

Cisco Unified Operations Manager 2.0

Cisco® Unified Operations Manager 2.0 is part of the Cisco Unified Communications management suite. It provides comprehensive monitoring with proactive and reactive diagnostics for the entire Cisco Unified Communications system including the underlying transport infrastructure. Its built-in rules, which provide contextual diagnostics, enable rapid troubleshooting of key service-impacting outages. Cisco Unified Operations Manager 2.0 provides a real-time, service-level view of the entire Cisco Unified Communications system and presents the current operational status of each element. It continuously monitors the different elements such as Cisco Unified CallManager, Cisco Unified CallManager Express, Cisco Unity® systems, Cisco Unity Express, Cisco Unity Connection, Cisco Unified Contact Center, Cisco Unified Contact Center Express, Cisco Unified Presence Server, Cisco Emergency Responder, and Cisco Unified MeetingPlace® Express, as well as Cisco gateways, routers, switches, and IP phones. Cisco Unified Operations Manager 2.0 also provides extensive capabilities for application-level testing of telephony functions, and these can be used proactively and reactively to identify problems and ensure that applications are functioning as they should. Cisco Unified Operations Manager 2.0 also features dial-plan validation capabilities as well as monitoring and reports for video-enabled endpoints. Cisco Unified Operations Manager does not deploy any agent software on the devices being monitored and thus is completely non-disruptive to system operations.

Product Overview

Cisco Unified Operations Manager is part of the Cisco Unified Communications management suite, which provides a comprehensive and integrated solution for complete lifecycle management of Cisco Unified Communications deployments, including assessment, provisioning, and monitoring, while:

- Providing an integrated and unified view of the entire Cisco Unified Communications system
- Lowering management costs through products that don't require extensive setup or training
- Increasing productivity through contextual diagnostic tools that accelerate troubleshooting and trouble isolation
- Maximizing network reliability with network wide operational tests and voice-quality monitoring and diagnostic tests

Cisco Unified Operations Manager 2.0 monitors all elements of the Cisco Unified Communications system with built-in rules and automated discovery of the system and enables rapid troubleshooting of key service-affecting outages through its contextual diagnostics. There are no rules to write, no thresholds to define, and no extensive and time-consuming initial setup to budget for. It provides a real-time, service-level view of the entire Cisco Unified Communications system and presents the current operational status of each element.

Cisco Unified Operations Manager 2.0:

- Monitors and evaluates the current operational status of all the key components of the Cisco Unified Communications system, including the underlying transport infrastructure.
- Presents the current operational status of the Cisco Unified Communications system through service-level views of the network and provides contextual tools to look at the current alert status, historical information, and service impact of any outages.
- Increases productivity of the network managers and enables faster trouble isolation by providing contextual diagnostic tools to enable rapid troubleshooting and fault isolation:
 - Through diagnostic tests, performance, and connectivity details about different elements of the Cisco Unified Communications system
 - Through use of synthetic tests that replicate end-user activity and verify gateway availability as well as other configuration aspects of the Cisco Unified Communications infrastructure. Tests may be run on synthetic phones or real IP phones (both Session Initiation Protocol [SIP]-based and Skinny Client Control Protocol [SCCP]-based phones) deployed in the network
 - Through Cisco IOS[®] IP Service Level Agreement (SLA)-based diagnostic tests that can be used to troubleshoot network-related issues, determine paths, and proactively monitor voice quality across WAN links
 - By providing actionable information in notification messages through context-sensitive links to more detailed information about service outages
 - By context-sensitive links to CiscoWorks products and Cisco management systems (when those are deployed), to provide the user with the broad and deep array of diagnostics capabilities
- Discovers and reports on the status of different video-enabled IP endpoints (for both SIP- and SCCP-based phones) in the Cisco Unified Communications system and provides additional contextual information to enable the location and identification of the IP phones. It can also track the status of these endpoints.
- Provides a very powerful set of dynamic phone-testing capabilities that enable the usage of IP phones (both SIP- and SCCP-based phones) in the Cisco Unified Communications system as test probes to run dial-plan tests, acceptance tests, phone-feature tests, and so on. Such phone-testing capabilities may be used to rapidly troubleshoot issues related to connectivity (signaling/media stream) and voice quality as well as call processing/dial-plan management issues.
- Provides visibility into key performance metrics of different Cisco Unified Communications elements, such as resource usage (CPU, memory, MTP resources, transcoder resources), call statistics (active calls), trunk statistics (trunk usage, port usage, gateway statistics), and so on, that aid in different tasks such as troubleshooting and capacity planning.
- Correlates and presents voice-quality alerts by using the information available through Cisco Unified Service Monitor 2.0 (when the latter is also deployed). It displays mean opinion scores associated with voice quality between pairs of endpoints (IP phones, Cisco Unity messaging systems, or voice gateways) at specified times involved in the monitored call segment and other associated details about the voice-quality problem. It can also trace a probable path between the two endpoints and report on any outages or problems on intermediate nodes in the path.

