



Microsoft® Lync™ Server 2010

PRODUCT GUIDE

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Microsoft Lync Server 2010 Product Guide

Introduction

Workplaces are changing. Teams are more distributed. People need productivity tools that enable them to work from virtually anywhere. Yet, despite organizations' technology investments, users struggle to stay connected with colleagues and the business. Slow innovation in traditional technologies such as telephony forces users to choose other modes for collaboration and communication. This makes it more challenging for IT professionals to deliver new capabilities in an integrated, cost-effective, and secure manner.

Microsoft® Lync™ connects users in new ways, regardless of their physical location. The latest release of the Unified Communications platform delivers a fresh, intuitive user experience that is directly accessible from Microsoft Office applications such as Microsoft Outlook®, Microsoft Word, and Microsoft SharePoint®. Lync brings together the different ways people communicate in a single interface, is deployed as a unified platform, and is administered through a single management infrastructure. The unified nature of the system helps reduce costs and facilitates rapid user adoption. And, because Lync is broadly interoperable, it fits into existing IT infrastructure for easier deployment and migration.

Connected End User Experience

Microsoft Lync Server 2010 ushers in a new connected user experience transforming every communication into an interaction that is more collaborative, engaging, and accessible from anywhere. Users seek communications tools that make their work easier and are available anywhere, anytime—including within the context of other applications. Microsoft Lync 2010 is the rich client application that provides presence, IM, voice, and ad hoc collaboration and online meeting capabilities through a single interface. Lync 2010 is easy to use, works closely with familiar tools such as SharePoint and Office applications, and drives user adoption with powerful features and a streamlined communications experience. The client dashboard surfaces common functions such as dial pad, visual voicemail, contact list, and active conversations. Users get an experience that is consistent and familiar across PC, phone, and browser.

Business Need	See
Find and communicate with the right person	Rich Presence, Skill Search
Create a more interactive work environment by building social connections	Activity Feed
Communicate naturally, the way users work	Office Integration, Enterprise Voice
Make every interaction a near face-to-face meeting	Unified Conferencing
Communicate with context from Microsoft Office applications	Office Integration
Stay connected from virtually anywhere	Enterprise Voice

Single, Unified Platform

For IT, the benefits are equally powerful, with a highly secure and reliable system that works with existing tools and systems for easier management, lower cost of ownership, smoother deployment and migration, and greater choice and flexibility. Lync Server 2010 is built from the ground up to be a single platform that works with, and can even replace traditional and IP PBX systems, third-party voicemail systems, and legacy audio, video and Web conferencing solutions.

Business Need	See
Augment or replace traditional PBX	Enterprise Voice, Unified Platform
Suit various user device needs	Choice of Endpoints
Reduce IT management challenges and cost	Simplified Deployment
Create custom business solutions	Extensibility
Flexibly leverage time and cost savings of moving to the cloud	Support for On-premises, Cloud, and Hybrid Deployments

IM and Presence

Rich presence and instant messaging capabilities in Lync Server 2010 help workers find and communicate with one another efficiently and effectively. Integration with familiar Microsoft Office productivity tools and Microsoft SharePoint makes IM and presence a natural part of everyday workflow, enhancing collaboration while making knowledge and expertise inside the organization readily accessible to all users.

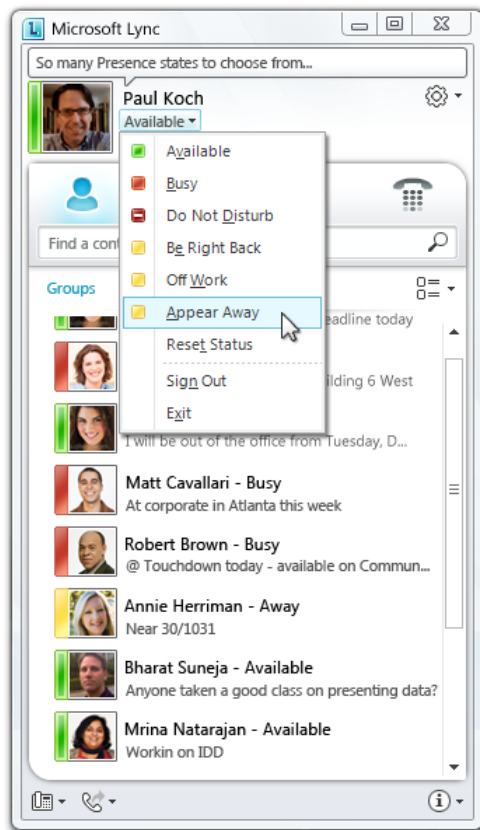
Presence

Presence establishes a user's personal availability through the use of common states such as "Available" or "Busy." With rich presence information, users can make more effective communication choices. A user's presence is a collection of information that includes availability, willingness to communicate, additional notes (such as location and status), and how the user can be contacted. Presence is enhanced in Lync Server 2010 with pictures, location information, and additional states such as "Off Work" to provide more granular information about availability and communication preferences. Enabling users to approach colleagues at the right time with the right communication modality contributes to a more productive work environment. Contact management options let users control what information others can see, such as whether they are working from home, at a client's site, or unavailable.

Lync Server 2010 provides an immediate, visual representation of a user's availability, or presence. By simply looking at the contact list, users can find everything they need at a glance. For example, a green icon means a contact is available, red means a contact is busy, and yellow indicates that a contact is Away from the computer. Picture and location is available with the presence "jellybean," making a richer interface and allowing for better communications decision. Presence can be enhanced with physical locations relative to corporate network access points. Or, users can manually set their location information to let others know precise whereabouts when working from home, a coffee shop, or elsewhere.

Additional presence states (see figure 1) can provide more detailed information about each user's contacts. These presence states include categories such as **Do Not Disturb** and **Be Right Back** in addition to the more familiar states, such as **Available** or **Away**.









Figure 1: Setting presence in Lync 2010



Users can also choose to manually set their status and add a personal note to provide colleagues with more information about status, such as **Reviewing Annual Budget** or **Finalizing Site Design**. With more control over availability and contact information, users can ensure that others know the best way to reach them.

Wherever a contact's name appears—in an e-mail message or on a team site—status and contact information is displayed. Presence also works on Windows Phone® devices that are running Communicator Mobile, so real-time status and contact information of colleagues is also available. Figure 2 highlights the default presence states that come with Lync Server 2010.

Figure 2: Presence states set by the user or Lync Server 2010

	Status Text	Description
	Available	The contact is online and is available to participate in conversations.
	Busy In a Call In a Conference In a Meeting	The contact is online but is engaged in another activity. Activities include: <ul style="list-style-type: none"> In a Call: The contact is in a voice or video conversation. In a Conference: The contact is in a multiparty conversation using phone, voice, video, and/or application sharing. In a Meeting: The Outlook calendar shows that the contact has a scheduled meeting.
	Do Not Disturb	The contact is online but does not want to be interrupted. Users can specify the level of privacy in Do Not Disturb mode by choosing options that enable no display alerts to options that allow alerts from a specified workgroup.
	Away	The contact is online but not available for one of the following reasons: <ul style="list-style-type: none"> The contact's computer has been idle for longer than a time period that is specified by the user (by default, 15 minutes). The contact's Outlook calendar or Out of Office Assistant indicates that he or she is out of the office. The contact is temporarily unavailable. The contact has manually set his or her presence status to Away or Appear Away.
	Off Work	The contact is not at work.
	Offline	The contact is not online. This status is displayed for the following reasons: <ul style="list-style-type: none"> The contact has not signed in. The contact has blocked the user from seeing his or her presence status.
	Presence unknown	Lync Server 2010 cannot determine the status of the contact.
	Blocked	The user has blocked the corresponding contact. To the blocked contact the user appears to be offline.

Device indication

Presence status also provides information on whether a user is signed in to Lync Server 2010 from a mobile device or from an IP phone that cannot accept instant messages. This information helps users make the right communication choice and improves their chances of connecting with the right person more quickly.

Customized presence states

Administrators can define customized presence states in Lync Server 2010. A customized organization-specific presence states, such as **In a Client Consultation** or **In Court**, allows users to provide more relevant information about their status to others.

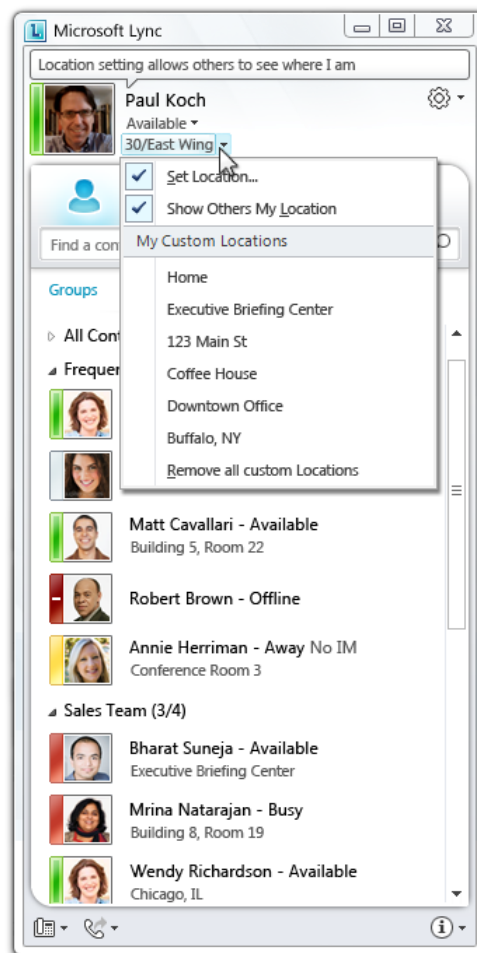
Privacy settings

Additional privacy functionality allows a user to choose how much information to make available to others. Users can block access to presence information except for people in the contact list and choose whether or not to display location information (see figure 3).

Presence in Microsoft Office and SharePoint

Presence information is consistently available in Outlook, SharePoint, and other Office applications by default. Hovering over the presence icon displays a menu that can be used for initiating a conversation from the application. Users get more streamlined communications and “click to communicate” capability from within the applications they use most.

Figure 3: Custom location information



Contacts

Contact list

Lync Server 2010 keeps a list of colleagues who are frequently contacted, giving users an easy way to stay in touch with the people they talk to most. Contacts can be sorted by groups, status, and relationships. Adjust contact list settings to view photos, presence, and status updates, or choose a more condensed view that shows more contacts at once.

Contact tagging

If the required contact is unavailable, users can tag the contact by clicking the right mouse button on the contact's name and selecting **Tag Contact**. After the user tags a contact, the user will automatically receive a notification when the contact's status changes. The tag can be removed when it is no longer needed.

Contact grouping

Users can group their contacts in a variety of ways, including user-defined groups, organization-defined groups, contact presence, or tagged contacts (see figure 4). Contacts can be sorted alphabetically by display name instead of by presence status so that the Contact List can be used as an address book.

Contact card

A visually redesigned contact card (see figure 5) with several new features is available for individual contacts, distribution groups, personal groups, and instant messaging agents (interactive bots that connect to databases to provide query support to users). The same cards can also be seen throughout Microsoft Office applications. Wherever there is presence surfaced in any Office application, users can access a hover card with a picture, note, and communication options. This expands to the new contact card and presents more relevant information about the contact, including personal note and location. The contact card provides easy ways to connect with people, and its consistent user interface across Office applications means that users have a similar experience and set of information regardless of the application they are using.

