Microsoft Surface Hub: A Game-Changer for Video Room Systems?

An SPS white paper by

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Introduction

The new Microsoft Surface Hub is a powerful but simple collaboration appliance that builds upon the Skype for Business (formerly Lync) experience. Deploying a Surface Hub designates any room as a space for collaboration – a place to work with remote colleagues in a hands-on, interactive manner. By connecting dedicated multi-user spaces with desktop users via Skype for Business, Surface Hub is designed to provide an interactive and intuitive environment that could change the experience of team collaboration.

The Skype for Business platform has achieved broad adoption by layering instant messaging (IM) with collaboration and video calling – and adoption rates indicate that, with this platform, Microsoft has finally brought to fruition the obvious potential of everyday video collaboration.

Skype for Business is a reliable and intuitive product that people enjoy using on a daily basis. Surface Hub builds upon that Skype functionality with advanced video and touch features for a high-end user experience that enables collaboration in a new and interesting way.

SPS is one of only fifteen partners authorized as a Surface Hub launch partner, and one of only 35 National Solution Providers in the US. In this white paper we’ll provide an introduction and a starting place for our clients to think about how they can benefit from Surface Hub devices. Topics will include:

/ Overview of the Surface Hub device and its user interface
/ Considerations for deploying Surface Hub
  o Room design
  o Infrastructure
  o Server architecture
/ Upgrade strategies for various installed-base environments
/ Industry-specific use cases addressed by Surface Hub

Time will measure the success of this new communications appliance, but market enthusiasm is a good sign that Microsoft is really on to something. As an easy-to-use collaborative conferencing device, Surface Hub may be the perfect complement to conferencing and collaboration tools already deployed to your environment.

Surface Hub Offer Description

Conceptually, Surface Hub both is and is not the next generation of Lync Room Systems (LRS). LRS was essentially a set of specifications, implemented in hardware by Polycom, SMART Technologies and Crestron. Regardless of manufacturer, All LRS systems currently on the market are designed around the conferencing model – users seated at a conference table, with large displays and an arrangement of microphones and video cameras designed to capture video for everyone in the room. LRS essentially mimics traditional video-conferencing hardware with Skype for Business software.
In contrast, Surface Hub is positioned as a collaboration device, not a video-conferencing system. It complements but does not replace LRS, and can be deployed side-by-side with LRS or any other video-conferencing system. It can also be deployed alone, in scenarios that we'll discuss later.

Hardware

The physical form factor of the Surface Hub is a single-screen flat display available in two sizes – 55” or 84”. (Pilot program users report that the 55” size feels generous, and the 84” enormous.) Either can be wall-mounted or placed on a cart for room-to-room portability. Both sizes incorporate two video cameras, one to either side of the screen, and deliver high-resolution video at 120 frames per second – 1080p for the 55” device, and 4K for the 84” model – with high-quality audio. So the image is about as real as you can get without being there in person.

Why two cameras? Instead of sharing an image of the entire room, Surface Hub captures 1080p video (at 30 fps) for the individual active collaborator standing at either side of the board. The lion’s share of screen real estate on the Surface Hub is dedicated to collaboration, but a close-up view of the active collaborator’s face is sent to other collaborators, aiming to increase engagement for local and remote collaborators. Unlike traditional video conferencing systems that use a single camera, generally placed above the screen, Surface Hub places the cameras closer to eye level, creating the impression of direct eye contact for a more personal and engaged collaborative experience.

Surface Hub is deployed as a stand-alone appliance. A wireless keyboard and mouse are immediately available, but the device does not support extension cameras or microphones at time of launch. The hard drive is BitLocker-encrypted by default, for the sake of security. Near-Field Communication (NFC) is built-in, which opens future possibilities, but equipment and use-case scenarios are not the focus at this time.

Lack of extensions should not be viewed as a shortcoming. Rather, it is a clue to the device’s true nature as a collaboration tool, not a video conferencing platform. While the chassis does have input/output ports, Microsoft has not yet announced hardware to use them – leaving a door open to the possibility of future upgrades and expansion.

The ultra-HD screen is complemented by high-resolution touchscreen that uses “Perceptive Pixel Technology” to capture pressure-sensitive multipoint touch with analog-like smoothness at 120 Hz. It’s a tactile experience unlike anything else.

