class A • CISPR22 Class A • AS/NZS 3548 Class A • VCCI Class A • EN 55024 • EN 50082-1	• Safety UL 60950 • CAN/CSA -C22.2 No. 60950 • EN60950 • IEC 60950: EMC FCC Part 15 (CFR 47) Class A • ICES-003 Class A • EN 55022 Class A • CISPR22 Class A • AS/NZS 3548 Class A • VCCI Class A • EN 55024 • EN 50082-1 • Energy Star compliant
Software Compatibility	• Available with Cisco Mobility Services Engine (MSE) Software Release 5.2 or later • Requires WLC software version 4.2.130 or later and Wireless Control System (WCS) Version 5.2 or later • Multiple mobility services can run con-currently on the same MSE using WLC and MSE Software Release 6.0 or later • Supported services may have different software requirements	• Available with Cisco Mobility Services Engine (MSE) Software Release 6.0 or later • Requires WLC software Version 4.2.130 or later and WCS Version 6.0 or later • Multiple mobility services can run con-currently on the same MSE using WLC and MSE Software Release 6.0 or later • Supported services may have different software requirements

Summary

The Cisco 3300 Series Mobility Services Engine transforms existing wireless LANs into comprehensive mobility networks through a uniform method of mobility services delivery. It integrates with the Cisco Unified Wireless Network to build on existing business mobility investments. The variety of services, including the ability to collect contextual information on people, interferers, and assets, optimizes business processes. The open API of the Mobility Services Engines enables Cisco partners to expand the capabilities of the business mobility network and to deliver relevant industry solutions.

Ordering Information

Table 2 lists ordering information for the Cisco 3300 Series Mobility Services Engine. To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.

Table 2. Ordering Information

Part Number	Product Name
AIR-MSE-3355-K9	Cisco 3355 Series Mobility Services Engine
AIR-MSE-3310-K9	Cisco 3310 Series Mobility Services Engine

Service and Support

Cisco Wireless LAN Services

Seamlessly integrate mobile services and take full advantage of the systemwide capabilities of the Cisco Unified Wireless Network with services from Cisco and our partners. Better utilize the increased performance of the 802.11n standard while simplifying the transition to this new technology. For more details, visit: http://www.cisco.com/go/wirelesslanservices.

For More Information

For more information about Cisco Mobility Solutions, visit http://www.cisco.com/go/mse or contact your local Cisco account representative.

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Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at **www.cisco.com/go/offices.**

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