Figure 4: Contact list by group

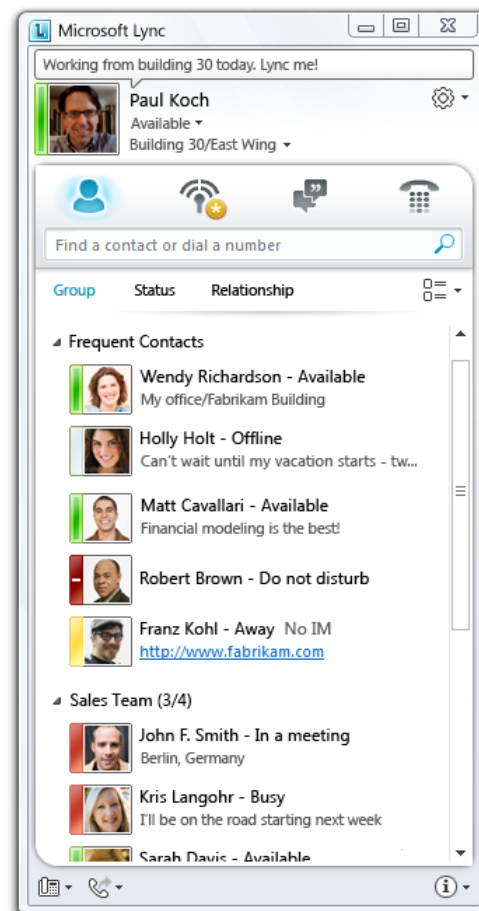
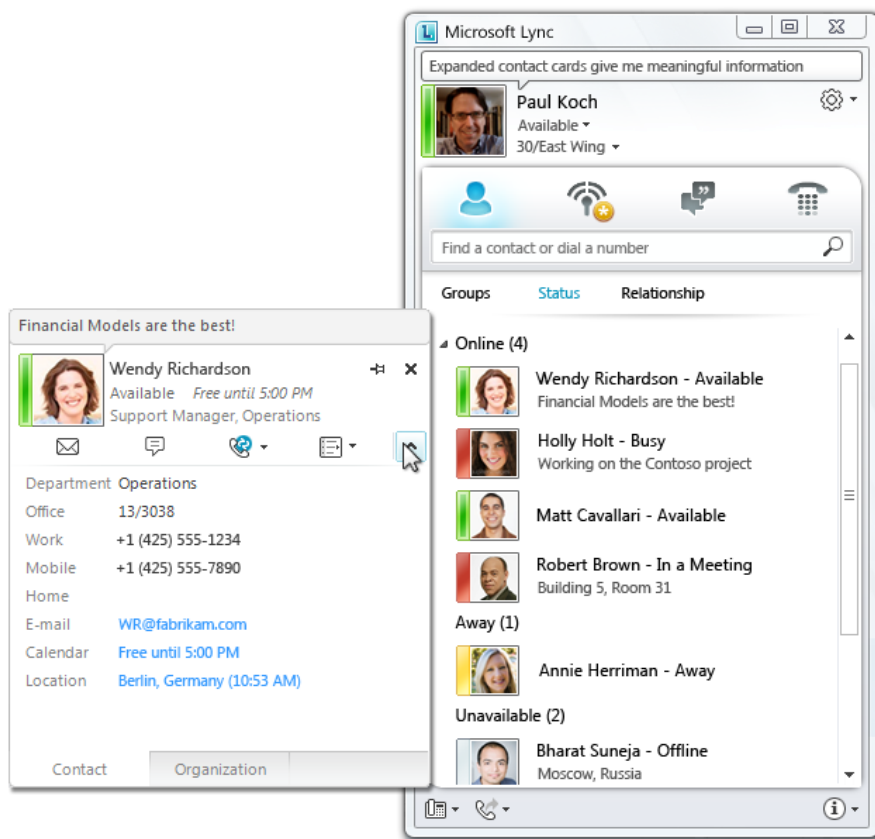


Figure 5: Expanded Contact card



Contact management

Enhancements to contact management features improve ease of use and enable users to customize contact lists according to their preferences. Rich contact displays show two to three lines of contact information including a contact's photo. Users can edit contacts' names or add notes to their contacts.

Unified contacts

All contact identities between Lync Server 2010, Exchange Server 2010, and SharePoint are shared and remain one identity, with Exchange Server acting as the single contact store. Users may also rename contacts or add other details to their contacts' cards for additional context or personal reference.

IM

Conversation management

Conversation history enables users to keep track of old conversations, helping them retrieve important information that may have been communicated over IM months ago. Instant messaging dialogues can be stored with the date and timestamp of each message exchanged. Conversation history is conveniently

located in the Conversations tab. Users can continue previous existing conversations through the Conversations tab.

Federation

Server-to-server federation capabilities allow users to use presence and instant messaging with other Lync Server 2010 users outside the corporate network. Public IM connectivity capability increases reach even further by allowing connections with several public IM networks such as MSN®/Windows Live™, Yahoo!, and AOL. Peer-to-peer audio and video support is available with Windows Live.

Choice of clients

- **Web Access:** Users are able to access contact list, rich presence, and IM through Outlook Web App and Lync Web App.
- **Mobile Devices:** Mobile workers can use Communicator Mobile with a mobile device, updating presence and exchanging instant messages on the go.
- **Mac:** Mac users can use Communicator for Mac 2011 for presence and instant messaging with Lync Server 2010. Enhancements include rich presence with calendar free/busy information and “out of office” message integration, presence in Microsoft Office 2011 for Mac, desktop sharing through Lync Server 2010, and a dial pad with ability to dial out to a public switched telephone network (PSTN) phone number.
- **Microsoft Outlook:** The Lync Server 2010 contact list is also available in Microsoft Outlook. From the contact list, users can view presence and can initiate conversations with colleagues.

Group Chat

The Lync Server 2010 Group Chat console allows groups of users to participate in ongoing discussions on topics of shared interest. The history of the conversation is maintained so that teams in different locations and departments can review discussions, even when users are online at different times. Group Chat enhances team communication and enables geographically distributed teams to work together efficiently.

The interface provides users with a list of available chat rooms on specified topics, provides tools to search through the history of discussions, and offers filters/alerts for notification on new posts on a particular topic.

Joining chat rooms

Users can join chat rooms by viewing the invitation to join the chat rooms or by performing a search based on keywords associated with the applicable chat rooms. Regardless of how users locate chat rooms, they must be included in the chat rooms’ membership lists as defined by the chat room managers.

Posting messages

After users join a chat room, they can post messages to participate in the ongoing discussion and view the history of posts by other members. Lync Server 2010 supports text, images, file posts, hyperlinks, and emoticons. A long post can be condensed into a one-line story format to save screen real estate.

Setting up filters and notifications

Filters enable users to define keywords and other criteria that perform a real-time search of incoming messages to ensure that the user does not miss posts containing critical information. For example, one preset filter called the Ego filter captures all messages that mention the user's name in any chat room of which the user is a member.

Notifications can be customized to alert users when specific content posts are made within a chat room. These features ensure controlled interruptions and at the same time allow the user to be aware of important posts.

Searching for information

Users can search chat histories to locate previously posted content. This capability means team discussions become part of an organization's knowledge resources. When new members join a team, they can search past discussions to get up to speed without asking other team members to forward numerous past chat threads. Users can search chat history by field, including author, date, chat room, or keyword.

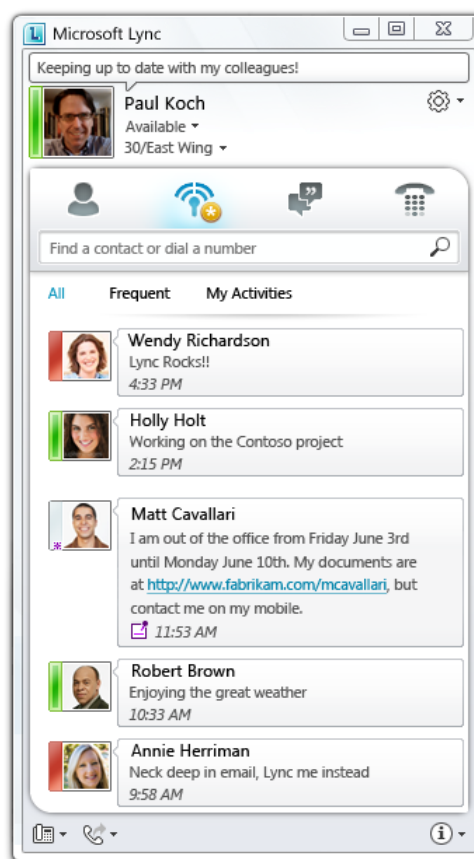
Instant messaging from Group Chat

In Group Chat, users can view the presence status of their peers that are currently in the chat room, which allows them to quickly initiate instant message conversations with each other. Additional modes, such as voice and video, are available via the Lync 2010 conversation window that initiates from the group chat client.

Activity Feed

The Activity Feed (see figure 6) helps users build stronger connections by staying up-to-date on what colleagues are doing. They can share common successes or frustrations by broadcasting opinions and letting everyone know, "What's happening today?" The Activity Feed that shows updates from contacts when they change their personal note, picture, title, or location.

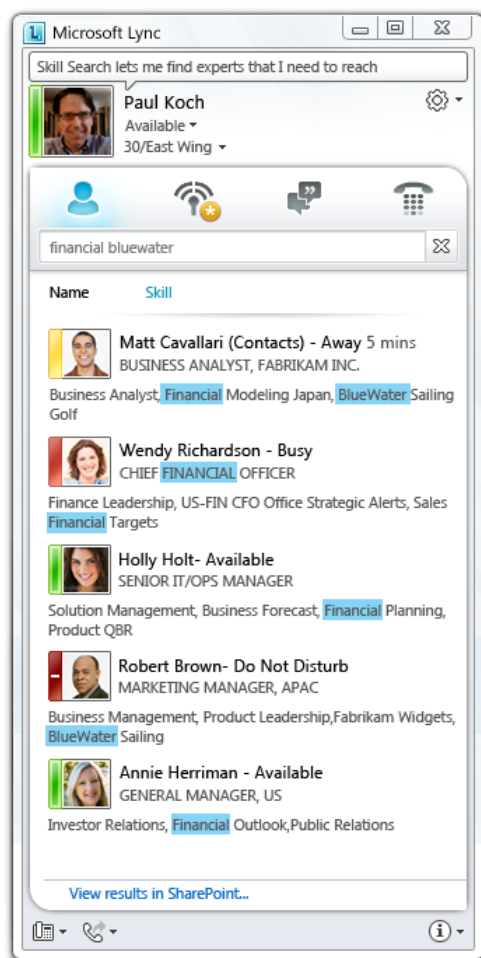
Figure 6: Activity feed



Skill Search

Users can leverage Skill Search, based on information from SharePoint, to find needed expertise within the organization or just people with shared interests. Skill Search enables users to search for an expert using keywords that describe a skill set, expertise, area of interest, or group affiliation and get a list of colleagues that meet the criteria. Using presence information, the user can then choose the best way to contact the appropriate colleagues.

Figure 7: Skill Search



Unified Conferencing

Conferencing capabilities are historically evaluated and acquired by workload—voice, application sharing, Web conferencing, and video conferencing—and limited to users within a department or division within the enterprise. Lync Server 2010 aspires to remove those boundaries, delivering efficiency and cost savings by delivering a unified solution with feature parity to multiple single-workload solutions. New features, a unified client, and simplified operation drive adoption to help users improve productivity without extensive training.

Lync 2010 is the only client needed for all types of meetings, both scheduled and spontaneous. A simple “water-cooler” IM conversation between peers can be escalated to an audio conference with desktop sharing among multiple team members instantly, easily, and without interrupting the conversation flow. The familiar client experience is coupled with deeper integration with Outlook 2010 to make scheduling, joining, and facilitating meetings easier.

