



## Introduction

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This chapter describes the configuration steps to integrate the IM and Presence Service with Microsoft Lync Server for Remote Call Control.

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## About Microsoft Lync Server

Microsoft Lync Server is designed for use in small and medium organization deployments. The server acts as both a SIP registrar and SIP proxy in a single system. The server functionality provides voice capabilities for Remote Call Control to gateways such as the IM and Presence Service and Cisco Unified Communications Manager platforms.

Microsoft Lync Server 2010 Standard Edition installs the Microsoft SQL Server 2008 Express database on the same server to provide data storage for users and configuration system data. Microsoft Lync Server 2010 Enterprise Edition installs the Microsoft SQL Server 2008 Express database on a different server. Commands that are entered from the Lync Server Management Shell are loaded into the SQL database.



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**Note** IM and Presence Service supports integration with Microsoft Lync Server Standard Edition or Enterprise Edition 2010 and 2013.

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## Get More Information

### IM and Presence Service

For additional IM and Presence Service documentation, see the following URL:

[http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd_products_support_series_home.html)

### Cisco Unified Communications Manager

For Cisco Unified Communications Manager documentation, see the following URL:  
[http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd_products_support_series_home.html)

### Microsoft Lync

For Microsoft Lync documentation, see the following URLs:

- <http://technet.microsoft.com/en-us/library/gg558664.aspx>
- <http://office.microsoft.com/en-us/lync/>

### Microsoft Active Directory

For information about Microsoft Windows Server Active Directory, see the following URL:  
<http://technet2.microsoft.com/windowsserver/en/technologies/featured/ad/default.aspx>

## About Remote Call Control

Microsoft Remote Call Control (RCC) allows enterprise users to control their Cisco Unified IP Phone or Cisco IP Communicator Phone through Microsoft Lync, a third-party desktop instant-messaging (IM) application. When a user signs in to the Microsoft Lync client, the Lync server sends instructions, through the IM and Presence Service node, to the Cisco Unified Communications Manager to set up, tear down and maintain calling features based on a user's action at the Lync client.



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**Note** SIP federation and Remote Call Control (RCC) do not work together on the same IM and Presence Service cluster. This is because for SIP federation a user cannot be licensed for both Cisco IM and Presence Service and Microsoft Lync/OCS, but for RCC a user must be licensed for Cisco IM and Presence Service and Microsoft Lync/OCS at the same time.

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**Note** An IM and Presence Service cluster that is used for RCC does not support Jabber or other IM and Presence Service functionality.

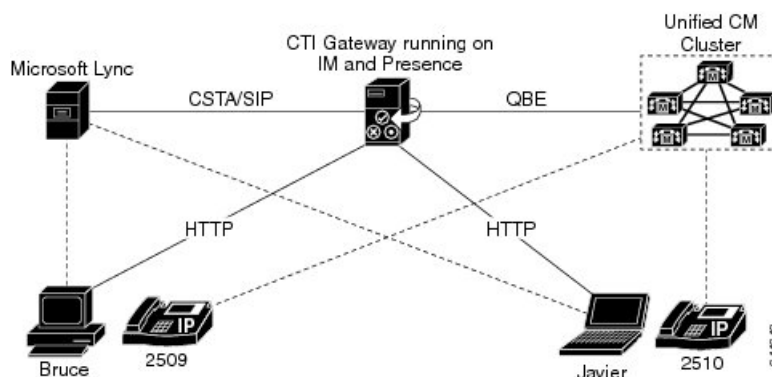
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## Integration Overview

IM and Presence Service allows enterprise users to control their Cisco Unified IP Phone or Cisco IP Communicator Phone through Microsoft Lync, a third-party desktop IM application.

Microsoft Lync sends session-initiating requests to the Computer Telephony Interface (CTI) Gateway on IM and Presence Service to control Cisco Unified IP Phones or Cisco IP Communicator Phones that are registered in Cisco Unified Communications Manager, as illustrated in the following figure. The CTI Gateway forwards the requests to the CTI Manager on Cisco Unified Communications Manager. The Cisco Unified Communications Manager returns the events to the Microsoft Lync application using the same path in the opposite direction.

Figure 1: Integration Overview



### Microsoft Lync sends requests to IM and Presence Service

Microsoft Lync sends session-initiating requests to IM and Presence Service. These requests are routed to the CTI connection addresses that are configured on IM and Presence Service.



**Note** IM and Presence Service supports CTI connections with up to eight Cisco Unified Communications Manager nodes.

The requests are distributed to the CTI connection addresses in a round-robin sequence, for example the first request is routed to first CTI node, second request to next CTI node, and so on. In a dual-node IM and Presence Service cluster, a load balancer can be used to distribute (in a round-robin manner) the session-initiating requests that are sent from Microsoft Lync clients to the publisher and subscriber IM and Presence Service nodes.

### CTI Gateway Monitors CTI Connection Addresses for Microsoft Lync User Sign-In

When the CTI Gateway on IM and Presence Service starts, it connects to all CTI connection addresses in the configured list, and monitors these connections by sending periodic heartbeat messages. When a Microsoft Lync user signs in, Microsoft Lync server sends a SIP INVITE request with a CSTA body to the CTI Gateway to monitor the Cisco Unified IP Phone or Cisco IP Communicator Phone for the user. The CTI Gateway creates a session for that Microsoft Lync user, and uses the load-balancing mechanism to send session-initiating requests from that user to any of the CTI connection addresses.

### CSTA Application Session Is Established

After the CSTA application session is established, Microsoft Lync and CTI Gateway exchange a sequence of SIP INFO messages for activities such as monitoring devices, making calls, transferring calls, or changing the status of controlling devices. This message exchange is sent over the same CTI connection address with which the initial session was established.

If connection to any of the CTI Managers fails, outbound call requests from Microsoft Lync are returned until the connection comes back into service. If a Cisco Unified Communications Manager node is down, the CTI Gateway will make periodic attempts to reestablish a connection to it. When the Cisco Unified Communications Manager node comes back in service, the CTI Gateway will reconnect to it and monitor the connection. In this case, when Microsoft Lync sends an (in-session) SIP INFO request, the CTI Gateway will have a different

CTI Manager connection ID because of a new connection. Microsoft Lync sends a new SIP INVITE message, but the Microsoft Lync user is not required to sign in again.

## Line Appearances

When a user selects a phone to use with the remote call control feature, on IM and Presence Service the user is selecting a line appearance to control through the Microsoft Lync client. A line appearance is the association of a line with a device. On Cisco Unified Communications Manager, the administrator can associate a device with multiple lines, and a line with multiple devices. Typically it is the role of the Cisco Unified Communications Manager administrator to configure line appearances by specifying the lines and devices that are associated with each other.

See the *Microsoft Office Communicator Call Control with Microsoft OCS for IM and Presence Service on Cisco Unified Communications Manager* for information on the configuration steps to integrate IM and Presence Service with Microsoft OCS for Microsoft Office Communicator Call Control.