Office Communications Server

At a glance:

Call Delegation, Team Ring, Group Chat

Desktop Sharing, Extending Voice and Conferencing

Enhancements to Presence, Simplified Management

What's new in Office Communications Server 2007 R2

Stephanie Pierce

Microsoft Office Communications Server 2007 R2, or OCS 2007 R2, introduces many new features, along with significant enhancements of existing functionality. Key new features and enhancements include Call Delegation, Team Ring, Group Chat, Desktop sharing, Server

applications, SIP trunking support, Enhanced media, Simplified firewall configuration for the Audio/Visual (A/V) Edge Server, Presence Enhancements, Improvements in Archiving, Quality of Experience (QoE) Enhancements, and Simplified management. In this article, I will give an overview of some of the most important new features and functionalities added in R2.

Call Delegation

The new Call Delegation feature in OCS 2007 R2 enables managers to delegate phone call handling to one or more administrative assistants or other delegates. When a delegate answers a call, the manager is notified that the call has been answered, along with the name of the delegate who answered.

Working in Microsoft Office Communicator 2007 R2, a manager selects a delegate from among the names in the manager's contact list and then selects Call-Forwarding Settings. The selected delegate uses the new Office Communicator 2007 R2 Attendant to handle calls for the manager.

Depending on the particular permissions that the manager delegates, the assistant can perform the following tasks (note that these capabilities apply only to phone calls; the assistant can't screen instant messaging (IM) conversations, IM conferences, or data-only calls):

- Screen person-to-person or conference calls on behalf of the manager. These calls can be audio only, audio and video, or audio and data
- Join the voice portion of a conference on behalf of the manager
- Listen to the manager's voicemail (if the manager has shared her Microsoft Office Outlook Inbox)
- Place a person-to-person call on behalf of the manager
- Initiate a conference call on the manager's behalf
- Transfer calls to the manager
- Modify the manager's call-forwarding settings
- Search for contacts among the manager's shared Outlook contact list
- Use a shortcut to transfer a call placed on behalf of another manager, such that the two managers speak directly to each other without having to first go through an assistant
- Proxy remote user connections to the correct Standard Edition Server or Enterprise pool. This is necessary because remote user connections cannot be redirected

The manager can also configure a number of options from within the Communicator client. She can designate a back-up assistant for times when the primary assistant is unavailable. She can transfer a call to configured delegates, which are automatically placed on the Communicator 2007 R2 transfer menu. And she can share Outlook contacts with the assistant. The following call delegation options are supported:

- One manager and one delegate
- One manager and multiple delegates
- Multiple managers and one delegate
- Multiple managers and multiple delegates

Team Ring

The new Team Ring feature in OCS 2007 R2 makes it possible to forward incoming calls to a defined team. As a result, when a team receives a forwarded call, each member's phone rings, and all members can see who forwarded the call. When a team member answers the call, the phones of all other members stop ringing.

The Team Ring feature is essentially a call-forwarding option that the team leader configures in Office Communicator 2007 R2. In the Call Forwarding Settings dialog box, the leader can set up a team, add members, and configure how calls are forwarded to other team members. Call team forwarding options include the following:

Ring Leader, Then Ring Team A call forwarded to a team leader first rings the leader's phone for a specified number of seconds, and then it rings the phones of all team members. Each member can see who forwarded and accepted the call. After the call is answered, all team phones stop ringing.

Ring Leader and Team Simultaneously A call forwarded to a team leader simultaneously rings the phones of all team members. After the call is answered, all team phones stop ringing.

Ring Team only during Working Hours A call forwarded to the team leader after working hours does not go to the team.

Ring Team when Leader Status Is Set to Do Not Disturb If the leader's presence is set to Do Not Disturb, a call forwarded to the leader does not ring the leader's phone but automatically rings the phones of all other team members. After the call is answered, all team phones stop ringing. If the call is unanswered, it is forwarded to the leader's voicemail. If the caller has permission to break through to the leader, the leader's phone rings and the call is not forwarded to other team members.

Ring Team when Leader Status Is Set to Offline If the leader's presence is set to Offline, a call forwarded to the leader does not ring the leader's phone but automatically rings the phones of all other team members. After the call is answered, all team phones stop ringing. If the call is unanswered, it is forwarded to the leader's voicemail.

Calls from Specific Callers Do Not Go to Team Calls from contacts whom the leader has designated as Personal are never forwarded to team members.

> When a team receives a forwarded call, each member's phone rings, and all members can see who forwarded the call.

Group Chat

OCS 2007 R2 Group Chat enables users to engage in persistent, ongoing IM conversations. Group Chat differs from Group IM in that the latter is not persistent. After a Group IM session has ended, its state is lost.

With OCS 2007 R2 Group Chat, however, the conversation persists, along with all IM conversations, files, Web links, and other associated data. This persistence makes it possible to maintain complete records of each session. It also enables the instant exchange of business expertise across an organisation and with external partners in a way that makes it possible to maintain a continuing flow of information among project members.

