VIDEOCONFERENCING IN A POST-PANDEMIC WORLD: A HISTORICAL PERSPECTIVE

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Introduction

The recent directives to shelter-in-place to reduce the spread of COVID-19 have required many of us to use online meeting applications to extents never imagined. As an audiovisual consultant who has seen the evolution of videoconferencing over the last few decades, I would like to offer a historical perspective and how it may point to where we are going.

While sheltered-in-place, we are quickly becoming both more adept and dependent on online meeting applications. Those with space at home have enjoyed the benefits of conducting conferences in private rather than from a desk in a noisy open-plan environment. But what does this mean for when we get back to our work offices? Suffice to say, the genie is out of the bottle, and many users will continue to use these tools whether in the office or working from home.

The desire to attend meetings without having to drive across town or board a plane will remain with us well after the pandemic. In the future, a single meeting will likely find participants attending from their work offices, homes, and conference rooms. Workers who find themselves in conference rooms will want the same ease of use they experience at home. This article explains how this will happen.

From the Beginning

Although the concept of videoconferencing saw its infancy in the mid-20th century, it wasn't until the 1970s, when AT&T launched the first videoconferencing systems, that anyone could use them. These early systems required expensive videoconferencing codecs (coder/decoder), which digitally encoded and decoded signals so that they could be transmitted on leased telephone lines.

These expensive bandwidth-limited lines were not the same telephone lines everyone else used, and making connections was not as simple as just dialing a phone number. As relatively few of these systems were in place, their use was sporadic, and most workers did not have the personal experience and comfort that is gained from regular use. In many cases, this lack of use made it difficult for companies to justify the investment.

Between five and ten years ago, organizations began to see real value in "screen-sharing" documents during meetings using various applications (e.g., Go-to-Meeting, WebEx). These online meeting "apps" were often used alongside a speakerphone at the conference table. The ubiquity and perceived value of document sharing drove the quick adoption of these meeting apps. These days, other apps such as Zoom, FaceTime, Slack, and BlueJeans are widely used. These online meeting apps are often referred to as "unified communications" technologies for their abilities to bring previously disparate applications such as screen and document sharing, texting, telephony, and videoconferencing into a single collaboration environment.

Although the internet bandwidth needed to bring "talking heads" into our online calls has been available for some time, it has taken this pandemic to really drive usage. Now that meeting in person is no longer an option, many are now expected to turn on their cameras to help facilitate the nuances of face-to-face communication. These expectations are likely to continue.

Before the pandemic, I visited a company that had embraced a popular meeting app for daily desktop use. This company had already made a large investment in traditional videoconferencing codecs for their conference rooms, but their use was sporadic. Understanding the "fallacy of sunk costs," the company switched all their conference room videoconferencing systems to run their preferred meeting app and thereafter saw usage explode. But there were still hurdles.

To enable a laptop to use a conference room's professional-grade cameras, microphones, and speakers (the audiovisual system), users needed to connect a USB cable in addition to the usual HDMI cable from their laptop. This rather cumbersome setup led to a solution where a dedicated computer was integrated into the conference rooms audiovisual system, thus forgoing the laptop and cables to host the meeting. Finally, users could enjoy a software-hosted meeting in a professional audiovisual environment. These computers dedicated to running online applications for video conferencing are often referred to as "soft codecs."

Cut the Cord

There are many wireless collaboration devices that let a user forgo the HDMI cable to "cast" their laptop screen onto a room's audiovisual display. This wireless capability is now available for the USB connection as well. Now a meeting participant can host a meeting from a laptop using a room's audiovisual system without any cords.

The advantage of this "bring your own device" approach versus an installed room computer is that the laptop user can easily switch to whatever online application has been selected to run the meeting. There are disadvantages, however. What if no one brings a laptop to the meeting? What if the laptop owner needs to leave early? Additionally, the laptop needs to be reconfigured each time to use the room's camera and audio system.

Beam me up, Scotty

Another development of recent years is beam-forming microphones. By using a vast array of small microphone pickup elements (similar to the ones used in an iPhone) in a single device, these microphones can deliver near-broadcast quality sound from a person speaking at any seat in a conference room.

Beam-forming microphones can be found in many form factors including ones that fit into a ceiling tile grid. For smaller meeting spaces, manufacturers have developed beam-forming microphones that are packaged into soundbar speakers along with a camera. With a single USB connection (wired or wireless) to a laptop, a small huddle room can enjoy audio and video performance nearly on par with a professionally integrated audiovisual system.

Full Circle

Now we may have come full circle from the days of old as the idea of a hardware videoconferencing codec may be coming back. Although having a dedicated computer to run online applications was a big step forward, some see drawbacks to having enterprise videoconferencing systems run on end-user operating systems such as MacOS or Windows, (with all the inherent IT headaches of constant system upgrades and security patches).

Recently, one of the companies that has made videoconferencing codecs over the last few decades has jumped onto the soft-codec bandwagon. They now have a line of "appliance" products that run popular online meeting applications, neatly packaged into a soundbar with camera and beam-forming microphone. Now a single device sitting under a TV can provide what used to require a rack full of professional audiovisual equipment.

The one big drawback with any of these installed computers pre-configured to run a specific meeting app is the time and effort to switch the computer to run a different app. To remedy this situation, some manufacturers are looking at ways to virtualize the online meeting applications from a server, so that a room's videoconferencing computer can quickly be reconfigured to acquire the desired identity.

Are You Experienced?

It is beyond the scope of the article to define what the "state of the workplace" will be in a post-pandemic world. However, people who leave their houses – whether for work or entertainment – will surely be looking for an experience that exceeds what they can get in their homes. For conference room audiovisual systems, people will want a frictionless, hands-free experience. Having a well-designed conference room that factors in acoustics, lighting, and ease of use will be seen as a benefit.

The audiovisual world is still defining the best way to bring online meeting applications into the conference room. But one thing is certain: online meeting apps are with us in our homes, offices, and meeting rooms for good.

About the Author

Ken Graven, PE, RCDD, CTS-D, LEED AP has over 25 years with Salter. He has overseen its audiovisual group's growth into multi-discipline offerings including telecommunications and security consulting. Mr. Graven has managed over 400 building technology projects including notable offices spaces, university buildings, courthouses, performance halls, and other venues of all types. As a LEED® Accredited Professional, he is dedicated to bridging the gap between sustainable design and building technology. Mr. Graven is known for his ability to understand the diverse needs of stakeholders and offer solutions that foster collaboration. Technology increasingly plays a large role in our lives, and his work aspires to make it a positive one.