

## **Episode 10: Enterprise Remote Expert Guidance with Jon Newman, VP of Product Management at Librestream Technologies**

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This episode starts in three, two, one.

Hi, I am TJ, and in this episode, we are going to talk about remote expert guidance and how it can play a major impact on service delivery and worker safety. This ability to virtualize expertise has been used by enterprises for years but has quickly become a requirement to achieve business continuity in the light of the COVID-19 pandemic.

To help us understand and decipher the world of possibilities around enterprise remote expert guidance, our guest is John Newman, Vice President of Product Management at Librestream Technologies. With more than 20 years of experience in cloud software and application development, John has completed two successful startup journeys, tours of duty at **DocSpace**, a predecessor of Box and Dropbox, and ExtendMedia a pioneering Internet, TV and video cloud platform.

As one of the company leaders, John helped drive the successful acquisition of ExtendMedia by Cisco, where he had product management responsibilities for multiple Cloud product lines, including video content management and video office.

Welcome, John.

**John** – Hi, TJ.

**TJ** – Thank you very much for joining us today. We really appreciate you taking our time to talk to us.

**John** – Thank you very much for inviting me to the podcast. I'm really looking forward to our conversation today.

**TJ** – So to start, remote guidance is really picking up traction in the current scenario. It is fairly a new concept for the IT Support Services industry, but your organization has been at the forefront in pioneering this technology. Tell us which industries were the first to pick up on this concept and build use cases, leveraging your solution.

**John** – Yes, you're right that the COVID 19 pandemic has created a watershed moment for augmented reality platforms that include remote guidance. Business continuity plans have made virtual expertise requirements for newer industries like IT support services. When we launched our onsite solution in 2006, the first industries to explore remote expert guides were manufacturing, aerospace and energy sectors.

Across these industries, they shared a common experience and challenge. When an issue was found in the field—an aircraft grounded in a hangar, an inspection required on an oil rig or production line quality issues—these companies typically had to fly an experienced person or persons to that location to inspect, troubleshoot and get the asset back on line. Often, these flying experts would spend 30 minutes on how the issue solved, but it took them a day to get there and another to get back. That was very expensive, especially in equipment downtime due to the delays.

For a grounded aircraft, this could mean \$800,000 in lost revenue. Within these industries, the first customers we attracted were Fortune 500 companies. So, you can imagine the requirements they had around security data privacy. We learned a lot about these requirements and how to optimize collaboration in difficult environments where we may only get dial-up speed access. Those requirements still matter today.

**TJ** – OK, so some critics write this technology off as just another version of the likes of WhatsApp Video or FaceTime. I'm sure there is much more to it than just video sharing. How about shedding some light on some differentiating features?

**John** – That is a common misconception. Superficially, it just appears to all be video sharing. However, when you get into some of the key requirements for a remote expert experience, in order for it to be effective in rugged environments and to tie seamlessly in with an organization's IoT infrastructure, the different steps become very apparent.

Some of the key differences that we see are:

- Being optimized for the field
- Being able to perform in low and variable bandwidth environments, and
- Be able to support deferred off-line cooperation

The need also to share video, high-quality pictures and to be able to talk and draw with as little as 50 kilobits of bandwidth. These are some of the really, key things we see to be field optimized.

Another key thing is remote control. So that's the expert being able to remotely call a camera in the field, being able to take pictures, record sessions, adjust zoom and lighting to simplify the experience. So, the field technician at the other end has to do as little as possible.

Having a broad support of devices, being able to work well on enterprise wearables with voice commands, being able to be optimized for tablets, smartphones and PCs – these are all key as well. And also, being able to time with specialized instruments for inspection and things like thermal imaging in rugged EX-certified environments – these are also very important too.

Another key thing for our customers is a branded experience – being able to have the applications look like part of our customers brands and being able to support their unique messages and also group policies to match their workflows as well. Security and IT controls are also key, especially for Fortune 500 companies where multilevel enterprise security is required and also in some cases, support for an on-premise deployment for further security controls.

Also, being able to have things like IoT bandwidth controls and privacy settings at the Cloud Policy Cell are also really important for these large customers with a high focus on security and privacy.

It's also key as well to be able to integrate these solutions with our customers' existing infrastructure such as Microsoft Dynamics, SAP or ServiceNow. And so, providing a full set of APIs in order to facilitate these integrations is another very important aspect that is needed to do this.

