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Delivering Programmable Immersive CX

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Beyond the day-to-day impact COVID-19 has had on our lives, it has fundamentally begun to change how we interact, study and work. While businesses have adapted to the initial challenges, the pandemic has galvanized a huge shift in the way businesses are thinking about how work will be done moving forward.

As teams have settled into regular online meetings, businesses are now able to look beyond the short-term need for remote work solutions and consider ways in which new technologies can help them plan, remain efficient, and ultimately thrive in the emerging new normal. [ABI Research](#) recently noted that “the pandemic has highlighted the value of a strong telepresence and remote support system.” Although current network infrastructure has been able to grow to accommodate increased workload demands from video conferencing, there remains an opportunity for further expansion in the realm of services that provide more complete and advanced immersive media solutions such as augmented reality (AR), mixed reality (MR), 360-degree video and wearables for the Internet of Things (IoT) to become more commonplace.

Businesses, educational institutions, and even local governments are continuing to evaluate their growing need for these telepresence solutions. Communication service providers (CSPs), managed service providers (MSPs) and application service providers (ASPs) are uniquely positioned to collaborate to deliver a new set of immersive communication services that meet a wide range of enterprise and educational use cases. To meet these opportunities, however, operators and vendors need platforms that allow them to rapidly create and deploy immersive communication and collaboration technology solutions that address these use cases and, more importantly, create new revenue streams.



The importance of programmable microservices

Given the market acceleration toward greater adoption of immersive media to enable remote and digital everything, CSPs, MSPs and ASPs need to leverage current media resource function (MRF), telephony application servers (TAS) and webRTC solutions to boost the video-enablement of their current applications. One simple way operators can quickly capture the explosive growth in video conferencing services is by extending voice and video functionality to existing text-based chatbot solutions.

Once operators have begun to update their current services with basic immersive media solutions, they will need to look for platforms that enable the rollout of more robust solutions. If they are going to capitalize on the growing demand for immersive media, operators need a way to easily create and quickly deploy solutions for the marketplace and monetize these commoditized services.

The answer for delivering immersive communication solutions in a communications platform as a service (CPaaS)-style offering lies in adopting a programmable microservices approach to developing and deploying the next generation of customer experience applications. Operators need prepackaged modules with visual design tools, APIs, and SDKs to enable application vendors to develop new communication and collaboration use cases and improve current user experiences that are not being served today. This microservices approach must meet several characteristics to be effective:

- Easy for operators to utilize in low- to no-code modules with reusable features
- Easy to maintain
- Able to be delivered from private or public clouds
- Comply with industry standards and privacy regulations

Additionally, for operators to offer these services to their customers, there needs to be a rich ecosystem of immersive media application developers with whom they can collaborate. This ecosystem serves as the building blocks to grow their user base virally. Collaboration with ASPs who have extensive backgrounds in developing microservice applications for open-source platforms will allow operators to select best-in-class applications that meet and enhance their current service offerings.

The case for immersive media

There are several emerging use cases where CSPs can begin to deliver services that meet the rapidly evolving market shifts. By leveraging platforms with strong underlying MRF design, operators can deliver many solutions that integrate a variety of immersive media features for both business and educational-institution customers.

Digital virtual assistants for enhanced video conferencing

One of the most easily implemented use cases is in the area of video conferencing. Due to advances in natural language processing (NLP), applications can be developed to enhance current virtual conferencing solutions through the creation and inclusion of a digital virtual assistant.

Digital virtual assistants are digitally generated characters that provide information by voice, recognize basic language, and can interact with clients in a variety of languages. These digital assistants can be integrated into existing conferencing systems, operating in the background until they are triggered by wake words similar to how smart devices like Alexa are activated. Digital virtual assistants can take verbal instructions such as “dial-out to participants” or “mute and unmute participants,” and can also perform tasks including setting reminders, recording conference calls, and capturing meeting minutes and action items. Because of the evolution of and continued dependence on video conferencing, these assistants can now be customized and mixed into the current video environment through an interactive screen, making their “virtual” status seem more real than a disembodied voice. See Figure 1, below.



Figure 1: Digital virtual assistants

Mixed reality video conferencing

This solution allows CSPs to take video conference offerings to a new level of immersive communication by offering customers a blend of realistic and virtual interactions. Mixed reality video conferencing addresses situations where customers would benefit by being onsite and yet are not able to be, such as inspections, product demonstrations, or even product launches.

