Cisco Mobile Wireless Transport Manager 6.0

Product Overview

Cisco® Mobile Wireless Transport Manager (MWTM) network management software provides monitoring and management capabilities for the Cisco Global Systems for Mobile Communications (GSM) Radio Access Network (RAN) Optimization solution (Figure 1), Cisco IP Transfer Point (ITP) networks (Figure 2) and Cisco mobile Service Exchange Framework (mSEF). Cisco MWTM easily integrates with existing Cisco network management products such as CiscoWorks LAN Management Solution and Cisco Info Center, as well as third-party network management products such as HP OpenView and IBM Tivoli Netcool, to provide a complete set of monitoring and management tools for the Cisco RAN Optimization, ITP, and mSEF networks. For more information on the Cisco IP next-generation networks for mobile operators, please visit http://www.cisco.com/go/mobile.

Figure 1. Cisco Mobile Wireless Transport Manager and RAN Optimization Overview

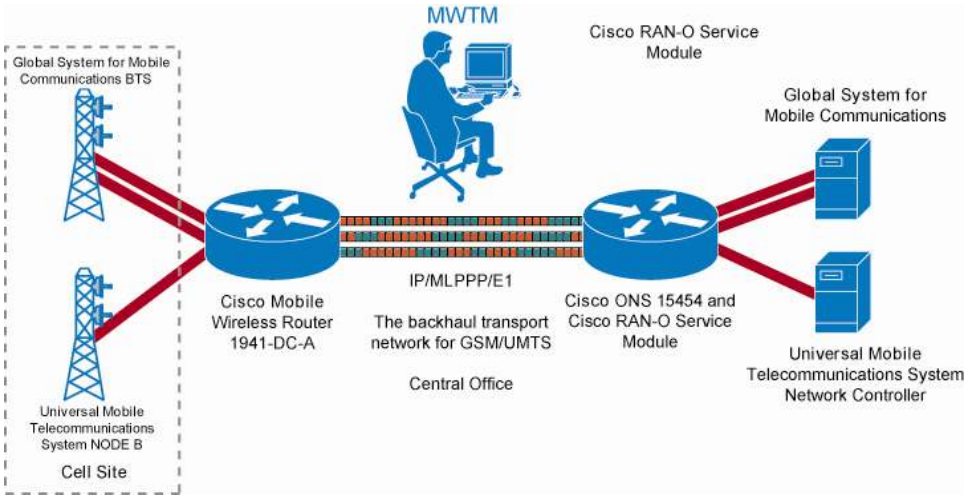
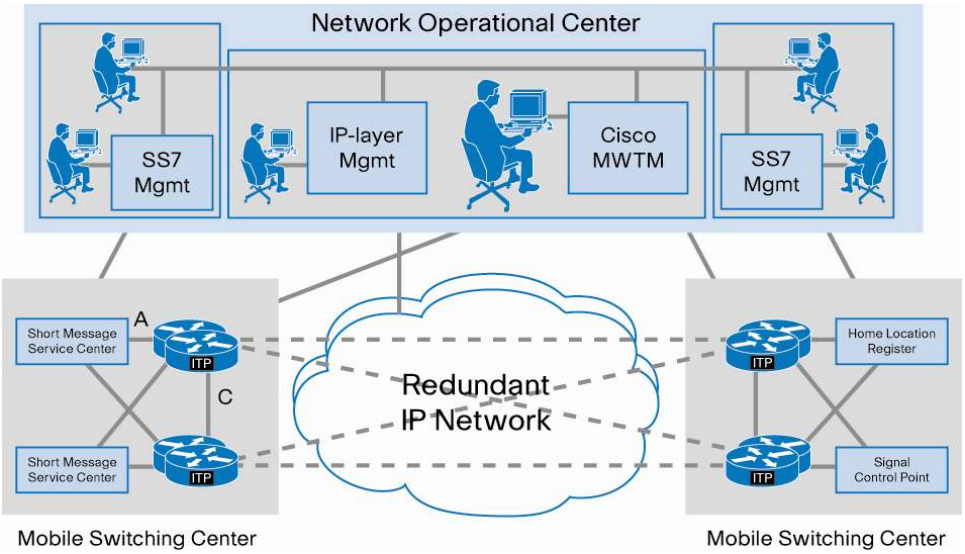


