



Cisco Media Gateway Control Node Manager

The telecommunications industry is rapidly moving to the world of distributed packet networks as a more cost-effective and flexible alternative to circuit-switched networks. The highly distributed nature of today's packet-telephony networks requires a network management system that comprehensively integrates the various network elements into a single, easy-to-understand view.

Cisco Systems® implements a layered network management design in which each layer is responsible for a set of functions, allowing changes to occur in one layer without major effects on other layers. This approach gives service providers more options in choosing control and gateway technologies while maintaining a consistent management infrastructure over time. Cisco® multilayer management systems are the key to implementing a flexible and scalable multiservice packet network.

The Cisco Media Gateway Control (MGC) Node Manager is the element manager for the components that constitute the Cisco PGW 2200 Softswitch. The Cisco PGW 2200 uses a core software technology, invented by Cisco, called media gateway control (MGC), which is the term used to represent the call-control functional layer, to provide a bridge between the legacy Public Switched Telephone Network (PSTN) and next-generation packet networks-- supporting either simple Signaling System 7 (SS7) interconnect or providing intelligent call control and routing functions in Service Provider networks. The Cisco MGC Node Manager provides a single interface for fault, configuration, accounting, and performance management for all network elements within the Cisco PGW 2200 Softswitch.

Cisco Element Managers and the Cisco Internet OSS

Cisco MGC Node Manager is one of the Cisco element managers that provide device-specific fault, configuration, accounting, performance, and security (FCAPS) management capability for Cisco service provider products. Cisco element managers are based on a highly scalable, tested, and field-validated common infrastructure, which is designed to support carrier-class element managers across Cisco service provider product lines. This flexible, modular model allows you to install the mix of element managers you need to support the dynamics of your businesses. It also enables cost-effective and rapid deployment of new element managers, permitting you to more rapidly introduce and manage new services. Cisco element managers provide common interfaces and element management services to applications in the network- and service-management levels of the Cisco Internet OSS, as well as existing service provider operations support system (OSS) components.

Cisco MGC Node Manager Features and Capabilities

Tables 1 through 4 list key features and benefits of the Cisco MGC Node Manager and where they apply in a service provider's network.

Table 1 describes the network surveillance features that collect events and alarms.

Table 1 Table 1—Network Surveillance

Feature	Benefit and Application
Alarm and event browser	Faults can be detected quickly to increase service availability and customer satisfaction.
Alarm collection	Comprehensive fault detection, collection, and storage simplify network operations center (NOC) activities and ensure faster response to problems.
Presence polling	Network problems will not go undetected because of an element manager system (EMS) communications breakdown.
Map viewer	Easy access to important fault and inventory information simplifies management of a large, evolving network.
Thresholding regimes	Increase service availability by averting problems before they begin to affect service.
Notification profiles	Proactive notification in the NOC will highlight critical problems for immediate resolution for faster repair.
Event groups	Graphic fault summaries improve fault visibility and increase NOC productivity.

Table 2 describes the viewers, available from the Cisco MGC Diagnostic Viewer Toolbar on each Cisco PGW 2200, which are easily accessible from the object map icons. Each tool is grouped for convenient access under the Diagnostic Viewer Toolbar. The toolbar and the diagnostic tools may be viewed with or without the Cisco MGC Node Manager from an X-terminal display.

Table 2 Cisco MGC Diagnostic Tools

Feature	Benefit and Application
Call trace viewer	With call trace viewer, results are displayed with flexible selection parameter options to help focus on problem areas quickly.
Log viewer	Log viewer makes finding log information much easier by searching through log files for a match on user-defined search criteria.
Call detail record (CDR) viewer	Formatted CDR display decodes records for easy access to desired information fields, reducing troubleshooting time.
Translation verification viewer	Dial plan is verified without passing live calls, reducing time required to set up new customers.
Viewer toolbar	Toolbar provides pop-up access to the diagnostic tools on a selected Cisco PGW 2200, eliminating the need to remember individual commands and device addresses.

The Cisco MGC Node Manager provides easy access to applications tailored specifically for the current task and centralizes device configuration, database creation, and service provisioning. Table 3 describes key features.

