CiscoWorks
LMS Update

Stuart Parham
Agenda

- LMS 3.0 / 3.0.1 (Refresh)
- LMS 3.1
- HUM 1.1
LAN Management Solution 3.x

Suite of management tools that simplifies configuration, administration, monitoring and troubleshooting of Cisco networks.
CiscoWorks LMS Introduction
LMS 3.0 / 3.0.1
Overview
LAN Management System (LMS)

Value Proposition/Goals

- 5 key applications to simplify configuration, administration, monitoring and troubleshooting of Cisco networks
- Supports several hundred legacy and new devices
- Installed base of thousands of customers
- Health and Utilization Monitor
Executive Summary

- LAN Management Solution (LMS) is a suite of five integrated applications designed to simplify and augment the daily tasks required to manage a Cisco end-to-end network - reducing total cost of ownership and improving network availability.
  
  **Simplifies** and automates tasks associated with day-to-day management – inventory, configuration, software deployment and troubleshooting
  
  **Supports** a broad range of Cisco devices down to the interface – detailed reporting, monitoring and configuration
  
  **Provides** detailed visibility of users, ports and network connectivity – topology services, user tracking, inventory
  
  **Automates** the change management process quickly identifying hardware, software and configuration changes – change audit reports

- LMS 3.0 is a MAJOR software version release with significant new features, improved usability, scalability and performance.
  
  As a major release, upgrades are NOT covered under existing SAS contracts.
  
  A promotion is available to help protect existing customer investment in the LMS product line (see details at the end of this presentation)

- LMS 3.0.1 is an incremental upgrade over LMS 3.0 and can be downloaded from Cisco.com
What’s NEW in LMS 3.0

- Significant enhancements in overall usability
  - New desktop portal framework – allows end user customization of homepage and access to frequently used content
  - CiscoWorks Assistant workflow engine – provides a single set of workflows to help with setup and troubleshooting
- Single DVD for faster, easier installation
- Improved scalability and reliability
- Many new application features; some highlights include:
  - Support for multiple credentials, improved device administration in DCR
  - New reports for EoX, PSIRT, Best Practices, Discrepancies
  - Dynamic User Tracking, N-hop analysis
  - IPM new UI, reporting and IPSLA support
  - Environmental support; Sol10, Firefox, IE7 and SSHv2
Updates- LMS 3.0.1

- 5k Support in a single server (except DFM and HUM)
- Next generation discovery (NGD 1.1) integration
- SNMPv3 AuthPriv support (except DFM)
- Virtual Switch System support in RME and CV
- CM CLI support for Wireless and Switch port summary
- 5K collectors support in IPM
- Enhanced SWIM Expert Distribution using Skip Verification in RME
- Vista Client support
- VmWare ESX Server support
- Windows 2003 Server with 64 bit OS support
- New version of 3rd Party NMS support - Netview 7.1.5 and HPOV 7.5.1
- IDU 19 support in LMS 3.0 train
LMS 3.0

- New usability features
  - CiscoWorks Assistant
  - Dashboards
  - CW Portal

- New application-level features

- Improved scalability

- Operating environment support
CiscoWorks Assistant

- Simplified deployment and setup of LMS server
  - Faster turnaround and improved efficiencies with LMS rollouts
- Large scale multi-server LMS deployments
  - Comprehensive coverage from setup SSO, DCR master-slave, device management- import and allocation of devices, and addition of default credentials and ACS integration
- Troubleshooting
  - Locating End host
  - Device down
CiscoWorks Portal

- Provides default views to simplify navigation and usability
  Functional, SysAdmin and NetAdmin views
- Portals can be customized to meet end-user needs
- Common access to important statistics/details
- Top-level navigation for frequently-used functions
CW Portal

- Zero Click Access to Frequently viewed Server / Job Status
- User can choose from Picker List of Widgets (Portlets) to Customize their Portal Views
- Ability to Create Multiple Views (Network, Operational, Joe’s…)
- Links to Frequently Used URLs
- Move, Resize, Configure Default values per Portlet
- Multi-server registration and support
Resource Manager Essentials

