

CA Unified Communications Monitor

Installation Guide

Version 3.4



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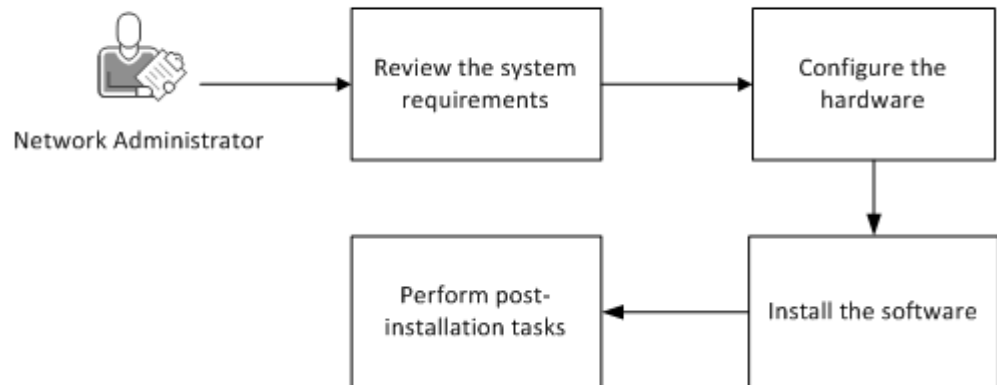
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Chapter 1: Introduction

The following diagram illustrates the process of installing and configuring the hardware and software for CA Unified Communications Monitor (UC Monitor):

How to Install CA Unified Communications Monitor



The following topics describe the process of installing and configuring the hardware and software for UC Monitor:

- [Review the system requirements](#) (see page 9)
- [Configure the hardware](#) (see page 15)
- [Install the software](#) (see page 19)
- [Perform post-installation tasks](#) (see page 23)

Chapter 2: System Requirements

This section contains the following topics:

[Supported Operating System](#) (see page 9)

[Supported Web Browsers](#) (see page 10)

[Hardware Requirements for a Distributed System](#) (see page 10)

[Hardware Requirements for a Standalone System](#) (see page 11)

[Virtual Machine Requirements](#) (see page 12)

[Port and Protocol Requirements](#) (see page 12)

Supported Operating System

All servers that host UC Monitor components have the following operating system requirements.

Management console in a distributed system, or the server in a standalone system

Microsoft Windows Server 2008 R2, Standard or Enterprise Edition

- Install the Application Server role with the following role services:
 - Web Server (IIS) Support, with IIS 6 Management Compatibility
 - COM+ Network Access
- Install and enable the following items:
 - SNMP
 - The most recent service pack and important updates

Standard collector or small-site collector in a distributed system

Microsoft Windows Server 2008 R2, Standard or Enterprise Edition

- Install and enable the following items:
 - SNMP
 - The most recent service pack and important updates

Important: UC Monitor supports Microsoft Windows Server 2008 R2. Although you can install the product on Microsoft Windows Server 2003, we cannot guarantee performance.

Supported Web Browsers

Access to the management console is supported for the following browsers:

- Microsoft Internet Explorer 7 and 8
- Mozilla Firefox 9.x
- Google Chrome

Other browsers or versions may work but have not been tested with UC Monitor.

Hardware Requirements for a Distributed System

In a *distributed* system, the collectors and the management console are installed on separate servers.

Management Console

The management console server contains the MySQL database and supports approximately ten standard collectors or 30 small-site collectors. CA has tested UC Monitor on servers with the following specifications. CA supports the management console on servers from any vendor, when the servers conform to these specifications, at minimum:

- Two Intel E5520 Xeon quad-core 2.66 GHz, 1333 MHz FSB processors
- 24 GB of RAM
- Six 146-GB SAS hard drives in RAID 5 configuration
- 300 GB of space on the installation drive (to accommodate potential database growth)
- Intel Copper GB or Intel Fiber GB network interface card
- PCI Express x16 slot expansion card
- Two 10/100/1000 Mbps Ethernet RJ-45 ports
- Intel 82576 Gigabit Ethernet Controller

Standard Collector

CA has tested UC Monitor on servers with the following specifications. CA supports the collector on servers from any vendor, when the servers conform to these specifications, at minimum:

- Intel E5520 Xeon quad-core 2.66 GHz, 1333 MHz FSB processor
- 3 GB of RAM
- Three 146-GB SAS hard drives in RAID 5 configuration