Table 3 Provisioning and Configuration

Feature	Benefit and Application
Provisioning tool	A graphical user interface (GUI) simplifies provisioning for the Cisco PGW 2200 Softswitch and Cisco MGX [®] 8000 Series Carrier Voice Gateway when installed in the same voice-over-IP (VoIP) network.
Graphic device display	Menus display only those functions appropriate for the selected device and the user's access level, removing the need to remember device names and login information, reducing operator error and training.
Automatic synchronization	The database is synchronized to configuration changes made on the Cisco PGW 2200, reducing configuration steps and ensuring accurate display information.
Automated discovery	Device discovery is controlled to avoid discovery of unwanted Simple Network Management Protocol (SNMP) devices, reducing deployment time for new networks and speeds trials and lab testing.
CiscoView software	CiscoView is included to provide a standardized view of Cisco Signaling Link Terminal (SLT), Cisco Integrated SLT, and the Cisco Catalyst [®] 5500 Series, Catalyst 2900 Series XL, and Catalyst 6509 LAN switches, reducing training time for experienced CiscoView users.

User access-control and performance-management features are described in Table 4.

Table 4 User Access and Performance

Feature	Benefit and Application
Access control	Powerful control of user access allows system administration of users by group or function.
Performance management	Performance measurements are stored in the object database, graphed on X/Y charts, displayed in tabular text format, and made available for export to identify long-term performance trends.

Cisco MGC Node Manager Specifications

The Cisco MGC Node Manager can be deployed in various configuration sizes and can operate in a client-server or combined configuration. In the client-server configuration, the presentation server isolates operators from direct access to the management server. The Cisco MGC Node Manager has been tested to operate co-resident (on the same management server) with Cisco Universal Gateway Manager or Cisco Media Gateway Manager. Table 5 describes network requirements for typical Cisco MGC Node Manager deployments, and Table 6 provides recommended hardware specifications. The platform requirements for additional Cisco element managers must also be considered when operating in the co-resident configuration.

X-Terminal Specifications

A terminal resolution of 1024 x 768 pixels is required; 1280 x 1024 pixels or higher is highly recommended.

Software Requirements

- Solaris 8 operating system
- Cisco Element Management Framework (EMF) Version 3.2 Service Pack 4, which is included in the Cisco MGC Node Manager media kit. Check the release notes of each version for latest patch level tested.
- CiscoView Version 5.4, which is included in the Cisco MGC Node Manager Version media kit
- User Guide links are provided, from the Cisco MGC Node Manager launch pad, that connect the operator to the latest Cisco MGC Node Manager and Cisco PGW 2200 user documentation on the Cisco Documentation CD (included) or the Cisco PGW 2200 documentation site on Cisco.com.

Table 5 Network Requirements

Connection	Technology	Speed/Bandwidth
X terminal to presentation server	TCP/IP	128 Kbps required; higher bandwidth recommended
Presentation server to management server	TCP/IP	10-Mbps LAN connection required
Management server to the Cisco PGW 2200	TCP/IP	1 Mbps bursting

Table 6 Network Requirements

Cisco PGW 2200 Network Size	Small Network	Midsized Network***	Large Network		
	1-3 Operators 1-5 Nodes 24 Traps/Minute	4-6 Operators 6-10 Nodes 36-42 Traps/Minute	7-10 Operators 11-20 Nodes 42-54 Traps/Minute		
	One machine	Presentation server	Management server	Presentation server*	Management server
RAM (GB)	2	2	2	2	4
Swap (GB)	4	2	4	2	8
Disk drives (9 GB minimum)	4**	1	4	1	4-6
CPU (MHz)	2 x 440-1.05G	2 x 440-1.05G	2 x 1.05G	4 x 1.05G	4 x 1.05G

*Additional presentation servers may be added, if necessary, to maintain good operator response time in large networks with heavy alarm traffic. Additional operator support will be tested in a future release.

**Disk machine will work for smaller networks with less traffic and fewer operators. Response time to operator commands will slow down as the network grows and additional operators are added.

***Presentation and management servers may run co-resident for midsize networks when faster Sun CPUs are used or operator loads are light. When combined, RAM and swap are added, while a total of four hard drives is sufficient. Adding more presentation servers increases the number of operators supported.

Cisco MGC Node Manager has been tested with Sun UltraSPARC II and III systems. Pure Sun products that meet or exceed the sizing recommendation are required to ensure Cisco Software Application Support (SAS) for the Cisco MGC Node Manager.

Cisco SAS Policy

- Cisco SAS support is available for the Cisco MGC Node Manager
- Hardware purchase and support can be obtained from Sun Microsystems or a Sun reseller

Managed Devices

- Cisco PGW 2200 v7.4.12, v9.x to v9.4(1)
- Cisco Signaling Link Terminal (SLT), Cisco Integrated SLT
- Cisco Catalyst 5500 Series, Catalyst 2900 Series XL, and Catalyst 6509 LAN switches
- Cisco Billing and Measurements Server Version 3
- Cisco H.323 Signaling Interface

For More Information

For additional information about the Cisco MGC Node Manager, or for more information about Cisco PGW 2200 solutions, visit the Cisco Web site at <http://www.cisco.com>.

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