Group Chat requires the deployment of three components that are new with OCS 2007 R2:

OCS 2007 R2 Group Chat Server This gives users access to Group Chat functionality.

OCS 2007 R2 Group Chat Administration Tool This tool enables an Office Communications Server administrator or delegate to manage chat rooms and users. An administrator can create categories and group channels, define their scope and membership, manage how users can use the group channels, and specify which users are administrators and managers.

Office Communicator 2007 R2 Group Chat This is a desktop client application that makes chat room conversations and features available to end users and that enables users to send and receive instant messages, either in a chat room or singly with another user outside the chat room. To use chat rooms, this component must be installed in addition to Office Communicator.

Figure 1 shows all of the components of a topology with a single Group Chat Server and optional Compliance Server with a sepa-
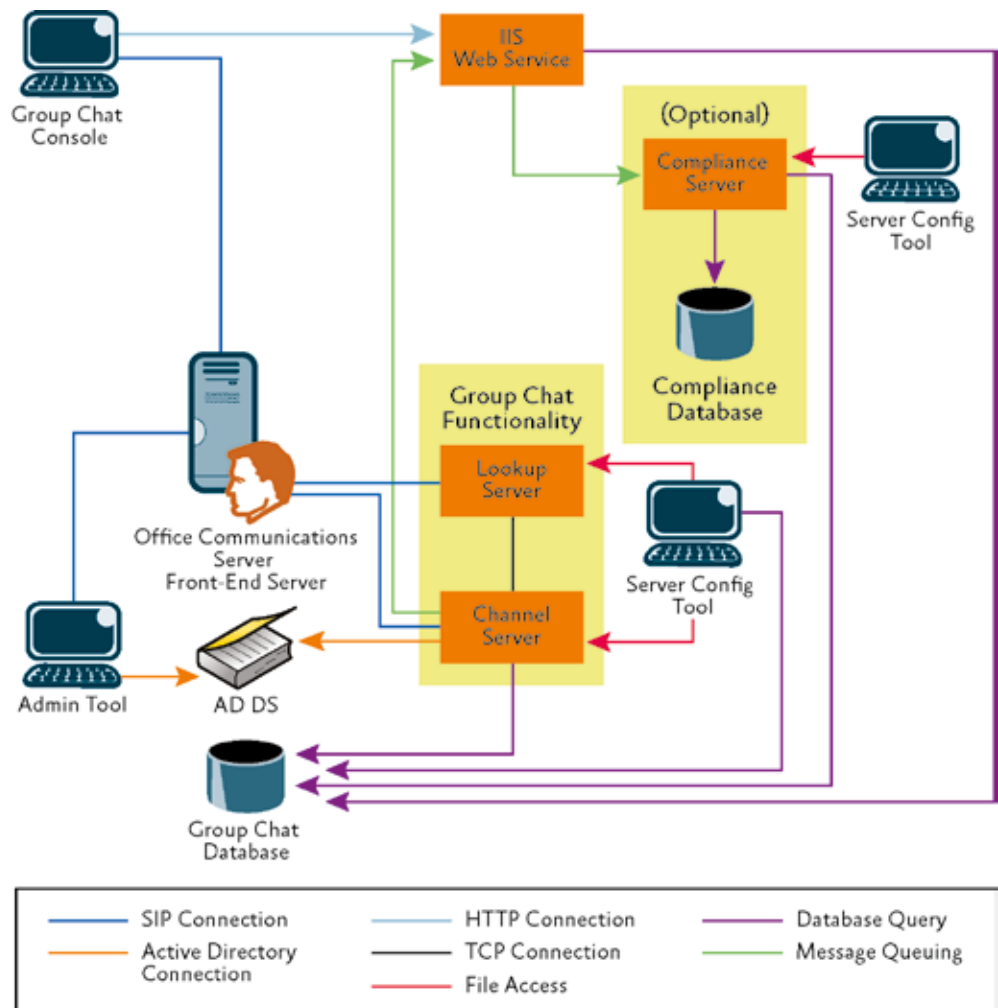