With Lync Server 2010, all information workers can use the full breadth of ad hoc collaboration and online meeting tools. Those tools do not have to be reserved for special events or limited to specific physical spaces. The voice and video capabilities of Lync Server 2010 can work reliably and from any location with an Internet connection. And, by reducing travel expenses as well as reliance on third-party conferencing solutions, Unified Conferencing can help businesses achieve substantial cost savings.

With Unified Conferencing in Lync Server 2010, users can collaborate, share information, and coordinate their efforts in real time. Audio, video, and sharing of documents, desktops, and applications are incorporated into the easy-to-use Lync 2010 client, accessible on demand and in the context of a typical workflow. For example, without switching applications, users can escalate a simple IM discussion to a multi-party application sharing session with voice and even video. All parties can see and edit presentations, documents, and other content without a single e-mail exchange.

Scheduling, managing, and joining online meetings

Online meeting tools integrated into Outlook 2010 enable organizers to schedule a meeting or start an impromptu conference with a single click and make it just as easy for attendees to join. Attendees can be placed in a “lobby,” helping the meeting organizer to control access. The meeting roster clearly displays titles and names of attendees. A Web client extends rich conference features to participants who do not have the desktop Lync 2010 client.

Integration with Outlook allows for single-click scheduling. Predefined conference properties meet the majority of user needs without any modification; for specific needs, meeting types and admission policies can be set by the organizer. Simplified meeting URLs are easier to remember to communicate. All conference join links start with `http://`, which makes them shorter and less likely to be truncated by e-mail clients, and also makes it possible for these links to launch Web clients if needed. The first part of a simple URL is your external fully qualified domain name, which can be followed by an easy-to-remember word like “meet.”

Joining conferences with a single click from the Outlook meeting reminder is another simple time saver. Communicator Mobile users can also join with a single click.

Users that fail to authenticate when requested no longer need to disconnect and retry. They are transferred to the lobby where they wait until a leader accepts or rejects them, or they time out and are disconnected. PSTN dial in users who are not authenticated are prompted to record their name. The recorded name identifies unauthenticated users in the conference.

Conference attendees can join from leading Web browsers to get capabilities such as conference calling, guest user support, PSTN dial-out audio, and desktop sharing on Microsoft Windows®, Mac, and Linux. The Web client experience also enables high-fidelity viewing, file upload and download, presentation viewing, whiteboard, lobby, and presenter access controls.

Once admitted to a conference, dial-in users can select commands using a touch-tone phone keypad. Dial-in leaders can mute all, lock or unlock the conference, and turn entry and exit announcements on or off. All dial-in participants can exercise touch-tone commands to hear help, play a private roll call, and mute self.

Audio conferencing

Audio conferencing is a fundamental need for many businesses and presents a great opportunity for cost savings when deployed on-premises. Lync Server 2010 provides a user experience that is familiar to users of traditional audio bridge services including PSTN dial-in services with touch-tone call control commands. At the same time, it incorporates powerful scheduling, joining, and management features available only with an integrated Unified Communications platform.

One-click setup from Outlook 2010

With a single click, users can schedule an online meeting from Outlook. Details, such as meeting time, location, and attendees, follow the familiar Outlook template. Additionally, conference call-specific information, such as dial-in number, meeting IDs, and personal identification number (PIN) reminders, are automatically populated.

Multiple levels of authentication for more secure conferencing

To help ensure that only the authorized people participate in a call, Lync Server 2010 provides several call setup options:

- **Open Authenticated:** Only participants who are authenticated against Active Directory can join the call.
- **Closed Authenticated:** Only participants who are authenticated against Active Directory and are on the list of conference call attendees can join the call.
- **Anonymous:** Anyone with the proper meeting ID and participant passcode can join the call.

Active Directory integration

Users who join via Lync 2010 and Communicator Mobile are already authenticated against Active Directory. There is no need to enter a PIN or pass code. For users joining via Lync 2010, there is no need to input the meeting ID either. Users truly experience a more simplified “click to join” experience.

Better control of an audio conference

Lync Server 2010 improves the user experience by providing the Lync 2010 interface for call management as opposed to asking users to memorize Dual Tone Multi Frequency (DTMF) codes for functions such as muting their phone.

Identifying the current speaker or pinpointing the source of noise in audio conferences is especially hard when calls have many participants. Lync Server 2010 uses a “starburst” to identify who is speaking in the conference.

This indicator makes it easy to identify the speaker or for the conference leader to mute the participants who may not be aware that the background traffic noise on their phones is interfering with the call.

Dial-in numbers and leader and participant passcodes for non-PC users

Non-PC users have several methods of joining a Lync Server 2010-based conference call:

- **Dial in via access numbers:** To join a conference call, the user dials an access number, accesses the meeting bridge, and then enters the meeting ID and an optional passcode; for more secure meetings, the user can also enter his or her PIN to authenticate against Active Directory. The leader of the online meeting will also need their PIN if dialing into the conference.
- **Use a Lync 2010 Phone Edition device:** To join a conference, the user dials the conference access number, accesses the meeting bridge, and enters a meeting ID; because the Lync 2010 Phone Edition device is already authenticated against Active Directory, there is no need for PIN entry.

Lync Server 2010 Conferencing Attendant supports multiple languages

Each meeting access number supports multiple languages. When dialing into a meeting, prompts are provided in the access number’s default language. However, if there is no response, the server offers other languages as options. All interaction with the server thereafter takes place in the selected language.

- English-US
- English-UK
- English-Australia
- Simplified Chinese
- Traditional Chinese
- Portuguese-Brazil
- Korean-Korea
- Spanish-Mexico
- Spanish-Spain
- French-Canada
- French-France
- German-Germany
- Italian-Italy
- Japanese-Japan

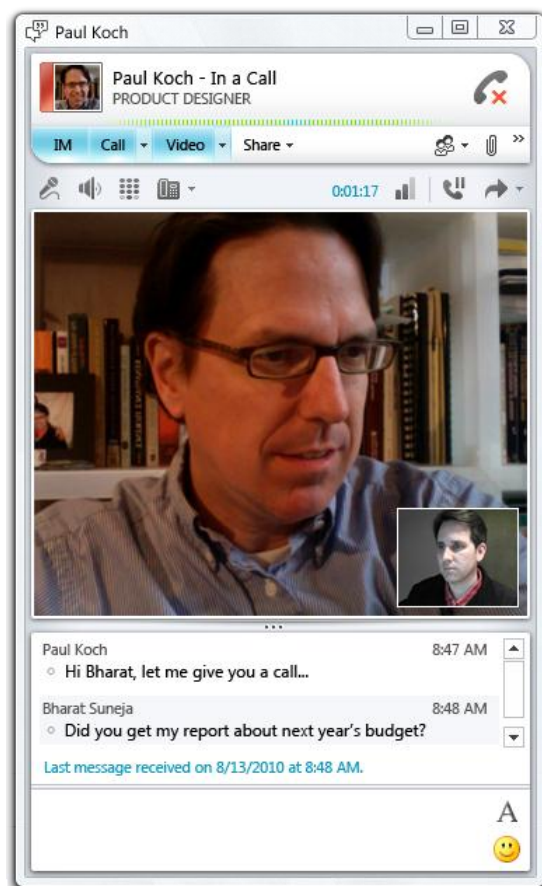
Video

Video conferencing is becoming increasingly important as organizations get more distributed and mobile because it provides a more personal experience that supports effective team-building. Complex interfaces, high cost, and limited features have reduced adoption of video conferencing across the broader workforce. Lync Server 2010 simplifies the user experience by incorporating video into the unified client so that adding scheduling an online meeting with video or escalating to video spontaneously is seamless and easy. In order to provide the most immersive communications experience possible, Lync Server 2010 supports a variety of video conferencing options.

Seamless transition to include video

Lync 2010 makes it easy to add video to a standard phone call in just one click. With enhanced support for audio and video devices, users can set up a video call in minutes (see figure 8). This is a simple way to improve collaboration among coworkers and customers.

Figure 8: Transitioning to a video call



Panoramic view and active speaker detection

Lync 2010 can display a 360 degree video panorama of a meeting room or other location. When there are multiple participants in a video or Web conference, the active speaker is displayed in the video window. Lync Server 2010 detects who is speaking and then sends the applicable video stream to all participants.

Support for high-definition video

High-definition video (resolution 1270 x 720; aspect ratio 16:9) and VGA video (resolution 640 x 480; aspect ratio 4:3) are supported for peer-to-peer calls between users running Lync 2010 on high-end computers. The resolution viewed by each participant in a single conversation may differ, depending on the video capabilities of each user's respective hardware. High-definition video is not supported for multiparty sessions.

IT administrators can set policies to restrict or disable high-definition or VGA video on clients, depending on computer capability, network bandwidth, and the presence of a camera able to deliver the required resolution. These policies are enforced through in-band provisioning.

Interoperability with leading video partners

Lync Server 2010 enables real-time video not just among Lync 2010 endpoints, but also between Lync 2010 endpoints and endpoints from third-party hardware vendors. This interoperability enables users to leverage their existing video conferencing hardware investments while extending video conferencing features to other users with minimal incremental investment and user training. Users can use third-party video conferencing hardware while scheduling meetings and determining attendee availability using familiar tools, such as Outlook or Lync 2010.

Application and document sharing

By integrating traditional application and document sharing into the streamlined Lync 2010 client, Lync Server 2010 delivers a highly accessible and reliable tool that virtually everyone can use. Combined with audio or video conferencing, the result is a highly immersive and collaborative session that is simple to facilitate.

Whiteboarding

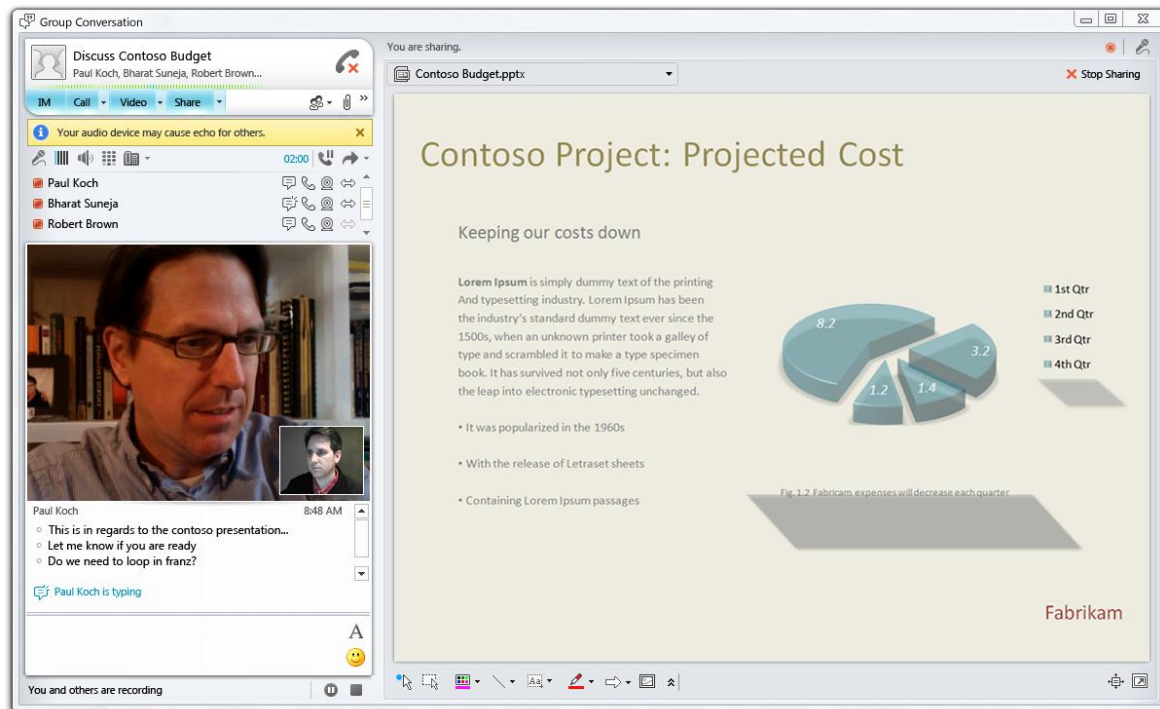
A whiteboard is a blank page that allows presenters to draw, add text, and highlight information by using the annotation tools. For example, organizers can quickly create a flow chart to illustrate a point, insert a whiteboard, and then use the annotation tools to draw squares, lines, and other figures. The slide can be saved for future reference. In addition, new enhancements add the ability to cut and paste, use right-click menus, line attributes (such as thickness and endings), object attributes (such as colors, fill, and size), improved text tools, and flow chart tools. Users can start a whiteboard session directly in Lync 2010 to share ideas or diagrams. Changes to the whiteboard and the contributor's identity automatically display.