Having the ability as well to have guests to be invited to use the platform – so, people that are not necessarily within our customer's ecosystem or employees of our customer, to be able to send out a guest invite by SMS or email for them to securely and immediately collaborate with vendors, customers and suppliers. That's another important aspect of it as well. And also, to be able to have these guests that are brought in to collaborate, be able to work in field mode and be able to be controlled remotely is another key aspect of this as well.

Having a knowledge base so that all the content captured within these remote expert calls is something else that is important too. Being able to auto-tag and auto-upload this content at the end of a remote expert session to the secure repository is something that is critical for the success of remote expert systems. And also, being able to have the APIs to be able to pull this content into our customers' systems if they want this content to reside there.

Also being able to edit this recorded content, to be able to manipulate it after the session and to have version controls is another key aspect of this knowledge base capability.

The newer things that are important and big differences are around for things like IoT and being able to have IoT data visualizations so that we can connect to our customers' IoT platforms and be able to pull down their IoT data and be able to display that to the fieldworker. So, they're able to review that IoT content as they're trying to fix equipment and giving them greater insight into what is going on and allow them to solve problems faster. So being able to service IoT information within the remote expert experience is also a very key element as well.

And then lastly, support for AI and things like AI computer vision is another key difference with the remote expert systems.

So being able to use computer vision to recognize objects that the technicians are looking at or being able to use OCR to read characters and to be able to then take that content and use it for auto tagging the pictures and also from machine learning, post-remote expert – that's also very key as well.

**TJ** – So how easy is it for a non tech savvy user to use on site? Can this be put in the hands of every employee or do you recommend it be used only by professionals?

**John** – It is a great question. One of the fastest growing use cases is in providing virtual support directly to a customer, supplier or contractor. That means that up to 50 percent of the participants in a collaborative session can be first-time users. For this experience to work, it has to be very easy for these guests to join and collaborate. With added capabilities like a field mode option that limits the control for these guests and puts the power and control in the hands of the more experienced users. So, as it goes beyond putting it in the hands of every employee, our customers put onsite in the hands of the full ecosystem – customers, dealers, contractors and suppliers.

**TJ** – So your organization also manufactures some specialty hardware like rugged cameras and thermal imaging cameras. Tell us more about those. Looking at new health and wellness recommendations put in place by the government all across the world, can the thermal imaging cameras be used for body temperature scanning, etc.?

**John** – The majority of our platform is software based. But you are right that we offer specialized accessories to add value, differentiate our solution offering. Our IoT helps provides a universal method for including visuals from nondestructive test instruments like video scopes, ultrasonic devices with lab collaborative sessions. We also offer a thermal imaging wearable camera called the Onsite Cube that is traditionally used in the industrial sector to detect steam leaks, hot spots and other potential safety issues. More recently, we implemented an elevated body temperature screening capability to assist customers in prescreening individuals who are entering facilities.

This year's case is in high demand as a result of COVID 19. The on-site platform also includes additional software capabilities that promote worker safety and productivity, including digital work instructions and centralized knowledge-based capabilities.

**TJ** – All of this sounds very impressive. So, going forward, how do you see this evolving in the future? And what is the roadmap for onsite?

**John** – The AI-Connected expert has a labor-stringent vision for the fieldwork of the future, where artificial intelligence, augmented reality and Internet of Things converge, augment the human worker to be able to do their job with less experience, less training, but still with greater safety.

For inspiration for this vision, we look to other industries to see what other folks are doing with this really advanced technology. One industry we look at is the ride sharing industry and folks like Uber are a good one. They are using advanced technologies today to match human riders with human drivers. And it's kind of obvious where this goes in. At some point there'll be matching human riders with autonomous cars that are using an AI and IoT defense technologies to self-drive.

So, we see ourselves in a sort of similar journey where today our Cloud and our apps, they're connecting fieldworkers with remote experts and over time, we see adding advanced technologies to make these fieldworkers even more independent, to really augment the human fieldworker. And then looking out into the future, we see a potential world where the remote expert is still utilized to some extent but also the scenario where a remote expert is not needed and the onsite AI is utilized to augment and guide the field technician.

