



Conference Room Video in a
Microsoft Lync / Skype for Business Environment



/// BOARDROOM ///

Introduction

Collaboration has moved to front and center in the strategic plans of both large and small enterprises, driven by the need to build better teams, to speed product and process development, and to share knowledge and experiences between team members. Many enterprises have adopted Microsoft Lync as the platform for their unified communications and collaboration environment on the “personal level” - desktop and mobile devices used in offices and remote locations. A growing number of organizations are now exploring ways to bring Microsoft Lync into the shared meeting room environment where group video conferencing has its roots. The objective of this white paper is to provide guidance on the options available to an enterprise looking to solve its Lync meeting room challenge with a video-enabled solution.

Video conferencing (VC) has morphed from its early days of being a stand-alone room technology to being an add-on feature for personal and mobile devices. In addition, content sharing has become a standard desktop video conferencing feature. At the same time, video conferencing has become an integrated part of Microsoft’s UC platform, as Lync has evolved from an instant messaging and presence platform into a rich audio-web-video conferencing / collaboration solution.

Microsoft’s presence in the enterprise real-time communications market began at the turn of the century with the introduction of Live Communication Server (LCS). After several years and several versions, LCS was changed to Office Communications Server (OCS) which was ultimately renamed Lync. Lync itself has gone through more than one release since that time. In November, 2014 Microsoft announced that the next version of Lync would be renamed Skype for Business (S4B) and would combine the best of Lync with the best of Skype including a new client experience, new server release, and updates to the service in Office 365.

Readers should expect that most of the products in the marketplace today that use “Lync” in their name will be rebranded with S4B in 2015.

When it comes to shared **conference rooms** however, the connection between Microsoft Lync and group video conferencing is only now taking shape. Businesses that have deployed Microsoft Lync need to decide how best to address their meeting-room requirements for visual collaboration. The Lync-based product and services space is evolving rapidly as vendors come from different directions, price points, and design centers, giving enterprises a wide range of options.

Today’s solutions for conference room video in a Microsoft Lync environment fall into two distinct categories:

- Systems which interoperate natively with Microsoft Lync/Skype for Business. These systems can register to the Lync or Skype for Business server and can talk directly to the Lync/Skype platform because they are natively compatible with the platform’s audio and video codecs. Several options exist within the “native” category.
 - Skype Room Systems
 - Compatible meeting room systems
 - Personal Lync clients (generally laptops) with AV enhancements
- Room video systems that must rely on external products or services for Lync Interoperability. The external solutions handle the needed signaling and media conversion.

Skype Room Systems

Description: With the transition of Lync into Skype for Business, Microsoft introduced the Skype Room System as an umbrella category covering a range of native video endpoints. The newest entrants include the **Polycom RoundTable 100**, a small Skype for Business appliance targeting huddle rooms (available mid-2015). Microsoft also recently introduced the **Surface Hub**, a touch-enabled 55- or 84-inch flat panel supporting 4K video and sporting dual 1080p cameras. The Surface Hub runs a customized version of Windows 10, and supports an expanding group of apps, Skype for Business.

The incumbent devices in this category, however, are the Lync Room Systems (LRS), introduced in February 2013. The LRS devices follow a reference architecture designed to extend the Lync meeting experience into the boardroom, replicating a familiar scheduling, start/join, and meeting management experience for the end user. The LRS eliminates the need to bring anything else into the conference room in order to participate in a Lync meeting. The reference architecture covered the Windows-embedded PC, USB camera (not PTZ), touch screen displays, control system (tablet), and audio subsystem needed to qualify as a Microsoft LRS. The result was a relatively expensive conference room system for video and collaboration with restricted possibilities for differentiation by the vendors. More recently, vendors have expanded the original concept from “a Lync Room System” to a “conference room system running Lync” by offering multiple screen size and camera options and even modifications to the user interface.

Example Products: **Crestron RL** is a complete LRS solution that includes the Crestron UC Codec for Lync (2013), HD camera (believed to be a Logitech webcam), microphone, speaker bar, Samsung 65" touch display(s), and a hi-res 10" tabletop touch screen control panel. The single screen version has an MSRP of \$19,595 while the dual screen version lists at \$27,995K. A zero-screen version (\$13,995) is also available. Crestron RL is resold by **Polycom** as the CX8000 in two models, one with a traditional front of room 1080p camera (MSRP \$19,600); the other with the panoramic CX5100 table top camera (MSRP \$25,600). **SMART Technologies** sells an LRS product line integrated with the company’s collaboration (whiteboard) software. The solution is available in single or dual screen versions with three size options, proximity sensors, and high end audio subsystems, with list prices ranging from \$18K to \$41K.

Compatible Meeting Room Systems

Description: This category includes two sub-categories. Systems that were purpose built for Microsoft Lync run Lync only. These systems extend the desktop experience by supporting one or more fixed and PTZ cameras, multiple large displays, tabletop touch screen control panels, and I/O connections for AV room integration. As dedicated Lync systems, these devices register to a Lync server and work with Active Directory and Exchange or Microsoft Lync for Office 365.

