

Cisco Unified Service Monitor 8.6

Cisco Unified Communications

Cisco® Unified Communications solutions unify voice, video, data, and mobile applications on fixed and mobile networks, facilitating easy collaboration every time from any workspace. Part of a comprehensive solution that includes network infrastructure, security, wireless, management, or third-party applications and lifecycle services, Cisco Unified Communications management solutions can accelerate deployment, provide cost savings, and enhance productivity.

Product Overview

Cisco Unified Service Monitor (USM) is part of the Cisco Unified Communications Management Suite, consisting of Cisco Unified Provisioning Manager (UPM), Cisco Unified Operations Manager (UOM), Cisco Unified Service Monitor, and Cisco Unified Service Statistics Manager (USSM). Cisco Unified Service Monitor continuously monitors active calls supported by the Cisco Unified Communications system and provides near real-time notification when the voice quality of a call fails to meet a user-defined quality threshold (refer to Figure 1). In addition to voice-quality monitoring, Cisco Unified Service Monitor allows you to perform call classification based on a local dial plan. The on-demand call-detail-record (CDR) reports allow you to view the call records for call analysis.

Figure 1. Cisco Unified Service Monitor: Voice Transmission Quality and Most Impacted Endpoints Report

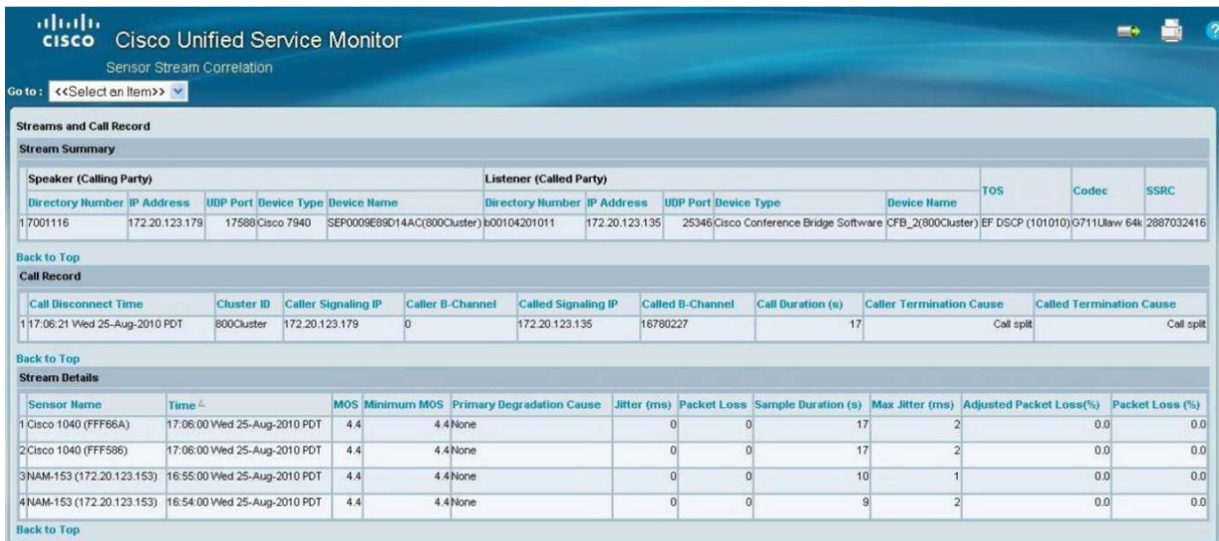


Caller		Called										Impairment Details							Call Release Code		
Listener DN/IP	Cluster ID	Directory Number	B-Channel	Device Type	Device Name	Codec	Device Pool	Directory Number	Codec	Device Pool	Device Type	Signaling Start Time	Call Duration (s)	MOS	Minimum MOS	Jitter (ms)	Packet Loss	Severely Concealed Seconds	Latency	Grade	Called Termination Cause
1.11038	West-Coast11037	N/A	NA	SEP001155190016(West-Coast)	SEP001155190016(West-Coast)	G711Ulaw	NA	11038	G711Ulaw	NA	NA	02:23:51 Thu 07-Jul-2011 PDT	120	3.6	3.6	0	0	0	0	DPoor	No error
2.11038	West-Coast11037	N/A	NA	SEP001155190016(West-Coast)	SEP001155190016(West-Coast)	G711Ulaw	NA	11038	G711Ulaw	NA	NA	02:24:51 Thu 07-Jul-2011 PDT	120	1.8	1.8	0	0	0	0	DPoor	No error

Cisco Unified Service Monitor monitors, evaluates, and generates reports about user-experience metrics associated with active calls on the Cisco Unified Communications system. It provides a comprehensive list of voice-impairment metrics useful in troubleshooting voice-quality problems.