Software

Like the PC-based version of Skype for Business, Surface Hub allows you to share any application. Since it is essentially a powerful Windows 10 computer with specialized video, audio and touch capabilities, applications can be shared with really high quality, but sharing is restricted to Windows Universal Apps at launch time – that is, the touch-optimized, tablet-style apps first introduced with Windows 8. Users who know how to use Windows 10 and Skype for Business already have the knowledge to start exploring the Surface Hub interface.
Meeting participants can simply walk up to Surface Hub and start climbing the learning curve in minutes.

The Surface Hub is launching without a lot of dedicated Windows Universal apps on the device – only Skype for Business, Office 2016, and OneNote for the digital whiteboard functionality. Users can also connect a phone, table or laptop PC to share video from that device, but that will resemble a traditional Skype for Business desktop-sharing experience, without access to the Surface Hub’s outstanding touch-screen capabilities.

Surface Hub does support two-way PC or laptop connection when used with Miracast, a Wi-Fi based display-sharing standard. Two-way functionality depends on Microsoft-proprietary technology that extends Miracast for what the manufacturer calls touchback™ / inkback™ capabilities. In this mode, touch and pen input on the Surface Hub is duplicated on the device being shared – which opens the possibility of working interactively with any application on Surface Hub.

The shortage of Windows Universal Apps on Surface Hub appears to be an intentional move by Microsoft. The manufacturer envisions extensive custom app development by third-party developers. Surface Hub is really all about putting a flexible new collaboration platform on the market – like a Surface Pro tablet on steroids – to support thinking outside the box on collaboration. Ultimately it will be the users, not the manufacturer, who determine exactly what the Surface Hub is for.

Ease of developing new applications is a differentiator when compared with other, proprietary platforms offering interactive whiteboards. Due to the familiar Windows 10 / Skype for Business programming environment, it should be as easy to customize as – well, as Windows 10 and Skype for Business.

With few examples on the market at this time, the key is creativity: if you can do it on a PC, visualize how it would work in collaboration on a Surface Hub. For example, Microsoft suggests that a small conference room might be dedicated to a single business function, with the Surface Hub displaying a real-time dashboard of data representing that function. “Big data” tools could be used to extract and interpret live data from ERP, CRM or other business software. And one-click “favorite” connections could be included to facilitate connecting with other locations and individuals associated with that business function.

Remember the holographic interface that Tom Cruise’s character used in the 2002 film “The Minority Report”. Now imagine the tools and controls needed to run your business on that device (without the 3D). Like what you see? Now go build it!

**Collaboration vs. Video Conferencing**

Conceptually, video conferencing and collaboration go together hand-in-hand, but in practice, no one device can be all things to all people. Surface Hub is designed around the collaboration function. Imagine 3 to 12 people, standing up and swapping control on Surface Hub while interacting with collaborators at other sites. That’s what Surface Hub is made for – smaller rooms and intimate collaborative sessions – but that’s not the only way to use it. (We’ll suggest some other scenarios later.)
To understand the difference, imagine one presenter in a conference room, with a half-dozen more people seated at a conference table, and other remote participants. Whether the speaker is presenting or collaborating, this scenario is not the sweet spot for Surface Hub. Because Surface Hub captures video as a face shot of the collaborator currently interacting with the device, remote meeting participants won’t see the users at the conference table at all. Surface Hub might do a little better on audio, but its microphone is not placed to capture optimal audio from the conference table. As the meeting moves into question-and-answer, the lead speaker / collaborator will be forced to choose: If she faces the conference table, remote participants see her back, and hear muffled room audio. If facing the Surface Hub, remote participants see her face while she turns her back on local participants.

In each room situation, designers should consider the best multimedia tools for the way that people will use the space. In some rooms, a large screen without touchscreen capabilities is the best fit, for example, when presentation is the normal mode of communication. This is not a problem with the Surface Hub. You just need to use the right tool for each job.

That’s why we recommend Surface Hub as a complement to video conferencing, not a replacement – and only sometimes in a stand-alone scenario. Surface Hub can exist side-by-side with video conferencing systems already in market and in your installed base. We’ll visualize some sample layouts in a few pages.

Designing Your Surface Hub Experiences

Room Design

Professional room design is normally associated with high-end telepresence systems. To deliver a high-quality experience, these systems invest considerable forethought in lighting, curtains, placement of multiple microphones and cameras, and a centralized control system to run everything.