Figure 2. Cisco Mobile Wireless Transport Manager and ITP Overview



Features

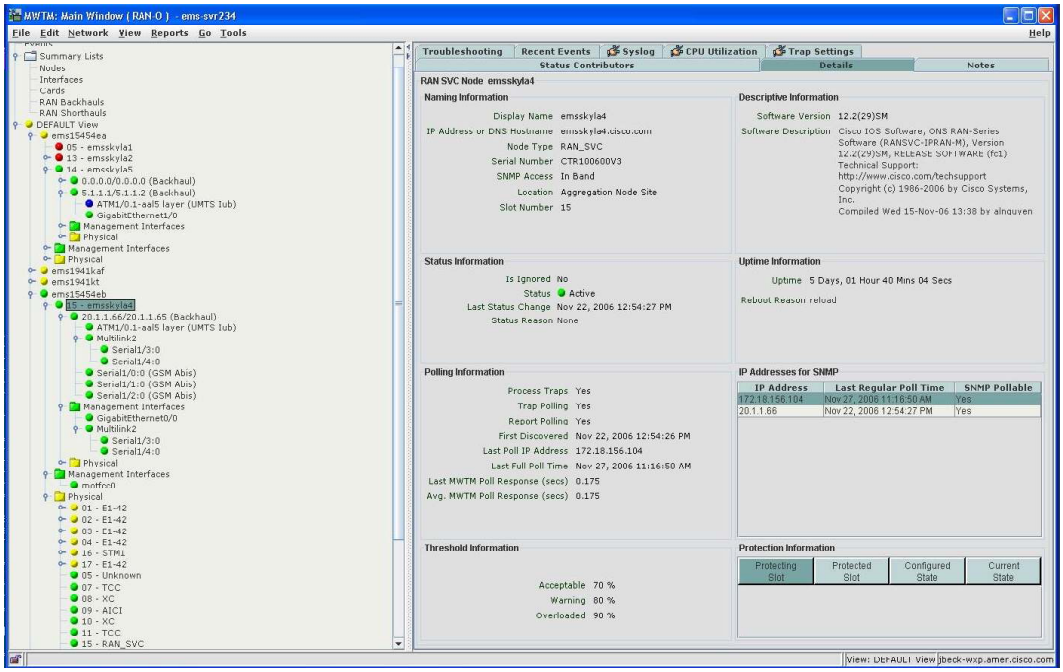
Cisco MWTM provides the following features and capabilities.

Basic Capabilities

- Discovers the entire Cisco ITP network and displays the ITP devices, neighboring Signaling System 7 (SS7) equipment, and linksets in tables and in a network topology drawing that users can customize. Users can create custom views and subordinate views for grouping similar devices together, where each subordinate view has a state that is the aggregation of the states of the contained devices
- Discovers the entire Cisco RAN Optimization network and displays each network element, neighboring equipment, and physical/logical connectivity in a network topology drawing that users can customize. Users can create custom views and subordinate views for grouping similar devices together, where each subordinate view has a state that is the aggregation of the states of the contained devices
- Discovers and monitors the Cisco mSEF IP next-generation network, including troubleshooting and real-time statistics viewing
- Provides an easy-to-use GUI client (Figures 3 and 4) and robust server processes that can be managed by a powerful command-line interface (CLI)
- Allows printing windows to a file or PostScript printer, as well as saving the topology map to a JPEG file
- Provides integrated, online, context-sensitive help that can be customized to suit specific operational needs or languages
- Based on client/server architecture, it supports Windows and Solaris clients and Solaris and Linux servers and provides data access through a Web browser