- **Inventory Manager**
  Detailed inventory collection and reporting

- **Software Image Manager**
  Complete software image mgmt, download and tracking
  Modular IOS support

- **Configuration Manager**
  Version control, archival, editing and reporting
  Network-wide config changes

- **Change Audit Services**
  Single interface to view all hardware, software, and configuration changes
Resource Manager Essentials

- **Syslog Analyzer**
  Distributed collection, flexible reporting, and action scripts to pinpoint network incidents

- **PSIRT Report**
  PSIRT details, Announced date, Description, Severity, IOS Version(s) impacted, Image File Name(s), Fixed in IOS Version, Number of Devices Impacted, Devices affected due to PSIRT

- **EoSale/EoLife Report**
  Hardware Platforms with published EoX bulletin, Cards/Modules with published EoX bulletin.

- **Diagnostics & Tools**
  Troubleshoot device connectivity
  Desktop integration of partner and customer applications
  User customizable Network-wide show command tool
Campus Manager

Provides powerful tools for configuring, managing, and understanding complex physical and logical Layer 2 Infrastructure

- Enhanced network discovery and topology mapping
  - N-Hop View portlet (N-hop view from a specified device)

- VLAN Management
- End-station mobility and tracking
- Path Trace Analysis
- New improved discrepancy reporting
Campus Manager Enhanced Topology Services

- The enhancements in Topology Services are:
  - **Java Web Start Support**
    Topology Services and Path Analysis will now be launched in Web Start. This eliminates conflicts between multiple Java plug-ins on the client machine. Loading of the applications is much faster.
  - **Utilization Statistics in Topology Maps**
    Topology Services categorizes links in your network according to the percentage of bandwidth utilization and displays the links using different colors in Topology Maps. You can customize the percentage of utilization and the color of the links, so that Topology Map displays the links accordingly.
  - **PoE Capable Devices**
    Campus Manager Topology Services now provides a filter to view PoE capable devices present in your network.
  - **Switch Cluster Support**
    Campus Manager is now enhanced to discover Commander and member devices of a Switch Cluster. You can do VLAN related tasks (creation, deletion and so on) in these switches.
Quick Topology Portlet

- Quick Topology portlet is a HTML based light weight feature and is available as part of CiscoWorks Portal.

  This is much faster than the regular Campus Manager Topology services. You should specify the seed device and the number of hops to view the Quick Topology portlet.

  This portlet displays a N-hop view from the specified seed device. The portlet refreshes the Topology map every 5 minutes and the data is fetched from the last polling cycle of the critical device poller.

- Critical devices can be monitored using this feature, since the changes are reflected immediately in the portlet.

  This feature should be used to view a limited set of devices.
User Tracking

- Lightweight HTML Interface
- Support up to 250,000 end hosts
- Dynamic UT – real-time end host data – based on asynchronous SNMP MAC notification trap
- Improved historical reporting by user
- User tracking utility available from Windows taskbar
- Supports XML export for UT records
Device Fault Manager

- Quickly and easily detect, isolate, and correct network device faults
- Identify POSSIBLE Problems
- Pager/Email/Trap notification
- MIBs, Polling Intervals and Thresholds Set - OUT OF THE BOX
- Group by interface (ifDesc, ifType)
- New Active Alarm Display with paging tables and search

NO RULES TO WRITE !!!
Internetwork Performance Monitor

- **WAN Troubleshooting**
  Measures hop-by-hop response time, availability, jitter, and drops
  Provides real-time and historical reports

- **Utilizes IP SLA** (previously known as Cisco’s Service Assurance Agent) embedded in Cisco IOS
  Validates & measures TCP, UDP, HTTP, VoIP, DNS, ICMP with QoS awareness
  Customizable polling frequency for collectors

- **New UI**, improved scalability, and report generator and reports
IPM Improvements

- **Light Weight Front End**
  IPM supports LMS UI standards so that it is compatible with other LMS applications.