- 300 GB of space on the installation drive (to accommodate potential database growth)
- Intel Copper GB or Intel Fiber GB network interface card
- PCI Express x16 slot expansion card
- Two 10/100/1000 Mbps Ethernet RJ-45 ports
- Intel 82576 Gigabit Ethernet Controller

Small-site Collector

A distributed, *small-site*, system is available for deployments with multiple sites of 1,000 phones or fewer. CA supports the small-site collector on servers from any vendor, when the servers conform to the following specifications, at minimum:

- Intel Celeron E1500 2.2 GHz, 800 MHz FSB processor
- 2 GB of RAM
- SATA II 3.5-inch hard drive
- Intel Copper GB or Intel Fiber GB network interface card
- 10/100/1000 Mbps Ethernet RJ-45 port
- Two Intel single-port 82576 PCI-E Gigabit Ethernet Controllers

Hardware Requirements for a Standalone System

A *standalone* system consists of one server on which the management console and collector are installed. CA supports UC Monitor components on servers from any vendor, when the servers conform to the following specifications, at minimum:

- Two Intel E5520 Xeon quad-core 2.66 GHz, 1333 MHz FSB processors
- 24 GB of RAM
- Six 146-GB SAS hard drives in RAID 5 configuration
- 300 GB of space on the installation drive (to accommodate potential database growth)
- Intel Copper GB or Intel Fiber GB network interface card
- PCI Express x16 slot expansion card
- Two 10/100/1000 Mbps Ethernet RJ-45 ports
- Intel 82576 Gigabit Ethernet Controller

Virtual Machine Requirements

UC Monitor is supported in virtual environments.

- You can install UC Monitor components on virtual machines that meet or exceed the hardware requirements.
- To achieve equal performance in an environment that stresses a physical server, more memory is required on a virtual machine than on a physical server. Physical servers outperform virtual machines in the area of disk I/O. UC Monitor tasks the disk I/O heavily. You can expect less-than-equal performance on a virtual machine.
- In a Cisco environment, send SPAN traffic to the monitor NIC. For more information, see the following topics:
 - [Configure Network Interface Cards](#) (see page 17)
 - [Preparing a Cisco Environment](#) (see page 29)
- To install the UC Monitor software on a virtual machine, follow the instructions in [Installing the Software](#) (see page 19).

More information:

[Hardware Requirements for a Distributed System](#) (see page 10)

[Hardware Requirements for a Standalone System](#) (see page 11)

Port and Protocol Requirements

UC Monitor uses several ports and protocols to enable communications among the management console, collectors, and monitored systems. Use the following information to ensure that communications can pass active firewalls in your network.

TCP port 1000

Open this port for communication from the management console to the collectors. The management console sends instructions, data-collection parameters, and configuration information to the collectors. The CA UCM Collector Communication Service uses this port.

TCP port 1001

Open this port for communication from the collectors to the management console. The CA UCM Console Communicator service uses this port.

TCP port 9000

Open this port to allow CDR data from the Avaya Communication Manager.

UDP port 162

Open this port to let the collectors send SNMP traps to a trap receiver.

UDP port 5005

Open this port to allow RTCP data from Avaya endpoints.

UDP port 9995

Open this port to let medianet-enabled devices send data from Flexible NetFlow to the collector.

Internet Control Message Protocol

Enable ICMP to let the collector send traceroutes to an endpoint.

The default port settings are stored in the UC Monitor database and in the Windows Registry on the collector server. You can change these ports when necessary. For assistance, contact [CA Technical Support](#).

Chapter 3: Configuring the Hardware

When configuring the hardware, you need the following types of cables.

Power cable

Connects the UC Monitor server to a power supply, preferably a UPS.

Management NIC cable

One of the following types:

- Copper NIC cable
- Gb fiber NIC cable

When plugged into a switch, the management NIC provides network access to the UC Monitor server and it enables remote viewing of the management console.

Monitor NIC cable

Collects network traffic from a SPAN port on the switch.

Configure the Server for the Management Console

The management console and the collectors are installed on separate servers in a distributed system. The following procedure describes how to configure the server for the management console.

Follow these steps:

1. Connect one end of the power cable to the power outlet on the server.
2. Connect the other end of the power cable to a power supply.
3. Connect one end of the management cable to a NIC on the server.
4. Connect the other end of the management cable to an appropriate switch.
5. Turn on the server.
6. Configure the monitor and management NICs. For more information, see [Configure Network Interface Cards](#) (see page 17).
7. Configure the server for the collector. For more information, see [Configure the Server for the Collector](#) (see page 16).