The system generates user-experience reports that provide lists and details of the endpoints (for example, phones and gateways) that are most frequently affected by voice-quality problems. The reports allow you to understand service quality at a system level through call-quality metrics gathered from Cisco Voice Transmission Quality (VTQ) functions. The reports provide information about real-time service quality through Cisco 1040 Sensors and the Cisco Network Analysis Module (NAM) 4.0 and above, and later. The enhanced call-stream correlation report (Figure 2) provides detailed call metrics collected from multiple instances of Cisco 1040 Sensors and the Cisco NAM which will allow system administrators to identify network segments that have a lower-quality user experience.

Figure 2. Cisco Unified Service Monitor: Stream Correlation Report



Features and Benefits

Voice-Quality Measurements and Alerts

Cisco Unified Service Monitor monitors voice-quality measurements in a voice-over-IP (VoIP) network and produces alerts based on measurements exceeding preset thresholds. Key voice-call characteristics such as codec type, jitter, and packet loss are collected and reported.

The phone-based Cisco VTQ solution provides user-experience metrics at the end of all active calls in the network, expressed as a Mean Opinion Score (MOS) calculated value. Real-time MOS values can be produced every 60 seconds for monitored active calls using Cisco 1040 Sensors and the Cisco NAM. Threshold-based alerts are sent to upstream applications such as Cisco Unified Operations Manager or a manager-of-managers application.

Thresholds

Cisco Unified Service Monitor allows you to set thresholds based on device types and codec types, incorporates support for Cisco Unified Communications Manager 8.5, and includes reporting data export. Alerts are sent to upstream applications such as Cisco Unified Operations Manager when a MOS threshold is violated.

Call Classification

Cisco Unified Service Monitor allows you to classify calls based on dial plan per cluster. Call classification has default system-defined call categories and also allows you to define call categories to suit their deployment. Cisco Unified Service Monitor can classify calls to multiple categories to help ensure that users can track calls based on call types. The on-demand CDR reports provide a rich set of filters to generate important call information to facilitate detailed analysis.

Integration with Cisco Unified Operations Manager

Integration with Cisco Unified Operations Manager allows you to send near real-time alerts through Simple Network Management Protocol (SNMP) traps, email, paging, and syslog messages to notify administrators of call-quality degradation. Cisco Unified Operations Manager also allows you to simulate synthetic voice traffic using the Cisco IOS® Software IP service-level agreement (SLA) feature and to perform path analysis between the devices where the endpoints are connected in order to troubleshoot network problems that result in user-experience degradation. For more information, please visit <http://www.cisco.com/go/cuom>.

Integration with Cisco Unified Service Statistics Manager

Integration with Cisco Unified Service Statistics Manager provides long-term statistics analysis and reports for Cisco Unified Communications networks. Using the data collected by Cisco Unified Operations Manager and Cisco Unified Service Monitor, Cisco Unified Service Statistics Manager provides predefined and customizable reports that give visibility into critical metrics, including call volume, service availability, call quality, resource usage, and capacity across the Cisco Unified Communications system. For more information, please visit <http://www.cisco.com/go/cussm>.

Cisco 1040 Sensors

Cisco 1040 Sensors, deployed close to the endpoint (IP phone, gateway, or voicemail system), monitor and evaluate call quality and report this information for active calls in near real time. The Cisco 1040 Sensor, shown in Figure 3, is a shelf-top unit that connects to the network and obtains Power over Ethernet (PoE) through a Cisco Catalyst® switch.

Figure 3. Cisco 1040 Sensor



Cisco Network Analysis Module

The Cisco Network Analysis Module Family of products offers superior visibility into application and network performance to help ensure consistent and efficient delivery of applications and services to end users. The family includes both integrated service modules and self-contained appliances offering deployment flexibility essential for managing application performance and improving operational manageability of the underlying network. Figure 4 shows the Cisco Network Analysis Module For more information, please visit <http://www.cisco.com/go/nam>.

