CiscoWorks IP Communications Operations Manager 1.0

CiscoWorks IP Communications Operations Manager 1.0 provides a unified view of the entire IP Communications infrastructure and presents the current operational status of each element of the IP Communications network. It continuously monitors the current operational status of different IP Communications elements such as Cisco® CallManager, Cisco CallManager Express, Cisco Unity®, Cisco Unity Express, Cisco IP Contact Center, Cisco gateways, routers, and phones and provides diagnostic capabilities for faster trouble isolation and resolution.

PRODUCT OVERVIEW

CiscoWorks IP Communications Operations Manager 1.0 monitors and evaluates the current status of both the IP Communications infrastructure and the underlying transport infrastructure in the network. It uses open interfaces such as Simple Network Management Protocol (SNMP) and Hyper Text Transfer Protocol (HTTP) to remotely poll data from different devices in the IP Communications deployment. It does not deploy any agent software on the devices being monitored and thus is non-disruptive to system operations.

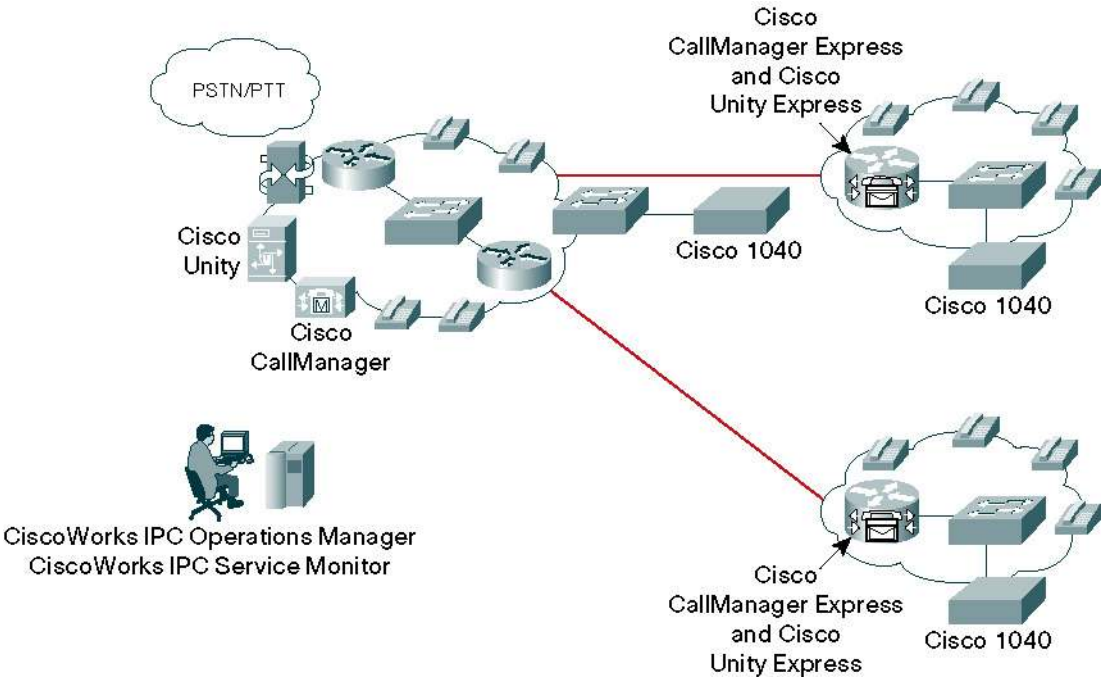
- It presents current operational status of the IP Communications deployment and provides visualization using service-level views of the network.
- It increases productivity of the network managers and enables faster trouble isolation by providing contextual diagnostic tools to enable troubleshooting:
  - Through diagnostic tests, performance, and connectivity details about different elements of the converged IP Communications infrastructure
  - Using synthetic tests that replicate end-user activity and verify gateway availability and other configuration and operational aspects of the IP Communications infrastructure
  - Through IP service-level agreement (SLA)–based diagnostic tests that can measure the performance of WAN links and measure node-to-node network quality
  - By providing actionable information in notification messages through context-sensitive links to more detailed information about service outages
  - Using context-sensitive links to other CiscoWorks tools and Cisco tools for managing IP Communications implementations
- It presents service-quality alerts by using the information available through CiscoWorks IP Communications Service Monitor 1.0 (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 perform a probable path trace between the two endpoints and can report on any outages or problems on intermediate nodes in the path.
- It provides current information about connectivity-related and registration-related outages affecting different IP phones in the network and provides additional contextual information to enable the location and identification of the IP phones.
- It enables tracking of IP 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.
- It provides real-time notifications using SNMP traps, syslog notifications, and e-mail that let CiscoWorks IP Communications Operations Manager 1.0 report the status of the network being monitored to a higher-level entity (typically manager of managers).

