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Andrew Abbate  
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Microsoft®  
**Lync Server**  
**2010**

**UNLEASHED**



*SAMS*

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# Microsoft® Lync Server 2010

**UNLEASHED**

**SAMS**

800 East 96th Street, Indianapolis, Indiana 46240 USA

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## Microsoft® Lync Server 2010 Unleashed

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# About the Authors

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# Dedication

*This book is dedicated to my best friend who kept me company through all the late nights, my pug, Pugsley. Thank you for the companionship and warm nuzzles encouraging me to keep writing way too late into the night. If only I could teach you to write for me, that would be a trick!*  
—Alex Lewis

*I dedicate this book to my niece Nora. Seeing the joy you've brought to your family reminds me that I need to keep life in perspective and focus on the truly important things.*  
—Andrew Abbate

*I dedicate this book to my fiancée, Elizabeth, for putting up with the endless late nights and lost weekends of writing with an incredible amount of patience. Thank you so much for your support the entire time.*  
—Tom Pacyk

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---

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**Tom Pacyk:** Writing a book for the first time seemed like such a great idea when the opportunity presented itself, but once the writing began I found myself beginning to think otherwise. The process had its ups and downs, but it's a great feeling now that it's been completed, and I'm very proud of the work we've compiled here.

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# Introduction

The authors of this book have been working with Communications Server since the Live Communications Server 2003 days. I remember when it launched on December 29, 2003. Back then, Windows Messenger 5.0 was the main client used and the terminology was completely different. However, even then, TLS communication was supported, although most IT departments went with the more familiar TCP option instead. Needless to say, a lot has changed through the years. Most people I work with don't realize that Lync Server is a fifth-generation product! It is even older if you count the Exchange Instant Messenger Service that was included in Exchange Server 2000, which was pulled out to build the first version of Live Communications Server.

In the beginning, Live Communications Server 2003 was only an IM server. With Lync Server, it has evolved into many more things, including

- ▶ Web and audio conferencing server
- ▶ Unified Communications (UC) integration across many other platforms, such as Office, SharePoint, and Exchange
- ▶ Soft phone
- ▶ Video conferencing system
- ▶ PBX replacement

Back in 2003, IM was perceived as a novelty. No one used it to conduct business or even imagined it as a gateway to multimodal communications. Starting with Office Communications Server 2007 R2 and continuing with Lync Server, Microsoft introduced the concept of Communications Enabled Business Processes (CEBP).

## NOTE

It seems every vendor and analyst defines CEBP in a different way. However, for this book, we stick with a more generic definition. CEBP adds a communications medium to a business process with the intent of streamlining and automating the process or with the intent of reducing human latency through real-time communications.

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## Chronology of Lync Server

Let's go through some history and chronology to better understand why and how Communication Server 2010 came to be.

- ▶ **Microsoft Exchange Server 2000 Instant Messenger Service**—It's hard to believe so few people, even Exchange administrators, have heard of the Exchange 2000 IM service. However, it is not hard to believe that even fewer deployed it. It was a

rudimentary service with little integration to Exchange or other Microsoft Server products. Later versions utilized special engines, whereas the Exchange 2000 IM service leveraged an in-house middleware platform called Exchange Interprocess Communication (EXIPC) to translate between IIS 5 and Exchange. The solution was essentially composed of two types of servers: home servers and routing servers.

Home servers handled IM communications similarly to a front end in Lync Server. However, there was little Active Directory integration. That's where routing servers came in. If two users were homed to different home servers, they would need to jump through a bunch of hoops to talk with each other. The routing server acted as a bridge connecting any two home servers. It was a basic solution, especially at a time when public IM providers such as Yahoo! and AOL offered significantly more in terms of functionality.