Desktop and application sharing

This feature allows presenters to broadcast any visuals, applications, Web pages, documents, software, or part of their desktops to remote participants in real time, right from Lync 2010. Application sharing allows audience members to follow along with mouse movements and keyboard input. Presenters can choose to share the entire screen or only a portion to keep the audience focused on key information. By sharing their desktops, presenters are able to engage with their audiences in interactive product or software demos from any location.

Application sharing allows presenters to share control of software on their desktops without losing sight of participant feedback or text questions (see figure 9). Presenters can delegate control to meeting participants. Presenters can customize the color depth and screen resolution to better engage with participants who have varying desktop capabilities.

Figure 9: Application sharing



Record meetings

Using the Lync 2010 unified client, users can create recordings of meetings as they take place, including content presented. Flexible recording and playback export to single movie file (WMV) is now enabled. Audio, video, meeting content, and annotations are all available for capture and optional publishing (see figure 10). You can export any recording to a shared location (see figure 11) or send as an e-mail attachment. The recording will replay in Internet Explorer and Microsoft Silverlight is required to play back recordings.

Figure 10: Recording options

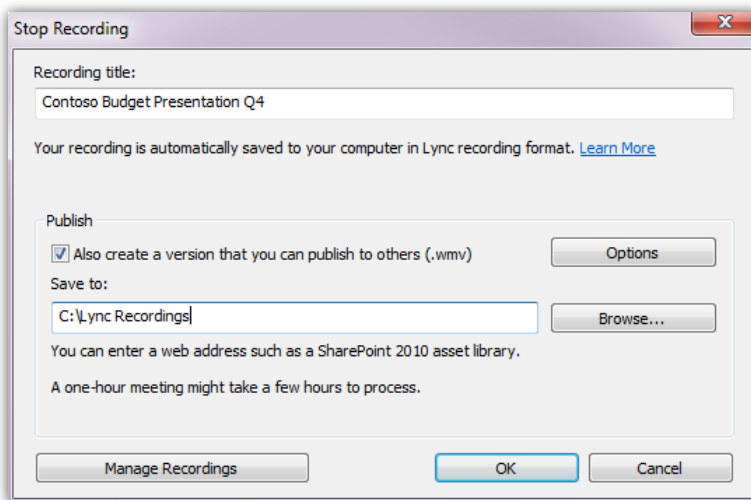
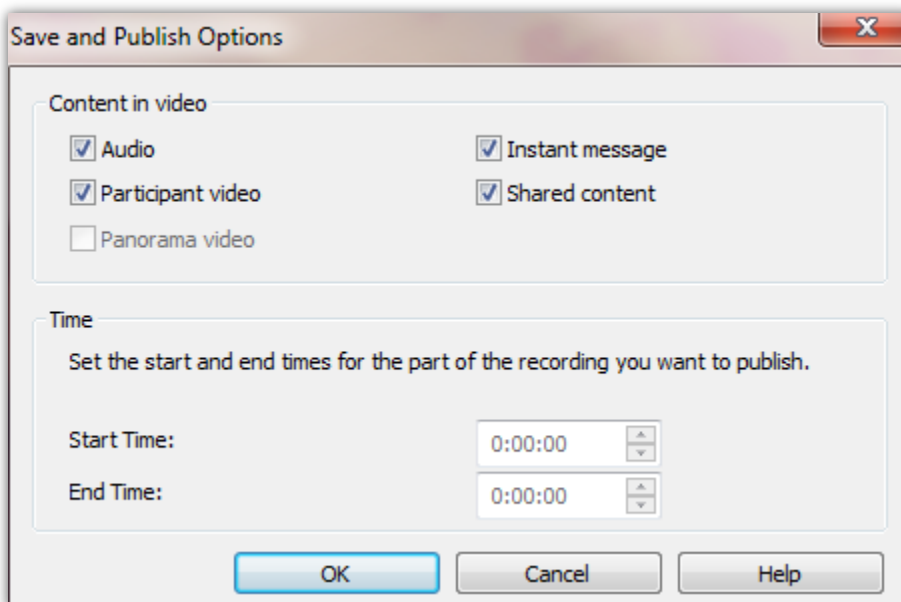


Figure 11: Saving and exporting a meeting recording



Conferencing reliability and performance improvements

Conferencing functionality can be separated from the Front End Server role into a new server role called Audio/Video (A/V) Conferencing Server for better scalability and performance. You can choose whether to co-locate A/V Conferencing with the Front End Server pool or keep it separate. Also, the improved design of the Data Conferencing Server (which runs as part of the Front End Server) provides a better meeting and collaboration experience.

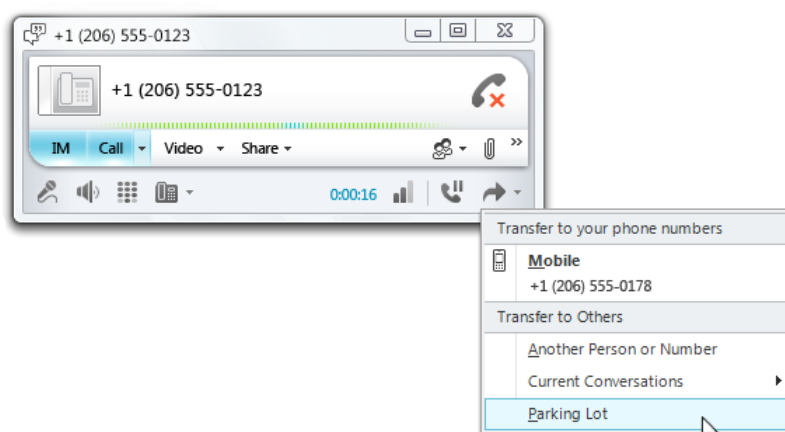
Enterprise Voice

Lync Server 2010 delivers on the promise of unified communications with the complete telephony capabilities of an IP PBX, integrated with rich presence, instant messaging (IM), and ad hoc collaboration and online meetings. Enterprise voice in Lync Server 2010 meets telephony requirements through a combination of traditional IP PBX voice user features and more flexible unified communications alternatives. Features such as call answer, hold, resume, transfer, forward, and divert are supported directly, while personalized speed dialing keys are replaced by contact lists, and automatic intercom is replaced with IM. Traditional telephony management functions including dial plans, call authorization, and call detail records are supported and improved via interoperability with standard enterprise tools including Active Directory® and Microsoft SQL Server®. With Enterprise Voice, users can use their computers or desktop IP phones as their primary business phones; Enterprise Voice can also extend business calls to mobile devices.

Feature-complete enterprise voice capabilities

Lync Server 2010 delivers a voice option to enhance or replace traditional PBX systems¹, and extends these capabilities outside the office via Internet access without requiring a virtual private network (VPN) connection. This includes common calling features such as answer, forward, transfer, hold, divert, release, and park, along with Enhanced 9-1-1 calling* for North America, and support for legacy devices and a broader range of IP and USB user devices from partners.

Figure 12: Call park functionality



The solution is designed to support high availability through Call Admission Control, branch office survivability*, and extended options for data resiliency. Lync Server 2010 delivers capabilities such as click to call, call waiting, hold, forward, transfer, reverse number lookup, and divert to voicemail or IM, as well as more specialized features such as call park (see figure 12) and retrieve, malicious call trace, private line, and distinctive ringing.

¹ For additional details on system architecture for Lync 2010/PBX coexistence, see Appendix 3: Architecture Flexibility.

* Lync Server 2010 works with a third-party solution to provide this service. See more information here:

<http://www.microsoft.com/lync>.

Placing calls

Users with Microsoft Lync 2010 as their desktop client can place and receive voice calls using their corporate numbers from many different locations. Users can call colleagues on the corporate VoIP network or PBX, as well as contacts at traditional phone numbers on networks outside of their corporation.

The phone tab hosts all telephony capabilities and displays a familiar dial pad interface (see figure 13). To make a phone call, a user can type a name or phone number using the keyboard, or manually enter a phone number using the dial pad. Both of these options give users flexibility in making phone calls while presenting a familiar dial pad view.

Click to call from a PC

Calls can be initiated directly from the contact list in Lync 2010 (see figure 14), or in other applications where presence information is shown.

Figure 14: Contextual calling

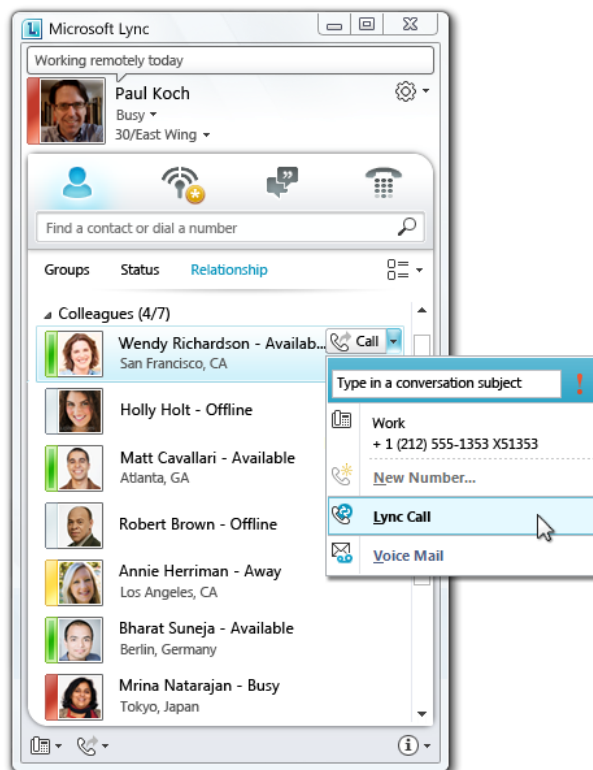
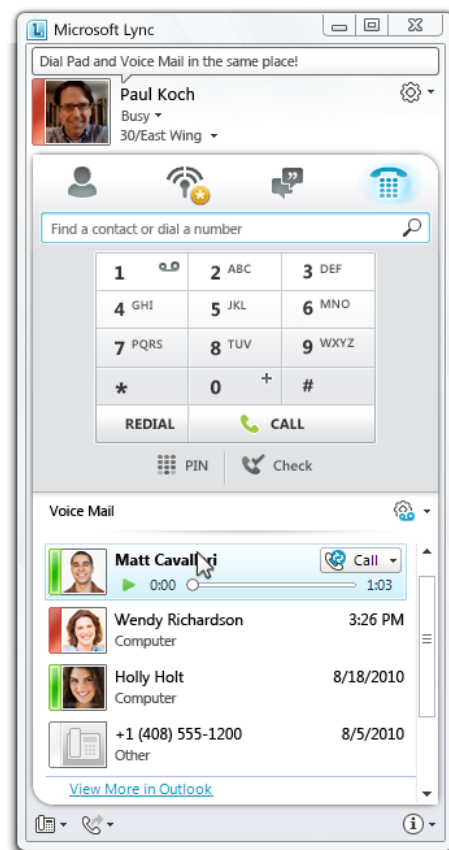


Figure 13: Dial pad interface



Simultaneous ring

An incoming call will ring all of a user's active Lync Server 2010 endpoints simultaneously. Users can also specify one additional PSTN number to ring at the same time. This enables users to answer calls on the most convenient device at any given time, including their home and cellular phones.

