



Not Just a Game: Tsunami XR* Builds an Immersive Training Solution in Virtual Reality

The Intel® Xeon® processors of today power the business solutions of tomorrow.

As technology moves forward, new business applications built on the latest advancements are always emerging. Immersive media is a case in point. More processing power is available than ever before in Intel® processors, enabling better user experiences in virtual reality, augmented reality, and other 3D environments. This continued improvement, in turn, opens new opportunities to solve business problems, such as creating better shared spaces for distributed teams, improving the visualization of buildings and engineered products, and delivering more efficient training solutions for equipment operators.

Tsunami XR, based in San Diego, California, is leading the charge to promote immersive media as a business solution. Building on the power of Intel® Xeon® processors, Tsunami XR offers its customers persistent, multi-user environments for business collaboration and interactive training across a wide range of sectors, including aerospace and defense, automotive, energy, technology, and industrial.

Virtual Reality as the Ultimate Business Tool

Tsunami XR wants to help revolutionize the way people communicate and collaborate in business. Launched in 2012, the software company offers a spatial computing platform that enables customers to build immersive 3D environments such as virtual conference rooms, virtual workshops, and virtual classrooms. Multiple users can then join the virtual environments from any physical location and can interact through a variety of devices, including tablets, laptops, desktops, augmented reality devices, and virtual reality headsets.

Tsunami XR sees its 3D immersive environments as the ultimate collaboration tool. Says Anthony Duca, Co-founder and Chief Product Officer of Tsunami XR, "Today you have only silos of collaboration. You have things like Dropbox*, things like Slack*. We look at what we're doing as all these things combined."

Built on CPU Power

The Tsunami XR* Workspaces platform consists of multi-user co-presence servers, video and voice streaming servers, communications infrastructure, and databases. These elements are hosted on server instances in the public cloud and are powered by Intel Xeon processors.

Tsunami XR Workspaces is as compute-intensive as it is revolutionary. All the objects in the virtual environment need to be synchronized in real time with each user's view in the same shared space. The more people you have in a space, the more compute power is needed to synchronize that space. Screen sharing, voice, and web cams also add to the processing load.

Tsunami XR technology, and the business itself, thus depends on reliable compute power that can scale up as needed. Intel Xeon processors provide the performance and reliability needed to support the ambitious platform.

"Intel is a valued partner, as they keep us informed of the latest technologies and provide a glimpse into the future. This allows us to continually optimize our platform, from the server to the end points, by leveraging their unmatched technological expertise."