Configure the Server for the Collector

The management console and the collectors are installed on separate servers in a distributed system. You can have a maximum of ten standard collectors per management console, or 30 small-site collectors per management console. The following procedure describes how to configure the server for the collector.

Note: In a Cisco Unified Communications Manager environment, place the UC Monitor collector server as physically close to the Cisco call server as possible.

Follow these steps:

1. Connect one end of the power cable to the power outlet on the server.
2. Connect one end of the monitor and management cables to NICs on the server.
3. Connect the monitor cable to the SPAN port.
4. Connect the management cable to the management console server.
5. Turn on the server.
6. Configure the monitor and management NICs. For more information, see [Configure Network Interface Cards](#) (see page 17).

Configure the Server for a Standalone System

In a standalone system, the management console and the collector are installed on the same server.

Follow these steps:

1. Connect one end of the power cable to the power outlet on the server.
2. Connect the other end of the power cable to a power supply.
3. Connect one end of the monitor and management cables to NICs on the server.
4. Connect the other end of the monitor cable to the switch where call servers are connected.
5. Connect the other end of the management cable to another switch, to enable network access to the management console.
6. Configure the monitor and management NICs. For more information, see [Configure Network Interface Cards](#) (see page 17).

Configure Network Interface Cards

After connecting the hardware, configure the network interface cards (NICs) on the collector and management console computers. In a standalone system, all configuration takes place on one computer.

- On each collector computer, set up network connections for the management and monitor NICs.
- On the management console computer, set the priority of the management NIC.
- Assign a static IP address, subnet mask, and default gateway to the management NIC.

Note: The other NICs on the collector, including the monitor NIC, do not transmit data to the network. The IP addresses assigned to them do not need to be valid for the network to which they are connected, nor do they require a default gateway assignment.

When you purchase hardware from CA Technologies, components are delivered with the NIC settings already configured. Use the following procedure to verify the settings or update them as necessary.

When you purchase hardware from a different vendor, perform the following procedure.

Follow these steps:

1. Navigate to the Network Connections window from the Control Panel on the collector and management console computers.
2. Review the names of the LAN or High-Speed Internet Connections. If necessary, change the default names to correspond to the interfaces, as shown in the following table:

Copper Ethernet adapter

Default name: Local Area Connection 2

New name: Management

Copper Ethernet adapter

Default name: Local Area Connection 3

New name: Monitor

Gigabit fiber port

Default name: Local Area Connection

New name: Fiber Monitor

Tip: You can identify devices by disconnecting the cable from the back of the device and noting which interface status changes to "disconnected" in the Network Connections dialog.

3. Disable unused monitor NICs:
 - a. Right-click the NIC.
 - b. Select Disable.
4. Click Advanced, Advanced Settings.
5. Click the up arrow to move the management NIC to the first position in the Connections pane. This action sets the priority and enables UC Monitor to operate correctly.
6. Clear the following “Internet Protocol (TCP/IP)” check boxes for the monitor NIC:
 - File and Printer Sharing for Microsoft Networks
 - Client for Microsoft Networks
7. Click OK.
8. Navigate to the Control Panel and select Network Connections, Local Area Connection.
9. Click Properties on the General tab.
10. Select Internet Protocol (TCP/IP) and click Properties.
11. Select “Use the following IP address” and enter an IP address, subnet mask, and default gateway.
12. Select “Use the following DNS Server addresses” and supply the IP address for the DNS server.
13. Repeat steps 11 and 12 for the monitor NICs, using the following suggested values:

Monitor NIC

IP address: 1.1.0.0

Subnet mask: 255.0.0.0

Fiber Monitor NIC

IP address: 1.1.0.1

Subnet mask: 255.0.0.0

Chapter 4: Installing the Software

When you purchase hardware from CA Technologies, all components are delivered with the UC Monitor software installed. Do not install the software.

When you purchase hardware from a different vendor, install the UC Monitor software on the management console server and all collector servers.

Important: Do not install UC Monitor on a computer on which CA Performance Center is installed.

Installation Prerequisites

Before you install the UC Monitor software, perform the following tasks:

- Prepare your [Avaya](#) (see page 25), [Cisco](#) (see page 29), or [Microsoft](#) (see page 31) environment to be monitored with UC Monitor.
- Install CA Performance Center in your environment. UC Monitor is a data source for CA Performance Center. CA NetQoS Performance Center 6.1 is also supported.
- Disable the following types of third-party software on all servers that host UC Monitor components:
 - Anti-virus
 - Anti-spyware
 - Server monitoring and maintenance tools such as SMS, SUS, or MoM
- Restart all servers to ensure that available operating system patches are applied.
- Obtain the UC Monitor setup file, UCMSSetup3.4.xxx.exe, from [CA Technical Support](#).
- Extract or copy the UCMSSetup3.4.xxx.exe file to the servers on which you want to install the software.