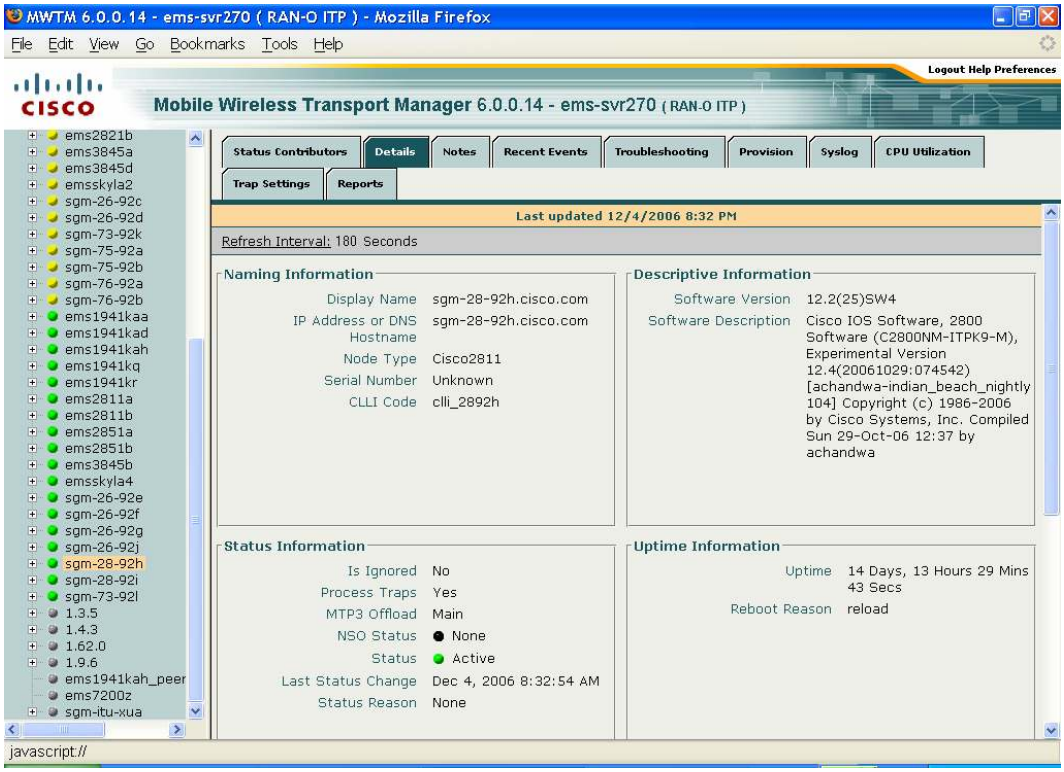
- Allows clients to connect to a server through the IP network; clients work across a VPN connection through a firewall that supports port forwarding or Network Address Translation (NAT), and through a Secure Sockets Layer (SSL) connection*

Figure 3. Cisco Mobile Wireless Transport Manager Overview for the Cisco RAN Optimization Solution



* This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. For more details please visit http://www.openssl.org/.

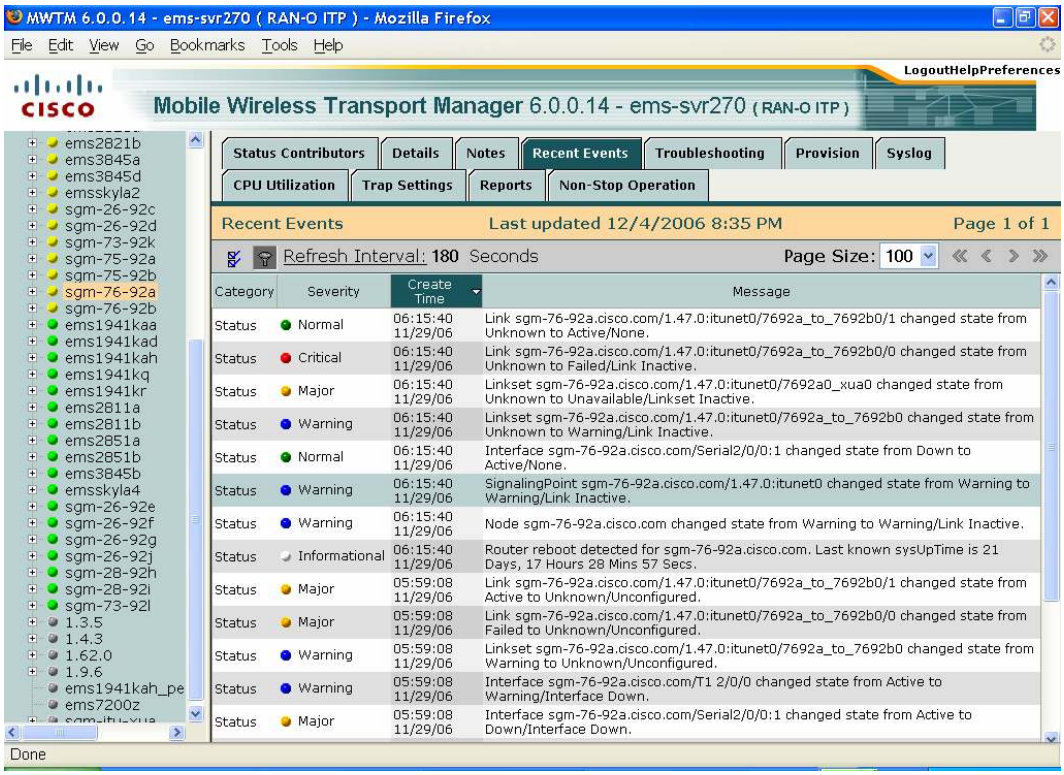
Figure 4. Cisco Mobile Wireless Transport Manager Overview for the Cisco ITP Solution