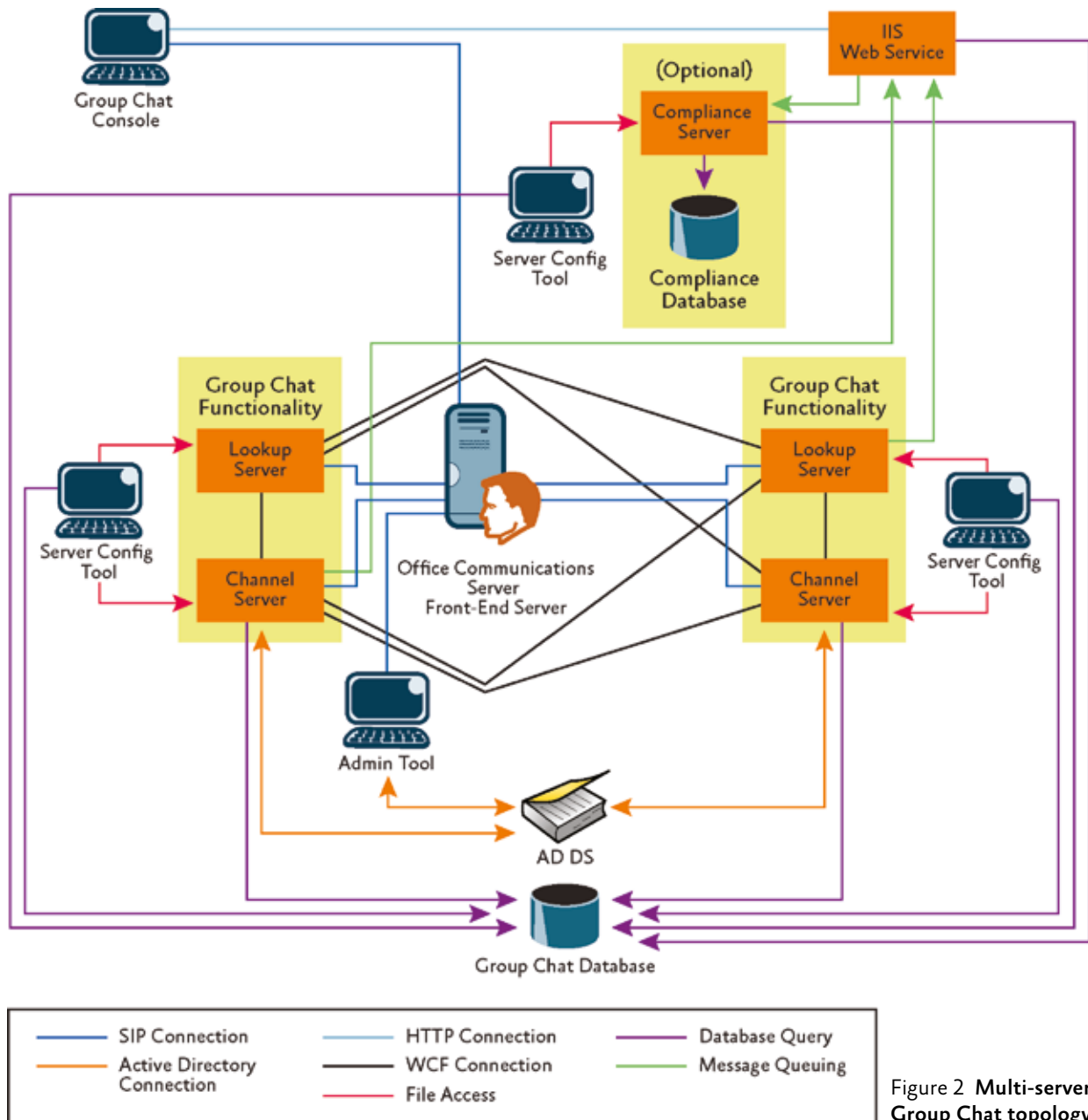Figure 1 **Single-server Group Chat topology**

Figure 2 **Multi-server Group Chat topology**

rate compliance database. **Figure 2** shows a multiple-server Group Chat topology.

With OCS 2007 R2 Group Chat, end users can perform the following tasks:

- Create a chat room, which is a persistent topic that users can join
- Restrict chat room access to selected users
- View all chat rooms in which the user is a member
- Join a chat room
- View and read chat room messages
- Post messages to a chat room
- Post Web links to a chat room

- Receive notifications when a user is added to a chat room or contact list
- Customise the chat room display
- Log chat room content
- Review chat room logs
- Create an auditorium chat room, where only certain members can post messages
- Send and receive instant messages without creating a chat room
- Save instant messages to a text file
- Archive chat room content and IM conversations
- Choose whether to use Communicator or the chat room's client for IM conversa-

tions. This decision is important because choosing one of the clients makes IM conversations unavailable on the other client

Desktop sharing

Desktop sharing enables users to transmit views of their desktops to others. With the new Web-based client in OCS 2007 R2, users can initiate desktop sharing during any Web conference that the server hosts. The desktop-sharing client is based on and integrated with the 2007 R2 release of the Microsoft Office Communicator Web Access client.

The new desktop sharing client can be initiated by using the 2007 R2 version of the Communicator Web Access client, Office Communicator 2007 R2, Microsoft Office Live Meeting 2007 R2 (in meetings hosted by Office Communications Server instead of the Live Meeting service), and Microsoft Office Shared-View. A desktop sharing session can also be initiated by using a Web browser to navigate to the desktop sharing Web site hosted by the Communicator Web Access server. Desktop sharing requires installation of the Microsoft Office Communicator Web Access plug-in.

