PBX Integration with Microsoft Lync 2010
See it.  
Hear it.  
Respond.

Agenda

• Introduction
• Integration options
• Requirements & Integration Steps
• Our lessons learned
• Recommended Resources
Three ways to Integrate

1. Connect VoIP Islands
   Enterprise Voice using Lync as voice endpoint
2. Integrate Desktop in the Server Room
   Remote Call Control of PBX Phone
3. Integrate Desktop at the desktop
   Lync and PBX softphone integrate via APIs
## End-User Summary

<table>
<thead>
<tr>
<th>Enterprise Voice using Lync as voice endpoint</th>
<th>Remote Call Control of PBX Phone</th>
<th>Desktop Integration with PBX softphone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>User Experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lync voice users call PBX users and vice versa</td>
<td>Lync is used as IM client, controls PBX phone</td>
<td>Lync is used as IM client, controls PBX phone</td>
</tr>
<tr>
<td><strong>End-user Pro’s</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Easiest, fullest Lync UC experience including conferencing &amp; video</td>
<td>• Lync client controls to PBX phone</td>
<td>• Lync client controls to PBX phone</td>
</tr>
<tr>
<td>• Codecs optimized for Internet</td>
<td>• Lync shows status (in a call/available) of PBX phones</td>
<td>• Lync shows status (in a call/available) of PBX phones</td>
</tr>
<tr>
<td><strong>End-user Limitations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lync doesn’t control PBX phone</td>
<td>• User must be next to PBX phone to make/take calls</td>
<td>• Lync Conferencing, voice/video will not work as expected</td>
</tr>
<tr>
<td>• Lync users can’t see status of PBX phones</td>
<td>• 3-way conferences must be controlled on PBX phone</td>
<td>• Each PBX vendor has a different Plug-in experience</td>
</tr>
<tr>
<td><strong>Sweet spot</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Remote/mobile workers</td>
<td>• Deskbound workers in large companies</td>
<td>• Deskbound workers in small companies</td>
</tr>
<tr>
<td>• New offices</td>
<td>• Phone use outweighs limited UC needs</td>
<td>• PBX is the future</td>
</tr>
<tr>
<td>• Replacement/aging PBXs</td>
<td></td>
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</tbody>
</table>
# Technical Summary

<table>
<thead>
<tr>
<th>Enterprise Voice</th>
<th>Remote Call Control</th>
<th>Desktop Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Architecture</strong></td>
<td>PBX and Lync connected via SIP (Session Manager)</td>
<td>PBX and Lync connect via PBX gateway (AES, CUPS)</td>
</tr>
<tr>
<td><strong>Architectural Pros</strong></td>
<td>• Simple integration</td>
<td>Only uses existing PBX dial plan/codecs/network for voice</td>
</tr>
<tr>
<td></td>
<td>• Least PBX investment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Can add remote mobile users quickly + cost effectively</td>
<td></td>
</tr>
<tr>
<td><strong>Architectural Cons</strong></td>
<td>• Requires a gateway (Session Manager or third party)</td>
<td>• Requires a CSTA gateway (CUPS/AES) and PBX programming</td>
</tr>
<tr>
<td></td>
<td>• Requires dial plan programming on Lync</td>
<td>• Certificates required</td>
</tr>
<tr>
<td></td>
<td>• Should use Exchange Unified Messaging for best experience</td>
<td>• Version compatibility and bug fix delays</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tough to connect to multiple vendor PBXs</td>
</tr>
</tbody>
</table>

| **Licenses** | Lync "Plus" CAL | • Lync "Plus" CAL | Lync Standard CAL |
| | | • CUWL, Unif Desktop | Cisco CUWL, ACE (TBD) |
Executive Summary

• Enterprise Voice is most widely understood and simple to get going. Optimal for firms with mobile workers, Lync licenses, and/or old PBXs.

• RCC is a challenge to integrate, but provides tight integration with PBX phone and provides most click-to-call features. Optimal for firms with many deskbound workers, new phones, Lync licenses, and new PBXs.