Mixed reality video conferencing allows users to make video calls in a holographic environment. Colleagues and stakeholders can join the conference using 3D avatars that deliver a more in-person feel to the meeting. This allows for greater collaboration via sharing and viewing presentations on a virtual screen. Participants who do not have access to the mixed reality conference technology may still join via regular video call formats. Mixed reality video conferencing also supports virtual reality (VR) environments for an enhanced engagement and can be delivered as a hosted service via cloud infrastructure.

Smart virtual classrooms

A smart virtual classroom is similar to a mixed reality video conferencing solution, allowing educators to present content in a more interactive and engaging manner. While many subjects can be taught online in a simple lecture format, some courses require a more hands-on approach that students are not able to receive in today's video call classes. As educators continue to look for ways to engage and educate students, smart virtual classrooms have the potential to deliver truly interactive curriculum. From anatomy to geography, a smart virtual classroom allows students and instructors to interact with content that more closely resembles the real-world experiences they would have in a classroom. Content can consist of detailed animated materials or 3D images that can be manipulated in the virtual environment. Virtual environments allow professors to seamlessly insert video content into their lectures. See Figure 2, on the following page.

Studies have shown that physical interactions with content help improve academic levels, providing students with increased knowledge while also facilitating higher retention rates. By delivering interactive platforms that allow educators and students to go beyond today's online lecture formats, CSPs can help improve the quality of online education. In addition, introducing augmented reality into educational systems helps schools and universities reduce costs as training materials and equipment can be easily shared with other educational institutions.



Figure 2: Virtual classrooms

Enterprise augmented reality

Augmented reality has long been identified as a significant enhancement to a number of enterprise workloads. As 5G networks continue to be deployed, AR will have the added bandwidth and lower latency to move from mission-critical applications and become more

prevalent in addressing other business functions. [Forrester Research](#) identified three use cases for the enterprise use of AR: assistance, training, and compliance. See Figure 3, below.

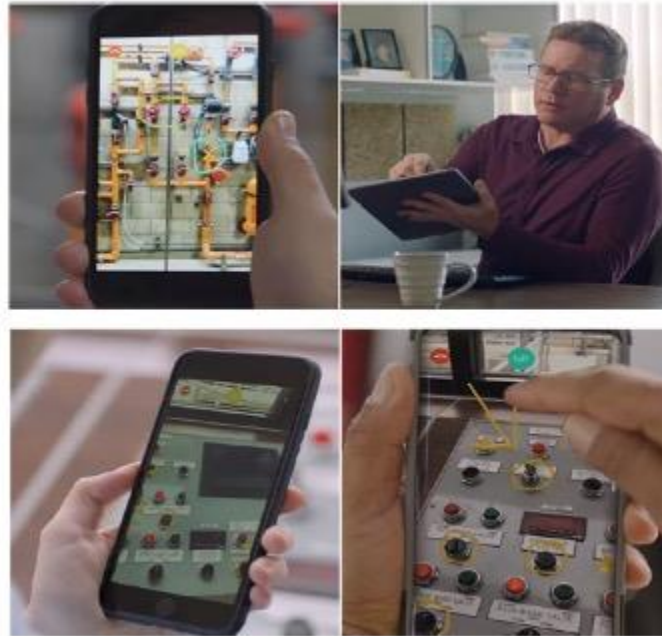


Figure 3: Enterprise augmented reality

From an assistance and training point of view, AR allows technical teams to visually guide field technicians and collaborate with customers to resolve issues, maximizing key knowledge-holders' time and reducing onsite support costs. Field technicians can extend their training into real-world situations while instructor oversight ensures the work is being performed correctly. AR can also facilitate increased compliance verification through real-time schematic or digital model displays delivered via heads-up visual displays or handheld devices such as phones or tablets.

The opportunity is now

While *how* we will do business continues to evolve thanks to the current world circumstances, the fundamentals still apply: anticipate customers' needs, leverage the best technology and resources, and deliver exceptional, innovative services that not only meet their needs but also help them expand their profitability.

Immersive media can revolutionize the customer experience and enhance how we work and study, now and in the future. The seismic shift has already begun. By identifying the correct platforms to develop these and other innovative use cases, operators and the entire ecosystem have an unprecedented opportunity to deliver new services that will give them access to new users and create new revenue streams while shaping the customer experience models that will define how we work and live for years to come.