Principal components of desktop sharing framework

The framework for sharing desktops includes five principal components:

Communicator Web Access Client

The 2007 R2 version of the Communicator Web Access client contains the hosting and viewing components for desktop sharing. The hosting component drives the desktop sharing session. This component sends graphical data to the Application Sharing Server or another client, such as Office Communicator 2007 R2, which is capable of understanding Remote Desktop Protocol (RDP).

The viewing component displays the graphical data from the desktop sharing session to the user. Graphical data is obtained from the Communicator Web Access server. The viewer can also send keyboard and mouse data to the host by way of the Communicator Web Access server and the Application Sharing Conferencing Server.

Desktop-Sharing Client
The desktop sharing client is a Web-based viewer that is hosted on the Communicator Web Access client. When sharing is initiated, meeting participants are invited to view the sharer's desktop. If they accept, the desktop sharing client launches in a new viewing pane integrated with the Communicator Web Access client.

Participants using Office Communicator 2007 R2 can launch the desktop sharing client directly from Office Communicator. Each participant's desktop sharing client receives graphical data from the Communicator Web Access server, which in turn receives it from the Application Sharing Conferencing Server.

Microsoft Office Communicator Web Access Plug-In
Because the desktop sharing client is browser based, interaction with the underlying operating system has to be implemented through a native plug-in. The Microsoft Office Communicator Web Access plug-in is available as an option during installation of the Communicator Web Access client.

Communicator Web Access Server
The Communicator Web Access server is responsible for setting up, tearing down, and controlling the desktop sharing session for the Communicator Web Access client. The Communicator Web Access server also sends and receives sharing data both to and from the client. The Communicator Web Access server handles media only for Communicator Web Access viewers.

Application Sharing Conferencing Server
The Application Sharing Server is responsible for managing and streaming data for conferences that require desktop sharing. In multi-party conferences, the Communicator Web Access client, in the role of the desktop sharing host, dials the conferencing server directly (or, in the case of external users, by way of an A/V Edge Server). The Communicator Web Access server then connects to the conferencing server to receive desktop sharing data on behalf of the Web clients that are hosted on the Communicator Web Access server.

In Office Communications Server 2007 R2, desktop sharing components use RDP, which is also used by Terminal Services functionality in Windows Server 2003. Desktop sharing sessions that use RDP cannot support participants who are running earlier versions of Office Communications Server clients, nor can they include users of the Office Live Meeting service.

However, participants who are not running any Office Communications Server clients and do not have an Office Communications Server account can still be invited to a desktop sharing session. They join that session by simply navigating to a meeting URL hosted on the Communicator Web Access server, using a supported Internet browser.

Users running a supported client on a computer running Windows can initiate sharing, view, or take control of programs during a desktop sharing session. Users participating in a desktop sharing session using an Apple Macintosh or a computer running the Linux operating system can view or take control of programs but cannot initiate sharing.

By using a supported client, users can initiate a desktop sharing session and invite other users, including users that are not enabled for Unified Communications (UC). Communicator Web Access and Office Communicator users can start desktop sharing during an existing IM conversation or audio/video conference. Communicator Web Access automatically generates a meeting URL for new participants at the time the desktop sharing session is initiated. Members of a distribution group can be added to a desktop sharing session. Users outside the organisation's network can also join a desktop sharing session if Communicator Web Access is configured for external access.

Depending on policy, the user hosting a session can give control to other participants, deny control, retake control, or stop the session. While in a desktop sharing session, all users can send instant messages to other participants.

Anyone in the session can add audio conferencing to a desktop sharing session if the environment has been configured with an A/V Conferencing Server and if the environment supports calls to the Public Switched Telephone Network (PSTN). When audio is added, Communicator Web Access initiates a call to the user's telephone, and then it calls the telephone numbers of other users in the session to add them to the audio conference. Conference Attendant Console users can participate in the audio conference portion of a desktop sharing session.

Server applications to extend voice and conferencing

OCS 2007 R2 ships with several applications which extend and enhance the server's existing voice and conferencing functionality. These applications run on the OCS 2007 R2 Application Server, which is installed on the same computer as the Enterprise Edition front-end server or Standard Edition Server.

Dial-In Conferencing Feature Dial-in conferencing enables anonymous users and enterprise users who want or need to use a PSTN phone to join the audio portion of an on-premise conference. Conferencing Attendant is an application that is run to enable this dial-in conferencing feature, and the Conferencing Announcement Service is an application that enhances this feature by providing announcements when users join or leave a conference.

Conferencing Attendant OCS 2007 R2 Conferencing Attendant is an application that enables users to join an A/V conference by dialing in using a telephone on the PSTN. Conferencing Attendant can be installed to provide audio conferencing capabilities to phone users without requiring the services of a third-party Audio Conferencing provider. Conferencing Attendant also requires that the 2007 R2 release of Communicator Web Access be installed to provide the Dial-In Conferencing Web page, which users can access to manage their reservationless meeting information and personal identification number (PIN).

