CiscoWorks IP Communications Service Monitor 1.0

CiscoWorks IP Communications Service Monitor 1.0 provides a low-cost, reliable method of monitoring and evaluating the quality of IP Communications-based telephony to help optimize the user experience. It continuously monitors active calls supported by Cisco® IP Communications elements, including the Cisco CallManager, Cisco Unity®, Cisco CallManager Express, Cisco Unity Express, Cisco MeetingPlace® software, Cisco IP Contact Center, Cisco gateways, and routers, and provides real-time notification if the voice quality of a call fails to meet a user-defined quality metric.

Product Overview

CiscoWorks IP Communications Service Monitor 1.0 evaluates and provides quality of voice metrics about active IP telephony calls in a monitored network. It is a component of the CiscoWorks IP Communications management solution that provides real-time management information and diagnostic tools to help ensure an efficient deployment and subscriber satisfaction.

Key Features and Benefits

Real-Time Voice Quality Monitoring

CiscoWorks IP Communications Service Monitor helps enable IP network and IP telephony managers to more effectively manage their IP Communications infrastructure by providing near-real-time information about the end-user experience of active phone calls in their network. The user experience is expressed as a Mean Opinion Score (MOS) that is calculated based on the ITU G.107 standard. The end user experience is captured, analyzed, and reported as an MOS score every 60 seconds.

Real-Time Voice Quality Alerts

CiscoWorks IP Communications Service Monitor performs service-quality monitoring by analyzing RTP streams flowing between IP phones. It creates an MOS value based on its performance characteristics. If the MOS violates a user-defined threshold, an SNMP trap is generated and sent to the CiscoWorks IP Communications Operations Manager. The Operations Manager uses the information by presenting service-quality (quality of voice) alerts on a real-time basis and assisting in further diagnostics to help resolve any problems.

Ease of Installation and Use

The Cisco 1040 Sensor behaves in a way similar to Cisco IP phones: it uses IEEE 802.3af standard PoE, obtains its configuration information and downloads it from a TFTP server (which can be the same server used by other Cisco IP telephony components), and uses SCCP to ensure continuous communication with the IP Communications Service Monitor application.

Scalability and Redundancy

Up to 10 Cisco 1040 sensors are supported by a single instance of the CiscoWorks IP Communications Service Monitor software. Multiple instances of the Service Monitor can be installed in a monitored network to provide a distributed and redundant mechanism to capture and analyze IP telephony call quality. Each Cisco 1040 sensor can monitor 80 RTP streams with optimal span port configuration i.e. in a typical setup the best practice is to deploy the 1040 sensors in pairs and as close to the IP phone. From the origination phone standpoint there are two

RTP streams involved, one leaving the phone and the other coming into the phone, for the 1040 sensor closer to the origination phone the RTP stream coming from destination phone into origination phone is important because of the impairments picked up by the packet traversing from destination phone to origination phone and this is the RTP stream that the administrator must worry about to determine the user experience. The span port can be configured in such a way that the span destination port will have visibility into ingress packets only and there by monitoring 80 RTP streams. Multiple service monitors can be defined for each Cisco 1040 Sensor (as primary, secondary, etc.) to help ensure high availability and reliability of the solution.

North-Bound Interfaces

The Cisco 1040 Sensor evaluates voice RTP streams and produces an MOS value for each monitored call stream. Every MOS value is evaluated against a user-defined threshold by the CiscoWorks IP Communications Service Monitor. If a threshold violation is detected, an SNMP trap can be sent to the CiscoWorks IP Communications Operations Manager, where it can be displayed on a real-time alert dashboard that provides a launching point for diagnostic tools and processes. The SNMP traps can also be sent to other management applications and tools.

The Cisco 1040 Sensor evaluates data streams supporting voice (based on codec encoding) and produces an MOS value for each monitored call stream. In order to provide near-real-time alerting of any detected poor call quality, every 60 seconds the MOS data is summarized, analyzed, and reported. The reporting of the call information and quality metrics is through a syslog message to the software component of the CiscoWorks IP Communications Service Monitor. The software component resides on a Microsoft Windows platform and can receive messages from one or more Cisco 1040 sensors. The quality of voice metrics are optionally summarized and stored in a data file for subsequent analysis and reporting by any of several third-party applications. Every MOS value is evaluated against a user-defined threshold. If a threshold violation is detected, a Simple Network Management Protocol (SNMP) trap can be sent to the CiscoWorks IP Communications Operations Manager, where it can be displayed on a real-time alert dashboard that provides a launching point for diagnostic tools and processes. The SNMP traps can also be sent to other management applications and tools.