- **Rich Graphs and Improved Reports**
  The Reports module in IPM supports rich fusion-chart based graphs and enhanced historical reports. This module allows you to manage archived reports, report jobs, audit reports, and system reports. You can customize historical reports by specifying the report type, granularity, report period, and schedule details. You can generate system reports, audit reports, minute reports and graphs, and historical reports.

- **Overlay Graphs**
  These graphs allow you to compare the latency of the collectors with same operation type based on the granularity and time period. You can overlay graphs only for collectors in the Running, Completed, or Stopped status.
IPM Improvements (cont.)

- **Support for Latest IP SLA Feature**
  
  This release of IPM supports RTP, VoIP Gatekeeper Delay, VoIP Call Setup, and ICMP Jitter operations in addition to the existing operations in IPM 2.6.

- **UDP Jitter additionally supports MOS (Mean Opinion Scores) and ICPIF (Calculated Planning Impairment Factor) features.**
  
  These features help measure the voice quality in the network.

- **Polling Frequency**
  
  IPM supports additionally 1, 5, 15, and 30 minutes polling frequencies to the fixed 60 minutes polling frequency in IPM 2.6. It allows you to specify the polling details such as frequency, day, and time while creating collectors.
CiscoView

- SNMP-based device management tool – all monitoring and configuration capabilities based on MIB support
- Monitor real-time statistics for interfaces, resource utilization, and device performance
- Threshold manager, mini-RMON support
- Supports a broad range of Cisco switches and routers
- PoE configuration and monitoring
PoE Support

- PoE is the ability of the LAN switching infrastructure to provide power over the ethernet copper wire to an endpoint (device).
- Campus Manager Topology Services provides filters based on the Power over Ethernet (PoE) capability of the device. The filters when selected allows you to view the PoE capable devices present in your network.
- The PoE support in CiscoView 6.1.6 allows you to configure the device level attributes and different parameters on each PoE capable port listed in the application.
- Initially PoE is supported for the Catalyst 3750 and Catalyst 3560 device platforms.
CiscoWorks
LAN Management Solution 3.1
Agenda

- Introduction
  - Overview
  - What is NEW

- New Features & Functions
  - CS
  - RME
  - Campus Mgr
  - Device Fault Mgr
  - IPM
  - Portal & CWA
  - CiscoView

- Operating Environment and System requirements

- Further information
Introduction
Executive Summary

- LAN Management Solution (LMS) is a suite of five integrated applications designed to simplify and augment the daily tasks required to manage a Cisco end-to-end network - reducing total cost of ownership and improving network availability.

  *Simplifies* and automates tasks associated with day-to-day management – inventory, configuration, software deployment and troubleshooting

  *Supports* a broad range of Cisco devices down to the interface – detailed reporting, monitoring and configuration

  *Provides* detailed visibility of users, ports and network connectivity – topology services, user tracking, inventory

  *Automates* the change management process quickly identifying hardware, software and configuration changes – change audit reports

- LMS 3.1 is a minor release over LMS 3.0

  - Being a minor release SAS customers are entitled to a free upgrade
What is new in LMS 3.1?

- Improved install experience
- Solaris Logical Domains (LDOM) and ZFS support
- Easier device manageability via Auto Allocation groups
- Aggregated Device Center
- Support for diagnostic technologies
  - Generic On Line Diagnostics (GOLD)
  - Smart Call Home
  - Embedded Event Manager (EEM)
- Offline support for PSIRT/EoS/EoL reports
- External FTP server support in SWIM for WLSE and NAM
What is new in LMS 3.1?