Conferencing Attendant provides user management of reservationless meeting information and PIN management through a Dial-In Conferencing Web page, support for multiple languages, music-on-hold, conference scheduling using an Outlook add-in, support for both anonymous and remote users, reservationless meetings, and configurable access phone numbers.

Conferencing Announcement Service Conferencing Announcement Service uses a tone to announce when a phone user joins or leaves a conference. If the conference organizer dials out to a user with a request to join the conference, a tone plays when the user joins. Conferencing Announcement Service also announces when a phone user has been muted or unmuted. If you run Conferencing Attendant without also running Conference Announcement Service, there are no announcements for phone users.

Response Group Service

OCS 2007 R2 Response Group Service enables administrators to create and configure one or more small response groups for the purpose of routing and queuing incoming

By using a supported client, users can initiate a desktop sharing session and invite other users, including users that are not enabled for UC.

phone calls to one or more designated agents. These response groups can be deployed in departmental or workgroup environments and in entirely new telephony installations.

Typical usage scenarios include an internal help desk, customer service desk, or general external call handler. Response Group Service can increase response group usage and reduce the associated overhead by pushing the tasks of response group maintenance down to the users who directly benefit from them.

Response Group Service works with Office Communicator and the new Office Communications Server Attendant. Response Group Service also supports incoming calls from the local carrier network. Agents can use Communicator, Communicator Phone Edition, or Office Communications Server Attendant. **Figure 3** shows the Response Group Service deployed on Office Communications Server 2007 R2 Enterprise Edition servers in a consolidated configuration. In this example, calls from on-site and remote callers can be distributed to on-site and remote callees.

Response Group Service includes the following features:

Supported Call Routing Algorithms Response Group Service supports standard response group call-routing algorithms, including serial, longest-idle, parallel, and round robin. Routing algorithms are configured for each defined group of agents.

Interactive Voice Response (IVR) Call navigation employs IVR, which detects and recognises both speech and dual-tone multi-frequency (DTMF) keypad input. Response Group Service IVR also supports text-to-speech and the WAV file format. The administrator can update IVR prompts.

Call Queuing Calls are queued pending the availability of an agent configured to accept the call.

Music-On-Hold Callers are put on music-on-hold until an agent becomes available. Presence-based routing Call routing takes agent presence status into account. The routing component would skip, for example, agents who are signed out or busy.

Response Group Templates Predefined response group templates make it easy for an administrator to create a new response group. The administrator uses the response group template to define the usage experience of the call, including questions asked to the caller, options given to the caller, music-on-hold options, and configuration of business hours and holidays.