Event Monitoring

- Displays a real-time event list that supports acknowledgement, annotation, customized filtering, and field viewing that conform to ITU-T X.733 standards (Figure 5)
- Receives native traps from hardware devices in the Cisco RAN Optimization, Cisco ITP, and mSEF solutions and uses Simple Network Management Protocol (SNMP) polling to identify the status of each managed Cisco mSEF and RAN device and the status of links, linksets, and ITP platforms. Cisco MWTM uses easy-to-recognize, color-coded icons and an X.733-based alarm format to report the status
- Monitors Cisco ITP devices running Message Transfer Part Level 3 (MTP3), User Adaptation (M3UA), or Signaling Connection Control Part (SCCP) User Adaptation (SUA) application servers, as well as devices with multiple signaling points or variants acting as gateways
- Provides Web-based status monitoring, alarm viewing, sorting, filtering, archiving, online documentation, and client download
- Provides external script execution on the server and sound-based notifications on the client; both are customizable and triggered by events or alarms.

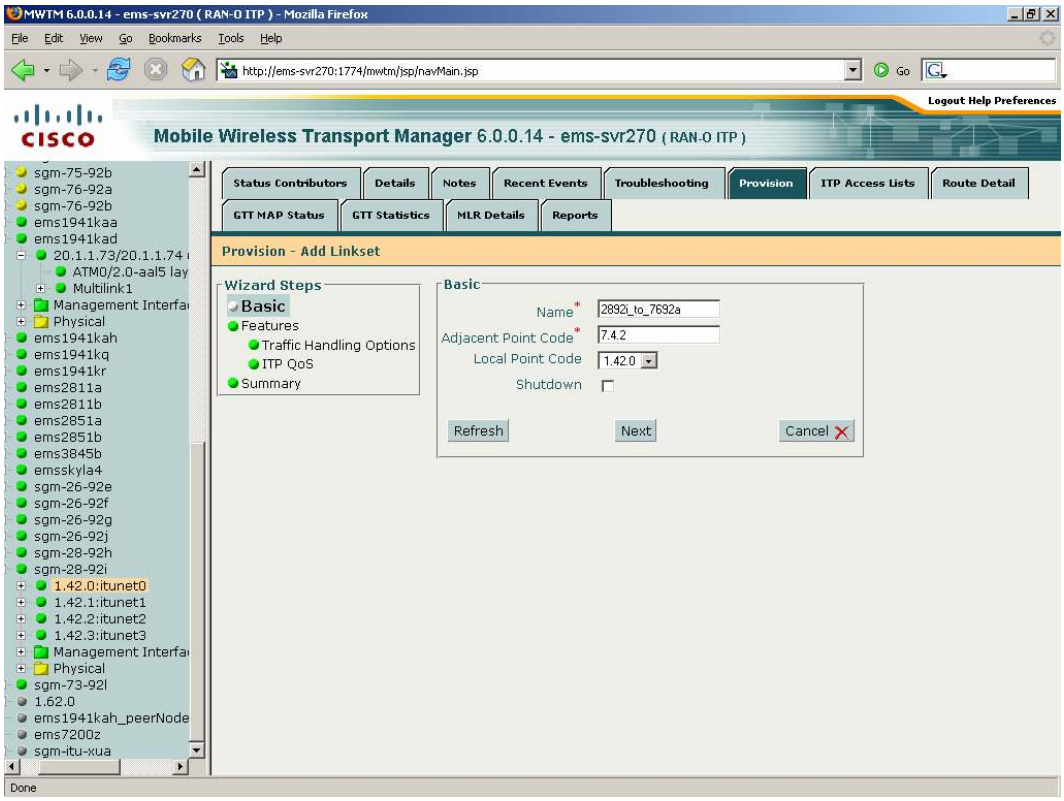
Figure 5. Cisco Mobile Wireless Transport Manager Event Browser for the Cisco ITP Solution