Microsoft Certification

Microsoft runs a certification program for IP phones, USB audio and video devices, PCs, and meeting room solutions, including video bridges and gateways. In the Lync world, qualified meeting room products were deemed “Optimized” at the highest level or “Compatible” at a lower level. The Skype for Business certification designates products as “Certified for Skype for Business” if they meet the highest specifications and “Works with Skype for Business” if they meet only the minimum specifications. Most of the products in the market today that claim interoperability with Lync or Skype for Business have not undergone testing and certification by Microsoft.

The second sub-category is comprised of standards-based video conferencing systems that support native Lync and Skype for Business communications protocols (like Microsoft's version of SIP) and codecs (like RTA, RTV, and Microsoft's implementation of scalable video coding) in addition to the standard video conferencing algorithms.

Example Products and Services: **Polycom's CX7000** (MSRP \$9,999) was the first system built specifically for Lync environments and is now optimized for Lync 2010. The CX7000 supports Microsoft's RTV video at up to 720p30 and uses a keyboard and mouse as the input devices. Polycom's RealPresence Group 500 (part of the RealPresence product line with prices starting at \$9,599) is a standards-based device that provides native support for Microsoft's RTV and SVC video algorithms as well as an optional built-in MCU for up to six participants. (Polycom to Lync content sharing does require additional Polycom infrastructure products.) The Group series, which supports a variety of camera and microphone options to meet the needs of different size rooms, has been qualified by Microsoft along with Polycom's HDX series. Polycom's SmartPairing technology enables users to send and annotate content from a mobile device to a Group room system.

Lifesize 220 products have been qualified by Microsoft to be Lync compatible.

The GTm 5220, a dedicated Lync room system from **StarLeaf**, is a rack-mount codec design supporting both PTZ (HDMI) and fixed cameras (USB) and one or two HD displays to fit different sizes of meeting rooms. The GTm utilizes StarLeaf's touch screen video controller that provides full control for native Lync conferences. The StarLeaf interface provides users with a single button to join a Lync conference and the ability to escalate from a point-to-point call to a multiparty call. The I/O connections will be familiar to any A/V integrator. Audio capabilities of the StarLeaf device include stereo line in and line out and 2 x XLR microphone inputs. The GTm can transmit and receive content without the requirement of external infrastructure. Content sharing is via DVI-I for PC input up to 1080p60. List prices for the GTm 5220 range from \$9,950 to \$12,445.

Personal Lync Clients with AV Enhancements

Description: With this approach, users bring their own Lync-compatible, personal devices – computer, tablet, or smartphone - and connect (via USB, HDMI, or a similar scheme) to conference room peripherals that will make the collaboration session more suitable for multiple participants rather than for a single individual. Typical AV enhancements include large displays, cameras with wide angle fields of view, microphone pods for capturing multiple participants, and external speakers. A variation on this theme is to dedicate a personal computer to the conference room so that users do not have to actually bring their own device, but rather just log in to their Lync account.

Example Products and Services

UK-based **Ashton Bentley** has introduced a series of "Lync Environments," self-contained audiovisual room systems for collaboration that are preconfigured with everything required except the Lync engine. Ashton Bentley MSRPs range from £18,850 to £31,300. **HuddleCamHD** offers a product line (MSRP ranges from \$400 to \$3,600) of wired and wireless USB pan-tilt-zoom cameras. **Logitech's** newest entry in this category is the ConferenceCam Connect (MSRP \$500), a portable all-in-one video collaboration solution for small groups featuring 1080P video, 360 degree sound, and wireless presentation capabilities. Other Logitech products include the BCC950 (MSRP \$250) and CC3000e (MSRP \$999) designed for conference room tables, a series of webcams for personal computers, and a table top USB

speaker/microphone. **Polycom's** CX5100 (MSRP \$5,999) is a unique, USB 360-degree camera with HD active speaker tracking in 1080p with Lync 2013. Remote attendees receive a panoramic view and a larger, voice activated view of the current speaker. **Vaddio** offers GroupSTATION and HuddleSTATION product lines that connect a user's device to a variety of in-room cameras and sound systems. The company's AV Bridge provides a digital USB gateway that gives conference room designers the ability to integrate soft codecs running on BYOD devices into meeting rooms with installed AV subsystems.

Room Video Systems Requiring External Interoperability Products or Services

Description: Outside of the above three categories, a standards-based room video conferencing system will need some type of external infrastructure product or video service to connect to the Lync or Skype for Business world. Essentially all older products as well as many of the newer endpoints fall into this category. Three approaches are available to connect traditional video system to Lync or Skype for Business users.