Device switching

Establishing primary devices and switching between multiple devices can be done through an easy-to-use drop-down menu (see figure 15). A convenient device icon in the main Lync 2010 interface enables switching from one device to another during active conversations, saving valuable meeting time.

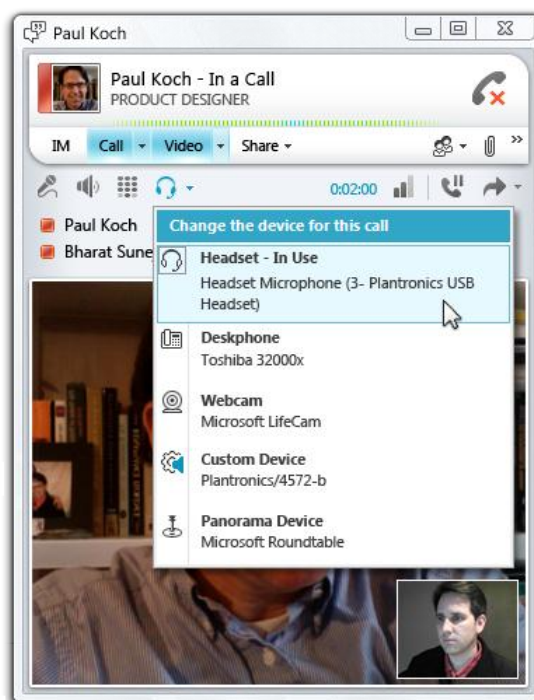
Incoming calls

Users are alerted to incoming calls on all active Lync Server 2010 endpoints simultaneously via customizable ring tones on IP phones and via a notification similar to an instant message on PCs. The notification includes the caller's name when available from the corporate directory or the user's contact list, and allows the user to answer the call, or dynamically redirect it to voicemail or another number. Users can also respond to calls from other Lync Server 2010 users with an instant message.

Manage multiple calls simultaneously

While on a call, a user can answer additional incoming calls or initiate outgoing calls, and the existing active call is automatically put on hold. Each call is handled through a separate Lync 2010 conversation window and is separately controlled with the Lync 2010 call handling features. The main window of Lync 2010 includes a list of Current Conversations to facilitate easy navigation.

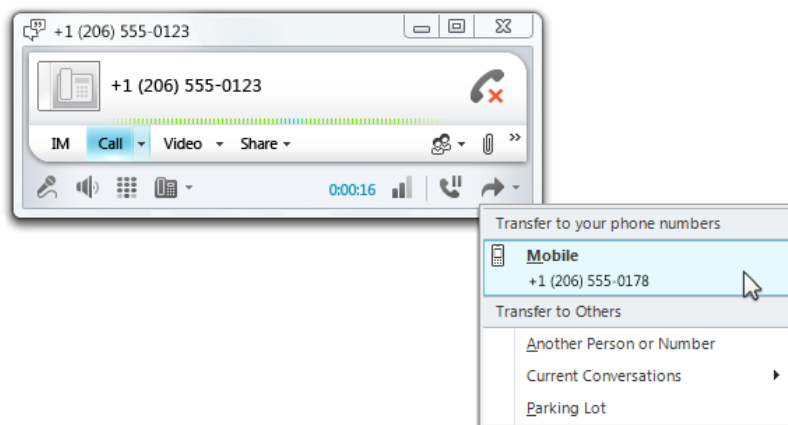
Figure 15: Changing devices during a call



Transfer a call from a work phone to a cell phone or someone else

Calls can be transferred from one user to another in two ways. The first option is single-step, where a user chooses whom to transfer the call to, and the call is transferred directly to that user. The other option is consultative, where a user first speaks to the person she wants to transfer the call to and then clicks a button to complete the transfer. Users can also transfer calls to one of their devices, such as a mobile phone (see figure 16) or home phone. This allows users to transfer calls from their desk phones to their mobile phones as they walk out the door, for example, without dropping the conversation.

Figure 16: Transferring calls to a mobile device



Richer communications with other Lync 2010 users

When in a conversation with another Lync 2010 participant, users have more options than with a traditional phone call. With Lync 2010, users can add text, video, or desktop sharing to the call (see figure 17).

In addition, because of the adaptive media stack, the audio between Lync 2010 users is natural and intelligible—often more so than with cellular and IP telephony systems. This high quality is available at a low bandwidth (about 28 kilobytes per second), making it ideal whether making calls from inside corporate networks, during travel, or from a home PC.

More secure access

Lync 2010 and other Lync Server 2010 endpoints use an intelligent, adaptive media stack to help ensure high quality communications even on unmanaged networks like the Internet. In addition, the endpoints encrypt signaling and media by default, using Transport Layer Security (TLS) and Secure Real-time Transport Protocol (SRTP) respectively, eliminating the need for VPN connections. These capabilities enable users to use Enterprise Voice and other communications with confidence and ease anywhere they have Internet access.

Figure 17: Adding rich communication options



Flexible call forwarding

Flexible call forwarding options (see figure 18) enable users to configure a wide variety of call-forwarding options, enable simultaneous ringing for mobile and home phones, redirect unanswered calls, and more. It is a convenient way to help users stay connected during the workday.

Figure 18: Call forwarding options



Call forwarding settings provide users with the following options:

- Forward calls to another number, person, or to voicemail
- Simultaneously ring additional numbers, including those of team members
- Specify a delegate to receive and initiate calls on their behalf using the Lync Server 2010 Attendant
- Redirect calls not answered in a specified time unanswered calls to another number, contact, or voicemail

Single Number Reach support

With Single Number Reach, a user's mobile device becomes an extension of his or her company's telephony solution. Now users can utilize a single telephone number for desk phones, PCs, and mobile phones so they can be reached no matter where they are. Outbound calling also gives the same caller identity regardless of whether a user calls from a desk phone or a mobile phone. In addition, with devices running Windows Phone, call-forwarding settings can be configured directly from the user's phone.

Do Not Disturb

Enterprise Voice provides robust call-forwarding and do-not-disturb features that are integrated with the rich presence model of Lync 2010 to give users greater control of their time and work days. For example, if a user manually sets his or her presence state to Do Not Disturb, Lync 2010 automatically forwards all calls that are not from Team members to voicemail.

Call authorization

Administrators have flexible control over who is authorized to make telephone calls, so they can allow certain users to initiate certain calls (for example, international calls).

Call context

As with other conversations conducted with Lync 2010, voice calls can be marked as high priority or marked with a subject that is displayed to another Lync 2010 user when receiving the call.

Call logs

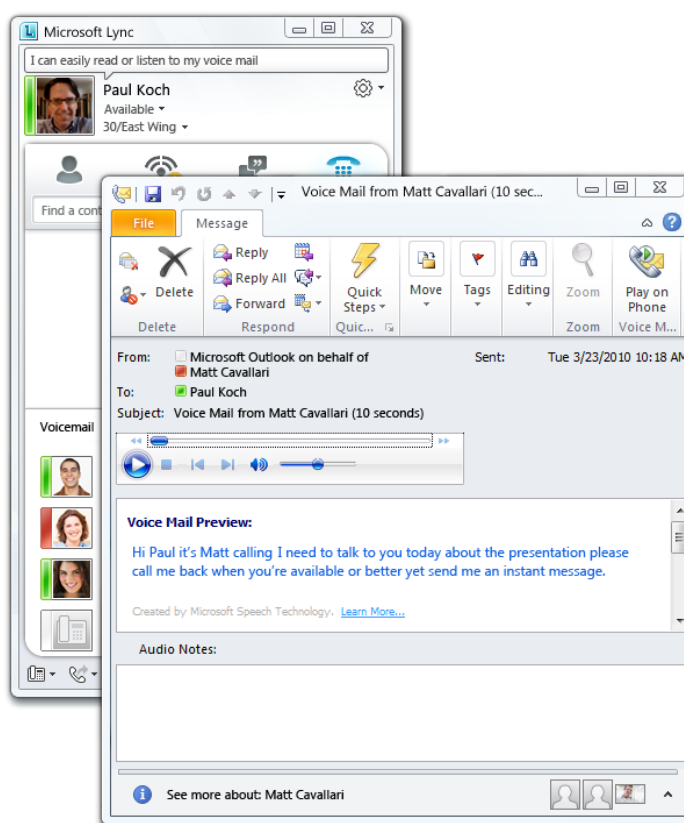
If enabled, a log is kept in the Conversation History folder in Outlook 2010 of all the incoming and outgoing calls that users have made. If Microsoft OneNote® was used to take notes during the call or to transcribe the call, the user can switch to the OneNote notes with the click of a button.

Unified messaging

Lync 2010 and Lync Server 2010 integrate with the Unified Messaging capability in Microsoft Exchange Server 2010. Users can see if they have new voicemail either from the main Lync 2010 window or by looking at the icon in the notification area at the bottom of the screen. Voicemail is listed below the Lync 2010 dial pad for easy access. Click the Play button on the voicemail to hear the audio portion of messages, or use Exchange Server 2010 to open the message in Outlook and view the transcript (see figure 19).

Lync Server 2010 also has the ability to divert calls to Exchange Unified Messaging, dynamically or on a static basis, as well as allowing users to connect to the Unified Messaging service to change their greetings or access other voice functionality.

Figure 19: Voicemail transcripts



Call coverage

The Delegation feature enables users to delegate call handling to one or more assistants. When a delegate answers a call, the executive is notified that the call has been answered and by whom. The delegate can perform multiple tasks on behalf of the user, including screening person-to-person calls, placing calls, and initiating conferences. Team Calling enables a user to have his or her incoming calls simultaneously ring the phones of teammates, and may be used to provide functions similar to group call pickup, direct department calling, and bridged line appearances. There are no practical limits to the number of delegates or team call contacts for a given user. Unlike traditional approaches that require administrator intervention for setup and changes, both Delegation and Team Calling can be managed by users.

Workgroup call queuing and routing

Administrators can create and configure one or more Response Groups for queuing and intelligently routing calls to designated agents. Common uses include IT helpdesks, human resources hotlines, and other internal, informal contact centers. Response Groups may include interactive voice response with automatic speech recognition and synthesis. They can route calls to agents based on agent presence state and standard routing algorithms including serial, parallel, longest-idle, and round robin. Response Group functionality may be configured to perform a variety of traditional functions in addition to hunt groups including night service, priority queuing, delay announcements, intercept treatment, direct department calling, uniform call distribution, and trunk answer any station.