- Usability enhancement for Baseline Compliance
- Additional Device Detail Report (DDR) attributes in Custom Inventory reports
- MAC Notification and Reporting
- Secured Topology Views
- Fault alerts in Topology
- New IPSLA Probes for Metro-E 802.1ag
- Enhanced Reaction-Configuration
- 10K collector support in IPM
- IPSLA sub-millisecond precision support
- Support for RTTMon and L2TPv3 Traps
New Features and Functions
Common Services 3.2
Common Services 3.2

- **Device Discovery Enhancements**
  - Multiple schedule with Multiple Settings
  - Add Discovered Devices to Specified Group
  - SysObjectId selector in Device Filter Settings
  - Jump Router Boundary Option

- **Aggregated Device Center**
- **GUI for configuring the log files to rotate**
- **PIDM Portlet Enhancements**
- **Install Enhancements**
- **Email Enhancements**
- **Audit log Enhancements**
- **UII Enhancements**
Device Discovery - Multiple schedule support

Edit the discovery job related configuration
Aggregated Device Center

- Device shown even when not managed by local applications
- List of application@server managing this device
- Will launch "Credential Verification" of RME@remoteserver1

```
Device shown even when not managed by local applications
```

```
List of application@server managing this device
```

```
Will launch "Credential Verification" of RME@remoteserver1
```
Audit log Enhancements

- Audit logs will be displayed both in the ACS and Non-ACS mode. Previously when the mode is in the ACS the log will be from the ACS server. All the messages will be logged in ACS alone. Similarly when in local all will be displayed from local. There is no provision of viewing both the logs at the same time.

- In this version, when the mode is in ACS then the audit will log its messages both in the ACS and in the local.
New features in RME 4.2

- Support for diagnostic technologies
  - GOLD (Generic On-Line Diagnostics)
  - Smart Call Home
  - EEM (Embedded Event Manager)
- External FTP Support for WLSE and NAM
- Baseline - Enhanced UI
- Config Protocol Summary
- Auto Allocation
- PSIRT/EOS/EOL Offline Report
- Check Device Attribute (CDA) Enhancement
- Job Based Email Attachment
- Job Date Range Enhancement
- Detailed Device Report (DDR) Attributes in Custom Report
Configuring GOLD at boot-level
Configuring GOLD for Health Monitoring
Viewing GOLD results
Registering an EEM script
Verifying EEM scripts
Enhanced Baseline Compliance

Support for if-then constructs and sub-level compliance check
New features in CM 5.1

- MAC Notification & Reports
- Topology - DFM Alerts Integration
- Topology - ACS Integration
- VSS Device Support
- Cross Launch Points
MAC Notification

Rogue MAC
- MAC Addresses that are not authorized to exist in your network.
- UT (Major, Minor, Device and Subnet based), Dynamic UT, WiSe
  UHIC will detect.
- Both notification and reports available.

New MAC
- MAC Addresses that are newly added to your network.
- UT (Major, Minor, Device and Subnet based), Dynamic UT, WiSe
  UHIC will detect it.
- Both notification and reports available.

Dormant MAC
- MAC Addresses that are inactive for the specified number of days.
- Only Reports available.
# MAC Notification Reports

## Rogue MAC Report

[Image of MAC Notification Reports]

<table>
<thead>
<tr>
<th>User Name</th>
<th>MAC Address</th>
<th>Host Name</th>
<th>IP Address</th>
<th>Device Name</th>
<th>Device</th>
<th>Port</th>
<th>VLAN Id</th>
<th>Last Seen</th>
</tr>
</thead>
<tbody>
<tr>
<td>00-1b-2b-91-b5-40</td>
<td>00-12-19-11-42-c6</td>
<td>00-15-2b-9f-b5-02</td>
<td>00-03-ba-05-31-b2</td>
<td>00-07-ac-b9-18-54</td>
<td>00-18-73-b3-0a-41</td>
<td>00-50-54-80-30-83</td>
<td>00-04-8d-27-60-70</td>
<td>8/16/2008, 16:35:41 GMT+05:30</td>
</tr>
</tbody>
</table>

Showing 1-9 of 9 records
MAC Notification Reports

New MAC Report

Dormant MAC Report
DFM alerts in Topology Map

- Shows DFM alerts for a device in Campus Topology & N-Hop view portlet as shown in screenshots above

Indicates device has a severe alert
Internet Performance Monitor 4.1
New features in IPM 4.1