User Management Using a Web-based tool, administrators assign management responsibility for a response group (basic or en-
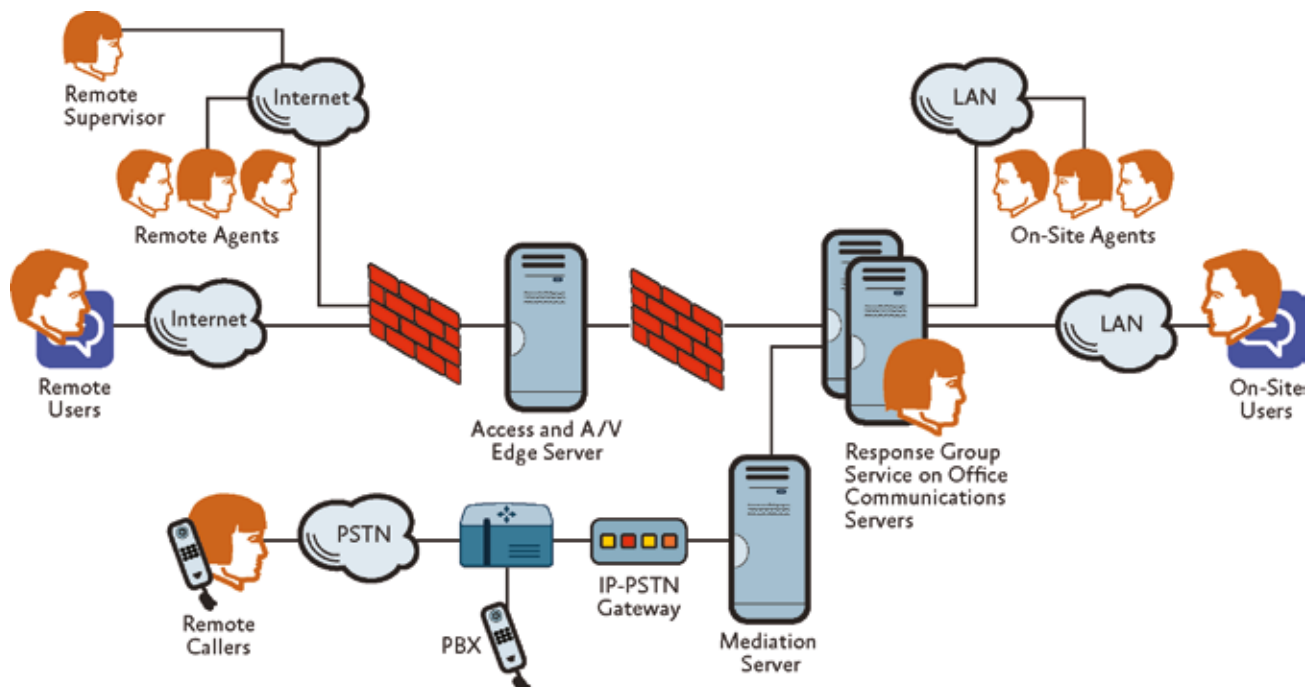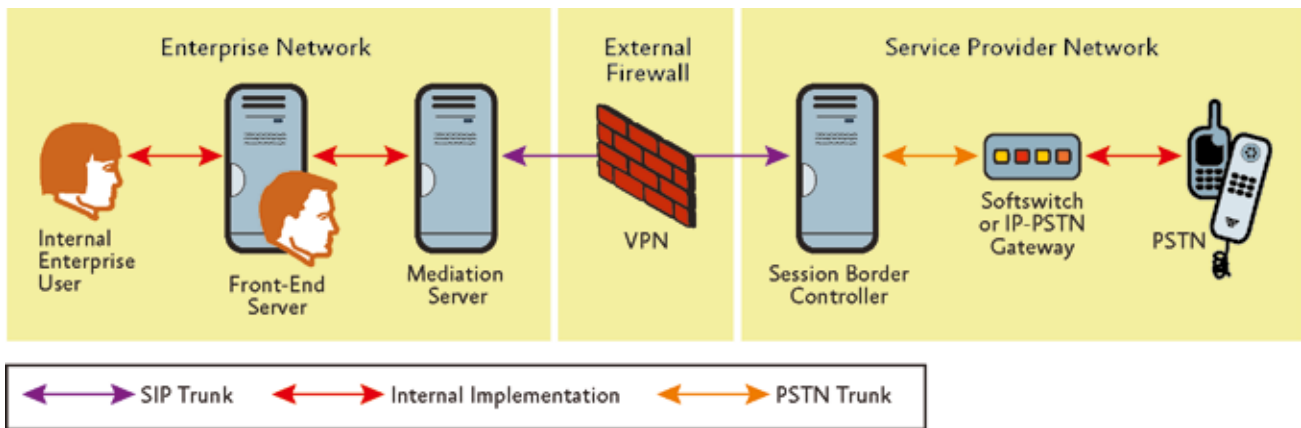

Figure 3 **Response Group Service deployment**

SIP Trunk ⬌ Internal Implementation ⬌ PSTN Trunk

hanced hunt groups only) to any user. The user is thereby empowered to configure and manage the response group, including configuring music-on-hold and defining business hours. As a result, user management puts control over response groups in the hands of people who actually use them, while relieving administrators of much of the overhead associated with managing traditional response groups.

Agent Types Response Group Service supports both formal and informal agents. Formal agents are required to sign in or sign out of response groups. They might include someone who fills in when colleagues are on vacation or lunch breaks or perhaps include separate groups of people who take calls at different times of the day. Informal agents are not required to sign in or out of response groups.

Simplified Management Response Group Service simplifies management of response groups by providing a Web-based response group deployment and configuration tool, a standalone Microsoft Management Console (MMC) 3.0 snap-in (which can be opened from OCS 2007 R2), and support for end users configuring and managing response groups.

Outside Voice Control

Outside Voice Control provides Enterprise Voice functionality and call control to mobile phones that are not otherwise enabled for Enterprise Voice. Microsoft Office Communicator Mobile clients can receive or make calls by using a single enterprise number or Session Initiation Protocol (SIP) Uniform Resource Identifier (URI).

Unanswered calls are directed to the user's single Enterprise Voice mail repository. Users of devices that are running Office Communicator Mobile clients can use the voice functionality of that device as if it were part of the enterprise network, rather than the carrier network, by providing a callback number to the server.

SIP Trunking

OCS 2007 R2 simplifies and reduces the cost of deploying Enterprise Voice by enabling an enterprise to connect its voice network to a service provider offering PSTN origination, termination, and emergency services. This capability, known in the telecommunications industry as SIP trunking, enables enterprises to not deploy IP-PSTN gateways, with or without Mediation Servers, to enable PSTN connectivity. In other words, it offers a generic means for an IP PBX to connect to a remote hosted service for the purpose of originating and terminating calls to the PSTN network.

Figure 4 depicts the SIP trunking topology in OCS 2007 R2. As shown in the diagram, an IP virtual private network (VPN) is used for connectivity between the enterprise network and the PSTN service provider. The purpose of this private network is to provide IP connectivity, security, and (optionally) Quality of Service (QoS) guarantees.