Surface Hub targets smaller rooms which normally do not benefit from such professional design. However, a few general guidelines are nice to have:

/ For smaller conference rooms, team rooms and huddle rooms targeting 3 to 7 users, the 55” device is probably the right size. (Don’t worry that a 55” screen might be too small; the 84’ version will overwhelm smaller rooms.)

/ For mid-size conference rooms targeting 7 to 12 users, the 84” model is the better fit.

/ Surface Hub is designed to wall-mount at a height appropriate to interaction by standing people of average height. Adjustable wall–mounts are a possibility, and the device can also be mounted on a portable cart.

/ Surface Hub can be mounted on a wall or a cart. The SPS Multi-Media team can help determine whether a given wall is strong enough to hold up the device, and any wall
reinforcement required to support it. (The 55” Surface Hub weighs 105 pounds; the 84” version, 280 pounds!)

Users will have the best, most engaging experience in a room that’s not too cluttered with furniture. To enable multiple participants to step forward freely and interact, conference rooms should generally be equipped with a table at least two to four feet shorter than what might otherwise be typical for the room size.

To avoid glare and back-lighting that could make participants hard to see, don’t face the device toward a sunny window.

It’s best to avoid a busy background, which would be visually distracting for collaborators, and might also make it harder for Surface Hub to identify faces.

For conference rooms with a long table and room for a dozen people, Surface Hub is definitely not the best option today, since rooms that large require extension microphones to capture high-quality audio. Future releases of Surface Hub are rumored to include more expansion options. (A multi-microphone version is said to be “coming soon”.) Once again, this simply emphasizes the positioning of the initial release: it’s primarily for collaboration, not an alternative to video conferencing systems.

Server Architecture

To support Surface Hub in a green-field, on-premises scenario, where there are no existing Exchange or Lync/Skype servers, requires deployment of at least three servers: a Skype for Business Server 2015 as a front-end server, a Skype for Business Server 2015 edge server, and an Exchange 2016 server.

But the easiest path for companies with no Microsoft Exchange or Skype for Business service whatsoever is to simply subscribe to an Office 365 plan, deploying Surface Hub without any added equipment in their own data center. Each Surface Hub requires user licenses for Exchange and Skype for Business, but servers can either be on-premises or in Microsoft’s cloud.

Of course, the majority of companies are already running some version of Skype for Business or Lync, typically in an on-premises deployment. For companies already on Lync Server 2013 or Skype for Business Server 2015, implementation is easy – just plug it in. Surface Hub natively registers to the existing server implementation as an Exchange resource – then you’re off and running. This is true even for companies whose Exchange and Skype servers are hosted in the cloud, as part of the Microsoft Office 365 service or in a hybrid model.

Companies currently using Office 365 Services may be using Skype for Business Server 2015, Exchange Server 2016, or both as part of their cloud-based subscription or hybrid infrastructure. (A hybrid infrastructure mixes selected on-premises servers with services delivered via the cloud.) Identifying which functions are currently being provided as Office 365 Services will affect configuration.
Companies running Lync 2010 or older in an on-premises configuration will need to update to Lync Server 2013, Skype for Business Server 2015, or Skype for Business Online to use all the features of Surface Hub.

In addition to the above considerations, implementing Skype for Business on a network that has not previously carried voice and video media streams may require additional network infrastructure work. Implementing Quality of Service (QoS) protocols for voice and video may be needed to ensure signal quality.

Finally, if the Skype for Business environment is to be used with mobile devices (smartphones and tablets), integration with a Mobile Device Management (MDM) platform is an additional consideration.

Federation and Open Standards

Many companies at some time experience a need to connect their conferencing and collaboration systems with users and endpoints from outside companies. Use cases include:

- Mergers and acquisitions
- Connecting customers with vendors
- Professional societies, boards and councils
- Any occasion involving parties from multiple companies

Extending Surface Hub meetings outside of your own organization can require a bit of tinkering. There are typically three categories of cross-organizational connectivity options, each with its own capabilities and degree of exposure:

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<tr>
<td>Closed Federation</td>
<td>Registered user with normal privileges</td>
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Until recently, Closed Federation (aka simply “Federation”) and Anonymous Participation were the only two practical options, and Federation was implemented only among companies having a close trusted connection – such as shared ownership or a long-term strategic partnership.

Today, most organizations opt to use Open Federation – allowing Skype for Business users from other organization to connect and share information with some limitations. (See table.) Whether a company selects Open or Closed Federation, this is the function of the Skype for
Business 2015 edge server, as mentioned previously – and the amount of data exposed is configurable.