- Provides current information about connectivity-related and registration-related outages affecting different IP phones (both SIP- and SCCP-based phones) in the network and provides additional contextual information to enable the location and identification of the IP phones.
- Enables tracking of Cisco Unified Communications devices and IP phone inventory, tracks IP phone status changes, and creates a variety of reports that document move, add, and change operations on IP phones in the network.
- Provides extensive northbound real-time notifications, using Simple Network Management Protocol (SNMP) traps, syslog notifications, and e-mail, that enable integration with a higher-level entity (typically a manager of managers). Such notifications contain context-sensitive links that let network managers quickly determine the nature of the outage and rapidly troubleshoot the problem.
- Continuously monitors the current operational status of elements such as Cisco Unified CallManager, Cisco Unified CallManager Express, Cisco Unity systems, Cisco Unity Connection, Cisco Unity Express, Cisco Unified Contact Center Enterprise, Cisco Unified Contact Center Express, Cisco Unified MeetingPlace Express, Cisco Unified Presence Server, and Cisco Emergency Responder as well as Cisco gateways, routers, switches, and IP phones.

Cisco Unified Operations Manager 2.0 does not deploy any agent software on the devices being monitored; it is completely nondisruptive to system operations. It uses open interfaces such as SNMP, HTTP, and Windows Management Instrumentation (WMI) to poll data remotely from different devices in the Cisco Unified Communications system.

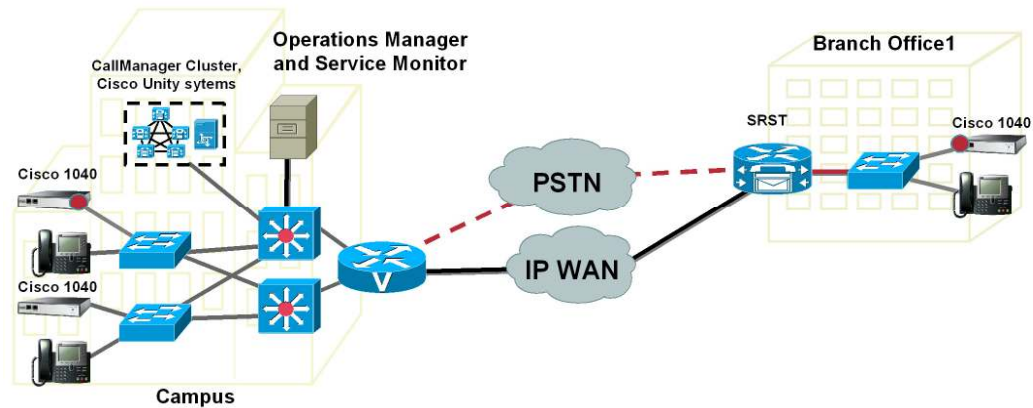
Cisco Unified Operations Manager 2.0 may be centrally deployed and be used for remote monitoring of Cisco Unified Communications systems spanning multiple locations and multiple clusters. Operations Manager 2.0 can also share device credential information with other CiscoWorks products if they happen to be deployed in the enterprise, providing better coordination for troubleshooting and resulting in reduced administrative overhead for network managers.

Applications

Small and Medium-Sized Enterprises

For small and medium-sized deployments (generally fewer than 5000 phones), both Cisco Unified Operations Manager 2.0 and Cisco Unified Service Monitor 2.0 may be deployed on the same server. A single installation process installs all the necessary components. Figure 1 shows the deployment model for small and medium-sized enterprises.