The CiscoWorks IP Communications Service Monitor will satisfy most quality-monitoring requirements for enterprise IP telephony. Two typical deployment strategies include strategic monitoring and tactical monitoring.

In strategic monitoring, the Cisco 1040 Sensor is installed to continuously monitor IP phones at some or all locations in the managed environment. Depending on the monitoring goals, significant coverage of all or most sites could be included or, by using sampling techniques, representative sites would be selected for monitoring and would determine the location of the Cisco 1040 sensors. The CiscoWorks IP Communications Service Monitor can scale to support up to 10 Cisco 1040 sensors and can provide real-time alerting on call-quality issues as well as provide information that can be used to evaluate general service levels and to validate performance of service-level agreements (SLAs).

In tactical monitoring environments, the Cisco 1040 sensors can be inexpensively shipped overnight to a site (such as a branch office) having voice-quality concerns or problems. Once it is installed, it can immediately begin to monitor and assess the quality of IP-based calls without elaborate setup or complicated installation issues. The Cisco 1040 Sensor is FCC Class B compliant and can easily be installed in any office environment.

As the worldwide adoption of IP-based telephony progresses, many technologies and approaches are attempting to provide quality-of-voice metrics for the enterprise. While many of these offerings provide broad monitoring and analysis of general network performance that could impact quality of voice, the CiscoWorks IP Communications Service Monitor has several inherent advantages and features that help ensure an easily integrated solution for monitoring voice quality:

- The Cisco 1040 Sensor evaluates the performance of the actual RTP data streams of the monitored calls
- The Cisco 1040 Sensor uses the standards-based ITU G.107 R-factor to evaluate and score the monitored call

- The Cisco 1040 Sensor uses standards-based IEEE 802.3af PoE

- The Cisco 1040 Sensor is FCC Class B compliant and can be installed in any office environment

- The CiscoWorks IP Communications Service Monitor provides a distributed, scalable solution to facilitate cost-effective quality-of-voice monitoring

- The CiscoWorks IP Communications Service Monitor voice-quality alerts integrate with the CiscoWorks IP Communications Operations Manager and present the information in a specialized Service Quality Alerts display that provides a launching point for diagnostic tools and processes