When your organization needs to collaborate with other companies that do not use Skype for Business, then an open-standards platform must be part of the mix. Open-standards platforms enable video conferencing across organizational borders. The value proposition for open-systems based platforms is that they connect anything with anything, while managing and optimizing media quality shared to each client device. Some open-systems solutions are flexible and user-friendly, others not so much – so it’s worthwhile to build your background knowledge of services on the market.

Both Skype for Business and Surface Hub conform to Microsoft-proprietary “flavors” of the SIP and H.264 standards, but do not natively interoperate with traditional open-standards video teleconferencing systems (VTCs) – that is, open VTC clients cannot connect to a Skype Server, but Skype clients can connect natively to most open VTC servers.

There are several approaches to add open-standards capabilities to your environment:

- As part of your on-premises server infrastructure
- Through the cloud, using an open-standards based conferencing service
- Implement a cloud-based service using an on-premises server for the sake of security

Skype for Business and Surface Hub can then be added to the mix.

Note that, when using Surface Hub to join third-party meetings over an open-standards connection, the video conferencing platform will not have the ability to interact with the Surface Hub collaboration space. Depending on the platform, the Surface Hub collaboration space and whiteboard usually appears in video conferencing as a stream of static screen captures, pushed one-way from Surface Hub.

Deployment Scenarios

Microsoft expects that Surface Hub will be deployed under several scenarios:

Stand-Alone Collaboration Room

The first scenario is deploying Surface Hub as a stand-alone collaboration device in a room not previously equipped for video conferencing – assuming that all participants are moving up to interact with the device, and thus get some “face time” on-screen. While non-interacting users can certainly attend the room, their presence will be less immediate for collaborators in other locations, since the non-interacting users will not appear on video, and will be farther from the built-in microphone.

For this reason, SPS recommends stand-alone deployments only in scenarios dedicated exclusively to collaboration. One such scenario has already been described – a small conference room associated with a particular function, where a small core of people can
interact with remote users, while collaborating over the data associated with that business function.

For another way to visualize a small stand-alone room, consider the foreman’s office in a manufacturing or construction scenario – with onsite personnel constantly dropping in to report, discuss and resolve issues in collaboration with offsite resources. It’s an ideal scenario for a 55” Surface Hub. When alone, the office’s owner can connect a laptop to use Surface Hub as a big, high-resolution touch-screen tablet – handy for blueprints and any other highly complex content. Similar needs could be found in contact centers, IT program offices, and many more scenarios.

**Ad-Hoc / Walk-Up Collaboration**

Similar to the prior scenario, Surface Hub can also be deployed to a lobby, ad-hoc meeting area, or even just a wide spot in the hallway – enabling users to walk up and start collaborating. Surface Hub supports such scenarios with the way it handles meeting information.

To start a session, users can simply walk up and start using it. The camera acts as a proximity sensor and takes the Surface Hub out of the anonymous state (showing a clock) that signals its availability to start a new session. Grab a Surface pen from its holder on the side of the display, and start writing – just as if using a physical white board. (Yes, it even emulates quaint analog technology!)

When authentication is needed for any specific purpose, it can be entered on the fly – keeping users focused on the task until it becomes absolutely necessary to log in. When a session concludes, click the “I’m Done” button at the bottom of the screen. Surface Hub then:

- Prompts local users to register their identity (log in) for a permanent record of the collaboration.
- Packages and shares meeting content (including markup) to all registered participants.
- Erases session data locally, for the sake of security.

The device then returns itself to wall-clock mode.

**Video / Telepresence Hybrid Room**

Second, Surface Hub can be used to augment existing video conferencing systems. The difference between video conferencing and collaboration is clear in the scenario previously described – multiple speakers at a conference table, while one presenter manipulates shared files. Video serves to capture the overall experience of the meeting, while Surface Hub collaboration supplements the human discussion with file and application sharing, annotation and white-board capabilities.

Many existing video conferencing rooms are already equipped in such a manner – a dual-screen setup, with one screen showing the video conference, and another showing
documents shared on a PC via Skype for Business, WebEx, or a similar platform. Adding Surface Hub to such an environment can enhance the character of the interactive collaboration.

For a typical video conferencing room, we would recommend this two-system approach. Depending on what’s currently installed, you will have several options on how collaboration and video data are displayed at each location.