So, we look at where other industries are doing with this advanced technology today already and how fully they're utilizing it. That's kind of what we use as kind of a mission, if you will, to dream big and to be able to inform us where we can go with our platform and to have this grand vision – the AI-connected expert as the way that fieldworkers will be augmented in the future.

For our onsite 2020 roadmap, there are four pillars that we are working on to build the foundation of our AI-connected expert vision. These are computer vision, Internet of things, natural language processing and advanced augmented reality for support for Microsoft HoloLens 2.

For computer vision, we're going to use this to optimize and recognize search. So, what we're doing is allowing computer vision to recognize objects within an onsite captured image to be able to figure out what these objects are and to be able to automatically generate tags. And then these tags can then be uploaded with images for storage and onsite knowledge base. And then this allows for future reference and archiving of this content easily. Plus, as well, applying to enable machine learning and other insights from this.

And so, we support a standard computer vision models out of the box and then working with our customers, we build custom computer vision models to be able to recognize those specific products and parts and also defects that their products might have too. Another area that we're investing in the onsite this year is around IoT, being able to serve IoT data – to be able to have the technician do their job more quickly in terms of diagnosing problems, repairing issues, and also to help them through maintenance.

And so we are using OCR, optical character recognition, to be able to read serial numbers off equipment, to then build and reach out to our customers' IoT infrastructure, pull down the appropriate IoT data for that particular customer's piece of equipment, and then show that information to the technician in an overlay display right in the remote expert session. So, they have access to that in order to do their job in a more efficient way.

We have the ability through our IoT aggregator to be able to connect into all manner of different IoT infrastructure that our customers might have. So, everything from Azure IoT to ThingWorx to OSIsoft Pi, we can tap into whatever ecosystem our customers have for IoT.

Natural language processing is another area that is important for us, where we are enabling our remote expert calls to be able to be transcribed and translated in real time. So, a light transcription of a call can be created on the screen in real time as a session progresses. This can also be served in the onsite

platform for future use to be able to make the call more searchable and to be able to do other things as well, like monitor the call quality and be able to derive insights such as whether the specific problems going on with piece of equipment or issues with procedures, or even if there's problems with the technical staff that are involved with resolving the questions.

Also, we are allowing for Real-Time translation so that people on the call with different languages that they speak are able to understand what is going on. So, as part of that live transcription, you'll also be able to select what language you want it to be translated into and then also have that also spoken using a synthesized voice so that people from different backgrounds and different parts of the world can sell or collaborate together even if they don't speak the same language.

The final element of the AI-connected expert vision that we are realizing this year is support for advanced augmented reality. And this we do are doing with support from Microsoft's HoloLens 2 for industrial environments. And so that presents a number of unique challenges that we've had to solve in order to allow for advanced, augmented reality experience to be available and useful in in some of the environments our customers operated.

So, one of the key things for this type of app is it's going to be non-intrusive. So, the user experience and the user interface of the augmented reality app needs to kind of collapse and not be in front of the user when they're actually doing their jobs. They can have a clear field of vision when they are working. It's also important to allow for interaction with this advanced augmented reality – you have to be voice-driven or gesture-driven depending on what is going on, because at some points the technician may have to have tools in their hands, at some points and they might be in a very light environment, so they might not be able to use their voice. So, it's important to be able to switch between different modes of interaction, depending on what is going along.

It's also important for the UI to be able to follow the users as they move around in the environment and also to be able to lock into particular places so that it's not able to obstruct their field of view. But it also can follow the user as well as they move about their environment in order to repair or fix equipment.

Another key part of this augmented reality – advanced experiences around the interface must be very compelling, but also very functional, very minimalist too. A kind of a lot of visual artifacts on the screen or in front of their field of view will obviously cause safety issues and be a hindrance. And so, a very minimalistic but also a very intuitive interface is key there. So, all these things form the foundation for what we're doing with HoloLens 2, and our advanced augmented reality applications that will provide the foundation for an AI-connected expert vision of the future.

**TJ** – Wow, all of that sounds absolutely fantastic. I'm looking forward to seeing all of these features in action. Thank you very much, John. I'm afraid that is all the time we had for this conversation. We wish you and Librestream all the very best for all your upcoming endeavors and hope we get an opportunity soon to host you again.

I thank our listeners for tuning in, and I hope to catch you all in the next one.

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