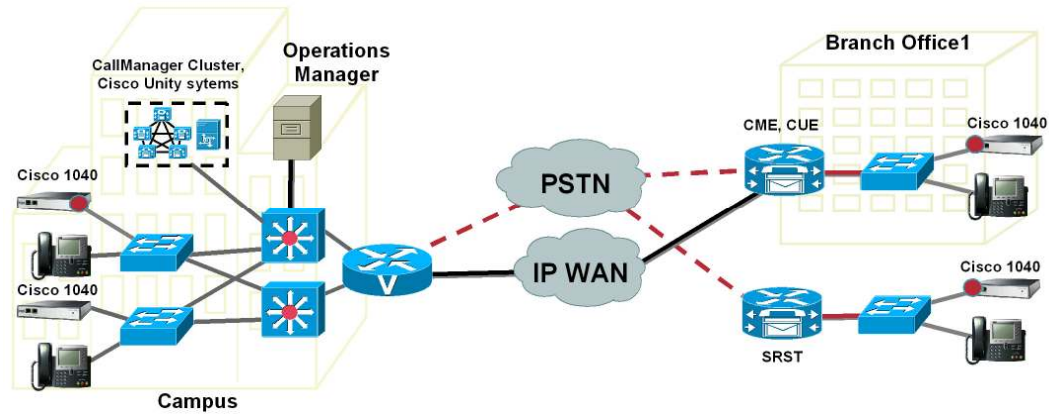
Figure 1. Deployment Model for Small and Medium-Sized Enterprises



Large Enterprises

For large enterprise deployments (generally more than 5000 phones), it is recommended that Cisco Unified Operations Manager 2.0 and Cisco Unified Service Monitor 2.0 be deployed on separate servers. Cisco Unified Operations Manager 2.0 can be deployed centrally or in a distributed manner to scale to different deployment sizes. Each instance of Cisco Unified Operations Manager 2.0 can manage multisite and multicluster Cisco Unified Communications systems. Cisco Unified Operations Manager 2.0 and Cisco Unified Service Monitor 2.0 can be integrated with a higher-level network monitoring entity (such as a manager of managers) by way of the northbound interface that sends real-time notifications using SNMP traps, syslog notifications, and e-mails that report the status of the network being monitored. Figure 2 shows the deployment model for large enterprises.

Figure 2. Deployment Model for Large Enterprises



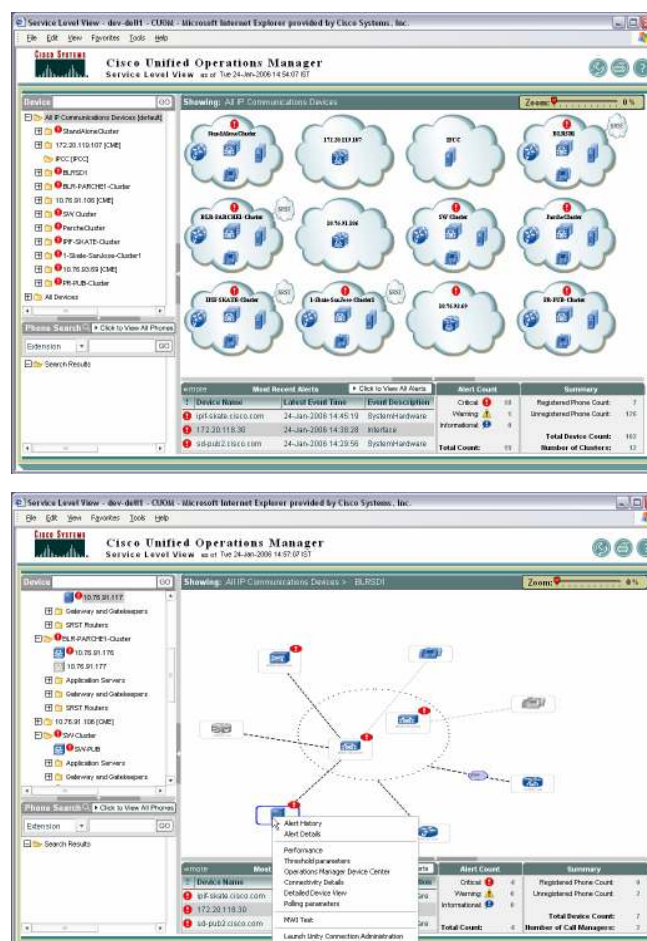
Key Features and Benefits

Service-Level View

Using the service-level view in Cisco Unified Operations Manager 2.0, network managers can visualize their entire Cisco Unified Communications system. The service-level view is a real-time autorefresh display that provides status information about all the clusters and the elements of the clusters in the Cisco Unified Communications system. Drill-down views show the operational status of each element and its interrelationships with other elements of the solution along with the