APPLICATIONS

Small and Medium-Sized Enterprises

For small and medium deployments (generally less than 1000 phones), the software component for CiscoWorks IP Communications Service Monitor 1.0 can co-reside with CiscoWorks IP Communications Operations Manager 1.0 on a single platform. A single installation process installs all the necessary components. It provides real-time notifications using SNMP traps, syslog notifications, and e-mail that let CiscoWorks IP Communications Operations Manager 1.0 report the status of the network being monitored to a higher-level entity. Figure 1 shows the deployment model for Small and Medium-Sized Enterprises.

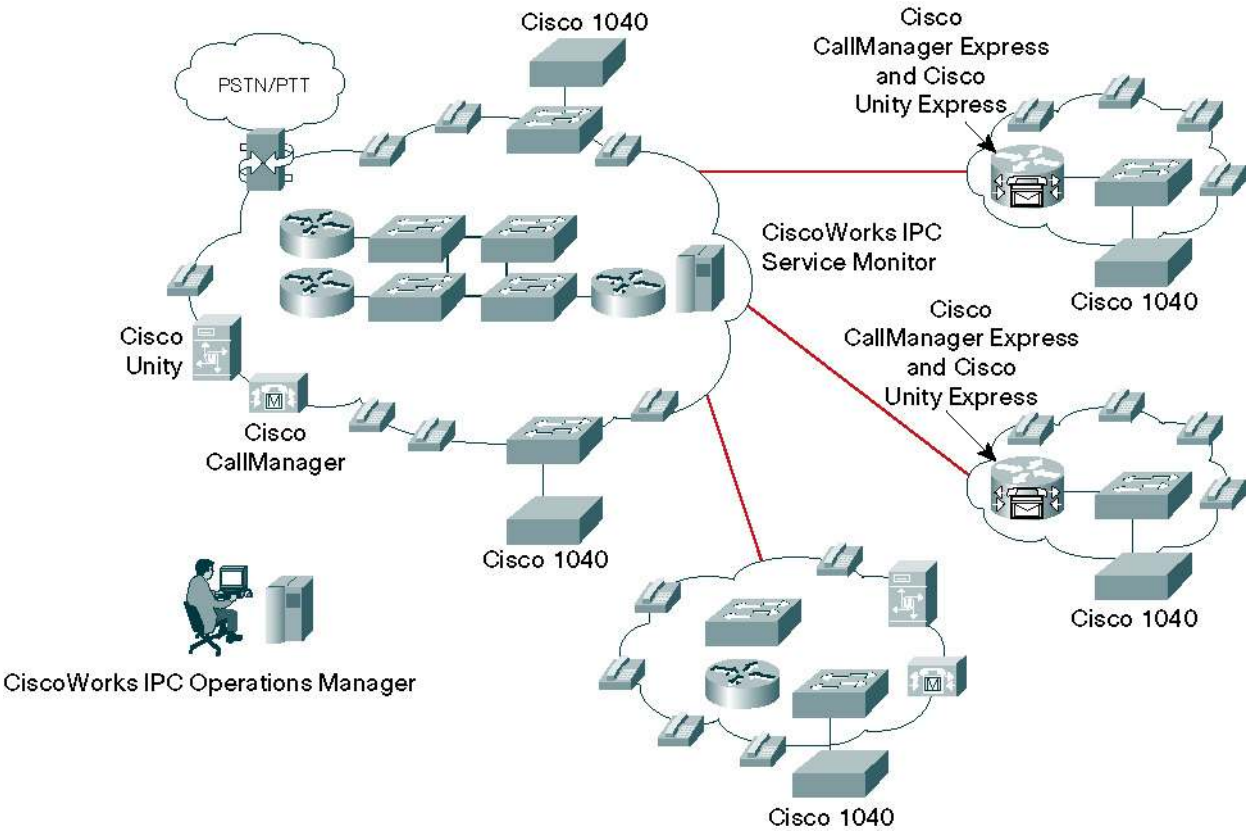
Figure 1. Deployment Model for Small and Medium Enterprises