Enhanced 9-1-1

Lync Server 2010 supports Enhanced 9-1-1 services for North American customers using an approach similar to the [National Emergency Number Association \(NENA\) i2 Architecture for Enhanced 9-1-1 Services](#). Physical location information for IP user stations is conveyed in a Session Initiation Protocol (SIP) call setup message to an Enhanced 9-1-1 service provider² at the time of the emergency, and used by the service provider for routing the call to the appropriate public safety answering point (PSAP). This architecture allows customers to extend Enhanced 9-1-1 services to all users, mobile and fixed, and to lower the cost of ownership by eliminating the need to provision local emergency trunks at each location and maintain carrier-based PS ALI databases for IP stations.

Anywhere access

Lync Server 2010 extends rich calling features to remote and mobile users over the Internet. Call media and signaling are encrypted using secure real-time transport protocol (SRTP) and transport layer security (TLS), respectively, without requiring a hardware or software VPN. Optimized endpoints employ an adaptive media stack, while the variable bit-rate RTAudio codec intelligently uses available bandwidth to provide superior quality on well-managed networks such as local area networks (LANs) and good quality on unmanaged networks such as the Internet. Lync Server 2010 also supports traditional codecs such as G.711, G.722, and G.723.1 for interoperability with traditional VoIP solutions.

Call admission control

Administrators have the option to set limits on the amount of Lync Server 2010 voice and video traffic carried on constrained network links and to specify the action taken if an offered session would exceed the limit. The actions may include routing the session via an alternate path or refusing the session. Separate routes for voice and video allow administrators to prioritize these media types differently and specify preferred and alternate routes for various media types. Lync Server 2010 Call Admission Control is network-agnostic and does not require any vendor-specific networking equipment or setup.

² Both [Intrado](#) and [Connexon](#) announced Enhanced 9-1-1 services for Communications 2010 customers at Voicecon Orlando 2010.

Interoperability with existing telephony infrastructure

Lync Server 2010 uses standards and published interfaces to interoperate with existing infrastructure. Gateway and SIP options for interconnection to IP PBX systems and the Public Switched Telephone Network (PSTN) allow companies to migrate users to Lync Server 2010 Enterprise Voice over time while maximizing return on existing investments and minimizing disruption. The Microsoft Unified Communications Open Interoperability Program for gateways, IP PBX systems, and SIP trunking providers is intended to ensure that customers have a seamless experience with the setup, support, and use of qualified products and services with Microsoft unified communications software.

Survivable branch appliance

Lync Server 2010 works with third-party Survivable Branch Appliances to provide local calling services and connection to PSTN in case of WAN or datacenter failure.

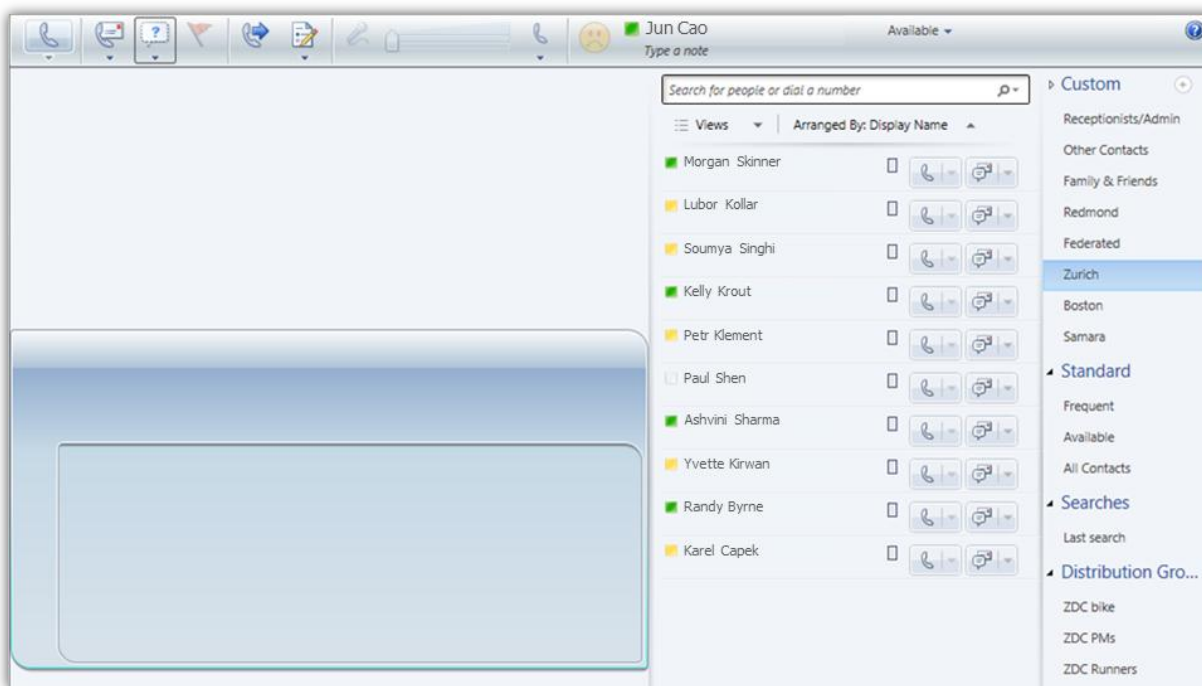
Lync Server 2010 Attendant

With Lync Server 2010 Attendant, receptionists and other front-line business professionals have the ability to more effectively manage high call volumes, enhancing customer satisfaction and routing opportunities to the right people at the right time. The Lync Server 2010 Attendant combines all real-time communications capabilities into a single user interface, linking presence, advanced calling features, and instant messaging.

Efficient experience

The Attendant runs in a full screen window to provide a more efficient and streamlined desktop experience. Conversation queues, contact lists, directory search, and click to call, transfer, and conference are all accessible without switching windows. This allows users to consider presence status when determining who can best handle a call. It also allows users to determine whether IM or voice is the optimal communication method for the call's recipient. If the call's intended recipient's presence is set to **In a Meeting**, for example, the user can use IM to request the transfer.

Figure 20: Lync Server 2010 Attendant interface



Conversation templates

The Lync Server 2010 Attendant console allows users to save a group of contacts into a conversation template and to initiate conferences with that group by selecting the template). This allows users to initiate conference calls they use often with a single, timesaving step.

Notes box

During a conversation, users can select the notes box to take notes regarding the caller. Call notes are automatically saved in the Outlook Conversation History folder, which allows users to easily search through the notes at a later time and forward them to colleagues. Users can also e-mail call notes to colleagues directly from the note window.

Choice of endpoints

The [Optimized for Microsoft Lync](#) certification identifies devices that meet certain standards to work seamlessly with the Microsoft Lync family. Those standards include plug-and-play installation, high-quality voice performance, and integration with Lync 2010. All are designed to deliver the best user experience and give IT administrators greater peace of mind. Devices that meet these criteria are allowed to display the *Optimized for Microsoft Lync* wordmark—a sign of quality that customers can trust (see figure 21). Today, more than 50 *Optimized for Microsoft Lync* devices are currently available³. The number is growing

³ Backward compatibility means that Optimized for Office Communicator devices will work with Lync 2010.

steadily, with prices starting as low as \$30 per device. Information about these devices can be found at www.OptimizedFor.com.

In addition to the ongoing innovation around USB peripherals (such as headsets, speaker phones, USB phones, and webcams), Microsoft partners Polycom and Aastra are delivering a set of five new IP phones. The phones are designed to deliver best-in-class experience with the Lync 2010 client and Lync Server 2010. This experience includes rich contact and presence view, Outlook 2010 calendar integration, and single-click-to-join conferencing with participant roster and active speaker view. In addition to a great user experience, the phones are designed for a variety of work environments (office, common area, and conference room) and are available at various price points.

Because different devices are best suited to the work needs and individual preferences of different people, categorizing the organization's user base into a few user types and then procuring different devices for each user type will ensure that everyone in the organization has the necessary communications tools to work efficiently.

Figure 21: "Optimized For" wordmark



Heavy telephony users

These workers use the phone extensively, such as attendants, assistants, executives, and sales staff. For these users, a headset—either corded or cordless—will enable them to have frequent phone conversations while remaining productive on their PCs. Complementing this with a traditional desk handset, either a USB device or standalone IP phone, will give these users the flexibility to pick up the handset or use the speakerphone when desired.

- **Headsets:** With Lync 2010, qualified USB headsets enable workers that spend much of their time at the computer to talk on the phone while having both hands free to type. Because these headsets are highly portable, users can easily pack them away for voice and video calls while traveling. Qualified RJ22 headsets for USB handsets that work with Lync 2010 (as specified under the [Microsoft Unified Communications Open Interoperability Program](#)) can also be used.
- **Cordless headsets:** These devices enable workers to untether themselves from their desks and PCs while taking calls. Workers that spend much of their time on the phone now have the freedom to walk around the office while doing so. Some qualified Bluetooth headsets enable users to use the same highly-portable headset for calls on both a mobile phone and PC running Lync 2010.

Nomadic workers and teleworkers

Users that travel extensively, such as consulting, marketing, and sales staff, will appreciate the convenience of a portable headset, handset, or speakerphone. Users can easily pack these devices for business trips and plug them into laptops, enabling users to make voice calls from the road, just as if they were in the office. In addition, webcams enable mobile workers to stay more connected with the office while they are on the road. Portable USB speakerphones enable workers that travel extensively to make hands-free phone calls from any hotel room, conference room, or location with an Internet connection.

Everyday office workers

Users that spend the bulk of their time in the office, some time each day on the phone, and travel occasionally but not extensively may prefer a traditional desk handset, either a USB device or standalone

IP phone. Alternately, a corded or cordless headset provides extra convenience when users need to take voice calls while traveling or typing.

Users that prefer a traditional phone can use qualified handset devices, such as a USB handset or a standalone IP phone, that integrate with Lync 2010 on their PCs. They can also use qualified RJ22 headsets that plug into these devices.

Added benefits with video communications

Webcams provide users with a more immersive communications experience with Lync 2010 by allowing users to clearly view the person or people they are communicating with, which allows them to pick up on nonverbal cues that might otherwise go unnoticed.

Lync 2010 Phone Edition

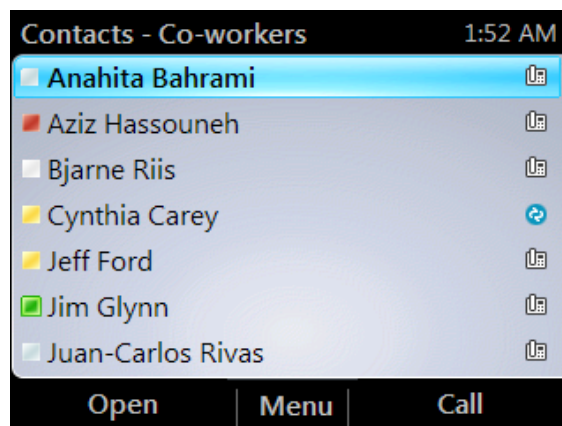
Lync 2010 Phone Edition, which provides a rich, Lync 2010-like user experience on select standalone IP phones from Microsoft partners, has been updated with new functionality that provides an enhanced user experience on these phones:

- **Single sign-in.** Users can now connect their Lync 2010 Phone Edition device to their computer with a USB cable and sign in to both their phone and Lync 2010 at the same time.
- **Integration with Lync 2010 on the PC.** Users can now click a contact or phone number in their Lync 2010 contact list on their PC to place a call using their Lync 2010 Phone Edition phone. Call controls are synchronized on both the phone and Lync 2010 on the PC. If their PC is configured with a webcam, users can escalate the call by adding video.
- **Audio quality enhancements.** Latency, audio quality, and call setup time have all been improved.
- **Support for new Lync Server 2010 voice features.** New call delegation, team calling, and Response Group service functionality in Lync Server 2010 are also supported in Lync 2010 Phone Edition.
- **User interface enhancements.** The user interface has been improved and streamlined. Users can click to call from their Lync 2010 contact list on the PC, which is also displayed on the phone (see figure 23), easily search through contacts, and perform more traditional phone functions such as redial and ring tone selection.