- ▶ **Live Communications Server 2003**—Instant messaging functions were taken out of Exchange and given their own platforms with the 2003 wave of Microsoft Server products. It was code named Greenwich and initially called Office Real-Time Communications Server 2003 before being renamed Live Communications Server 2003 just prior to release. It wasn't long before it was better known by its three-letter acronym LCS 2003. LCS 2003 was the first version to support certificates and offer TLS-encrypted communications as the recommended method. LCS 2003 was also the first version to support enterprise archival of IM communications, although it was rarely implemented because the compliance regulations in effect today simply didn't exist or include IM conversations in 2003.
- ▶ **Live Communications Server 2005**—Live Communications Server 2005, or LCS 2005 as it's more commonly known, was the first widely deployed version of the Microsoft real-time communications platform. It was code named Vienna. Although one might argue that LCS 2005 was Microsoft's first attempt at a unified communications platform, few organizations deployed functions beyond IM and presence. LCS 2005 added new functions including a more advanced presence engine that would change a user's presence status based on information from a user's Exchange calendar and remote access through the access proxy role. LCS 2005 SP1 added the capability to communicate with Office Communications Server 2007 users and a number of other features. In today's Microsoft nomenclature, it would likely be called Live Communications Server 2005 R2.
- ▶ **Office Communications Server 2007**—Code named RTC12, this is when the creative codenames went the way of the dodo bird. Commonly known as OCS 2007, the platform made huge jump in terms of functionality and acceptance. OCS 2007 added the following functions:
  - ▶ **On-Premise Web Conferencing**—The ROI from bringing web conferencing in-house almost always justified the cost of implementing OCS, and thus, it became an important feature. However, voice conferencing was PC-only or needed to be hosted through a third-party provider.

- ▶ **Multiparty IM**—It might seem insignificant to add more than one person to an IM conversation, but it became an important market differentiator compared to products such as IBM SameTime and Cisco CUPS.
- ▶ **Enhanced presence**—Also known as “rich presence,” it enabled users to expose additional information beyond the red, green, and yellow gumdrop that was standard at the time. This information included name, title, and detailed calendar information. It also included a multitiered access mechanism called levels of access to display different amounts of personal information to different tiers of users.
- ▶ **Improved federation**—Open federation and widespread adoption of OCS 2007 changed the landscape of intercompany communication. E-mail became secondary for partner communication as users could see real time availability data and collaborate immediately removing the latency inherent to asynchronous methods of communication.
- ▶ **Enterprise Voice**—It’s simply not possible to call your solution a Unified Communications solution without the inclusion of a voice platform. Although it was basic, it was a proactive step in the right direction because almost every other UC vendor would also roll out a combined IM, meeting, and voice platform around the same time or soon after.
- ▶ **Office Communications Server 2007 R2**—When combined with Exchange Unified Messaging, this was the first version that could realistically be considered a PBX replacement, although it still lacked many traditional PBX features. Code named Wave 13 or W13, OCS 2007 R2 added a bunch of collaboration and voice features as noted in the following:
  - ▶ **Call Delegation**—Also known as the boss-secretary function, this enabled delegates to answer a call for another user. The primary user also notified the delegate answered the call. This function was designed to be used with the Communicator Attendant Console. Much like with delegates in Exchange, the assistant could be given the rights to do almost everything for the manager yet make it appear that the manager was doing the work. A full call delegation feature list includes call screening for audio, video, or IM; joining a voice conference on behalf of the manager; checking voicemail for the manager; initiating a person-to-person call on behalf of the manager; initiating conference calls on behalf of the manager; and transferring calls to the manager.
  - ▶ **Team Call**—A simple workflow that enabled call forwarding to multiple people. The call could be forwarded to specific people in sequence or in parallel. This was often used for out-of-office or out-to-lunch functions.
  - ▶ **Group Chat**—A separate server role that also required a separate client from Communicator. It allowed persistent chat similar to IRC.

- ▶ **Desktop sharing**—This included desktop sharing from the Communicator client and with anonymous users through the Communicator Web Access service.
- ▶ **Audio conferencing**—Much like web conferencing in OCS 2007, this is another great ROI story. Third-party audio conferencing services can be expensive; tens of thousands of dollars per month can be saved by bringing it in-house. Many companies deployed OCS 2007 R2 strictly for this functionality; everything else was just a bonus.
- ▶ **Response Group Service**—This is Microsoft’s version of a simple IVR workflow. It’s often used for small call centers or IT help desks.
- ▶ **SIP trunking**—SIP trunking is still new but seeing a growth in adoption. Essentially, it enables OCS 2007 R2 to connect to a SIP trunking provider that handles all outbound call routing. Although the process can be a little complex to set up initially, it greatly eases call routing topology because everything goes to the cloud service provider.
- ▶ **Improved codecs**—Improved codecs for voice and video enable better voice quality and more tolerance for nonideal networks. They also enable HD-quality video between clients over reasonable network links.

## How This Book Is Organized

Everything you’ll want to know about new features for Lync Server is included in Chapters 1–4. These chapters describe new features and benefits.

