

# CiscoWorks LAN Management Solution 2.2 Introduction

CiscoWorks LAN Management Solution (LMS) provides a robust set of applications for maintaining, monitoring, and troubleshooting a broad range of devices in an end-to-end Cisco AVVID (Architecture for Voice, Video and Integrated Data) network. Built upon popular Internet-based standards, CiscoWorks LMS enables network operators to more efficiently and effectively manage the network through a simplified browser-based interface that can be accessed anytime from anywhere within the network. Taking advantage of a Web-based client/server architecture, CiscoWorks LMS can be easily integrated with other popular network management systems or other third-party management solutions running in the network.

CiscoWorks LMS provides a solid foundation of basic and advanced management applications that complement CiscoWorks products. Other CiscoWorks products include the CiscoWorks Routed WAN Management (RWAN) Solution, which addresses the needs of the WAN with response time and access list management. The IP Telephony Environment Monitor (ITEM) ensures the readiness and manageability of converged networks that support voice over IP (VoIP) and IP telephony traffic and applications. The Cisco VPN/Security Management Solution (VMS) provides an integrated set of Web

applications with features that assist in the deployment and monitoring of virtual private network (VPN) and security devices. Together, CiscoWorks products offer leading-edge solutions for improving the accuracy and efficiency of your operations staff, increasing overall availability of your network through proactive planning and maximizing network security.

## The Changing Campus LAN

A key part of the business infrastructure, today's LANs are critical systems. The management of local-area networks has evolved from being device centric, to now focusing on managing the convergence of both data and voice traffic over a common infrastructure. As a result, it has become increasingly important to isolate, troubleshoot, and monitor network devices so that connections and services are always available. CiscoWorks LMS delivers advanced discovery technologies, port assignment tools, sophisticated connectivity analysis, configuration management tools, and device and network diagnostic capabilities (including fault management and Remote Monitoring [RMON] traffic monitoring) to help manage the complexities of a converged network.



## A Comprehensive Solution

CiscoWorks LMS combines applications and tools for configuring, monitoring, and troubleshooting the campus network. Designed to address the networks powered by Cisco today, it also provides a flexible framework to address the device management needs of networks converging voice, video, and data; networks being protected with Cisco SAFE Blueprint for network security technologies; and networks designed for content migration.



The CiscoWorks LMS consists of operationally focused tools. These tools include fault management, scalable topology views, sophisticated configuration, Layer 2/3 path analysis, voice-supported path trace, traffic monitoring, end-station tracking workflow application servers management, and device troubleshooting capabilities.

CiscoWorks LMS is built on the CiscoWorks common services foundation. This design facilitates operations workflow between applications by linking data collection, monitoring, and analysis tools—all from a single desktop application. For example, a user complaint of slow response time or a poor IP phone connection can be quickly diagnosed using CiscoWorks LMS Layer 2 path tools that automatically acquire user path information stored in one database, and highlight devices on a topology map. Additionally, switch or router configurations can then be quickly examined, or RMON traffic data can be reviewed to detect anomalies or the need for changes. Those actions may draw information from one or more applications.

CiscoWorks LMS uses Internet standards to tie together best-of-breed tools and to take advantage of their capabilities through data and task integration standards. Using the common information model (CIM) and Extensible Markup Language (XML), the industry standards for data-sharing CiscoWorks LMS offers a means of extracting data and using it with popular network management platform products. With the CiscoWorks LMS, Cisco offers a complete family of dedicated hardware Cisco Catalyst<sup>®</sup> network analysis modules (NAMs). Cisco Catalyst NAMs provide increased visibility into switched LAN environments comprising 10/100 and Gigabit Ethernet links for comprehensive, end-to-end, seven-layer monitoring of network infrastructures.



## Solution Components

The following applications are included in CiscoWorks LMS:

- **CiscoWorks Campus Manager**—CiscoWorks Campus Manager is a suite of Web-based applications designed for managing networks powered by Cisco switches. These include Layer 2 device and connectivity discovery, workflow application server discovery and management, detailed topology views, virtual LAN/LAN Emulation (VLAN/LANE) and ATM configuration, end-station tracking, Layer2/3 path analysis tools, and IP phone user and path information.
- **CiscoWorks Device Fault Manager**—CiscoWorks Device Fault Manager provides real-time fault analysis for Cisco devices. It generates “intelligent Cisco traps” through a variety of data collection and analysis techniques. These can be locally displayed, e-mailed, or forwarded to other popular event management systems.
- **nGenius Real-Time Monitor**—The nGenius Real-Time Monitor is a Web-enabled multiuser traffic management tool set that provides access to network-wide, real-time RMON information for monitoring, troubleshooting, and maintaining network availability. Its applications graphically report and analyze device, link, and port level RMON collected traffic data from RMON-enabled Cisco Catalyst switches and internal network analysis module.
- **CiscoWorks Resource Manager Essentials (RME)**—CiscoWorks RME provides the tools needed to manage Cisco devices. It includes inventory and device change management, network configuration and software image management, network availability, and syslog analysis.
- **CiscoView**—CiscoView is a Web-based tool that graphically provides real-time status of Cisco devices. The tool can drill down to display monitoring information on interfaces and access configuration functions.
- **CiscoWorks Management Server**—The CiscoWorks Management Server provides the common management desktop services and security across the CiscoWorks Family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications.

