CHAPTER 1

MWTM Overview

This chapter describes RAN-O, MWTM, and MWTM's client/server architecture. It includes the following major sections:

What is RAN-O?

Cisco's Radio Access Network Optimization (RAN-O) delivers standard-based, end-to-end, IP connectivity for GSM and UMTS RAN transport. Cisco's solution frames RAN voice and data frames into IP packets at the cell-site and transports them seamlessly over an optimized backhaul network. At the central site, the RAN frames are extracted from IP packets and the Abis or Iub data streams are rebuilt. The result is a transparent, radio vendor-agnostic, RAN IP transport and optimization solution that delivers nominal optimization efficiency of 50% without any impact on voice quality.

In RAN-O, and in MWTM, a *node* is a Cisco RAN-O device (for example, a Cisco MWR 1941-DC-A router) or a legacy RAN device (BSC or RNC). Nodes are known as *managed objects*.

For more information about RAN-O, including procedures for configuring RAN-O objects, see the *Cisco MWR 1941-DC-A Mobile Wireless Edge Router Software Configuration Guide*.

What is MWTM?

MWTM is a network management software product that enables network administrators to discover, manage, and troubleshoot networks that include Cisco RAN-O devices. MWTM provides the following key features:

- Uses client/server architecture. See the "What is Client/Server Architecture?" section on page 1-4 for more details.
- Runs on standard IP-connected networks, and transparently over Virtual Private Networks (VPNs). Also runs in Network Address Translation (NAT), firewall, port-forwarding, and Secure Sockets Layer (SSL) networking environments with minimal additional configuration. MWTM can run in each of these environments individually or in any combination.
- Provides a Java-based, easy-to-use graphical user interface (GUI) on the client with an easy-to-navigate "tree" display of all network objects as well as extensive Web-based online help.

Also provides a powerful command-line interface (CLI) on the server.

Also provides an extensive HTML-based Web interface with:

- Access to network and server status information
- Access to statistics summary reports for network objects
- Ability to export reports for use in spreadsheet and graphics programs
- Installation, message, command, report, and security logs
- Client downloads
- Product documentation
- Other information about MWTM. Most of the primary GUI client features are also available on the Web interface, with the exception of the topology map, real-time data charts and event management.

- Provides extensive security services, including:
  - Management of SSL certificates via the GUI
  - Multi-level password-protected access for multiple users
  - Passwords that can be changed by users via the GUI
  - Audit trails of all user actions and all access via the Web interface

  - Security logs
  - Optional access via VPN, Secure Shell (SSH), and SSL
- Automatically discovers the RAN-O network from any RAN-O device, with links to non-RAN-O devices, and creates both topological (graphical) and tabular (text) views of the network.
  - The topology view displays network objects as color-coded glyphs on a topology map, with right-click menus and layout, zoom, find, grid, hide, show, and save-as-JPEG functions. The topology map can be organized into one or more submaps, with groups of network objects represented by single objects on the main topology map.
  - The tabular view displays detailed data in columns that can be resized, sorted, or hidden, depending on your preferences.
- Enables you to customize just about every aspect of the GUI, topology, and tabular views to meet your specific needs. Customized views and subviews can be saved for future use and reference, and shared with other users of the network.
- Automatically saves your preferences, such as the size of specific windows or the order of columns in a window, and automatically applies those preferences whenever you launch the MWTM client.
- Polls the RAN-O devices on demand, and at user-defined intervals, and reports the real-time status of all network objects and events, including the reason for any changes in status.
- Enables you to annotate network objects and events, attaching important information such as detailed descriptions, locations, service history, what triggered the event, how often it has occurred, and so on.
- Enables you to customize the displayed category, severity, color, and message associated with events. You can even have MWTM play unique sounds for different types of events.
- Enables you to automate events, calling UNIX scripts to drive automatic paging, e-mail, and so on, on the MWTM server.
- Receives SNMP traps natively or via HP OpenView, to drive alarms and accurate and up-to-date status displays.
- Enables you to forward SNMP traps, and MWTM events in the form of SNMP traps, to other hosts, such as the Cisco Info Center (CIC), HP OpenView, and Micromuse's Netcool suite of products.
- Provides Web-based alarm viewing, sorting, filtering, archiving, metric calculations, and reason codes.
- Supports high server uptime with multiple server support, primary and secondary configurations, dynamic routing, automatic process management, and many debugging and customization tools, including real-time drill-down diagnostic applications.
- Can integrate with the entire suite of CiscoWorks products, including:
  - Resource Manager Essentials, which provides network management for Cisco RAN-O devices.
  - CiscoView Element Manager, which provides dynamic status, monitoring, and configuration information for a broad range of Cisco internetworking products.

  You can launch the CiscoView Element Manager and the CiscoWorks Device Center directly from the topology map, for quick drill-down network analysis.
- Supports printing of windows to a file or to a PostScript printer.

What is Client/Server Architecture?

MWTM provides central services and database functions on an MWTM server, which communicates through a messaging interface with multiple MWTM clients.

MWTM recommends a maximum of 20 clients per MWTM server. If you connect more than 20 clients to a single server, the server requires additional memory and a more powerful CPU.

MWTM consists of server and client software components that can be installed on the same workstation or on different workstations. The MWTM server is currently available on Solaris or Linux. The MWTM client is available on Solaris, Windows 2000 Professional, and Windows XP Professional.

Note The MWTM client is also available on Linux, but is not a supported feature of MWTM. Use it under advisement.

The client/server architecture is cross-platform compatible, which allows you to run the client and server software in mixed operating system environments. For example, you can run the MWTM server on a Solaris or Linux workstation and access it from an MWTM client running on a Windows 2000 Professional or Windows XP Professional workstation.

The MWTM server software consists of a group of functional services that manage the data among the network, client workstations, and the centralized database. The MWTM server manages the exchange of data between the MWTM database and the network devices. The MWTM process manager launches and manages all of the MWTM server processes, providing a robust and reliable launching platform for MWTM.

The MWTM client software communicates with the MWTM server. You can install the MWTM client software on the same workstation as the MWTM server software, or on a different workstation on the same network as the MWTM server. After you install the MWTM server, you can download the MWTM client software from the Web, for easy distribution to users and easier access to important information.