Wizard-Based Provisioning

- Assists in provisioning destination point code (DPC) route tables, global title translation (GTT) tables, multilayer routing (MLR) address tables, links, and linksets by providing GUI-based editing; reduces errors by checking syntax and semantics before deploying the tables to the Cisco ITP device
- Provides revision management and archiving of DPC route, GTT, and MLR address tables (Figure 6); can redeploy a known-good configuration in the event of a misconfiguration. Stores time of change, user ID, and comments for each change
- Provides a deployment wizard that simplifies the process of transferring and activating GTT and DPC route-table configuration files onto Cisco ITP devices. The wizard takes the user step by step through deployment and learns along the way in order to speed up future deployments

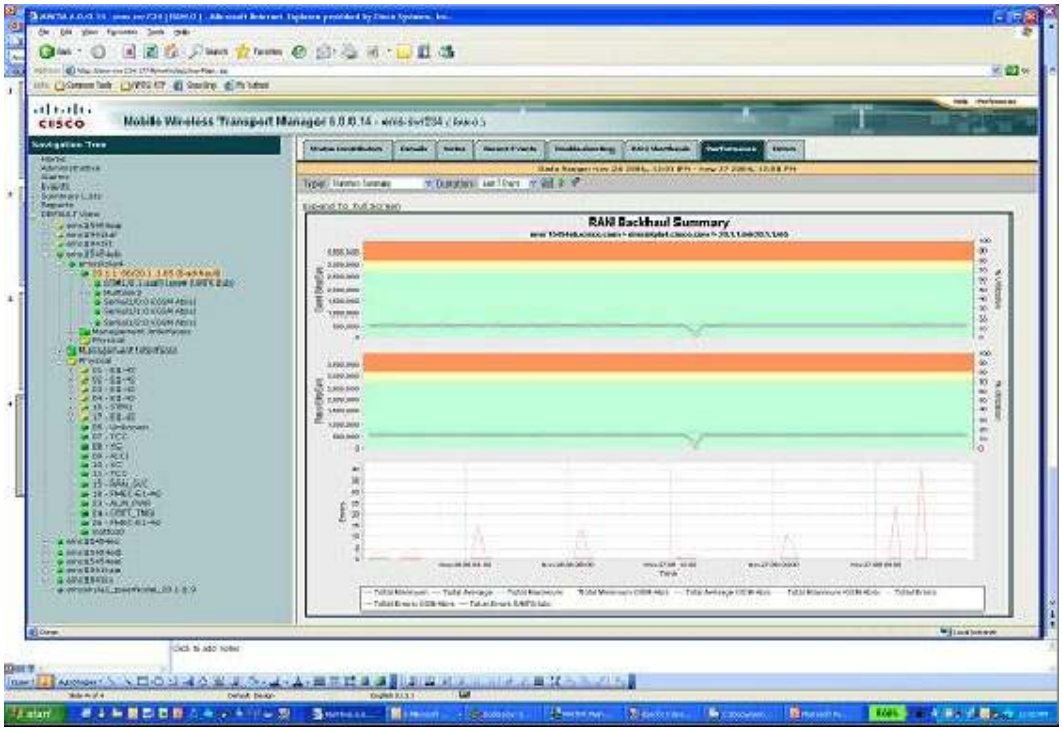
Figure 6. Cisco MWTM Linkset Configuration for Cisco ITP Solution