## Key Functions and Applications

Table 1 gives key functions and applications of the CiscoWorks LMS.

Table 1 CiscoWorks LAN Management Solution Key Application/Function

	Product	Management Benefit
<b>Offers intelligent, automatic discovery of Cisco devices to create topology views of the network</b>	CiscoWorks Campus Manager	The Cisco Campus Manager Topology Services functionality discovers Cisco devices and calculates Layer 2 relationships to provide views of the Cisco network by ATM domain, VTP <sup>1</sup> domain, LAN edge view, and a general Layer 2 view.
<b>Gives topology status indications</b>	CiscoWorks Campus Manager	The topology maps indicate the discovery and SNMP <sup>2</sup> status of Cisco devices; these maps also are launching points for other CiscoWorks applications.
<b>Configures, manages, and monitors VLAN<sup>3</sup> and ATM services/networks</b>	CiscoWorks Campus Manager	CiscoWorks Campus Manager provides tools for creating, deleting, and editing VLANs; it provides ATM tools for displaying virtual circuits and for configuring SPVCs/SPVPs. <sup>4</sup>



Table 1 CiscoWorks LAN Management Solution Key Application/Function

	Product	Management Benefit
<b>Discovers end stations and IP phones connected to switch ports and identifies user locations based on user ID</b>	CiscoWorks Campus Manager	The CiscoWorks Campus Manager User Tracking functionality correlates MAC <sup>5</sup> address and IP address to switch port; integration with Microsoft's PDC and Novell's NDS tree provides the user ID for even more efficient user location and tracking.
<b>Traces Layer 2 and Layer 3 connectivity between two points (devices, servers, phones) in the network</b>	CiscoWorks Campus Manager	The CiscoWorks Campus Manager Path Analysis tool performs path analysis for Layer 2 and Layer 3 devices using the device host name or IP address, and shows results on a map display, in a table display, or in a trace display.
<b>Intelligently analyzes fault conditions designed to detect problems before they become network disruptions</b>	CiscoWorks Device Fault Manager	CiscoWorks Device Fault Manager automated fault detection recognizes common problems in networks without forcing users to define their own rules sets, SNMP trap filters, or device polling intervals.
<b>Interprets fault conditions at both the device and VLAN levels</b>	CiscoWorks Device Fault Manager	With the characteristics of over a 100 Cisco routers and switches predefined, new device support is easily added via Cisco.com. Cisco Device Fault Manager simplifies managing both Layer 2 and Layer 3 environments.
<b>Collects RMON/RMON2 statistics from LAN switches, NAMs, and legacy Cisco SwitchProbe<sup>®</sup> devices</b>	nGenius Real-Time Monitor	nGenius Real-Time Monitor monitors LAN traffic for protocols, applications, and interfaces to apply appropriate filters, reducing costs and increasing performance.
<b>Provides for LAN troubleshooting at network and application packet levels</b>	nGenius Real-Time Monitor	nGenius Real-Time Monitor helps resolve network and application issues by providing total network visibility from the application layer down to the data link layer for virtually any topology that exists today.
<b>Offers detailed software and hardware inventory reporting</b>	Cisco RME	Cisco RME provides accurate Cisco inventory baseline information, including memory, slots, software versions, and boot ROMs needed to make decisions about the network.
<b>Offers automated update engines for device software and configuration changes</b>	Cisco RME	Cisco RME allows software and configuration updates to be sent to selected devices on a scheduled basis; it reduces time and errors involved in network updates.
<b>Offers a consolidated troubleshooting tools device center</b>	Cisco RME	A wide collection of switch and router analysis tools is accessible from a single location; third-party applications can link to the device center.
<b>Offers centralized change audit logging</b>	Cisco RME	A comprehensive change-monitoring log records users and applications that are active on the network.
<b>Offers graphical device management</b>	CiscoView	CiscoView displays a browser representation of Cisco router and switch devices, color-coded to indicate operational states, with access to configuration and monitoring tools.



Table 1 CiscoWorks LAN Management Solution Key Application/Function

	Product	Management Benefit
<b>Provides application access security</b>	CiscoWorks Server	The CiscoWorks desktop controls user access to applications, ensuring that only appropriate classes of users can access tools that change network parameters versus read-only tools.
<b>Offers third-party integration tools (Integration utility)</b>	CiscoWorks Management Server	The CiscoWorks Management Server simplifies the Web integration of third-party and other Cisco management tools.