In such an environment, it is not required to additionally secure the SIP signaling traffic (with Transport Layer Security, or TLS) or the media traffic (with Secure Real-Time Protocol, or SRTP). Connections between the enterprise and the service provider there-

fore consist of plain TCP connections for SIP and plain RTP (over UDP) for media potentially tunneled through an IP VPN.

It's expected that the demarcation point in most service providers' networks will be a session border controller, although this is not required. Likewise, whether to use an IP-PSTN gateway or softswitch in the service provider network is up to the service provider.

In this SIP trunking topology, the Mediation Server performs media and signaling translation, just as it does when connected to an enterprise IP-PSTN gateway. All SIP traffic and media traffic between the enterprise network and the service provider network flows through the VPN and through the Mediation Server.

The Mediation Server can discover the service provider proxy (the Session Border Controller in **Figure 4**) either through static provisioning or DNS query against an FQDN published by the PSTN service provider. The PSTN service provider can use either of these methods for discovering the list of enterprise proxies (Mediation Servers) to which it can connect.

The OCS 2007 R2 SIP trunking capability enables two key scenarios. In the first scenario, an enterprise user inside or outside the corporate firewall can make a local, long distance, or emergency call (specified by an E.164-compliant number that is terminated on the PSTN as a service of the corresponding service provider). In the second scenario, any PSTN subscriber can contact an enterprise user inside or outside the corporate firewall by dialing a Direct Inward Dialing number associated with that enterprise user.

Enhanced media

Improved A/V collaboration is the centerpiece of OCS 2007 R2. Fundamental to this effort is an improvement in overall user experience both during phone calls and conferences. Among the media enhancements that have been implemented to achieve this goal are the following:

Improved Media Resiliency End users can expect to have reliable voice communications that continue working even if transient network conditions cause signaling failure in an Office Communications Server component. If a user's attempt to establish a new media connection fails, such as during an attempt to add video to an existing voice connection, Office Communicator 2007 R2 automatically tries to restore this connection in the background without further user involvement. (Note that if a signaling failure occurs for the duration of the call after it has initially been established, call control features such as hold, retrieve, and transfer will not work.)

Improved Voice Quality Overall voice quality is significantly better for OCS 2007 R2. Some of the more notable changes include suppression of typing noise during calls, improved generation of "comfort noise" (reducing hissing and smoothing over the discontinuous flow of audio packets), better echo detection and reduced echoing at the beginning of a call, better regulation of audio volume among peer-to-peer callers and conference participants, and improved codec selection for calls to the PSTN over low-latency connections.

Video negotiation

Video negotiation is a process whereby an endpoint proposing to send video can determine the video capabilities of the receiving endpoint prior to sending the video stream. The purpose of video negotiation is to make sure that the sending endpoint can produce and send a given resolution and that the receiving endpoint can receive and render that same resolution. The negotiation follows an offer/answer model until common agreement is found. The highest-quality video capability held in common is used in peer-to-peer calls unless the user at the receiving end prefers a lower resolution or frame rate.

An endpoint's video capability is based on several qualities, including central processing unit (CPU), available memory, attached devices, and network resources. For example, a user may have a camera that can send VGA video at 15 frames per second (fps) or Common Intermediate Format (CIF) video at 30 fps, but that cannot handle high-definition (HD) video. Video negotiation always resolves to CIF at 15 fps for multiparty video conferencing.

The video preference of the user at the receiving endpoint also helps to determine the final negotiated format. For example, a user may want to select a smaller video window even though the negotiated video settings enable a higher resolution. In such cases, the receiver instructs the sender to adopt a lower video format. The ability to specify video preferences in this way prevents inefficient use of bandwidth. Office Communicator offers three window sizes and therefore three preference settings: small, large, and full screen.

High-Definition and VGA Video High-definition (HD) 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 Office Communicator 2007 R2 on high-end computers. The resolution that each participant views in a single conversation may differ, depending on the video capabilities of their respective hardware. (See the "Video Negotiation" sidebar.)

HD and VGA video are not supported for conferences. Administrators can set policies to restrict or disable HD 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.

Simplified firewall configuration for the A/V Edge Server

OCS 2007 R2 simplifies firewall configuration for the A/V Edge Server to support audio and video scenarios involving remote users and federated users. In OCS 2007 R2, the perimeter network's external firewall needs to be configured to enable inbound and outbound connections with the public Internet to the A/V Edge Service on ports 3478 for User Datagram Protocol (UDP), 443 for Transmission Control Protocol (TCP), and 50,000 - 59,999 for both UDP and TCP.

If application sharing does not need to be enabled for federated scenarios, then with OCS 2007 R2, the perimeter firewall can be configured to enable only inbound connections from the public Internet to the A/V Edge Server on ports 3478 for UDP and 443 for TCP. This reduced port range for inbound connections simplifies the configuration changes required on the external firewall. However, if application sharing needs to be enabled in federated scenarios, then ports 50,000-59,999 need to be opened for outbound TCP connections.