Large Enterprises

For large enterprise deployments (generally more than 1000 phones), it is recommended that CiscoWorks IP Communications Operations Manager 1.0 and the software component of CiscoWorks IP Communications Service Monitor 1.0 be deployed on separate platforms. CiscoWorks IP Communications Operations Manager 1.0 can be deployed centrally or in a distributed manner to scale to different sizes. Each instance of IP Communications Operations Manager can manage multi-site and multi-cluster IP Communications environments. It provides real-time notifications using SNMP traps, syslog notifications, and e-mail that let CiscoWorks IP Communications Operations Manager 1.0 report the status of the network being monitored to a higher-level entity (typically a manager of managers). It is also able to share device and credential information with other CiscoWorks tools deployed in the enterprise, thereby resulting in reduced administrative overhead for network managers. Figure 2 shows the deployment model for Large Enterprises.

Figure 2. Deployment Model for Large Enterprises

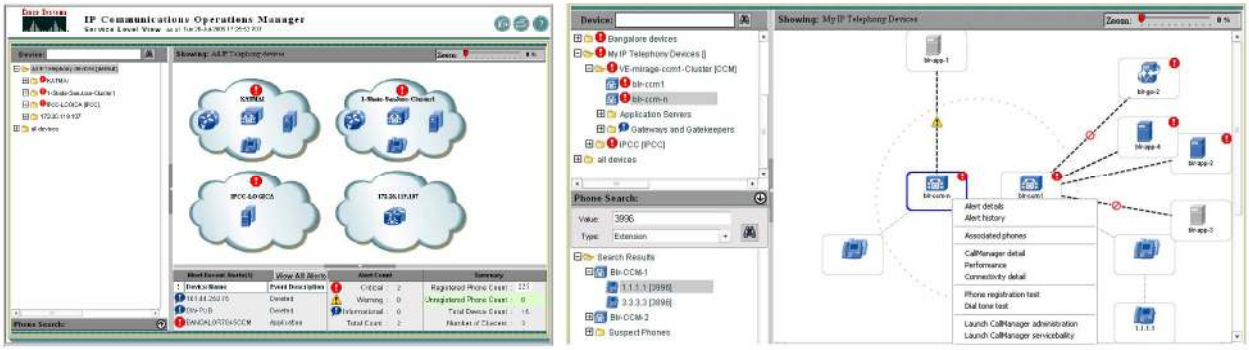


IMPORTANT FEATURES AND BENEFITS

Service-Level View

The service-level view in CiscoWorks IP Communications Operations Manager 1.0 allows network managers visualize their IP Communications deployment. The service-level view is a real-time auto-refresh display that provides status information about all the IP Communications clusters and the elements of the clusters in the deployment. Drill down views show the operational status of each element of the IP Communications cluster and its interrelationships with other elements. This display serves as the central point to initiate different functions that are available in CiscoWorks IP Communications Operations Manager 1.0. 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 different devices and initiate a variety of diagnostic tests, get access to performance-monitoring and capacity-monitoring information by way of graphs, or get IP connectivity details for a device by launching a neighbor topology view that shows Layer 2 physical connectivity for up to five hops from the selected device. CiscoWorks IP Communications Operations Manager 1.0 also makes available a set of context-sensitive tools outside CiscoWorks IP Communications Operations Manager 1.0 that can aid in further troubleshooting or diagnostics. Figure 3 shows the service level view for a multi-cluster IP Communications deployment and its drill down details.

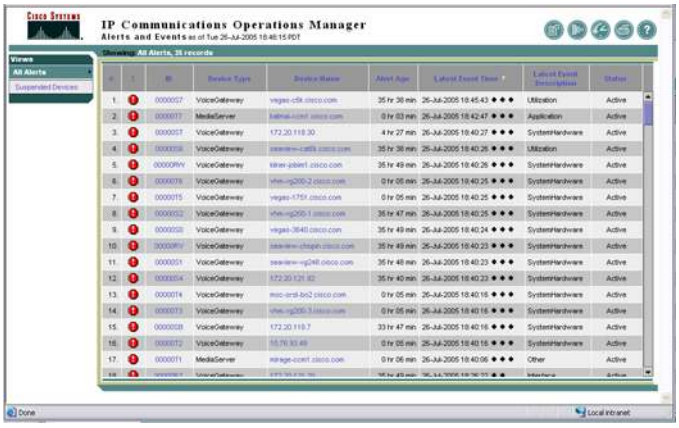
Figure 3. Service-Level View for a Typical Multi-cluster Deployment and its Drill Down Details