Performance Reporting

- Provides extensive Web-based accounting and network statistics reports
  - Cisco RAN Optimization devices: Network utilization and detailed interface-level statistics (Figure 7)
  - Cisco ITP devices: Network efficiency and detailed interface-level statistics as well as Q.752-based statistics reports, point code inventory reports, including MTP3, GTT, M3UA/SUA, MSU, and multilayer routing reports
- Displays real-time data rate and usage line graphs
- Supports options to configure collection intervals, record aging, and export statistics using comma-separated value (CSV) format files

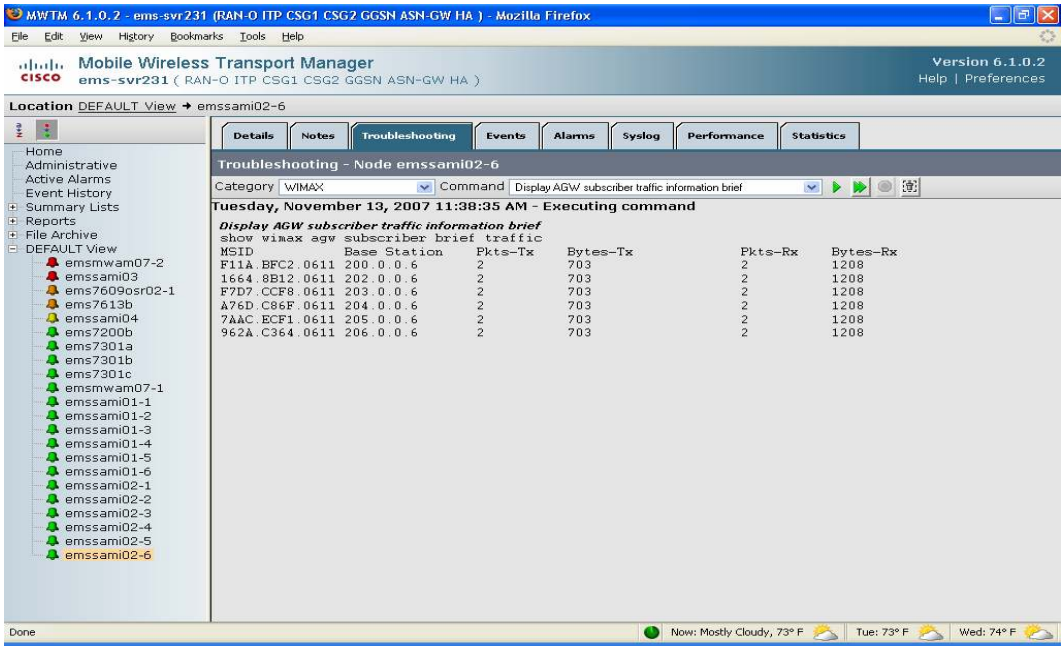
Figure 7. Cisco Mobile Wireless Transport Manager Historical Performance Report for the Cisco RAN Optimization Solution



Troubleshooting

- Provides customizable troubleshooting tools that aid in reducing the total time to resolution of network/device problems (Figure 8)
- Provides integrated, online, context-sensitive help

Figure 8. Cisco MWTM Troubleshooting for Cisco Access Service Network Gateway



Third-Party OSS Product Integration

- Receives SNMP traps and generates Cisco MWTM-specific traps for forwarding to external SNMP-based network management applications such as HP OpenView or IBM Tivoli Netcool
- Stores statistics in CSV format files for extracting performance and key performance indicator (KPI) metrics information
- Northbound Cisco ITP, mSEF, and RAN Optimization Events Extensible Markup Language (XML)/Simple Object Access Protocol (SOAP) APIs that allow third-party OSSs to programmatically manage MWTM events by:
  - Retrieving a list of all events or a filtered list of events (based on time, event ID, severity, category, message text)
  - Clearing the event alarm
  - Changing event severity
  - Acknowledging an event
  - Attaching a text note to an event
- Northbound Cisco ITP, mSEF, and RAN Optimization Inventory XML/SOAP APIs that allow third-party OSSs to programmatically access MWTM inventory by:
  - Retrieving all inventory objects
  - Retrieving a specific inventory object
  - Walking the MWTM inventory tree
  - Attaching a text note to an inventory object
- Northbound Cisco ITP Provisioning XML/SOAP APIs that allow third-party OSSs to programmatically manage provisioning by customizing MWTM templates when necessary and to configure:
  - Linkset/link
  - Application server and application server process