Figure 22: Lync 2010 Phone Edition home screen



Figure 23: Lync 2010 Phone Edition contacts screen



Integration with Microsoft Office

Users can communicate with context from Microsoft Office applications. Lync Server 2010 works with Exchange, SharePoint, and Office applications for a richer collaborative experience with consistent presence, click-to-call options, and a new shared contact card.

Rich presence in Office applications

Rich presence is integrated throughout Office 2010, including Outlook, SharePoint, Word, PowerPoint, Excel®, and Outlook. Hovering over presence icon displays the contact card with photo, presence information, and one-click connect options. Word SmartTags also have presence capability.

Co-authoring

In Word and PowerPoint, users can see presence information and click to communicate from within the document to initiate a co-authoring session. Other users can be brought into the session just as easily.

Office Backstage™ integration

The new Office Backstage view integrates various communication options so users can share documents and presentations via IM, share the application itself, or click to call directly from the application. Streamlined communication from within applications simplifies collaboration and boosts productivity. Users can respond to e-mail messages with a phone call or they can contact the author of a document—all from within Microsoft Office applications.

- See presence for people associated with a document
- Find contacts to share documents with
- Send documents via IM with the “Send Now” button
- Initiate ad hoc application sharing from within the document with the “Share Now” button

Mobile Experience

Communicator Mobile

With the Communicator Mobile client, Lync Server 2010 supports a wide range of Microsoft and third-party platforms, extending a rich communications experience to customers on their mobile devices of choice. Mobile clients compatible with Lync Server 2010 are made available by Microsoft, through joint partnership with providers such as Nokia, or from other providers.

- **Windows Phone:** Communicator Mobile automatically displays Lync contacts and provides access to the company directory. Rich presence automatically updates to reflect mobile status when a user is connecting via mobile device. Users can send instant messages to individual or multiple recipients. Communicator Mobile allows users to join an audio conference with a single click, directly from their Outlook Mobile calendar, and enables extended enterprise voice capabilities including “call via work” and call forward setting from the mobile device. “Call via work” provides users with the ability to place calls using their work identity. This feature can also save money when placing international calls since Lync Server 2010 triggers a local call back to the initiating party. Communicator Mobile is provided at no extra cost to customers who have purchased Lync Server 2010 and Client Access Licenses (CAL).
- **Symbian:** As part of the alliance between Microsoft and Nokia, Microsoft is developing a dedicated version of Lync 2010 Phone Edition for Nokia devices. Microsoft released the first client version for Nokia E52, E72 and E5 devices in May 2010, featuring integration with the home screen, company directory access, rich presence, and instant messaging capabilities. The client can be downloaded from Nokia’s Ovi store. Communicator Mobile for Nokia is provided at no extra cost to customers who have purchased Lync Server 2010 and Client Access Licenses (CAL).
- **Blackberry:** A mobile client developed by Research in Motion (RIM) for use with Lync Server 2010 is available today to all Blackberry users. The client includes an integrated instant messaging and presence experience and is offered by RIM.
- **iPhone:** iDialog, a mobile client developed by Modality Systems, is available today on the App Store for Office Communications Server 2007 R2 and Lync Server 2010 users. The client displays Lync contact list, full presence information for contacts, and a searchable global address list, and can redirect inbound voice calls from contacts dialing a user’s Lync phone number.

Rich presence enhancements

When using a mobile device, Communicator Mobile displays the user's current presence status and indicates that the user is signed in on a mobile device (see figure 24).

Usability updates

Users can easily search their company directory contacts using first name, last name, or e-mail alias. Users also have access to recent contacts and distribution lists on their devices, and they can easily navigate among multiple IM conversations.

Familiar experience

Figure 25: Sign-in to Communicator Mobile

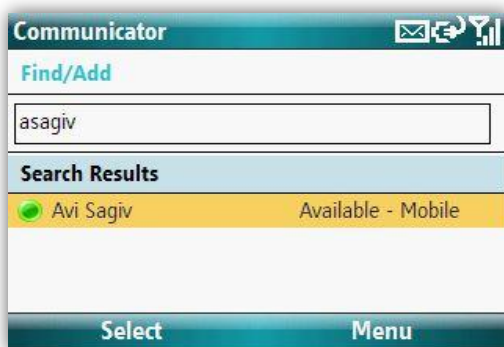


Figure 24: Mobile presence indicators



Communicator Mobile has a similar look and feel to the desktop version of Lync 2010, giving users a familiar experience.

In addition, when installing Communicator Mobile for the first time, users simply use their network credentials to sign in without needing any special configuration.

Single, Unified Platform

Interoperability

Connect across networks

Lync Server 2010 supports federation with public IM networks such as Windows Live, AOL, Yahoo, and, through a gateway, Google Talk, allowing workers to use their corporate identities to connect to customers and partners. Users can make audio and video calls to others via Windows Live Messenger, even if they are with another company.

Lync Server 2010 provides support for working with contacts that are located outside the company. Federated contacts can be people in an organization that have a federated relationship with the organization, or people connected to a public instant messaging service, such as the MSN network or the

Windows Live network of Internet services. In the Contact List, users can see an icon that identifies federated contacts.

Federation can be enabled with public instant messaging networks and business partners. Federation with businesses is more secure and includes all communication modes; public networks are limited to instant messaging and presence, and they are less secure. Federation is enabled through the use of open industry standards and/or openly published specifications, allowing multiple parties to achieve interoperability for common use cases.

Federated conferencing

Users in federated domains are considered to be authenticated for the purpose of joining on-premises conferences. A federated user cannot join a meeting as a presenter but can be promoted to a presenter during the meeting. Federated users cannot organize conferences that are hosted in another organization's domain.

Support for partners with multiple domain names

Enhanced federation now uses Subject Alternate Names (SANs) in certificates to support organizations that have multiple domain names. To make itself eligible for enhanced federation, an organization with multiple domain names can install a certificate that supports SANs on Live Communications 2005 SP1, Access Proxy, Office Communications Server 2007, Office Communications Server 2007 R2, Lync Server 2010, or Access Edge server.

Improved monitoring and throttling capabilities for federated connections

With Lync Server 2010, organizations can actively monitor connections with federated domains and limit the amount of traffic from any federated domain that is not on the Allow list. Additionally, Lync Server 2010 limits the number of internal users with which the federated domains can communicate. Organizations can monitor this activity on the Access Edge server using the **Open Federation** tab on the Status pane in the Lync Server 2010 Computer Management snap-in. If a federated domain has a legitimate, but higher than average, volume of communications with the organization, the organization can add the domain to its Allow list. If an organization suspects malicious activity, it can block the domain. For more details, see the managing federated partner access information in the Lync Server 2010 Administration Guide.

Extensibility

The Microsoft Unified Communications solution is powered by software, making it easier to add and customize communications features compared to hardware-based systems. Lync Server 2010 will bring the vision of a fully extensible communications platform a step closer with simplified application programming interfaces based on industry-standard technology.

Developers can now use tools such as Visual Studio and familiar Microsoft .NET Framework and Web Service programming paradigms to build powerful communications solutions, without having to be a communications technology expert. Visit <http://msdn.microsoft.com/ocdev> for more information.

Embed communications in business processes

Communications-enabled business processes automate, speed up, or otherwise improve business processes by adding unified communications capabilities including telephony, conferencing, enterprise messaging, and presence. One example is a workflow that automatically contacts an approving party using the communication mode indicated by their presence data. Another is the ability to contact colleagues from the context of productivity or collaboration applications.

Lync Server 2010 is built to support these types of integration out of the box and to enable custom development of rich, communications-enabled applications. Organizations benefit from improved economics, improved efficiency, and higher productivity due to the ease of use for our solution.

Embedding Lync 2010 in proprietary applications is easier than ever with the new Microsoft Lync 2010 SDK, which offers Visual Studio controls in .NET Windows Presentation Foundation (WPF) and Microsoft Silverlight®. This means near to no coding required when embedding Lync 2010 UI elements into custom applications.

New and improved client-side APIs allow developers to embed Lync 2010 functionality into Windows and Silverlight-based applications with supported, ready-to-use code snippets. Enhanced server-side APIs make it easy to instantiate and deliver alerts via IM or phone, find experts, and provide assistance using query-response bots.

Support contextual collaboration

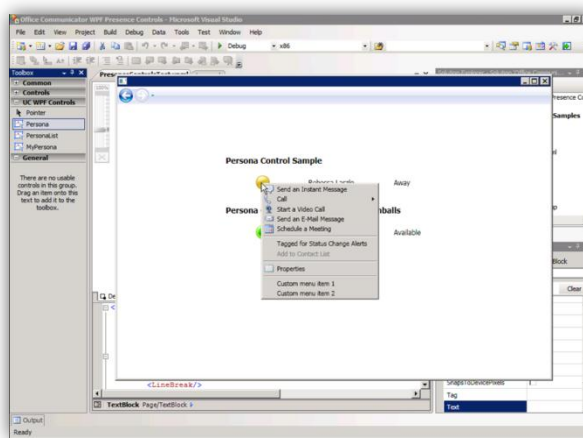
Contextual collaboration enables users to streamline their communications by using three key capabilities of the unified communications platform:

- Integrated presence information
- Contextual information
- Click to communicate

Presence information surfaced in applications gives information about a contact's availability and willingness to start a conversation. Additional information displayed in the presence information provides more detail, such as whether a person the user wants to contact is in a meeting, in a call, or is not available on instant messaging. The presence icon also enables a click-to-communicate experience right from the application; click the icon and a drop-down menu appears giving access to the built in click-to-communicate capabilities.

Developers can integrate presence into any desktop application whether it is a rich client or a browser-based application. When using the Microsoft developer samples available on MSDN, the presence controls for Visual Studio come with an integrated drop-down menu that can start an IM conversation, a voice or video call, a conference call, or a data sharing collaboration (see figure 26).

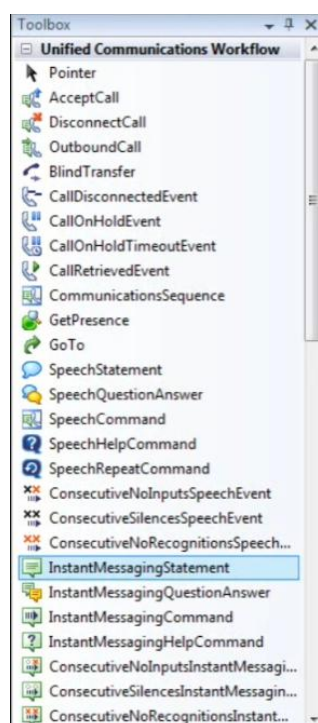
Figure 26: Visual Studio presence controls



Develop communications-enabled business processes

Integrating communications in business processes can reduce human latency. Developers can incorporate real-time communications capabilities like alerts and notifications that are presence-aware and multimodal, and can help cut down the human latency between steps in workflow processing. This can optimize the end-to-end processing time of a business workflow significantly.

Figure 27: Unified Communications workflow elements



Business Process Communications enable three key scenarios:

- Alerts and notifications
- Outbound interactive surveys via IM or the telephone
- Expert finders or role agents

More advanced scenarios enabled by the Unified Communications Platform include SIP-based applications, such as message playing systems (see figure 27).