1. Virtual Trunking Protocol
2. Simple Network Management Protocol
3. Virtual LAN
4. Soft permanent virtual circuits/soft permanent virtual paths
5. Media Access Control

## Key Functions and Applications

### Deployment Options

Consider the following when installing the CiscoWorks LAN Management Solution:

- All applications do not have to be installed initially; applications not installed initially may be installed later.
- Most applications require the CiscoWorks Management Server from the Common Services CD (formerly CD One), which must be installed first.
- The CiscoWorks Campus Manager application depends on CiscoWorks RME, which is included as part of the CiscoWorks LAN Management Solution.

All solutions can coexist on the same server if they support and operate with the services of Common Services 2.2. However, network managers may want to consider such factors as the number of applications hosted, system resources, and number of devices to be managed in determining if all or a subset of the solutions are installed on the same server.

CiscoWorks solutions offer deployment flexibility. System administrators should use the guidelines given previously when planning the deployment of the various solution bundles. Some components within a solution require the CiscoWorks Management Server and must be installed on that machine. CiscoView and nGenius Real Time Monitor software can be set up on an independent server. The placement of components is a function of performance requirements and the size of the network.

### Server System Requirements

#### Hardware/Operating System

##### UNIX

- System: Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server) running Solaris 2.8 (dual processor system required for hosting multiple management solutions)
- Memory: 1-GB RAM for workstations, 2-GB RAM for servers, 8-MB e-cache



- Available disk: 40-GB internal FC-AL disk drive for workstation and dual drives of this type for server configurations

#### Windows

- System: IBM PC compatible with 550-MHz or higher Pentium III processor running Microsoft Windows 2000 Advanced Server (with Terminal Services turned off), Server or Professional Edition with Service Pack 2 (dual processor system required for hosting multiple management solutions)
- Memory: 1-GB RAM
- Available disk: 40 GB with 2-GB swap recommended

Note: These system requirements are based on managing 500 devices with CiscoWorks RWAN and LAN Management solutions loaded on a single server. Refer to the Installation documentation for more information on required operating system patches.

#### Client Browser System Requirements

##### Hardware/Operating System

#### UNIX

- System: Sun Ultra 10 running Solaris Version 2.7 or 2.8
- System: HP9000 Series running HP-UX 11.0
- System: IBM RS/6000 workstation running AIX 4.3.3
- Memory: 256 MB

#### Windows

- System: IBM PC-compatible computer with 300-MHz or higher Pentium processor running Windows XP Professional, Windows 2000 (Advanced Server, Server or Professional) with Service Pack 3
- Memory: 256 MB

Note: Refer to the installation documentation for more information on required operating system patches.

#### Web Browser

#### UNIX

- Solaris: Netscape v4.76
- HP-UX: Netscape v4.78, 4.79
- AIX: Netscape v4.78, 4.79

## Windows

- Windows 2000/XP: Netscape v4.78, 4.79
- Windows 2000/XP: Internet Explorer v6.0.26

Note: Refer to the Installation documentation for more information on required operating systems patches, browser plug-ins, or Java Virtual Machine (JVM) versions.

## Service and Support

CiscoWorks products are covered by the Cisco Software Application Service (SAS) program. This service program offers customers contract-based 7 x 24 access to the Cisco Technical Assistance Center (TAC), full Cisco.com privileges, and software maintenance updates. A Cisco SAS contract ensures that customers have easy access to the information and services needed to stay up-to-date with newly supported device packages, patches, and minor updates. For further information on service and support offerings, contact your local sales office.

## Ordering Information

The CiscoWorks LAN Management Solution includes all the necessary components needed for an independent installation on a Microsoft Windows or Sun Solaris Workstation/Server. The products within this solution can be combined with other CiscoWorks products if they support the same CiscoWorks Management Server version, operating environment, and system requirements. Contact your local Cisco representative for available white papers and documentation outlining best practices for implementing a CiscoWorks management solution architecture.

To place an order, contact your Cisco sales representative.

Refer to the CiscoWorks LAN Management Solution individual product data sheets for more information on operating environment and system requirements.

## For More Information

For more information on the CiscoWorks LAN Management Solution, visit <http://www.cisco.com/en/US/partner/products/sw/cscowork/ps2425/index.html>.



### Corporate Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

### European Headquarters

Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
[www-europe.cisco.com](http://www-europe.cisco.com)  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

### Americas Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-7660  
Fax: 408 527-0883

### Asia Pacific Headquarters

Cisco Systems, Inc.  
Capital Tower  
168 Robinson Road  
#22-01 to #29-01  
Singapore 068912  
[www.cisco.com](http://www.cisco.com)  
Tel: +65 6317 7777  
Fax: +65 6317 7799

**Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on the**

**Cisco Web site at [www.cisco.com/go/offices](http://www.cisco.com/go/offices)**

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia • Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland • Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

All contents are Copyright © 1992–2003 Cisco Systems, Inc. All rights reserved. Catalyst, Cisco, Cisco IOS, Cisco Systems, the Cisco Systems logo, and EtherChannel are trademarks or registered trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and certain other countries.

All other trademarks mentioned in this document or Web site are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0303R)

203046/ETMG\_03/03