Security

- Multiple user-authentication methods supported: OS-based and standalone
- Password enforcement policies: Aging, minimum length, and lockouts
- Audit trails and logging capabilities
- Optional SSL-based encryption between client and server support
- Optional Secure Shell (SSH) Protocol–based encryption between server and network elements

Carrier-Class Features

- **Scalability:** Cisco MWTM supports large networks and has been verified to work with a network containing more than 1000 cell sites or 150 Cisco ITP devices and 20 clients connected to the server
- **Security:** Cisco MWTM supports user authentication, multiple levels of user access, password-protected Web pages, activity logging for audit trails, and an optional package for encrypting all client/server communications data

- **Redundancy:** Multiple Cisco MWTM servers can monitor the network simultaneously, providing data redundancy. Clients have server failure recognition and automatic failover capabilities
- **Availability:** Cisco MWTM clients will automatically switch to a backup server when the primary server is not available (in network problems or hardware failures, for example)

Interoperability

Cisco MWTM integrates with any SNMP-based event monitoring system such as HP OpenView, IBM Tivoli Netcool, and Cisco Info Center products. In addition, Cisco MWTM collects a large amount of performance data that can be exported from the database. This data can then be used by performance reporting applications from companies such as Concord or InfoVista.

Product Specifications

Table 1 lists the Cisco devices that Cisco Mobile Wireless Transport Manager supports.

Table 1. Cisco Mobile Wireless Transport Manager Device Support

	Supported Device (Part Number)	Cisco Software Release
RAN Optimization	Cisco Mobile Wireless Edge Router (MWR-1941-DC-A)	12.4(9)MR and later
	Cisco 3825 Router	12.4(16)MR1 and later
	Cisco ONS 15454	7.2
	Cisco ONS RAN Service Module (ONS-RAN-SVC)	12.2(29)SM and later
ITP	Cisco 2650 and 2651 multiservice routers (low end)	• 12.2(4)MB9 and later • 12.2(18)SW and later • 12.4(11)SW and later
	Cisco 2811 multiservice routers (low end)	
	Cisco 7204VXR and 7206VXR routers (midrange)	
	Cisco 7301 Router (midrange)	
	Cisco 7507 and 7513 Routers (high end)	
	Cisco 7600 Routes (high end)	12.2(18)IXA and later
	Cisco Database for Telecommunications	3.0
mSEF	Cisco WiMAX ASN GW	12.4(15) XL1
	Cisco Content Service Gateway	• CSG1: 3.1(3)C7(1) and later • CSG2: 12.4(11)MD2 and later
	Cisco Home Agent	12.4(15)XM
	Cisco GGSN	12.4(2)XB and up 12.4(9)XG and up

System Requirements

Tables 2, 3, and 4 list the server system requirements, and Table 5 lists the client requirements for Cisco Mobile Wireless Transport Manager.

Table 2. Minimum Server System Requirements: Demo/Lab/Proof of Concept

Demo/Lab/Proof of Concept Server Requirements		
Operating system	**Solaris 9 and 10**	**Linux RHEL 4.0 AS AMD64**
RAN Optimization: Maximum number of cell sites	50	50
ITP: Maximum number of nodes	10	10
ITP: Maximum number of links	20	20
mSEF: Maximum number of devices	50 Cisco CSG2 Cards or 10 Cisco GGSN/MWAM Cards or 8 Cisco HA or ASN-GW SAMI Cards	50 Cisco CSG2 Cards or 10 Cisco GGSN/MWAM Cards or 8 Cisco HA or ASN-GW SAMI Cards
Model	SunFire V215, V245	SunFire X2100, X4100
NEBS model	Sun Netra 210, Netra 240	N/A
CPU type	Sparc IIIi	Single-Core
CPU number	1	1
CPU speed	1 GHz	2 GHz (AMD), 3 GHz (Intel)
Memory (RAM)	2 GB	2 GB
Swap space	2 GB	2 GB
Disk space	1 GB	1 GB
Maximum number of clients	2	2