Install the Management Console

Distributed systems have separate servers for the UC Monitor management console and the collectors. Use this procedure to install the management console for a distributed system.

Follow these steps:

1. Double-click the setup program.
The CA Unified Communications Monitor Installer window opens.
2. Click Next.
The License Agreement appears in the window.
3. Read and accept the license agreement, and then click Next.
Installation options appear in the window.
4. Select Unified Communications Monitor Management Console, and then click Next.
Installation folder options appear in the window.
5. (*Optional*) Click Choose to select a different installation location. The default is C:\CA.
6. Click Next.
An installation summary appears in the window.
7. Click Install.
The installation process begins. Messages indicate the progress of the installation. When installation is complete, a "successful installation" message appears in the window.
8. Select "Yes, restart my system now," then click Done.
9. Run the [setup program on the collector servers](#) (see page 21).
You can now perform [post-installation tasks](#) (see page 23).

Install the Collector

Distributed systems have separate servers for the UC Monitor console and the collectors. Use this procedure to install the collectors in a Cisco or Avaya environment.

Note: In a Microsoft environment, you configure a Microsoft server as a Lync collector. For more information, see the UC Monitor online help. Or visit the CA Unified Communications Monitor bookshelf on [CA Support Online](#).

Follow these steps:

1. Double-click the setup program.
The CA Unified Communications Monitor Installer window opens..
2. Click Next.
The License Agreement appears in the window.
3. Read and accept the license agreement, and then click Next.
Installation options appear in the window.
4. Select Unified Communications Monitor Collector, and then click Next.
Installation folder options appear in the window.
5. (*Optional*) Click Choose to select a different installation location. The default is C:\CA.
6. Click Next.
An installation summary appears in the window.
7. Click Install.
The installation process begins. Messages indicate the progress of the installation. When installation is complete, a "successful installation" message appears in the window.
8. Select "Yes, restart my system now," then click Done.
You can now perform [post-installation tasks](#) (see page 23).

Install All Components on One Server

A *standalone* system is one server that hosts the UC Monitor management console and the collector. Use this procedure to install the management console and the collector on one server.

Follow these steps:

1. Double-click the setup program.
The CA Unified Communications Monitor Installer window opens.
2. Click Next.
The License Agreement appears in the window.
3. Read and accept the license agreement, and then click Next.
Installation options appear in the window.
4. Select Unified Communications Monitor Standalone, and then click Next.
Installation folder options appear in the window.
5. (*Optional*) Click Choose to select a different installation location. The default is C:\CA.
6. Click Next.
An installation summary appears in the window.
7. Click Install.
The installation process begins. Messages indicate the progress of the installation. When installation is complete, a "successful installation" message appears in the window.
8. Select "Yes, restart my system now," then click Done.
You can now perform [post-installation tasks](#) (see page 23).

Chapter 5: Post-Installation Tasks

This section contains the following topics:

[Request a Product License](#) (see page 23)

[Install Updates](#) (see page 23)

[Change the Host Name](#) (see page 23)

[Update the List of Trusted Internet Sites](#) (see page 24)

[Synchronize the System Time](#) (see page 24)

[Perform Configuration Tasks from the Management Console](#) (see page 25)

Request a Product License

You should have received a product license when you purchased UC Monitor. A license lets the console display the collected data. Without a license, UC Monitor still collects data, but that data is not available in reports.

If you do not have a product license, contact the CA Customer Care Team at [CA Support Online](#) for assistance with registering the software.

Install Updates

Install all important updates, including the most recent service pack, that are available for the Microsoft Windows operating system.

Install any UC Monitor updates available from the [CA Support Online](#) website.

Change the Host Name

For the collectors in a distributed system, change the host name assigned by CA Technologies. A naming convention similar to the following can help you identify the collector servers:

`<CollectorName>-<ManagementConsoleName>-<Location>`

For example:

`ComMgr1-MainOffice-NYC`

Update the List of Trusted Internet Sites

Add the console server to the list of trusted Internet sites. The process varies by browser. The following instructions are for Microsoft Internet Explorer.