/ **Option 1 – Double Login:** For the simplest and most common approach, users can simply log in separately to the video conferencing system and Surface Hub / Skype for Business. The IT integration effort is zero, but the user experience is less integrated. For the best experience, position the Surface Hub side-by-side with the existing video screen. (For the best cosmetic outcome, match the 55” Surface Hub with a similarly-dimensioned 55” video conferencing monitor!)

/ **Option 2 – Open Standards:** Neither Skype for Business nor Surface Hub are fully open-standards compatible, but they do have limited capability of client login to an open-standards based teleconferencing server (TCS). While this provides options for mainstreaming Surface Hub content into a video conferencing system, it is not yet clear exactly what content Surface Hub will share, nor how each TCS will display it to native clients – so results could vary widely with the TCS platform.

/ **Option 3 – Surface Hub + Lync Room System:** Adding a Surface Hub to an existing Lync Room System (LRS) is an easy win. Just log both devices into the same Skype for Business meeting. The LRS provides full-room video and audio, while the Surface Hub provides the advanced collaboration interface. Users of Skype for Business on the desktop will see a combination of the video and collaboration content, just as they do without Surface Hub.

However, this scenario does require Surface Hub video and audio to be suppressed – particularly audio, to avoid echo and feedback between the two in-room systems. Expecting users to manually suppress audio and video will likely result in some confusion, so this should be done in the device configuration, as if “hard-coded” to the individual device. Due to the potential for such quirks, this configuration is suitable primarily for larger venues that seat more meeting participants – and thus require additional equipment like cameras, microphones and speakers.

Note that, in very complex video rooms, a Crestron controller (or similar) will be needed to coordinate the video conferencing system with controls for an audio mixer, phone bridge, lights, curtains, projectors, etc. Incorporating Surface Hub in such a controller-based environment involves custom development work – but the outcome can be very professional and easy to use.

**Innovative Scenarios**

Another option is to deploy Surface Hub in some other combination of room size and adjacent technologies, in a configuration that no one has thought of yet. Again, creativity...
rules, and the market is likely to generate innovations that the manufacturer did not anticipate. We will brainstorm alternative layouts in the next section of this paper.

Use Cases by Function and Industry Vertical

First, a few common cross-business use cases:

Human Resources

**Remote Employee Consultations:** Most HR departments are spread thin across the organizations they serve, and can be called to manage a range of situations that are sometimes sensitive, or contain a lot of data or legal language. Surface Hub facilitates such conversations, from one-on-one consultations over business data to few-to-many policy briefings.

**Staff Training** is an ever-present need, and the workforce that needs to be trained is becoming ever more decentralized. Organizations and departments can use Surface Hub to conduct staff training, brown-bag lunch-and-learn events, practicum sessions, Q&A on new processes and procedures, etc. This enables your experts to reach staff in all locations simultaneously, while minimizing project travel and repetition.

Information Technology

**Project Planning** requires detailed planning with input from many roles, documented in a tool like Microsoft Project. Moving this conversation to Surface Hub facilitates shared control and real-time plan changes to ensure clear communication and common understanding of the plan.

Education Industry

**Distance Learning / Remote Classroom:** Colleges targeting adult learners are making heavy use of distance learning, in which students attend lecture sessions remotely, using audio or video conferencing. Lectures can be delivered to a live audience as well, or from the lecturer’s office. And since the professor or teacher is the focus in distance learning sessions, it is less important to share full video of the local audience.

The lecturer in this scenario would use Surface Hub as a multimedia-enabled whiteboard, then extend the session to home-based learners. A 55” Surface Hub could be used for courses that have no local audience, or a small, seminar-style audience. For presenting to a large audience in a classroom or small lecture hall, the 84” Surface Hub would be preferred for visibility. (One caveat: when used before a larger live audience, the professor would need to repeat local questions during Q&A sessions before answering, to help Surface Hub pick up the audio – at least until Microsoft adds extension microphones to the platform.)

Academic departments that conduct most courses remotely could build a room dedicated to leading such sessions – a small room, perhaps as small as eight or ten feet squared,
containing a Surface Hub 55”, a small stand on either side for the lecturer’s notes, lighting designed for the purpose and a neutral background.