status of logical entities such as trunk groups and route lists. This display serves as the central point to initiate a variety of actions that are available in Cisco Unified Operations Manager 2.0. A context-sensitive right-click menu is provided through which network managers can get detailed status as well as historical information about the alerts on each of the elements. It is also possible to select each of the devices and initiate a variety of diagnostic tests, get access to graphical performance-monitoring and capacity-monitoring information, or get IP connectivity details for a selected device by launching a neighbor topology view that shows Layer 2 physical connectivity from the selected device. Cisco Unified Operations Manager 2.0 also makes available a set of context-sensitive tools outside the application that can aid in further troubleshooting or diagnostics. Figure 3 shows the service-level view and its details for a multicluster Cisco Unified Communications system.

Figure 3. Service-Level View and Details for a Typical Multicluster Deployment



Real-Time Alerts

Cisco Unified Operations Manager 2.0 comes with built-in intelligence that can understand the role of every device in a Cisco Unified Communications system, and it monitors those devices for any kind of faults or outages. There is no need to write any rules to start monitoring; all the rules are built into the product. It also comes with factory-defined thresholds (which can be further tuned by network administrators) and an analysis engine that can detect the violation of any of these thresholds and immediately alert network managers through multiple means. These alerts are presented to the user through the Alerts and Events Display, which refreshes periodically to present the most up-to-date status of the monitored devices. A separate display called the Phone

Status Display provides instant access to IP phone and video-enabled IP phone outage information. Two types of outages are monitored: signaling-related outages and IP connectivity-related outages. Both SCCP-based and SIP-based phones are monitored. It is also possible to get information about an IP phone's and video-enabled IP phone's switch and port, serial number, application load, and so on, allowing administrators to troubleshoot problems that may have wider scope (at the switch level) than just the IP phone. Figure 4 shows real-time alerts in the Alerts and Events Display.

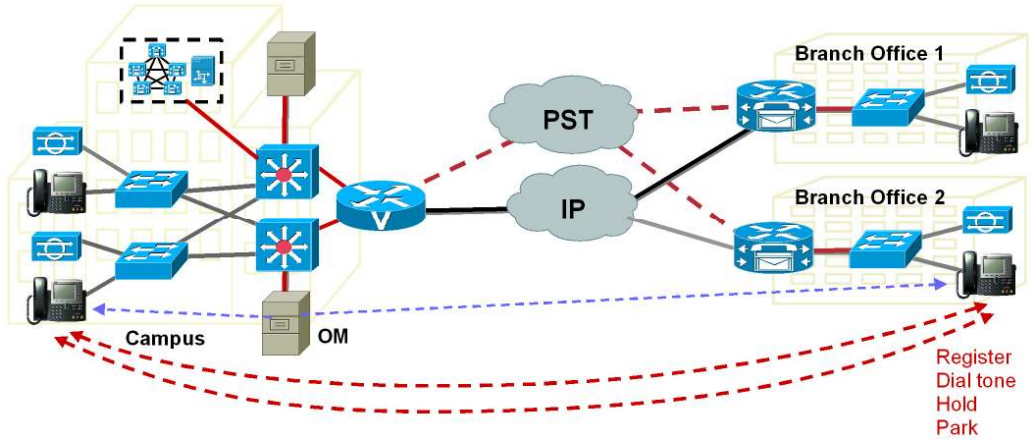
Figure 4. Real-Time Alerts as Displayed in the Alerts and Events Display