Follow these steps:

1. Launch Internet Explorer on the console server.
2. Click Tools, Options.
3. Click the Trusted Sites icon on the Security tab.
4. Click Sites.
5. Enter **http://localhost** in the "Add this Web site to the zone" field.
6. Click Add.

Synchronize the System Time

Synchronize the system time among all servers where you installed UC Monitor components. Perform the following steps on each server.

Follow these steps:

1. Right-click the date or time on the right edge of the taskbar and select "Adjust date/time."
The Date and Time dialog opens.
2. Click the Internet Time tab.
3. Click "Change settings."
The Internet Time Settings dialog opens.
4. Select the check box labeled "Synchronize with an Internet time server."
5. Select the server with which you want to synchronize. The default is time.windows.com.
6. Click Update Now.
The system time is synchronized with the selected server.
7. Click OK in the Internet Time Settings dialog.
8. Click OK in the Date and Time dialog.

Note: If you have collectors in different time zones, set each device to its local time zone. Times are converted to Greenwich Mean Time (GMT).

Perform Configuration Tasks from the Management Console

Perform the following configuration tasks from the UC Monitor management console:

- Organize phones, endpoints, gateways, and other network components into Locations.
- Add collection devices.
- Customize collector thresholds.
- Customize performance thresholds.
- Enable incidents to trigger response notifications.
- Register UC Monitor as a data source for CA Performance Center.
- Configure SNMP profiles for Cisco voice gateways and Avaya Communication Manager servers.
- Configure users and their roles.

Note: For instructions, see the UC Monitor online help or the *CA Unified Communications Monitor Administrator Guide*. The *Administrator Guide* and other UC Monitor documentation, such as use cases, are available from the CA Unified Communications Monitor bookshelf at [CA Support Online](#).

Appendix A: Preparing an Avaya Environment

UC Monitor supports unified communications deployments that use Avaya Communication Manager for call processing. The collector monitors voice calls made with the following Avaya components:

- Desk phones and softphones
- Communication Manager, including Aura Communication Manager
- Avaya voice gateways

Both the collector and the management console are required for monitoring an Avaya unified communications environment.

Avaya endpoints, including voice gateways, send frequent call-quality reports directly to the collector while calls are in progress. The quality data is sent as RTCP packets. Using SNMP, the collector periodically polls the Communication Manager for device information. The Communication Manager can be configured to send CDR data to the collector after each call is completed.

Many Avaya gateways have an AVAYA_RTP_MIB that can be polled with SNMP. However, RTCP is supported for *all* Avaya gateways. Therefore, UC Monitor relies primarily on RTCP for collecting metrics in an Avaya environment. No switch port or SPAN is required.

An Avaya network administrator performs several tasks to prepare an Avaya environment for monitoring with UC Monitor:

- Enabling access to SNMP agents.
- Enabling Avaya endpoints to send RTCP data to the UC Monitor collector, which takes the role of the RTCP Monitor in an Avaya system.
- Configuring the UC Monitor collector as a CDR recipient.
- Using the Trunk Group Measurement Selection page (in the Communication Manager web interface) to identify the trunk groups that you want to monitor.

Note: Detailed instructions for these tasks are provided in the use case titled "Preparing an Avaya Environment Before Installing CA Unified Communications Monitor." You can find the use case on the CA Unified Communications Monitor bookshelf on <https://support.ca.com>.

Appendix B: Preparing a Cisco Environment

UC Monitor supports unified communications deployments that use Cisco Unified Communications Manager for call processing. Cisco endpoints report quality data to their call server at the completion of every call. The UC Monitor collector inspects these flows for performance metrics. The collector transmits to the management console only the data necessary to calculate and report call setup and call quality.

A Cisco network administrator performs several tasks to prepare a Cisco environment for monitoring with UC Monitor:

- Enabling the Call Stats setting in a voice-quality-enabled SIP profile.
- Enabling the collection of call detail records (CDRs) and call management records (CMRs).
- Enabling the internal web server on IP phones.
- Configuring SPAN ports to mirror voice traffic to the collector.
- Configuring medianet-enabled devices, including IPv4 routing, the collection interval, a custom Flow Monitor record, and Flow Exporter.

Note: Detailed instructions for these tasks are provided in the following documents on the CA Unified Communications Monitor bookshelf on <https://support.ca.com>.

- *Preparing a Cisco Environment Before Installing UC Monitor*
- *Best Practices for Data Acquisition*

Appendix C: Preparing a Microsoft Lync Environment

UC Monitor supports unified communications deployments that use Microsoft Lync for call processing. The flexible product architecture lets you monitor Cisco and Avaya call servers *and* the Lync system, or a pure Lync system.