- Metro-E 802.1ag Ethernet Ping and Jitter Operation and auto IP SLA
- Enhanced Reaction-Configurations
- Import Collector from Device
- IPSLA sub-millisecond accuracy
- Device Allocation by Groups
- 10K Collectors Support
Enhanced Reaction-Configurations (1/2)

- IPM4.0.x allows to create collectors in such a way to react only on measured latency (RTT) values.
- IPM 4.1 is enhanced to support other reaction parameters like MOS, ICPIF, packet loss, etc
- IPM will try to configure reaction in new react table. If it is not available, then it will fallback and configure reactions in old react table
Device Fault Manager
3.1
New features in DFM 3.1

- Auto Device Allocation
- Clearing/acknowledging Multiple Alerts - AAD UI
  - Till LMS 301 DFM Alert and Activities are cleared/acknowledged only one at a time. Now collection of alerts can be cleared/acknowledged at a time.
- Support for RTTMon and L2TPv3 Mib Traps
Portal 1.1
New Features in LMS Portal 1.1

- Nine new Portlets were added
  - Device Allocation Summary (CS)
  - Check Device Attribute (CDA) Error Summary (RME)
  - RME Config Protocol Summary (RME)
  - IPM Availability Dashboard (IPM)
  - IPM Violation Summary (IPM)
  - DFM Events Summary (DFM)
  - User tracking summary (CM)
  - Supported Device Finder
  - LMS Workflows Demo

Workflow Demo
Supported Device Finder

This portlet gives the interface to the user to get the details of supported devices in various LMS applications like RME, Campus, DFM, and CiscoView.

User can check the support of the devices added to the DCR through IP Address, Host Name, Display Name, Model name or SysObjectId of the Device.

**By default this portlet is available in system view**
LMS Workflow Demo Portlet

The LMS Workflows Demo portlet displays the most frequently used workflows in LMS 3.1. You must enable JavaScript in the browser window and install the latest version of the Flash Player to view the demo.

** By default this portlet is available in Functional view
Cisco Works Assistant 1.1
New features in CWA 1.1

- Auto Allocation by Group (s)
- Check Device Attributes (CDA) Report in Troubleshooting workflow
- Device Discovery using Next Generation Discovery
New features in CWA 1.1

- Device Management Mode

Navigation path: CWA -> Server setup -> Manage Servers -> Device Management Mode

### Multiserver

- LMS-SHARE-PC15: Device Fault Manager - Auto Allocation - Allocate by Groups
- LMS-ESX-SERVER2: Internetwork Performance Monitor - Auto Allocation - Allocate by Groups
- LMS-ESX-SERVER2: RME - Auto Allocation - All Devices

### Auto Allocation

Note: By default, Device Management Mode column shows the status that you have set in the LMS applications. To change it, select a different value. When you click Next, the Add Server workflow is initiated.
Cisco View 6.1.8
New features in CV 6.1.8

- CV-CM cross launch
- CV- HUM Multi Interface launch
CV-CM cross launch

Campus Manager Reports launch points from CiscoView
CV- HUM Multi Interface launch

HUM Interface Report launch point for multiple interfaces from CiscoView
Operating Environments
## Operating Environment – Windows (1/2)

<table>
<thead>
<tr>
<th>Server</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Windows 2003 Standard and Enterprise Edition, with SP2(both 32 and 64 bit)</td>
</tr>
<tr>
<td></td>
<td>Windows 2003 Standard and Enterprise Edition R2 with SP2(both 32 and 64 bit)</td>
</tr>
<tr>
<td></td>
<td>US-English and Japanese OS supported</td>
</tr>
<tr>
<td></td>
<td>VmWare ESX Edition</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Client</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Windows 2003 Standard and Enterprise Edition, with SP2(both 32 and 64 bit)</td>
</tr>
<tr>
<td></td>
<td>Windows 2003 Standard and Enterprise Edition R2 with SP2(both 32 and 64 bit)</td>
</tr>
<tr>
<td></td>
<td>Windows XP Client with SP2</td>
</tr>
<tr>
<td></td>
<td>Windows Vista Business Ed.</td>
</tr>
<tr>
<td></td>
<td>IE 6.0 SP2 &amp; IE 7.0</td>
</tr>
<tr>
<td></td>
<td>Firefox 2.0.x</td>
</tr>
</tbody>
</table>
## Operating Environment – Solaris (2/2)