Figure 4. Cisco Network Analysis Module

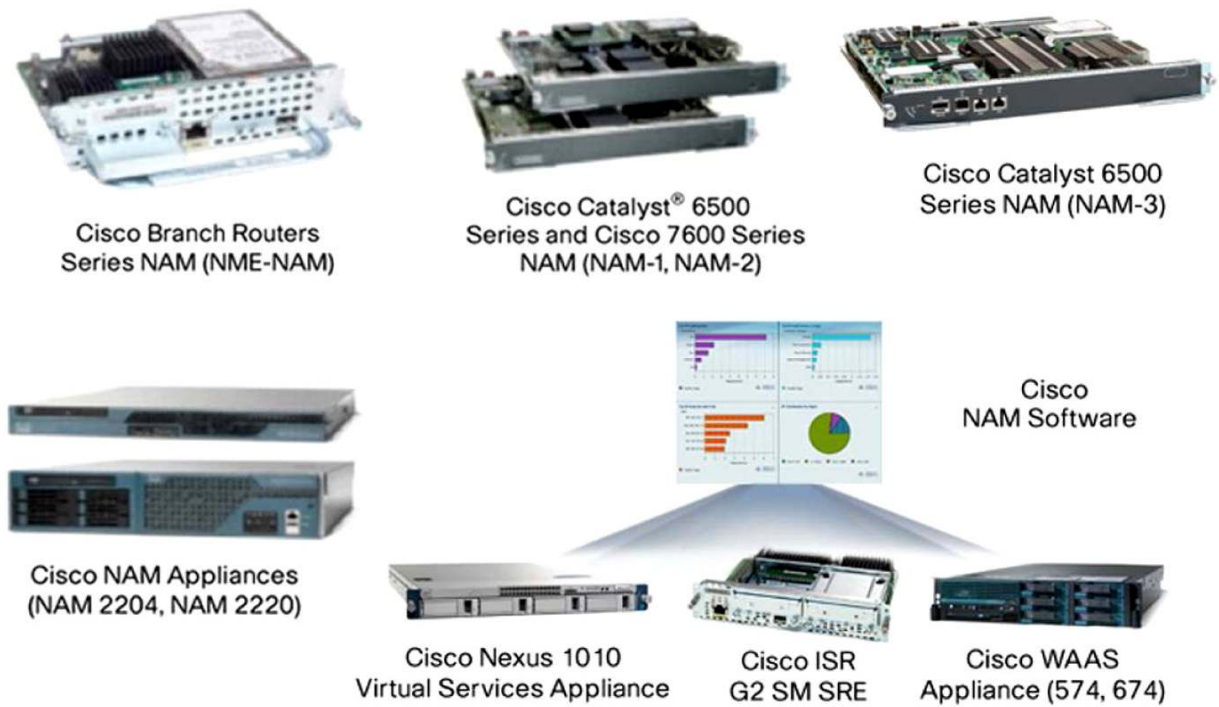


Table 1 lists the differences between the Cisco 1040 Sensor and the Cisco Network Analysis Module.

Table 1. Differences Between Cisco 1040 Sensor and Cisco Network Analysis Module 4.0 and Later

Feature	Cisco 1040	Cisco Network Analysis Module
Function	Instrumentation for monitoring voice quality	Advanced instrumentation that combines application monitoring (including voice), traffic analysis, and troubleshooting
Form factor	Appliance	Blade and appliance
Deployment	Wiring closet	Wiring closet, access, distribution, and campus edge
Scalability	100 Rapid Transport Protocol (RTP) streams per minute	100-4000 RTP streams per minute depending upon the Cisco Network Analysis Module platform
Reports	No built-in user interface	Built-in, real-time views and historical reports
Provisioning and configuration	Access to Trivial File Transfer Protocol (TFTP) server to get configuration file for Cisco Unified Service Monitor registration and call-quality forwarding required	Built-in user interface for configuration; supported by CiscoWorks LAN Management Solution (LMS)
Ports	Two ports: One for monitoring and one for management	Cisco Network Analysis Module blade does not use any ports; Cisco Network Analysis Module Appliance has one management port and multiple monitoring ports based on the form factor

Features and Benefits

Table 2 lists additional features and benefits of Cisco Unified Service Monitor.