With a Lync gateway, the traditional endpoint registers via H.323 or SIP to the gateway which is configured to route traffic to and from the Lync environment. Signaling gateways translate only the different signaling protocols (H.323 to Microsoft SIP for example); a transcoding gateway translates signaling as well as media (H.263 to Microsoft H.264 SVC for example). In either case, each gateway session (gateways can handle multiple sessions) connects a single standards-based system to the Lync AVMCU which then handles all the bridging in a multipoint call. Example gateways include the Cisco VCS and the Radvision Scopia Lync Gateway.

A second approach is to use a standards-based MCU (bridge) that can support Lync and Skype for Business clients. Lync users simply call into the bridge which connects Lync and standards-based callers. The MCU treats Lync as just another endpoint during a transcoded multipoint call. This is far more scalable than a gateway approach. The call signaling path here is native for endpoints on both sides, but media connections are generally direct. Vendors that support this model include Acano, Pexip, and Polycom. The Polycom RealPresence Platform (RMX and DMA) is Lync Qualified. Services that use their own platforms to provide this level of functionality include BlueJeans, StarLeaf, and Lifesize.

A variation on the MCU approach involves bridge cascading. Lync and Skype for Business endpoints call into the AVMCU; standards-based room systems call into a standards-compliant bridge, and the two bridges communicate with each other. This preserves the native experience for users on both sides of the call. Cascading is supported by Acano CoSpace, Pexip Infinity, and Polycom RealConnect.

Example Endpoints: The gateways, MCUs and services mentioned above support legacy, standards-based room video conferencing systems as well as some of the newer products in the market. More recent products include **Avaya's** Scopia XT4300 (MSRP \$5,500) and XT7100 (MSRP \$13,000) featuring support for scalable video coding, embedded multipoint, a 1080p data channel, and the H.265 high efficiency video codec. **Cisco** has a wide range of room video conferencing endpoints for large and small conference rooms. In Cisco's world, video endpoints are registered to Cisco's call manager. Two-way Lync interoperability is provided by Cisco's Lync Gateway Expressway-C.

Suitable for both small and medium-size meeting rooms, the **StarLeaf GT** Mini 3330 is available in one and two-screen versions with either fixed or PTZ cameras. Video resolutions up to 720p60 are

supported with content send and receive at 1080p. The GT Mini list price ranges from \$1,995 - \$4995. For larger rooms, StarLeaf offers the integrator-friendly Group Telepresence 3351 (MSRP \$6,445), with multi-camera, multi-screen, and multi-microphone support. Interoperability for all StarLeaf systems is provided by the StarLeaf Cloud, a global video communications network with seven points of presence across the globe. StarLeaf Cloud is based on infrastructure developed by StarLeaf itself and supports both point-to-point calling as well as “meet me on the bridge” / VMR connections.

Summary

Category	Strength	Weakness
Microsoft Lync or Skype Room Systems	<ul style="list-style-type: none"> • Full and familiar Lync experience fosters user familiarity • Modern touch screen interface 	<ul style="list-style-type: none"> • High price • Awkward camera angles • Fixed focal length camera, no PTZ • May require additional device (CapEx) or service (OpEx) to access industry-standard SIP or H.323 systems • Cannot run non-Lync applications
Compatible Meeting Room Systems	<ul style="list-style-type: none"> • Full Lync experience with a dedicated system • Highly reliable, Windows virus-free appliance platform; may eliminate windows updates • High performance audio and video hardware subsystems with industry-standard codecs • Suitable for AV integration • Always-on status reduces meeting start up time 	<ul style="list-style-type: none"> • Cannot be used for non-Lync computer applications • May require additional device (CapEx) or service (OpEx) to access industry-standard SIP or H.323 systems
Personal Lync Clients	<ul style="list-style-type: none"> • Users are already familiar with Lync • Users have their files with them for sharing • Required IT support for the meeting room is minimal • Compatible with wide range of Windows or Mac software applications and hardware peripherals 	<ul style="list-style-type: none"> • Users may need to reconfigure their personal devices to use meeting room AV peripherals • USB connections are not always available • Exposed wires and cables detract from conference room appearance • Susceptible to reconfiguration by users – purposely and inadvertently unless locked down by IT • Susceptible to virus and malware
Traditional Room Systems Requiring External Lync Interoperability Solutions	<ul style="list-style-type: none"> • High performance audio and video subsystems, professional I/O • Native interoperability with industry standard room and desktop systems • Support for multiple screens and cameras • Always on endpoints • No virus or spyware threat 	<ul style="list-style-type: none"> • Requires Lync gateway or Lync-compatible MCU or server • May not support two-way data sharing • May not support all Microsoft clients

Microsoft’s communication platform has gained momentum over the years, spurred by Microsoft itself as well as by a bevy of technology and marketing partners. And while Microsoft’s Lync and Skype for

Business platforms began life as communications systems designed for the individual, customers are now seriously considering bringing those solutions into the shared group conferencing environment where audio, video, and collaboration requirements are far different. Today, four types of solutions are available to help customers bridge the gap between traditional room systems for video conferencing and Microsoft Lync and Skype for Business. Each of these approaches has its strengths and weaknesses in terms of flexibility, cost, supported features, and choice.

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