• Desktop integration is a challenge to integrate and relies heavily on PBX vendor’s entire UC stack. Optimal for firms with few users, PBX UC licenses, new PBX.
1. Connect VoIP Islands

• Microsoft calls this “Enterprise Voice”
• Easiest architectural integration
• Simplest integration option
  – PBX phone calls Lync clients, and vice versa
  – No presence visibility into the other island
• Requires Lync “Plus” CAL, no additional PBX licenses
Connect VoIP Islands

• Often the first phase in a UC Strategy
• Enables mobile workers or non-phone users full feature set of Lync
• Also, allows PBX to integrate with Lync dial-in-conferencing
2. Integrate in the Server Room

- Microsoft calls this “Remote Call Control”
- Often chosen for:
  - Large user communities
  - Where desktop is sacred
- Majority of PBX functionality
- Visibility into the other island
RCC Telephony Integration with Microsoft Lync

- User starts MSFT Lync client
- Checks presence, sees buddy status as on-hook
- Right clicks and calls
- Picks up handset and talks
- Puts call on hold with Communicator
- Handset goes silent
- Calls another party
- Transfers call to other line
- Hangs up phone
Avaya Brings Enterprise Telephony to Microsoft Lync

- Communicator will be on your PC
  - Puts your corporate Instant Messaging (IM) in “the drivers seat”
- Avaya Provides Telephony Connection
- Click-to-Call in Microsoft Lync makes use of SmartTags
- Escalate IM to “Call”
- Your Phone and MOC stay-in-synch
  - Presence is shared
- Call Control - Hold, Transfer, etc.
  - 17 functions (CSTA)
- Additional Avaya Functions provided as extensions to Lync client on tabbed UI (user interface)
Licensing requirements

• The AE Services integration with Microsoft Lync requires the following licensing:
  – Computer Telephony Adjunct Links enabled on Communication Manager
  – AE Services Unified Desktop License.

• Every active Lync client consumes one Unified Desktop license for the duration of the period that it has an active dialog with AE Services (every registered Lync, not only those in the call).

• Lync “Plus” Client Access License (CAL)
# Microsoft LCS and Lync Feature Matrix

<table>
<thead>
<tr>
<th>Feature</th>
<th>LCS</th>
<th>Lync</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make Call</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Answer Call</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Clear Connection</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Deflect Call</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hold/Retrieve Call</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Single Step Transfer Call</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Consultation and Transfer Call</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Conference Call</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Alternate Call</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Reconnect Call</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>DTMF</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Set / Get Forwarding</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Set / Get DND</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
3. Integrate at the Desktop

- Avaya uses ACE+one-X Communicator
- Cisco uses CUCI-Lync
- Often chosen for:
  - Small user communities
  - Where 2 desktop apps can be supported
- Majority of PBX functionality
- Visibility into the other ‘island’
Integrating at the desktop
Avaya

Benefits
• Uses existing Avaya IP telephony system
• ACE add-in provides click-to-communicate synergy with Lync as IM/Presence client

Tradeoffs
• Additional infrastructure (ACE, AES)
• PBX software needed on each PC, in addition to Lync client
• Some user scenarios functions seem intuitive, but aren’t
• PBX DR plan and Lync DR plan need tight linkage for resiliency

Ramifications:
Pilot and determine the functionality of ACE + Lync. Set user expectations for which app window to use and when. Build training and support plans to accommodate two clients.
## Integrating at the desktop

**Cisco**

### Benefits
- Leverages Cisco system investment
- CUCI-Lync add-in provides click-to-communicate synergy with Lync as IM/Presence client

### Tradeoffs
- CUCI-Lync software needed on each PC in addition to Lync client
- Some user scenarios functions seem intuitive, but aren’t
- CUCM DR plan and Lync DR plan need tight linkage for CUCI-Lync

## Ramifications:

Pilot and determine the functionality of CUCI-Lync + Lync.  Set user expectations for which app window to use and when.  Build training and support plans to accommodate two clients.
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• Questions?

• [www.enablingtechcorp.com](http://www.enablingtechcorp.com)

• Contact me at [cstegh@enablingtechcorp.com](mailto:cstegh@enablingtechcorp.com)