ID	Name	Device Type	Device Status	Alert Age	Last Event Time	Level	Event Sub-Category	Status
1	00000001	MediaServer	98-1000000000	13hr 30 min	24-Jan-2006 14:40:10	System	System/Interface	Active
2	00000002	MediaServer	172.30.110.30	13hr 07 min	24-Jan-2006 14:38:26	System	System/Interface	Active
3	00000003	MediaServer	ad-pub01.cisco.com	10hr 08 min	24-Jan-2006 14:32:58	System	System/Interface	Active
4	00000004	MediaServer	249-901.cisco.com	13hr 12 min	24-Jan-2006 12:41:40	System	System/Interface	Active
5	00000005	MediaServer	vha-ng0011.cisco.com	13hr 18 min	24-Jan-2006 12:40:50	System	System/Interface	Active
6	00000006	MediaServer	10.76.81.117	14hr 06 min	24-Jan-2006 12:24:26	Application	Application	Active
7	00000007	MediaServer	10.76.81.170	13hr 30 min	24-Jan-2006 07:54:21	System	System/Interface	Active
8	00000008	MediaServer	98-1000000000	13hr 36 min	24-Jan-2006 07:53:23	Other	Other	Active
9	00000009	MediaServer	30-98-80	13hr 35 min	24-Jan-2006 07:43:53	Application	Application	Active
10	00000010	MediaServer	98-10-80	13hr 36 min	24-Jan-2006 07:39:19	Application	Application	Active
11	00000011	MediaServer	30-98-80	13hr 36 min	24-Jan-2006 07:38:56	Application	Application	Active
12	00000012	MediaServer	3-100-1000000000	13hr 20 min	24-Jan-2006 07:38:45	Application	Application	Active
13	00000013	MediaServer	172.30.101.83	13hr 07 min	24-Jan-2006 07:38:44	System	System/Interface	Active
14	00000014	MediaServer	98-1000000000	11hr 04 min	24-Jan-2006 04:03:25	Application	Application	Active
15	00000015	MediaServer	10.76.81.83	12hr 22 min	24-Jan-2006 02:36:36	System	System/Interface	Active
16	00000016	MediaServer	98-1000000000	12hr 22 min	24-Jan-2006 02:36:36	System	System/Interface	Active
17	00000017	MediaServer	24-98-1000000000	13hr 35 min	24-Jan-2006 02:17:51	Application	Application	Active
18	00000018	MediaServer	10-100-1000000000	45hr 17 min	24-Jan-2006 04:01:42	System	System/Interface	Active

Diagnostic Tests: Phone Tests, Dial-Plan Tests, Phone-Status Tests, Node-to-Node IP SLA Tests

Cisco Unified Operations Manager 2.0 comes with a rich set of diagnostic tests that can be used to aid in trouble isolation and resolution. There are primarily four types of tests: phone tests, dial-plan tests, phone-status tests, and node-to-node IP SLA tests. The phone tests serve to replicate user activity (getting a dial tone, making phone calls [on-net, off-net, local, long distance, international], leaving voice mail, and creating or joining conference calls). These tests can verify the functional availability of the supporting infrastructure and validate different configuration aspects such as route patterns, route lists, intercluster trunks, and gateway dial peers. These tests may be configured on real IP phones deployed in the network or on synthetic phones configured in Cisco Unified CallManager or Cisco Unified CallManager Express. Phone tests may also be used to test and validate the phone's features such as call hold, call park, call transfer, redial, and voicemail access. Such phone tests can be performed using both the SIP and the SCCP signaling protocols. Dial-plan tests provide an easy mechanism to test and validate all the dial plans defined for different partitions and locations in the Cisco Unified Communications system and get a quick assessment on whether they are being correctly applied on the phones. These tests serve as a quick and easy way of assessing the sanctity of dial-plan configuration after deploying a patch or an upgrade on CallManager or CallManager Express. The phone-status tests can be used to determine the current operational status of the IP phones in terms of signaling (SIP and SCCP) and IP connectivity. The node-to-node tests use the services of the Cisco IOS IP Service-Level Agreement (SLA) in Cisco routers to simulate traffic in the network and then determine network characteristics such as reachability status, response time, latency, jitter, packet loss, and network quality. Each of these diagnostic tests can be run in a continuous monitoring mode as well as scheduled or on-demand modes. Figure 5 shows phone tests.