Applications

Small and Medium-Sized Enterprises

The CiscoWorks IP Communications Service Monitor can support most enterprise IP telephony voice-quality monitoring requirements. For small and medium-sized deployments (generally less than 1000 phones), the software component for CiscoWorks IP Communications Service Monitor 1.0 can coreside with CiscoWorks IP Communications Operations Manager 1.0 on a single platform. A single installation process installs all necessary components.
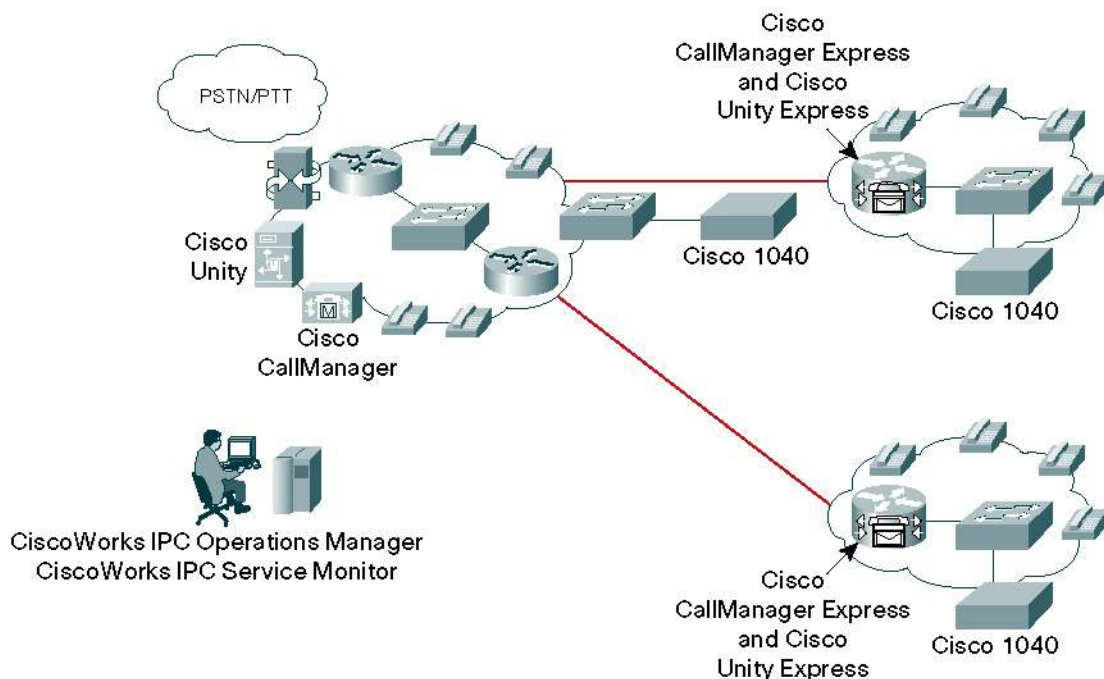
The Cisco 1040 Sensor is available in two bundles. In both bundles the sensors are separately packaged so that individual sensors can be shipped to their intended destination site without additional packing material. The first packaging option is a bundle of two Cisco 1040 sensors. The second packaging option is bundle of six Cisco 1040 sensors and IP Communications Service Monitor.
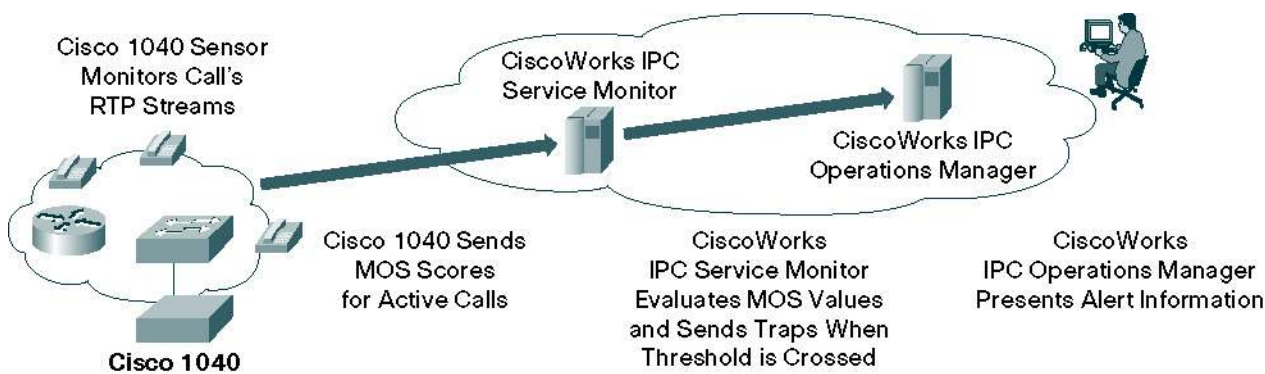
CiscoWorks IP Communications Service Monitor performs service quality monitoring by analyzing RTP streams flowing between IP phones. It creates an MOS value based on its performance characteristics. If it violates a user-defined threshold, an SNMP trap is generated. CiscoWorks

IP Communications Operations Manager is able to use the information by presenting service-quality (quality of voice) alerts on a real-time basis. The CiscoWorks IP Communications Operations Manager processes the SNMP traps that come from CiscoWorks IP Communications Service Monitor and correlates the endpoint information in the trap to associate them to IP phones or IP Communications devices that are currently monitored by CiscoWorks IP Communications Operations Manager and presents that information in the Service Quality Alerts display that provides a launching point for diagnostic tools and processes.

Large Enterprises

For large enterprise deployments (generally more than 1000 phones), the software component for CiscoWorks IP Communications Service Monitor 1.0 might coreside with CiscoWorks IP Communications Operations Manager 1.0 on a single platform (depending on how many phone calls are being monitored), but a separate platform is recommended. For substantially larger deployments, or where a dedicated or distributed server is desired, the CiscoWorks IP Communications Service Monitor is packaged separately and can execute on a dedicated server. Up to 10 Cisco 1040 sensors are supported by a single instance of the IP Communications Service Monitor software. Multiple instances of the IP Communications Service Monitor can be installed in a monitored network to provide a distributed, scalable, and redundant mechanism to capture and analyze IP telephony call quality.