<table>
<thead>
<tr>
<th>Software</th>
</tr>
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<tbody>
<tr>
<td><strong>Server</strong></td>
</tr>
<tr>
<td>▪ Solaris9 and Solaris10</td>
</tr>
<tr>
<td>▪ US-English and Japanese OS supported</td>
</tr>
<tr>
<td>▪ Solaris10 (07/08 update)</td>
</tr>
<tr>
<td>▪ LDOMS</td>
</tr>
<tr>
<td>▪ ZFS</td>
</tr>
<tr>
<td><strong>Client</strong></td>
</tr>
<tr>
<td>▪ Solaris9 &amp; Solaris10</td>
</tr>
<tr>
<td>▪ Firefox 2.0.x</td>
</tr>
</tbody>
</table>
CiscoWorks Health & Utilization Monitor 1.1
CiscoWorks HUM Introduction
Product Description

- CiscoWorks-HUM is a “MRTG like”, SNMP based, MIB polling application, that monitors-trends-graphs the “utilization and performance” metrics of critical devices and links in a network.

- CW HUM is an add-on to LMS

- CiscoWorks HUM is pre-integrated with CiscoWorks LMS.

- CW HUM is separately licensed and priced.
Key Features

- Factory MIB Templates for easy polling setup.
- Configurable polling intervals ranging from 1 min up to 480 minutes
- Custom/User defined MIB templates support.
- Comprehensive Device Dashboard, Custom/Canned reports
- Threshold breach event notification, reporting and event handler support
- Historical Trending: Daily, Weekly, Monthly and Annual basis.
- Scalability:
  - Supports 1000 devices
  - Capability of polling 60K MIB objects on 5 minute polling and 40K MIB objects per minute polling. Total of 100K objects polling.
- Capable of polling any other SNMP data that are exported by the network (Cisco) devices.
New features in HUM 1.1

- Enhancement in Report Management.
- My Favorites
- Clearing Missed cycles
Sample Report: **Quick Report**
# User Benefits

<table>
<thead>
<tr>
<th>Feature</th>
<th>Helpdesk</th>
<th>Net Admin</th>
<th>Network Designer and IT Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilization statistics data / graphs</td>
<td>Monitoring Utilization levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threshold breach notifications and handling</td>
<td>Help isolate/correlate network issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance statistics data / graphs</td>
<td></td>
<td>Help troubleshooting performance related issues</td>
<td></td>
</tr>
<tr>
<td>Historical Trend graphs</td>
<td></td>
<td>Help in forecasting possible network issues</td>
<td>Capacity Planning</td>
</tr>
<tr>
<td>Top / Bottom-N reports</td>
<td></td>
<td></td>
<td>Capacity Planning</td>
</tr>
<tr>
<td>LMS Integration</td>
<td>Easy navigation across LMS and HUM reports / graphs</td>
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<td></td>
</tr>
</tbody>
</table>
Key Value Propositions

- Breadth of device support (over 400 Cisco device types) provides a single application suite for managing most Cisco-labeled devices.

- Built on a set of common management components helps to ensure co-existence and integration between application functionality providing a more seamless end-user experience.

- Robust suite of product functionality for day-to-day operations built on a lightweight HTML-based user interface allows flexibility in workflows and troubleshooting scenarios.


- Reduces and automates many time consuming tasks; config and change, software image management, troubleshooting.
Further information
Resources

- www.cisco.com/go/monitormanager
- www.cisco.com/go/monitordirector
- www.cisco.com/go/netmanager
- www.cisco.com/go/lms

For HUM


To download the Cisco Network Management Customer evaluation software, please visit
www.cisco.com/go/nmsevals
More Information

- **Product Bulletin:**

- **Supported Device List:**

- **White Papers:**

- **Release Notes:**
Q and A