Real-Time Alerts

CiscoWorks IP Communications Operations Manager 1.0 comes with built-in intelligence that can understand the role of every device in an IP Communications deployment, and it appropriately monitors those devices for any kind of faults or outages. There is no need to write any rules to start monitoring the IP Communications deployment; 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 IP Communications deployment being monitored. A separate display called the Phone Status Display provides instant access to IP phone outage information. Two types of outages are monitored: signaling-related outages and IP connectivity-related outages. It is also possible to get information about an IP phone's switch and port, 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



Diagnostic Tests

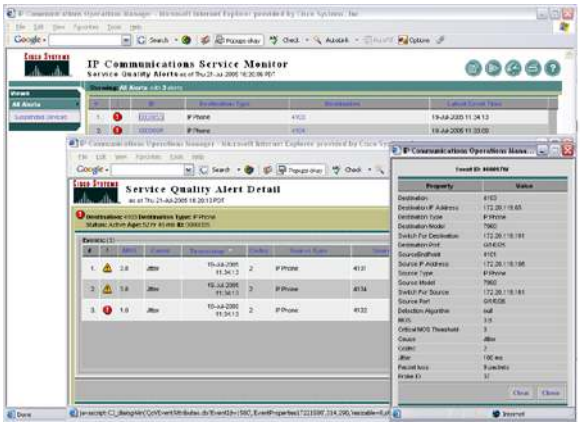
CiscoWorks IP Communications Operations Manager 1.0 comes with a rich set of diagnostic tests that can be used to aid in trouble isolation and resolution. There are primarily three types of tests: synthetic tests, phone status tests, and node-to-node tests. The synthetic tests serve to replicate user activity (getting dial tone, making phone calls, leaving voice mail, and creating/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, inter-cluster trunks, and gateway dial peers. The phone status tests can be used to determine the current operational status of the IP phones in terms of signaling and IP connectivity. The node-to-node tests use the services of IP service level agent (SLA,

formerly known as Service Assurance Agent [SAA]) 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 tests can be run in a continuous monitoring mode as well as scheduled/on-demand modes. The results are presented through a variety of reports.

Service-Quality Reporting

CiscoWorks IP Communications Operations Manager 1.0 can use the information provided by CiscoWorks IP Communications Service Monitor (when the latter is deployed) to present service-quality (quality-of-voice) alerts on a real-time basis. The service-quality alerts are associated with IP phones or IP Communications devices that are currently monitored by CiscoWorks IP Communications Operations Manager 1.0 and present that information in the Service Quality Alerts Display. Details about IP connectivity of the IP phones and devices is 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. Figure 5 shows service quality alerts.

Figure 5. Service Quality Alerts



Reports

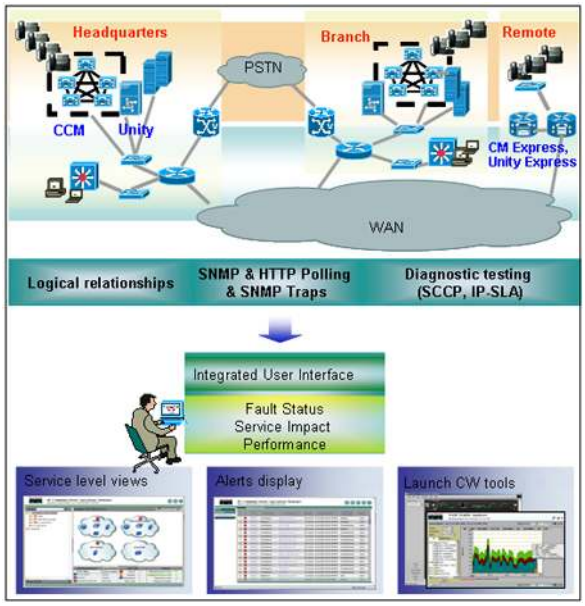
CiscoWorks IP Communications Operations Manager 1.0 provides an extensive set of reports that help network managers maintain information about their IP Communications deployment. The historical alert, event, and service-quality reports maintain information about all the alerts and events reported by CiscoWorks IP Communications Operations Manager 1.0 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 IP phone status information about every 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. The customizable reports let network managers pick and choose what type of information they want and create a daily report that is available for them by e-mail or the CiscoWorks IP Communications Operations Manager 1.0 GUI.