Table 2. Additional Features and Benefits

Feature	Benefit
Voice metrics	<ul style="list-style-type: none"> MOS, jitter, maximum jitter, packet loss, adjusted packet loss, packet loss percent, codec type, type of service, and several other metrics help identify network problems causing voice-quality degradation.
Correlated reports	<ul style="list-style-type: none"> Enhanced call-quality reports can track calls that pass through one or more instances of the Cisco 1040 Sensor and the Cisco Network Analysis Module. Instrumentation on the Cisco 1040 Sensor and Cisco Network Analysis Module allows Cisco Unified Service Monitor to report on voice quality as the call moves along the unified communications network segments. Reports correlate metrics from the Cisco 1040 Sensor and Cisco Network Analysis Module and CDRs from Cisco Unified Communications Manager for detailed analysis to facilitate troubleshooting of call-quality degradation.
Most-affected endpoints report	<ul style="list-style-type: none"> The application helps to identify and isolate the endpoints that are experiencing voice-quality problems.
Northbound interface	<ul style="list-style-type: none"> It supports SNMP trap notifications that can be sent to Cisco Unified Operations Manager or manager-of-manager applications.
Enhanced reports	<ul style="list-style-type: none"> Enhanced reports and filter-based reports can suit network administrator needs.
Customized threshold settings	<ul style="list-style-type: none"> Settings are based on location, codecs, and device types. Setup is immediately active, with default threshold values set for each codec. The application allows you to define customized threshold settings based on endpoints in different locations as well as device types.
Call classification	<ul style="list-style-type: none"> Per cluster dial-plan configuration is possible. The application includes system- and user-defined call categories. There are multiple categories for each call. You can obtain an on-demand report based on several filters, including call category, device type, and successful and failed calls (grouped by call termination cause code).
Scalability	<ul style="list-style-type: none"> The application supports up to 45,000 Cisco Unified IP Phones.
Cisco 1040 Sensors	<ul style="list-style-type: none"> Straightforward deployment is similar to that for IP phones. User experience is monitored and reported every 60 seconds. The application supports up to 100 concurrent RTP streams. It is 802.3af PoE compliant. It uses the ITU G107 R-factor to compute MOS. There are two 10/100 Ethernet interfaces (one management and one Switched Port Analyzer [SPAN] port). The application supports Cisco Discovery Protocol.
Cisco Network Analysis Module	<ul style="list-style-type: none"> The module offers deployment flexibility with a choice of integrated service modules and standalone appliances. Real-time voice monitoring is combined with advanced troubleshooting. The solution provides accurate voice-quality characterization with ITU G107 R-factor based MOS values. It supports varying concurrent RTP streams based on form factor to best fit the deployment. The solution offers proactive detection of voice-quality degradation, minimizing effect on end users. It provides historical trend analysis.

System Requirements

Table 3 lists the minimum system requirements for Cisco Unified Service Monitor. For VMware platform and more detailed specifications please refer to the Cisco Unified Service Monitor Installation Guide at

http://www.cisco.com/en/US/products/ps6536/prod_installation_guides_list.html.

Table 3. System Requirements

Server Requirements (No VMware; single instance of Cisco Unified Service Monitor)				
Component	Minimum Requirement			
Processor	Up to 1,000 phones	Up to 10,000 phones	Up to 30,000 phones	Up to 40,000 phones
	Two processors or dual core, 2GHz minimum each		Four processors or quad core, 2GHz minimum each	
CDR/RTP Stream rate together	Up to 50/100	Up to 150/800	Up to 500/1500	
Software	Windows Server 2003 Standard Edition or Enterprise Edition with Service Pack 1 or 2 Windows Server 2008 Standard Edition or Enterprise Edition with Service Pack 2 for 32-bit support only VMware ESX 3.5 or ESXi 4.0			
Memory	4 GB RAM and 4 GB virtual memory			
Disk Space	84GB recommended			
Client Requirements				
Processor	Dual Core, 2 GHz minimum (PC or Mac)			
Memory	2 GB RAM minimum			
Browser	Microsoft Internet Explorer 8 Firefox 3.6 4			
Resolution	1440x900 minimum			

* Windows Server 2008 Enterprise Edition (64 bit) and Windows Server 2008 R2 Edition are not supported operating systems.

Supported Devices

For the specific versions of device and Cisco IP Phone models that have been certified in testing, visit http://www.cisco.com/en/US/products/ps6536/products_device_support_tables_list.html.

Ordering Information

The base part number includes licensing for the indicated number of phones, and licenses are added to increase the number of phones supported (Table 4). You can order Cisco Unified Service Monitor as part of a management suite bundle or as a standalone product. You can order the Cisco 1040 Sensor as a standalone component or as part of the UCMS-MON bundle. The Cisco 1040 Sensor comes in two- and five-pack versions, as shown in Table 4.