You will find that the improvements Microsoft has made to Lync Server are not only evolutionary, but they represent a major step forward for UC. Lync Server solidifies Microsoft’s role as market leader in the UC field.

### CAUTION

This book covers all aspects of Lync Server. However, the book does assume you have at least a cursory knowledge of the basics of Active Directory, DNS, and the associated infrastructures of each.

This book is organized into nine parts, each one made up of several chapters focusing on a different core area of Lync Server.

- ▶ **Part I, “Overview”**—This part provides an introduction to Lync Server not only from the perspective of a general technology overview, but also to note what is truly new in Lync Server and what has compelled organizations we’ve worked with to implement it during the beta phase.

- ▶ **Part II, “Microsoft Lync Server 2010 Server Roles”**—This part provides an in-depth discussion of all the Lync Server roles including a general overview, the installation process, configuration, administration, troubleshooting, and best practices. Each role is examined in detail with step-by-step installation instructions and valuable screenshots.
- ▶ **Part III, “External Dependencies”**—Lync Server leverages many other technologies including Active Directory, DNS, certificates, and SQL Server. It also has specific prerequisites and requirements around network latency, bandwidth, and firewall and reverse proxies for external access and federation. Lync Server relies heavily on Active Directory for integration to other Microsoft Server components such as Microsoft Exchange and Microsoft SharePoint.
- ▶ **Part IV, “Administration and Management”**—This part covers common administration tasks and the Communications Server Management Shell, which is the heart of all administration tasks. It moves on to discuss monitoring Lync Server through Microsoft Systems Center Operations Manager and the backup and restore processes for all the Communications Server roles.
- ▶ **Part V, “Migrating from Older Versions”**—This part reviews the process of upgrading from Office Communications Server 2007 and 2007 R2. It also explains how to upgrade from Live Communications Server. A green field deployment is easy; migrating users, response groups, and dial plans from previous versions of Communications Server can cause headaches. A solid, tested migration strategy is important for minimizing downtime and ensuring a successful migration. The bad news is there is only one way to do it. The good news is that it is explained in great detail in Part V.
- ▶ **Part VI, “Voice”**—Microsoft has heavily invested in making Lync Server a voice-focused platform. There are huge improvements from previous platforms. Lync Server now supports branch office survivability, e911, and improved conferencing. This part covers PBX integration, enterprise voice, and audio conferencing. With these improvements, Communications Server is ready to be a full PBX replacement. It can even work as a call center solution integrated with solutions from Aspect for larger deployments, Altigen for smaller deployments, and a host of other partners.
- ▶ **Part VII, “Integration with Other Applications”**—Lync Server has unique communications and collaboration features when integrated with other applications. Presence can be brought into a SharePoint page or Exchange Outlook Web Application. The Exchange Unified Messaging server completes the Microsoft UC solution. However, Microsoft didn’t stop there. There is also an open API called Unified Communications Managed API (UCMA) for developers to create their applications and extensions that plug into the UC ecosystem.
- ▶ **Part VIII, “Clients”**—From a user’s perspective, the solution *is* the client. That’s all a user sees. The Communicator 2010 client is designed to be easier to use with more information in the main page and not hidden in menus and submenus. For example, the dial pad is front and center for all Communicator conversations.

In addition to soft clients, this part also has a chapter on UC endpoints including headsets, webcams, and handset phones. Due to popular demand, many new types of endpoints are available for Lync Server, including a true conference room phone, which fills a major gap for previous versions.

- ▶ **Part IX, “Planning for Deployment”**—Every good deployment starts with a good plan. This part can help you build a plan for your organization. It covers the new virtualization policy that enables all roles to be virtualized, designing a nonvoice deployment, designing edge architecture, and planning for a voice deployment. Although Communications Server expertise is required, many other skill sets are also important to plan a successful deployment. Communications Server touches many other areas including PBX/telecommunications, Active Directory, Exchange, and the enterprise network. Although bringing in an expert is always a good strategy, this part educates you with the basics for planning your deployment.

The real-world experience we have working with Lync Server, our combined experience with the platform since its beginnings, and our field experience deploying Communications Server enable us to present this information to you. We made the mistakes, found the workarounds, and simply know what works and how to make things work. We know you will find this book valuable with the planning and deployment of your Lync Server infrastructure.

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# PART I

## Overview

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