PRODUCT ARCHITECTURE

CiscoWorks IP Communications Operations Manager 1.0 is a Web-based application based on the CiscoWorks architecture. It uses open standards-based access to fetch operating status information from IP Communications applications based on AVVID (Architecture for Voice, Video, and Integrated Data) and Cisco IOS® Software to provide operations and maintenance personnel with the information required to manage increasingly complex IP data and telephony environments. CiscoWorks IP Communications Operations Manager 1.0 does not deploy any agent software on any platform it monitors. It uses open interfaces such as SNMP, HTTP, and AVVID XML Layer (AXL) – Simple Object Access Protocol (SOAP) to remotely (and periodically) poll the devices being monitored and thus collect status information. It also performs several diagnostic tests (Skinny Client Control Protocol [SCCP]-based and IP SLA-based) and uses the

results of these tests to determine the operational status of the deployment. 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 deployment. 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 CiscoWorks IP Communications Operations Manager 1.0. Figure 6 shows the product architecture of CiscoWorks IP Communications Operations Manager 1.0.

Figure 6. CiscoWorks IP Communications Operations Manager 1.0 Architecture



PRODUCT SPECIFICATIONS

Table 1 shows CiscoWorks IP Communications Operations Manager 1.0 product specifications.

Table 1. Product Specifications

Description	Specification
Product compatibility	Cisco IP Communications deployments consisting of Cisco CallManager, Cisco Unity software, Cisco IP Contact Center products, Cisco CallManager Express, Cisco Unity Express, Cisco Conference Connection, Cisco Personal Assistant, Cisco Emergency Responder, routers, gateways, switches, and IP phones.
Software compatibility	Windows 2003 Server The user interface can be accessed using Internet browsers Microsoft Internet Explorer 6.0 and Mozilla 1.0 on Windows 2003 and Windows XP platforms.
Protocols	Uses SNMP, SCCP, and HTTP (Cisco AVVID Extensible Markup Language [XML] layer based) to monitor the IP Communications deployment.
Features and functions	Automatic device and phone discovery, servicelevel view, real-time alerts, diagnostic tests, service-quality alerting, endpoint status and endpoint status change reports, north-bound interfaces, performance and capacity monitoring, historical alerts, event and service-quality reports, context-sensitive launch of other CiscoWorks tools.

SYSTEM CAPACITY

Table 2. System Capacity (per Operations Manager Instance)

System Parameter	Capacity		
Monitored phones	1000	10,000	30,000
Monitored devices	300	1000	2000
Monitored Cisco CallManager clusters	10	15	30
Monitored Cisco CallManager Express routers	100	250	500
Monitored Survivable Remote Site Telephony (SRST) routers	10	100	500
Concurrent synthetic tests	25	100	250
Concurrent node-to-node (IP SLA/SAA) tests	25	100	250
Concurrent client (browser) logons	5	5	5

For IP Communications deployments of more than 30,000 phones, multiple CiscoWorks IP Communications Operations Manager 1.0 servers can be deployed to monitor the deployment. These servers can share device and credential information between them and administrators can perform centralized device and credential management. By integrating with a Cisco Secure-Access Control Server, administrators can centrally control user access. Each of these servers will roll up the status of the network being monitored to a higher-level entity (typically a manager of managers) via SNMP traps and syslog notifications.

FEATURES

- Automatic device and phone discovery
- Service-level view of the complete IP Communications deployment with current status information on all monitored elements
- Real-time alerting on all the monitored IP Communications devices
- Diagnostic tests such as end-to-end synthetic tests, node-to-node IP SLA tests, and phone status tests
- Service-quality alerting based on information from CiscoWorks IP Communications Service Monitor 1.0
- Endpoint status and endpoint status change reports
- Northbound interfaces using SNMP traps, syslogs, and e-mail notifications with context-sensitive links to more detailed information
- Performance and capacity monitoring of different IP Communications devices
- Historical alert, event, and service-quality reports
- Context-sensitive launch of other CiscoWorks tools in the deployment

SYSTEM REQUIREMENTS

Table 3. System Requirements

Description	Specification		
Server Requirements			
System Parameters	**Up to 1,000 phones**	**Up to 10,000 phones**	**Up to 30,000 phones**
Processor	Pentium 4 processor > 2 GHz	Dual Pentium 4 or Xeon processor > 3 GHz	Dual Pentium 4 or Xeon processor > 3 GHz