The Cisco 1040 Sensor is available in two bundles. In both bundles the Cisco 1040 sensors are separately packaged so that individual Cisco 1040 sensors can be shipped to their intended destination site without additional packing material. The first packaging option is a bundle of two Cisco 1040 sensors. The second packaging option is a bundle of six Cisco 1040 sensors and the software component for the CiscoWorks IP Communications Service Monitor.

System Integrators and Managed Service Providers

CiscoWorks IP Communications Service Monitor is designed for enterprise environments and has several features and benefits that appeal to system integrators and managed service providers that provide outsourced management services to their customers. It can be deployed at a central site and remotely monitor customer networks. It can scale to monitor multiple-site and large deployments, helping managed service providers to monitor the quality of voice experienced by their customers.

Product Architecture

The CiscoWorks IP Communications Service Monitor consists of two elements: a hardware sensor and a software application. The hardware sensor (the Cisco 1040 Sensor) is a small, low-cost device that is used to monitor voice-specific RTP data streams switch. The Cisco 1040 Sensor should be installed on the Cisco switch nearest the IP telephones that are being monitored. The Cisco 1040 sensor behaves in a way similar to Cisco IP telephones: it uses PE using the IEEE 802.3af standard, it obtains its configuration information and downloads it from a TFTP server (which can be the same server used by other Cisco IP telephony components), and uses SCCP to ensure continuous communication with the IP Communications Service Monitor application.

Product Specifications

Tables 1–3 list product compatibility, system capacity, and system requirements for the CiscoWorks IP Communications Service Monitor.

Table 1.   Product Specifications

Description	Specification
Product compatibility	Cisco IP Communications deployments consisting of Cisco CallManager, Cisco Unity software, IP Contact Center products, CallManager Express, Cisco Unity Express, Cisco MeetingPlace software, Cisco Conference Connection, Cisco Personal Assistant, Cisco Emergency Responder, routers, gateways, switches, and IP phones
Software compatibility	Windows 2003 Server for the server platform Windows 2003, Windows XP for the client platform with Internet browsers Microsoft Internet Explorer 6.0 or Mozilla 1.0

Table 2.   System Capacity

System Parameter	Capacity
Number of monitored RTP streams	80 RTP streams per Cisco 1040 Sensor
Number of Cisco 1040 sensors supported by each instance of CiscoWorks IP Communications Service Monitor	10

Multiple instances of the CiscoWorks IP Communications Service Monitor can be deployed (each supporting up to ten Cisco 1040 sensors) to cover the needs of a very large or distributed enterprise. These can report results to a single or multiple instances of IP Communications Operations Manager or another Manager of Managers (MoM).

System Requirements

Table 3.   System Requirements

Description	Specification
Server Requirements	
Processor	Pentium 4 processor, 2 GHz or greater
Memory	2-GB RAM
Swap file	4-GB swap file
Disk space	40-GB hard drive
Hardware	Server platform
Software	Windows 2003 Server
Client Requirements	
Processor	Pentium 4 processor, 1 GHz or greater
Memory	512 MB RAM
Swap file	1 GB swap file
Hardware	Any PC pr server platform
Software	Windows XP Home, Windows XP Professional, Windows 2003 Server

These requirements outline the minimum hardware configuration needed to operate the CiscoWorks IP Communications Service Monitor 1.0. Depending on the size of the network and the number of calls being monitored, these requirements may change.

Ordering Information

To place an order, visit the Cisco Ordering Home Page.

Table 4. Ordering Information

Product Name	Part Number
CiscoWorks IP Communications Service Monitor	CWIPCSA-1040
CiscoWorks IP Communications Sensor A 1.0 – 2 pack	CWIPCSA-1.0-2PK
CiscoWorks IP Communications Sensor A 1.0 – 6 pack with IP Communications Service Monitor 1.0 software	CWIPCSA-1.0-6PK-K9
CiscoWorks IP Communications Service Monitor 1.0 software	CWIPCSM-1.0-K9
CiscoWorks IP Communications Management Midmarket 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

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 the CiscoWorks IP Communications Service Monitor 1.0, visit www.cisco.com or contact your local account representative.

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