Support sophisticated call center scenarios

Lync Server 2010 supports sophisticated contact center or help desk scenarios such as IVR, ACD, and Call Recording—as well as Web chat, query response bots, and conferencing and application sharing—as introduced with Microsoft Unified Communications Managed API 3.0 (UCMA 3.0).

Built-in speech recognition

State-of-the-art speech technology now in 26 languages provided by the updated Microsoft Speech Platform, a zero-royalty, enterprise grade server-based speech platform that ships with UCMA 3.0 and now adds VoiceXML 2.1 to UCMA needs.

Simpler Deployment and Management

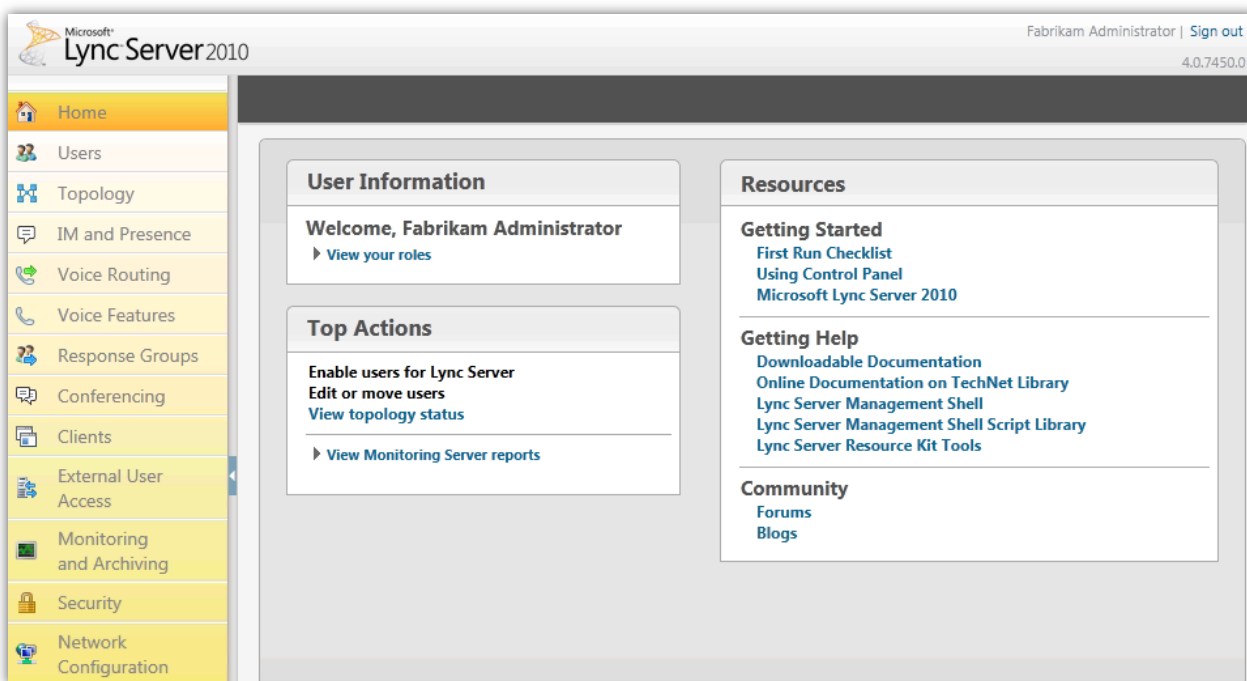
Lync Server 2010 introduces significant simplifications in deploying, operations, and interoperability with added features such as simple single-point application provisioning, software-based load balancing, and automatic fail-over and draining.

Lync Server 2010 can provide presence, IM, and conferencing for organizations of literally any size, with up to 10,000 users per server, 100,000 users per pool, and an unlimited number of pools.

Automated design, configuration, and deployment

Automated tools not only simplify capacity planning and topology design, but also automatically push configuration information and changes to all servers in the network, thus eliminating manual work and the associated chance for errors. The new Lync Server 2010 Control Panel consolidates scenario-driven tasks in a single interface, while PowerShell support allows administrators to automate repetitive tasks using a familiar tool.

Figure 28: Lync Server 2010 Control Panel



Active Directory integration

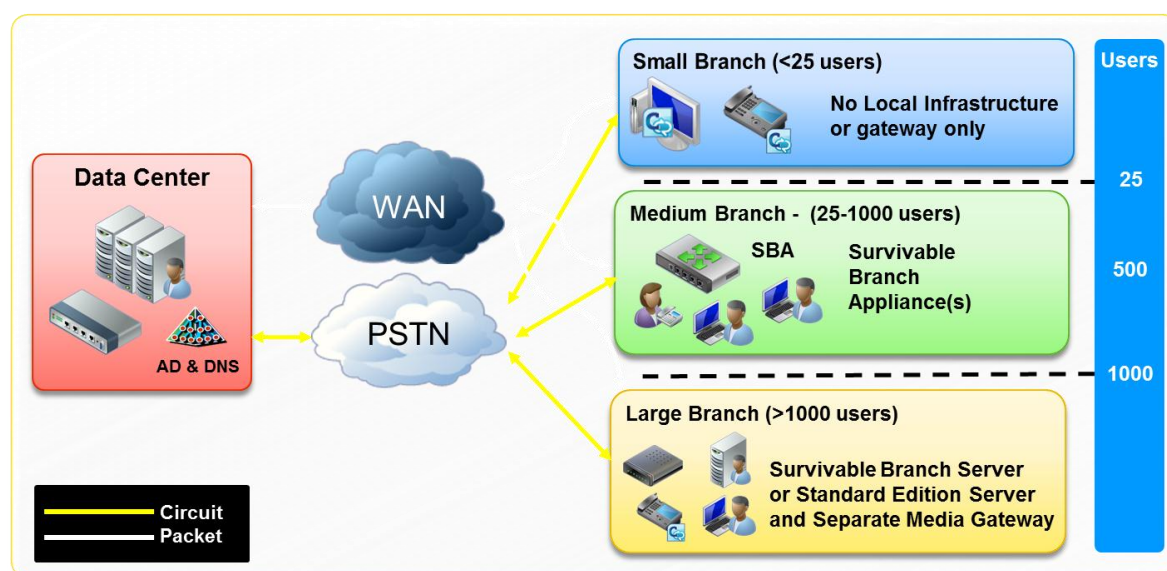
Lync Server 2010 relies on Active Directory, eliminating the need for separate user and policy databases, and uses Role Based Access Control (RBAC) to allow the assignment of appropriate roles and scopes to different administrators.

Data center resiliency

The front and back end of Lync Server 2010 may be split across two data centers, or primary and backup data centers may be used. Lync Server 2010 can survive even a catastrophic data center failure in these cases. A split pool approach allows near immediate failover with all capabilities preserved, while the primary and backup approach allows implementation of high availability with less stringent network requirements.

Additionally, Lync Server 2010 works with third-party Survivable Branch Appliances to provide local calling services and connection to PSTN in case of WAN or datacenter failure.

Figure 29: Branch resiliency options enabled by survivable branch appliances



Support for on-premises and hosted environments⁴

Lync Server 2010 can be deployed on-premises or in a service-based (hosted) or hybrid environment. A service-based option can enable faster deployment and ensure regularly updated software, while giving IT staff more time to focus on strategic tasks and initiatives.

⁴ Feature availability varies among on-premises, hosted, and hybrid environments.

APPENDIX: WHAT'S NEW IN LYNC SERVER 2010

Figure 30: Instant Messaging and Presence features

Feature	New or Improved	Standard CAL		Enterprise CAL		Plus CAL	
		OCS 2007 R2	Lync Server 2010	OCS 2007 R2	Lync Server 2010	OCS 2007 R2	Lync Server 2010
PC-to-PC and multi-party IM	Improved	✓	✓				
PC-to-PC and multi-party File Transfer	Improved	✓	✓				
PC-to-PC computer audio	Improved	✓	✓				
PC-to-PC computer video	Improved	✓	✓				
Rich Presence	Improved	✓	✓				
Persistent Group Chat	Improved	✓	✓				
Skill Search	New		✓				
IM/P from Office applications	Improved	✓	✓				
PC-to-PC IM, audio, and video with users at federated organizations & Public IM Networks	Improved	✓	✓				
Conference Attendee Experience: Join an ad hoc or scheduled meeting; Send/receive audio/video; View shared application; View/Write whiteboard - all of this as <u>an authenticated user</u>	New		✓	✓			
Conference Presenter Experience: Upload and advance PowerPoint slides; Initiate Recording; Share application; Manage Roster; Manage Meeting lobby; Use DTMF controls - all of this as <u>an authenticated user</u>	New		✓	✓			
View application sharing session (Attendee experience)	New		✓				
				Standard CAL Feature		N/A	Standard CAL Feature

Figure 31: Audio, Video, and Web Conferencing features

Feature	New or Improved	Standard CAL		Enterprise CAL		Plus CAL	
		OCS 2007 R2	Lync Server 2010	OCS 2007 R2	Lync Server 2010	OCS 2007 R2	Lync Server 2010
Initiate/Schedule ad-hoc multi-party (3+) audio conference (including dial-out to PSTN and/or PBX user)	Improved			✓	✓		✓
Initiate ad-hoc multi-party video conference	Improved			✓	✓		
Initiate ad-hoc application Sharing (P2P or multi-party)	Improved			✓	✓		
Initiate ad-hoc white boarding (P2P or multi-party)	New				✓		
Schedule and host conferences on the audio conferencing bridge (CAA)	Improved			✓	✓		
Schedule Web conferences	Improved			✓	✓		
Automatically join meeting audio from PBX or other phone number	New				✓		
Dial out to PSTN	Improved			✓			✓
Receive calls from PSTN	Improved			✓			✓
		ENT or Plus CAL Feature				N/A	

Figure 32: Enterprise Voice features

Feature	New or Improved	Standard CAL		Enterprise CAL		Plus CAL	
		OCS 2007 R2	Lync Server 2010	OCS 2007 R2	Lync Server 2010	OCS 2007 R2	Lync Server 2010
Ad-hoc multi-party (3+) audio conference (including dial-out to PSTN and/or PBX user)	Improved	ENT or Plus CAL Feature		✓	✓	N/A	✓
UC and PBX Call Control (click to call, answer, hold, resume, transfer, park, and retrieve)	New & Improved			✓			✓
Visual access to voicemail (requires Exchange UM for voicemail)	New & Improved			✓			✓
Additional telephony features (call park and receive, report malicious call, inbound private line)	New						✓
Routing Rules (includes team call, call forward, simul-ring)	Improved			✓			✓
E911 capabilities	New						✓
Delegation	Improved			✓			✓
Response Group Agent and Agent Anonymity	Improved			✓			✓

APPENDIX: ARCHITECTURE FLEXIBILITY

Flexible integration with existing infrastructure

Lync Server 2010 delivers an extensible communications platform that enables the flexibility to integrate into an existing messaging and telephony infrastructure, and supports the customization of existing software to adapt to the organization's changing business needs. The platform provides extensive standards support, as well as powerful application programming interfaces (APIs).

Extend existing telephony infrastructures

Lync Server 2010 provides the ability to interoperate and integrate with many third-party telephony infrastructures. Published and supported interfaces enable software-powered VoIP to be implemented alongside the existing PBX infrastructure. This allows call management capabilities (forwarding, simultaneous ring, and so forth) to be used with PBX/PSTN/mobile endpoints.

There are several scenarios in which an organization can integrate Lync Server 2010 with its existing PBX environment. For details, see the Open Interoperability Program Web site at <http://technet.microsoft.com/UCOIP>.

APPENDIX: ADDITIONAL RESOURCES

<http://www.microsoft.com/lync>

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