In OCS 2007, the external IP address of the A/V Edge Server has to be publicly routable and not located behind a Network Address Translation (NAT). In Communications Server 2007 R2, if a public IP address is not available, the A/V Edge Service can be deployed behind a NAT as part of a single Edge Server topology. (It's important to note that a publicly routable IP address is required if the topology contains multiple load-balanced A/V Edge Servers.)

Presence enhancements

The ability to broadcast and view presence information is a fundamental requirement for effective real-time communications. Presence enhancements for OCS 2007 R2 primarily address the requirements of new voice scenarios:

- Increasing the number of subscribers to a contact object. For instance, the maximum number of category subscriptions is 3,000, which would enable 600 subscribers with one device each across five categories.
- Enabling the Response Group Service to subscribe to the presence of its agents.
- Creating Presence policies to set limits and restrictions for specific people.
- Implementing poll-based presence for newly created callers to the Response Group Service.
- Enabling an administrator to publish presence on behalf of a manager and to access all of the manager's published presence categories.

Archiving, CDR, and QoE enhancements

Office Communications Server 2007 R2 delivers enhanced out-of-the-box monitoring and reporting capabilities for new features and scenarios while simplifying the deployment and administration of monitoring components. Archiving, Call Detail Records (CDR), and Quality of Experience (QoE) enhancements for Office Communications Server 2007 R2 include:

- CDR and archiving data for new scenarios and features, including Call Delegation, Team Calling, and Response Group Service.
- New CDR usage reports provide system usage details for conferencing, voice and video, and IM.
- New QoE metrics for audio quality, PSTN connections, and network connectivity. These new QoE metrics provide better-quality monitoring and diagnostics. Furthermore, QoE reports have been fully redesigned and enhanced with the new metrics.

> OCS 2007 R2 perks include suppression of typing noise during calls and better regulation of audio volume among participants.

- A new Office Communications Server role, the Monitoring Server, gathers both CDR and QoE data.
- The OCS 2007 R2 Archiving Server now performs only IM conversation archiving-related functions.

Simplified management

Office Communications Server 2007 R2 reduces management overhead and simplifies deployment and ongoing operations. Management improvements include:

Simplified Topologies The recommended topology for Office Communications Server 2007 R2 is a consolidated configuration in which all server roles in a pool are collocated on a single computer. Response Group Service, Conferencing Auto-Attendant, Conferencing Announcement Service, and Outside Voice Control are also collated on a single computer. All Edge Server roles in a perimeter network are collocated on a single computer. As a result, both deployment and operational overhead are reduced, thereby reducing cost of ownership. Scalability is achieved by adding computers to the pool or perimeter network and load balancing them.

Enhanced Administrative Snap-In The Administrative snap-in has been updated for Office Communications Server 2007 R2 to include Application Server, Response Group Distributor, Conference Attendant, Conference Announcement Service, Call Control Service, and Application Sharing Conferencing Server.

The new snap-in enables administrators to configure and manage each of these new components by using a familiar interface. In addition, these new components appear in the server-by-role view in the snap-in.

Conference Directories Conference Directories are new entities that provide persistent identities to scheduled conferences. When a scheduled conference has to be moved to a new pool – ie, when its original pool is taken offline – the scheduled conference retains the identity that its Conference Directory provided. Conference Directories, including those that are as yet unassigned, are listed in the tree view of the administrative console.

Automatic Updates Administrators can push updates to Office Communicator 2007 R2, Communicator Phone Edition, and the RoundTable without relying on the refresh cycles of other administrators and with little or no involvement from users.

Improved Certificate Wizard An improved Certificate Wizard enables administrators to create multiple certificate requests offline for the same computer and then send them to an enterprise or public certificate authority (CA). After certificates are imported, the Certificate Wizard enables the administrator to specify the certificate assignments to specific services. The Certificate Wizard also warns when Subject Alternate Names (SANs) include spaces and special characters, which are not allowed.

In-Band Provisioning Enhancements All clients (Communicator, Communicator Web Access, Communicator Mobile, and Communicator Phone Edition) are automatically provisioned at first sign-in, with the new settings introduced in Office Communications Server 2007 R2.

Optional Installation of Administrative Tools Installation of the Office Communications Server 2007 R2 Administrative snap-in is now optional. The Communicator Web Access administrative snap-in and the deployment command-line tool LcsCmd are also no longer installed by default.

Planning Tool The Planning Tool for Office Communications Server 2007 R2 provides prescriptive guidance for planning and deployment. The Planning Tool is a wizard that asks a series of questions about features of interest, information about your organisation, and anticipated capacity.

Based on the answers you provide, the Planning Tool creates a recommended topology for each of your organisation's main sites, specifies recommended hardware, and prescribes the planning and deployment steps to implement the topologies. The Planning Tool takes about 10 minutes to complete, depending on the complexity of your organisation. ■

For more information visit: http://technet.microsoft.com/en-gb/office/bb267356.aspx

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