Financial Services Industry

Remote Client Consultations can reduce the need for trained experts at every branch location, for every financial service offered. When you establish Surface Hub equipped consultation rooms at every location, it enables highly-knowledgeable headquarters-based offer managers to interact with local customers anywhere. Surface Hub is preferable to using video conferencing for this use case by enabling the presenter to direct the customer’s focus to a brochure, offer details document, worksheet or spreadsheet. No-fuss, high-grade, two-way video beats other collaboration-centric software. And the large, crisp screen conveys the high-quality, high-touch feel with which most financial institutions prefer to associate themselves.

Healthcare Industry

Radiology Boards, tumor panels and other physician councils meet on a regular basis to review patient data, radiology and photographic images for the purpose of consultation with in-network experts across multiple sites. The high-definition (1080p or 4K) screens found on Surface Hub devices would enable these meetings to use the highest quality images available, and collaboration software would enable physicians from other sites to zoom and focus imagery on areas they wish to examine closely.

Live Logistics Calls are part of the daily routine for many care-givers, requiring in-person participation and content sharing to document treatment plans, schedule staff, allocate beds and other patient resources. Enabling these calls with Surface Hub would allow participants to add data to planning documents from any location, and allow team leaders to change and document logistical plans in real-time.

Legal Industries

Continuing Legal Education (CLE): CLE is a mainstay for most legal practices, with in-house experts presenting “brown bag” lunchtime sessions several days a week. For firms with multiple offices, Surface Hub would enable very engaging knowledge-sharing sessions that could include document sharing, spreadsheets and multimedia clips in addition to slideware and on-screen annotation.

Distributed Teams and Communities of Practice: For many firms, experts in certain areas of the law are spread across multiple offices. For others, ad-hoc working teams are often assembled by drawing upon resources from various offices. In either case, Surface Hub would provide ample working space for sharing. With creative scheduling a single Surface Hub huddle room per site could serve as a project team “bullpen” for several projects.
Manufacturing, Logistics and Energy Industries

**Progress Review Meetings:** Unite people from multiple locations to collaboratively review projects against planning predictions, analyze divergence from the plan, and document revised expectations.

**Quality Control and Supply Chain Management:** Use the principles of Communication-Enabled Business Processes (CEBP) and develop applications for use in monitoring and diagnosing emerging problems. Automatically assemble the accountable managers to intervene in real-time.

**Recommendations**

We believe that the Microsoft Surface Hub does have the potential to transform collaboration – and anyone who has spent some time on one knows that it also provides an enjoyable user experience.

We do not anticipate that our clients will deploy Surface Hubs in conference rooms of all sizes, corporate-wide – at least, not during the current early-adopter stage. For the time being, we anticipate helping our clients with proof-of-concept deployments and preliminary application development efforts. As the use cases for Surface Hub are sorted out, we’ll also get a better handle on street pricing, third-party development, and supply and demand – all of which will influence corporate purchasing decisions.

For the time being, our message is that (1.) it’s OK to mix and match. Most rooms used for regular conferencing and collaboration will benefit with side-by-side video and collaboration systems. And (2.) technology should be suited to the use case. The Executive Board Room is unlikely to be the site of a free-for-all collaboration session, and a traditional, dedicated video conferencing setup might not help users accomplish their goals in small teaming or huddle rooms.

The two primary limiting factors to mixing and matching are user adoption and corporate standards – the desire to minimize platforms and simplify IT maintenance needs. Because it’s based on the Skype for Business platform that’s already in the data center, standards are actually a plus for Surface Hub.

User adoption may prove to be the more compelling consideration. Remember that video conferencing has always gained adoption slowly, in part because the complexity of older systems discouraged routine use by ordinary employees. Desktop video telephony has gained broad user adoption only recently, since Lync 2010 (approximately), because that release of the Microsoft instant messaging platform made video calling easy and reliable. Whether this was due to the Lync interface itself, availability of sufficient network bandwidth, or a combination of factors, that was the “tipping point” at which corporate users became more likely to schedule video conferences and even place one-on-one video calls.
Will the 2015 release of Surface Hub come to represent a tipping point for pervasive collaboration? Ask us in three to five years!

About the Authors

**Tom Pacyk (Microsoft Practice Manager)** is a Microsoft Certified Solutions Master in Communications, a Microsoft Certified Master in Lync Server 2010, a four-time Microsoft Most Valuable Professional (MVP) for Lync, and author of the popular children’s books “Lync Server 2010 / 2013 Unleashed”. He is based in Portland, Oregon, and has been working with the Skype for Business environment since the days of Live Communications Server 2003. Tom leads the pre-sales, engineering, and project management resources who make up the Microsoft Practice at SPS.

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