Cisco Unified Service Monitor 8.6 is a minor upgrade from either USM 8.0 or USM 8.5 and does not require a new license. For the minor upgrade, download the USM 8.6 software image from the Cisco.com software [download site](#). It is a major upgrade from USM 2.x so all existing USM 2.x customers must purchase the upgrade license (L-USM-B-UPG=) to get it to work. The upgrade part number is the single part number required to update any USM 2.x, regardless of the number of phones supported.

To place an order, visit the [Cisco Ordering Homepage](#). The Cisco Unified Communications Management Suite Ordering Guide, available to Cisco employees and partners, provides instructions on how to order management product bundles that deliver significant savings over the individual product pricing. Please contact your Cisco account representative for details.

Table 4. Ordering Information

Product Name	Part Number
UOM 8.x, USM 8.x, USSM 8.x, UPM 8.x Suite Bundle 1000 IP Phone LIC-K9	R-UCMS-STE-B-1K
UOM 8.x, USM 8.x, USSM 8.x, UPM 8.x Suite Bundle 5000 IP Phone LIC-K9	R-UCMS-STE-B-5K
UOM 8.x, USM 8.x, USSM 8.x, UPM 8.x Suite Bundle 10,000 IP Phone LIC-K9	R-UCMS-STE-B-10K
UOM 8.x, USM 8.x, USSM 8.x, UPM 8.x Suite Bundle 20,000 IP Phone LIC-K9	R-UCMS-STE-B-20K
UOM 8.x, USM 8.x, USS M8.x, UPM 8.x Suite Bundle 30,000 IP Phone LIC-K9	R-UCMS-STE-B-30K
Unified Communications (UC) Management Suite Mon Bundle 500 LIC for UOM 8.x and USM 8.x-K9	UCMS-B-MON500
UC Management Suite Mon Bundle 1000 LIC for UOM 8.x and USM 8.x-K9	UCMS-B-MON1K
UC Management Suite Mon Bundle 2000 LIC for UOM 8.x and USM 8.x-K9	UCMS-B-MON2K
UC Management Suite Mon Bundle 5000 LIC for UOM 8.x and USM 8.x-K9	UCMS-B-MON5K
UC Management Suite Mon Bundle 10,000 LIC for UOM 8.x and USM 8.x-K9	UCMS-B-MON10K
UC Management Suite Mon Bundle 20,000 LIC for UOM 8.x and USM 8.x-K9	UCMS-B-MON20K
UC Management Suite Mon Bundle 30,000 LIC for UOM 8.x and USM 8.x-K9	UCMS-B-MON30K
UC Management Suite Mon Bundle 45,000 LIC for UOM 8.x and USM 8.x-K9	UCMS-B-MON45K
Cisco Unified Service Monitor 8.6 Software Image License - order one to get access to Electronic Software Delivery download image	R-USM-8.6-K9=
Unified Service Monitor 8.x up to 500 Phone License-K9	L-USM-B-500=
Unified Service Monitor 8.x up to 1000 Phone License-K9	L-USM-B-1K=
Unified Service Monitor 8.x up to 2000 Phone License-K9	L-USM-B-2K=
Unified Service Monitor 8.x up to 5000 Phone License-K9	L-USM-B-5K=
Unified Service Monitor 8.x up to 10,000 Phone License-K9	L-USM-B-10K=
Unified Service Monitor 8.x up to 20,000 Phone License-K9	L-USM-B-20K=
Unified Service Monitor 8.x up to 30,000 Phone License-K9	L-USM-B-30K=
Unified Service Monitor 8.x up to 45,000 Phone License-K9	L-USM-B-45K=
Unified Service Monitor Upgrade 2.x to 8.x	L-USM-B-UPG=
Cisco 1040 Sensor 2 Pack	CUSM-1040-2PK
Cisco 1040 Sensor 5 Pack	CUSM-1040-5PK

Cisco Unified Communications Services

Cisco Unified Communications Services allows you to accelerate cost savings and productivity gains associated with deploying a secure, resilient Cisco Unified Communications Solution. Delivered by Cisco and our certified partners, our portfolio of services is based on proven methodologies for unifying voice, video, data, and mobile applications on fixed and mobile networks. Our unique lifecycle approach to services enhances your technology experience to accelerate true business advantage. For more information about Cisco services, refer to [Cisco Technical Support Services](#) or [Cisco Advanced Services](#).

For More Information

For more information about Cisco Unified Service Monitor, please visit <http://www.cisco.com/go/cusm>, contact your local Cisco account representative, or send an email to the Cisco product marketing group at ask-ucms@cisco.com.



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