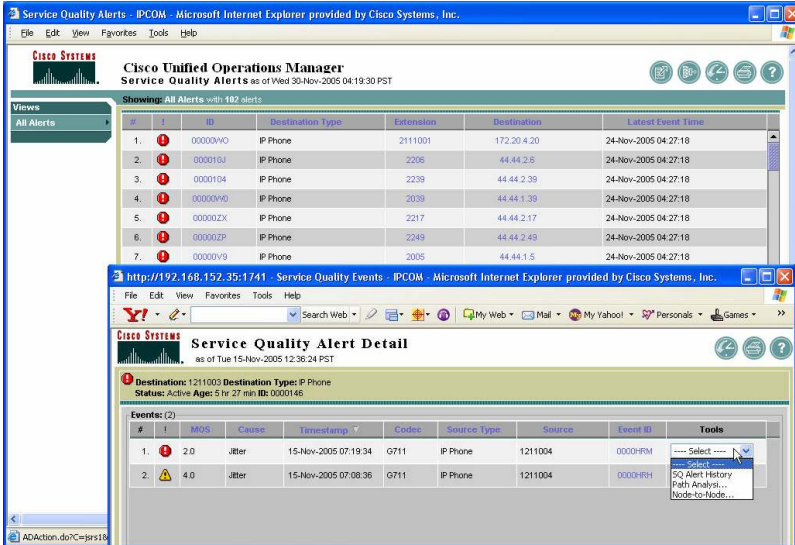
Figure 5. Phone Tests



Service-Quality Reporting

Cisco Unified Operations Manager 2.0 uses Cisco Unified Service Monitor 2.0 to present real-time voice-quality alerts on IP phones and other devices in the Cisco Unified Communications system through the Service Quality Alerts Display. Details about IP connectivity of the IP phones and devices are available to enable further troubleshooting. It is also possible to initiate a probable-path trace between the endpoints that helps network managers identify any potential problems in intermediate nodes that could influence service quality. Voice-quality monitoring is accomplished through the Cisco 1040 sensors and also through the Cisco Voice Transmission Quality (VTQ) metric that is available in the newer generation of phones when used in Cisco Unified CallManager 4.2/5.x deployments. Figure 6 shows service-quality alerts.

Figure 6. Service-Quality Alerts



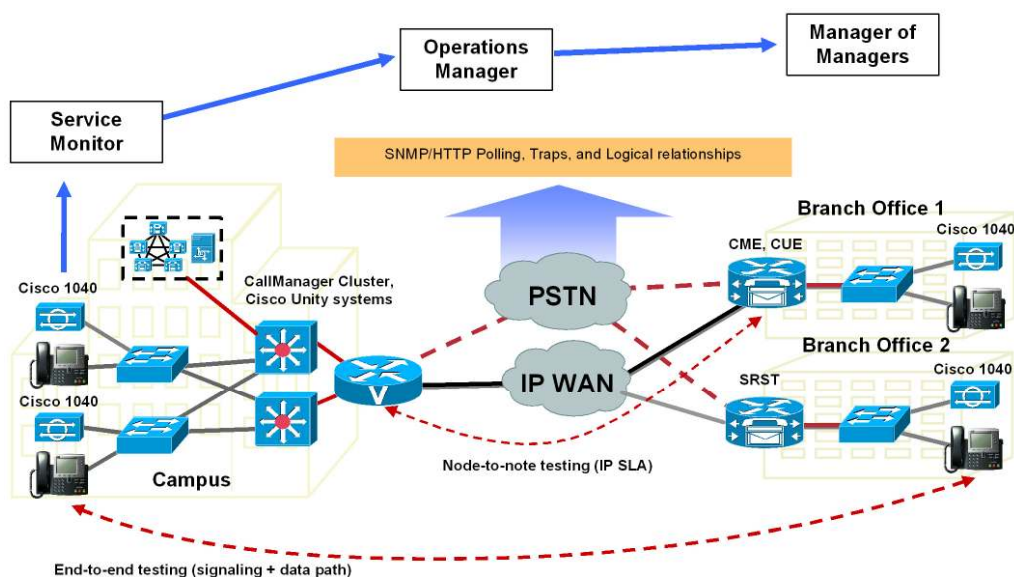
Reports

Cisco Unified Operations Manager 2.0 provides an extensive set of reports that help network managers maintain information about their Cisco Unified Communications system. The historical alert, event, and service-quality reports maintain information about all the alerts and events reported by Cisco Unified Operations Manager 2.0 for up to 30 days. This enables network managers to document any past outage and have access to it for long-term trending purposes. The IP phone inventory reports give network managers instant access to status information about every IP phone and every video-enabled IP phone deployed in the network. Extensive information on signaling details and IP connectivity details is maintained and reported. These reports also track changes in phone status and thus serve to document move, add, and change operations on these IP phones. Such reports are available for both SIP- and SCCP-based IP phones. The customizable reports let network managers choose what type of information they want and create a daily report that is available by e-mail or the Cisco Unified Operations Manager 2.0 GUI.