- No dedicated telephony hardware is required in a Lync environment, although the system does support optional integration with a PBX. Instead, the standard system can process VoIP and video calls. Audio and video calls are integrated with other Microsoft Office applications, such as Outlook, and with user contact information, such as IP address, SIP URI, and presence status.
- UC Monitor supports hardware-based IP phones, such as Polycom, in a Lync system. Users can make calls from supported phones, or from the lightweight Office Communicator application.

A Lync network administrator can configure HTTPS or use authentication certificates to enable secure communication between Lync servers and UC Monitor. UC Monitor does not require HTTPS or authentication certificates, but your environment may require them.

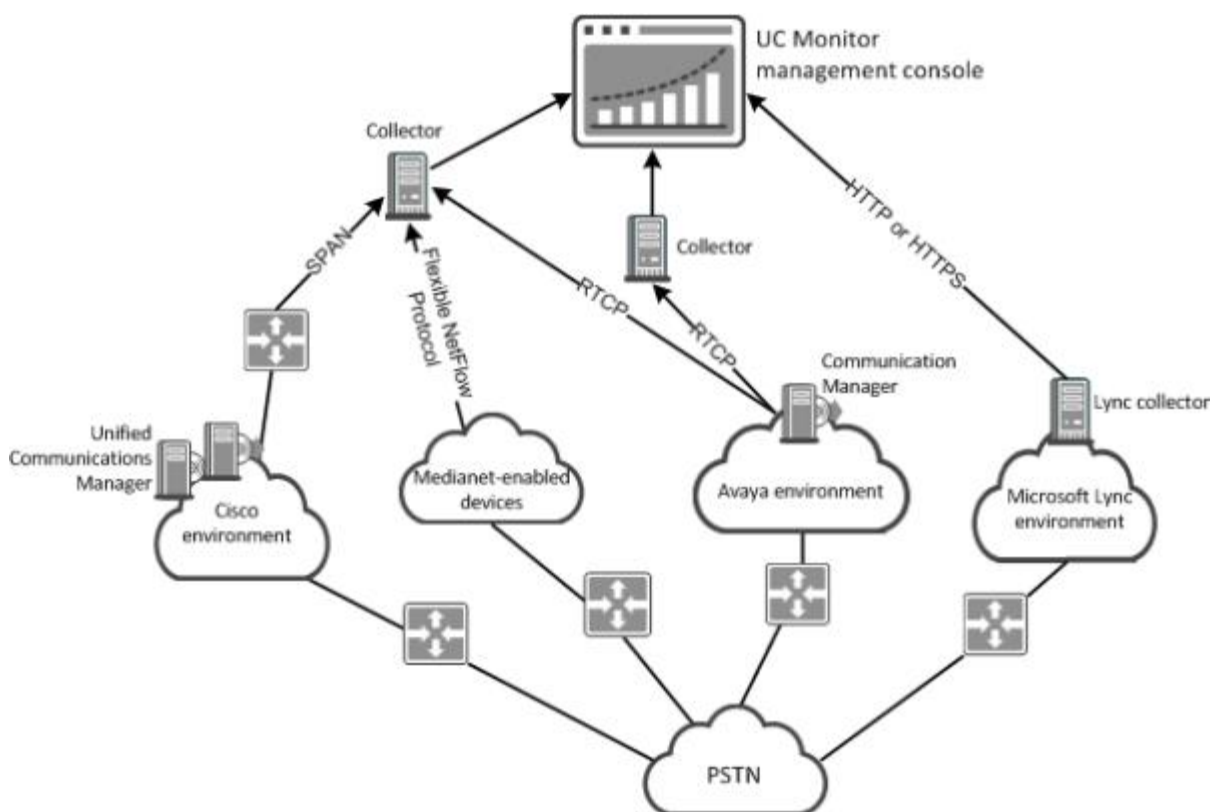
Note: See the Microsoft website for information about managing certification authority on Windows Server 2008 R2:

<http://technet.microsoft.com/en-us/library/cc772011.aspx>.

Appendix D: Example of UC Monitor in a Multi-Vendor Environment

You can use a standalone system or a distributed system to monitor an environment that includes a combination of Cisco, Avaya, and Microsoft components. Collectors can collect data from multiple sources, and all data is correlated at the management console.

The following diagram illustrates a multi-vendor environment that includes medianet:



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