Table 3. Minimum Server System Requirements: Small Network

Small Network Server Requirements		
Operating system	**Solaris 9 and 10**	**Linux RHEL 4.0 AS AMD64**
RAN Optimization: Number of cell sites	500	500
ITP: Number of nodes	50	50
ITP: Number of links	2000	2000
mSEF: Maximum number of devices	500 Cisco CSG2 Cards or 100 Cisco GGSN/MWAM Cards or 80 Cisco HA or ASN-GW SAMI Cards	500 Cisco CSG2 Cards or 100 Cisco GGSN/MWAM Cards or 80 Cisco HA or ASN-GW SAMI Cards
System hardware	SunFire V215, V245	SunFire X4100
NEBS model	Sun Netra 210, Netra 240	N/A
CPU type	Sparc IIIi	Dual-Core
CPU number	2	1
CPU speed	1 GHz	2 GHz (AMD), 3 GHz (Intel)
Memory (RAM)	4 GB	4 GB
Swap space	4 GB	4 GB
Disk space	20 GB	20 GB
Maximum number of clients	10	10

Table 4. Minimum Server System Requirements: Large Network

Large Network Server Requirements		
Operating system	**Solaris 9 and 10**	**Linux RHEL 4.0 AS AMD64**
RAN Optimization: Number of cell sites	1000	1000
ITP: Number of nodes	100	100
ITP: Number of links	5000	5000
mSEF: Maximum number of devices	1000 Cisco CSG2 Cards or 200 Cisco GGSN/MWAM Cards or 160 Cisco HA or ASN-GW SAMI Cards	1000 Cisco CSG2 Cards or 200 Cisco GGSN/MWAM Cards or 160 Cisco HA or ASN-GW SAMI Cards
System hardware	SunFire V490	SunFire X4100
NEBS model	Sun Netra 1290	N/A
CPU type	Sparc IV+	Dual-Core
CPU number	4	2
CPU speed	1 GHz	2 GHz (AMD), 3 GHz (Intel)
Memory (RAM)	8 GB	8 GB
Swap space	8 GB	8 GB
Disk space	60 GB	60 GB
Maximum number of clients	20	20

Note: The hard disk space required is commensurate with the amount of performance data, inventory, and events being managed by MWTM. Please plan accordingly. For the most current version information, please refer to the Cisco Mobile Wireless Transport Manager 6.0 Release Notes posted on Cisco.com.

Table 5. Minimum Client Requirements

Requirement Type	Windows XP Professional	Solaris 9 or Solaris 10
System hardware	IBM-PC compatible computer	Sun Ultra Workstation
CPU speed	2.0 GHz Pentium 4 processor or later	1 GHz processor or greater
Memory (RAM)	512 MB (1 GB recommended)	1 GB or greater
Additional memory	256 MB (1 GB recommended) For configuring GTT tables or MLR address tables	256 MB per client instance
Swap space	N/A	2 GB or greater
Disk space	200 MB (MWTM Client) 400 MB (If installing MWTM Client from the MWTM web server) 60 MB (For saving client package, temporary install and uninstall files)	200 MB (MWTM Client)
Hardware	DVD-ROM drive (ISO 9660 compliant) Graphics support for 16.7 million colors (24-bit) PostScript compatible printer for printing graphs and charts	DVD-ROM drive (ISO 9660 compliant) local or remote through Network File Server (NFS Graphics support for 16.7 million colors (24-bit) PostScript-compatible printer for printing graphs and charts

Ordering Information

Cisco Mobile Wireless Transport Manager and related upgrades are available for purchase through regular Cisco sales and distribution channels worldwide. To place an order, visit the Cisco Ordering Home Page.

Service and Support

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you to protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information about Cisco services, see Cisco Technical Support Services or Cisco Advanced Services.

For More Information

For more information about Cisco Mobile Wireless Transport Manager, visit http://www.cisco.com/go/mwtm, contact your local account representative, or send an e-mail to the customer support group at cs-mwtm@cisco.com.

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