Product Architecture

Cisco Unified Operations Manager 2.0 is a Web-based application. It uses open standards-based access to gather operating status information from Cisco Unified Communications applications and Cisco IOS Software to provide the information required to manage increasingly complex Cisco Unified Communications environments. Operations Manager 2.0 does not deploy any agent software on any platform it monitors. It uses open interfaces such as SNMP, WMI, and HTTP to remotely (and periodically) poll the devices being monitored and collect status information. It also performs several diagnostic tests (based on SCCP, SIP, and Cisco IP SLA) and uses the results to determine the operational status of the monitored devices. The user interface is browser based to enable remote login from anywhere in the network and allow instant access to real-time information on the current status of the devices. Different levels of user access can be set up locally or in conjunction with Cisco Secure Access Control Server, which controls access to information in Cisco Unified Operations Manager 2.0. Figure 7 shows the product architecture of Cisco Unified Operations Manager 2.0.

Figure 7. Cisco Unified Operations Manager 2.0 Architecture



Product Specifications

Table 1 shows Cisco Unified Operations Manager product specifications.

Table 1. Product Specifications

Description	Specification
Product compatibility	Cisco Unified Communications systems consisting of Cisco Unified, Cisco Unity, Cisco Unity Connection, Cisco Unified Contact Center, Cisco Unified MeetingPlace Express, Cisco Unified CallManager Express, Cisco Unity Express, Cisco Unified Contact Center Express, Cisco Conference Connection, Cisco Personal Assistant, Cisco Emergency Responder, Cisco Unified Presence Server, routers, gateways, switches, and IP phones (including IP Communicator and Cisco Unified Personal Communicator) Please refer to the " Supported Device " table for the latest updates.
Software compatibility	Windows 2003 Server The user interface can be accessed using Microsoft Internet Explorer 6.0 on Windows 2003 and Windows XP platforms.
Protocols	Uses SNMP, SCCP, SIP, WMI, and HTTP to monitor the Cisco Unified Communications system.
Features and functions	Automatic device and phone discovery, service-level view, real-time alerts, diagnostic tests, phone tests, video-enabled phone discovery, voice-quality alerting, endpoint status and endpoint status-change reports, northbound interfaces, performance and utilization monitoring, historical alerts, event and service-quality reports, context-sensitive launch of CiscoWorks products

System Capacity

Table 2. System Capacity (per Cisco Unified Operations Manager 2.0 Server)

System Parameter	Capacity
Monitored phones	30,000
Monitored devices	2000
Monitored Cisco Unified CallManager clusters	30
Monitored Cisco Unified CallManager Express routers	500
Monitored Survivable Remote Site Telephony (SRST) routers	500
Concurrent synthetic tests	250
Concurrent node-to-node (Cisco IOS IP SLA) tests	250
Concurrent client (browser) logons	5

For Cisco Unified Communications systems of more than 30,000 phones, multiple Cisco Unified Operations Manager 2.0 servers can be deployed. These servers can share device and credential information between them, and administrators can perform centralized device and credential management. By integrating Cisco Unified Operations Manager with a Cisco Secure Access Control Server, administrators can centrally control user access. Each of these Operations Manager servers will roll up the status of the network being monitored to a higher-level entity (typically a manager of managers) through SNMP traps and syslog notifications.

System Requirements

Table 3. System Requirements for Standalone Cisco Unified Operations Manager Deployments

Description	Specification		
Server Requirements			
System Parameters	Up to 1000 phones	Up to 10,000 phones	Up to 30,000 phones
Processor	<ul style="list-style-type: none"> Intel Pentium or Xeon processor equal to or greater than 2 GHz or AMD Opteron processor equal to or greater than 2 GHz 	<ul style="list-style-type: none"> Dual Intel Pentium or Xeon processor equal to or greater than 2 GHz or Dual AMD Opteron processor equal to or greater than 2 GHz 	<ul style="list-style-type: none"> Dual Intel Pentium or Xeon processor equal to or greater than 2 GHz or Dual AMD Opteron processor equal to or greater than 2 GHz
Memory	4 GB RAM	4 GB RAM	4 GB RAM
Swap file	4 GB swap file	4 GB swap file	4 GB swap file
Disk space	36 GB recommended	72 GB recommended	72 GB recommended
Hardware	Server platform	Server platform	Server platform
Software	Windows 2003 Server with SP1	Windows 2003 Server with SP1	Windows 2003 Server with SP1
Client Requirements			
Processor	Pentium 4 processor equal to or greater than 1 GHz		
Memory	1 GB		
Swap file	2 GB swap file		
Hardware	Any PC/server platform		
Software	<ul style="list-style-type: none"> Microsoft Internet Explorer 6.0 Macromedia Flash Player 8.0 Windows XP Home, Windows XP Professional, Windows 2003 Server platforms 		