Memory	2 GB RAM (3 GB Recommended)	4 GB RAM	4 GB RAM
Swap file	4 GB swap file	8 GB swap file	8 GB swap file
Disk space	60 GB hard drive	60 GB hard drive	60 GB hard drive
Hardware	Server platform	Server platform	Server platform
Software	Windows 2003 Server	Windows 2003 Server	Windows 2003 Server
Client Requirements			
Processor	Pentium 4 processor > 1 GHz		
Memory	512 MB RAM (1GB Recommended)		
Swap file	1 GB swap file		
Hardware	Any PC/server platform		
Software	Microsoft Internet Explorer 6.0, Windows XP Home, Windows XP Professional, Windows 2003 Server		

The requirements in Table 3 outline the minimum hardware configuration needed to operate CiscoWorks IP Communications Operations Manager 1.0 at different scalability levels. The client requirements dictate the platform from which the user interfaces (Internet browser-based) are invoked. For IP Communications deployments of more than 30,000 phones, multiple CiscoWorks IP Communications Operations Manager 1.0 servers can be deployed to monitor the deployment. These servers can share device and credential information between them and administrators can perform centralized device and credential management. By integrating with a Cisco Secure-Access Control Server, administrators can centrally control user access. Each of these servers will roll up the status of the network being monitored to a higher-level entity (typically a manager of managers) via SNMP traps and syslog notifications.

ORDERING INFORMATION

CiscoWorks IP Communications Operations Manager 1.0 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 they grow their IP Communications deployment 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. Licenses are available for monitoring at 1000-phone, 5000-phone, 10,000-phone, and 30,000-phone levels. Depending upon the license installed on the server, server hardware requirements and scalability limits are enforced to help ensure that acceptable performance is achieved. Depending on the license that is provided during the installation, appropriate features are enabled. The two different licensing options that are available are (1) CiscoWorks IP Communications Operations Manager 1.0 and (2) CiscoWorks IP Communications Operations Manager 1.0 with CiscoWorks IP Communications Service Monitor 1.0 on a single server.

To place an order, visit the Cisco Ordering Home Page. Table 4 shows ordering information.

Table 4. Ordering Information

Product Name	Part Number
CiscoWorks IP Communications Operations Manager 1.0	CWIPCOM-1.0-K9
CiscoWorks IP Communications Operations Manager 1.0 with restricted usage license up to 1000 phones.	CWIPCOM-1.0-1K-K9
CiscoWorks IP Communications Operations Manager 1.0 with restricted usage license up to 2000 phones.	CWIPCOM-1.0-2K-K9
CiscoWorks IP Communications Operations Manager 1.0 with restricted usage license up to 5000 phones.	CWIPCOM-1.0-5K-K9

CiscoWorks IP Communications Operations Manager 1.0 with restricted usage license up to 10,000 phones.	CWIPCOM-1.0-10KK9
CiscoWorks IP Communications Operations Manager 1.0 with restricted usage license up to 30,000 phones.	CWIPCOM-1.0-UR-K9
CiscoWorks IP Communications Operations Manager 1.0 -Upgrade from ITEM and VHM	CWIPCOM-1.0-UP-K9
CiscoWorks IP Communications Operations Manager 1.0 -Upgrade from ITEM and VHM with restricted usage license up to 1000 phones.	CWIPCOMUP10-1K-K9
CiscoWorks IP Communications Operations Manager 1.0 -Upgrade from ITEM and VHM with restricted usage license up to 2000 phones.	CWIPCOMUP10-2K-K9
CiscoWorks IP Communications Operations Manager 1.0 -Upgrade from ITEM and VHM with restricted usage license up to 5000 phones.	CWIPCOMUP10-5K-K9
CiscoWorks IP Communications Operations Manager 1.0 -Upgrade from ITEM and VHM with restricted usage license up to 10,000 phones.	CWIPCOMUP10-10KK9
CiscoWorks IP Communications Operations Manager 1.0 UPG -Upgrade from ITEM and VHM with restricted usage license up to 30,000 phones.	CWIPCOMUP10-UR-K9
CiscoWorks IP Communications Management Mid-Market Bundle (CiscoWorks IP Communications Operations Manager 1.0 – maximum 1000 phones + CiscoWorks IP Communications Service Monitor 1.0 + CiscoWorks 1040 Sensor A 1.0 – 2 pack)	CWIP-1.0-MB-1K-K9

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FOR MORE INFORMATION

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