The requirements in Table 3 outline the minimum hardware configuration needed to operate Cisco Unified Operations Manager 2.0 at different scalability levels. The client requirements dictate the platform from which the Internet browser-based user interfaces are invoked. For Cisco Unified Communications systems of more than 30,000 phones, multiple Cisco Unified Operations Manager 2.0 servers can be deployed. These servers can share device and credential information between them, and administrators can perform centralized device and credential management. By integrating Cisco Unified Operations Manager with a Cisco Secure Access Control Server, administrators can centrally control user access. Each of these Cisco Unified Operations Manager servers will roll up the status of the network being monitored to a higher-level entity (typically a manager of managers) through SNMP traps and syslog notifications.

System Requirements for Co-resident Deployments

Table 4 lists the system requirements for co-resident deployments.

Table 4. System Requirements for Co-resident Deployments of Cisco Unified Operations Manager 2.0 and Cisco Unified Service Monitor 2.0

Description	Specification	
Server Requirements		
System Parameters	Up to 1000 phones	Up to 5,000 phones
Processor	<ul style="list-style-type: none"> Intel Pentium or Xeon processor equal to or greater than 2 GHz or AMD Opteron processor equal to or greater than 2 GHz 	<ul style="list-style-type: none"> Dual Pentium 4 or Xeon processor equal to or greater than 2 GHz OR Dual AMD Opteron processor equal to or greater than 2 GHz
Memory	4 GB RAM	4 GB RAM

Swap file	4 GB swap file	4 GB swap file
Disk space	72 GB recommended	72 GB recommended
Hardware	Server platform	Server platform
Software	Windows 2003 Server with SP1	Windows 2003 Server with SP1
Client Requirements		
Processor	Pentium 4 processor equal to or greater than 1 GHz	
Memory	1 GB	
Swap file	2 GB swap file	
Hardware	Any PC/server platform	
Software	<ul style="list-style-type: none"> • Microsoft Internet Explorer 6.0 • Macromedia Flash Player 8.0 • Windows XP Home, Windows XP Professional, Windows 2003 Server platforms 	

Ordering Information

Cisco Unified Operations Manager 2.0 is available in two distinct editions; Standard Edition and Premium Edition. Furthermore, within each of these editions, Cisco Unified Operations Manager 2.0 can be licensed at different deployment scales and is appropriate for enterprises of all sizes. Licensing is controlled by means of a license file, and network administrators can upgrade the license as their Cisco Unified Communications system grows without disrupting the monitoring or having to decommission their server. Upgrading the license is as simple as logging onto the Cisco Website, procuring a new license, and deploying it on the server. The following table describes the difference between the Standard edition and the Premium edition of Operations Manager 2.0.

Table 5. Operations Manager 2.0 Standard edition Vs Premium edition

Feature	CUOM 2.0 Standard edition	CUOM 2.0 Premium edition
Device Coverage CCM, CME, Unity, CUC, CUE, Phones, CER, CUCC, CUCCX, Presence, Routers, Switches, Gateways	Yes	Yes
Service Level Views, Physical topology, Service Impact Report	Yes	Yes
Real-time operational monitoring, alerts console, notifications	Yes	Yes
Phone discovery, phone monitoring, and reporting	Yes	Yes
Performance monitoring and trending	Yes	Yes
CUSM 2.0 integration (voice quality alerts)	Yes	Yes
Phone testing (acceptance tests, dial plan tests, phone feature tests)	No	Yes
Synthetic testing, IP SLA testing	No	Yes
Video enabled phones, Telepresence endpoint monitoring and reporting	No	Yes

Licenses are available for monitoring 1000 phones, 2000 phones, 5000 phones, and increments of 5000 phones up to a maximum of 30,000 phones per Cisco Unified Operations Manager 2.0 and Cisco Unified Service Monitor 2.0 server. Depending on the license installed on the server, server hardware requirements and scalability limits are enforced to help ensure acceptable performance. Licenses are available for upgrading from the Standard Edition to the Premium Edition if required. Please refer to the Cisco Unified Operations Manager 2.0 product bulletin for detailed ordering information.

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 Unified Operations Manager 2.0, please visit <http://www.cisco.com/go/cuom>, contact your local account representative, or send e-mail to the Cisco product marketing group at ask-ipc-management@cisco.com.



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