— Sylvia Ramirez, Director of Global Client Solutions at Tsunami XR

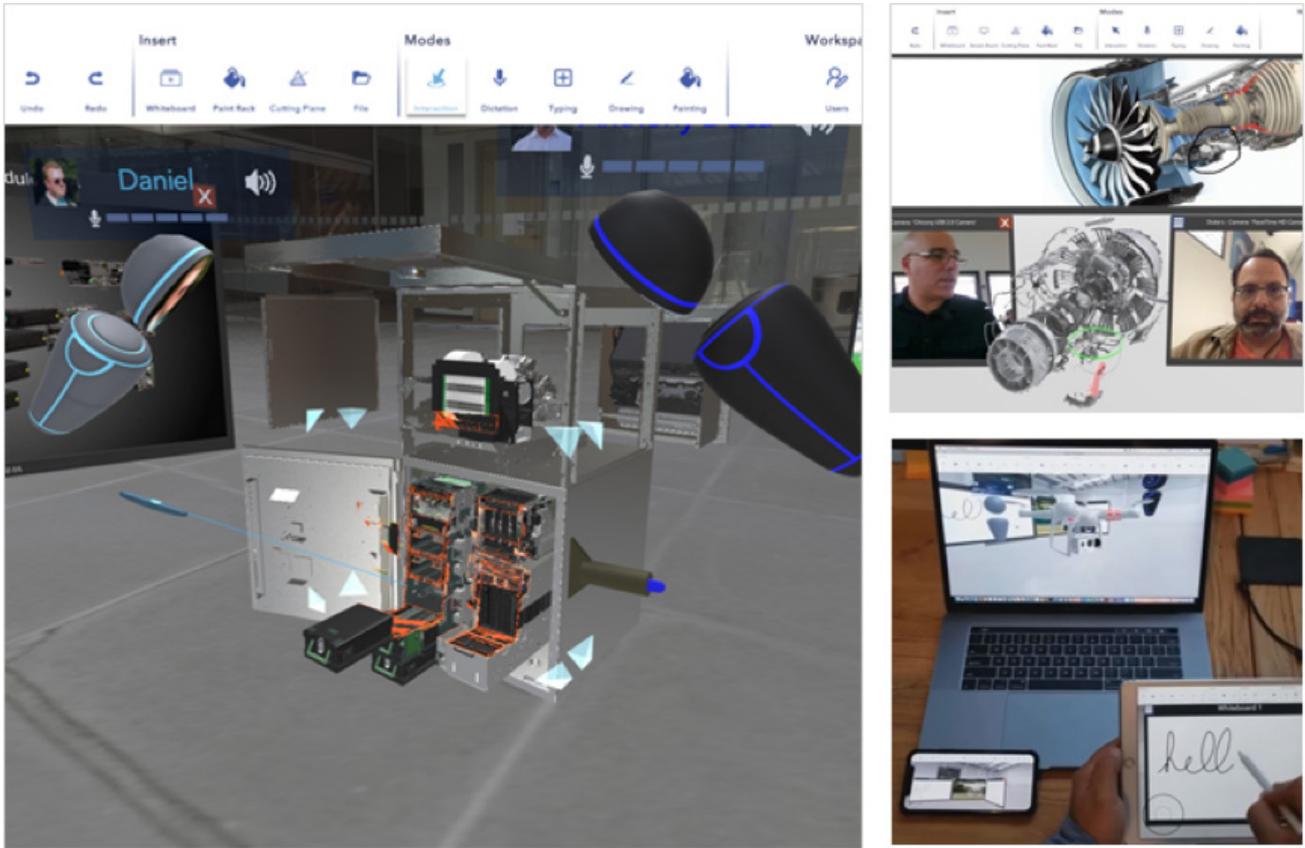


Figure 1. Tsunami XR* Workspaces enables users to collaborate live in 3D environments through a variety of clients

Tsunami XR Builds an Immersive Training Solution for Ameren

Tsunami XR is interested in helping businesses solve practical business problems through its platform. As one example, the company is using virtual reality to help the St. Louis, Missouri-based power company Ameren make its training procedures more efficient.

Ameren's nuclear power plant conducts regular training for its workers as a matter of course, according to the requirements set by the Occupational Safety and Health Administration (OSHA). At Ameren's energy centers, procedures such as "lockout-tagout" (which ensures that dangerous machines are properly shut down) are currently taught in a full-scale laboratory mock-up environment.

The limitation of a hands-on laboratory training model for Ameren is that only three people can comfortably work in the laboratory at a time, which slows the rate at which workers can get their required certification. Alternative forms of instruction, such as classroom training, are simply ineffective replacements for hands-on laboratories when important procedures for nuclear power plant safety are concerned.

For its Callaway Energy Center in Missouri, Ameren is working with Tsunami XR to develop a full-scale interactive collaborative training environment in virtual reality that runs on the Tsunami XR platform. Laboratory exercises can be performed by team members who see each other live in the

About Tsunami XR* Workspaces

Tsunami XR Workspaces creates virtual, spatial work environments that improve teamwork, accelerate learning, and promote better understanding of complex information. The platform increases efficiencies and enhances user experiences in the areas of collaboration, training, visualization, analytics, support, and operations.

The Tsunami XR platform:

- Enables full digital collaboration, with true co-presence and persistence
- Offers a unified cross-device communication ability spanning PCs, laptops, tablets, mobile, and augmented and virtual reality headsets
- Renders high visual quality with low latency
- Delivers fully interactive, immersive sessions with unlimited scalability
- Captures and automates real-time data workflows and analytics
- Restricts access to only licensed, authorized users, and encrypts content and data to help ensure the highest levels of information security

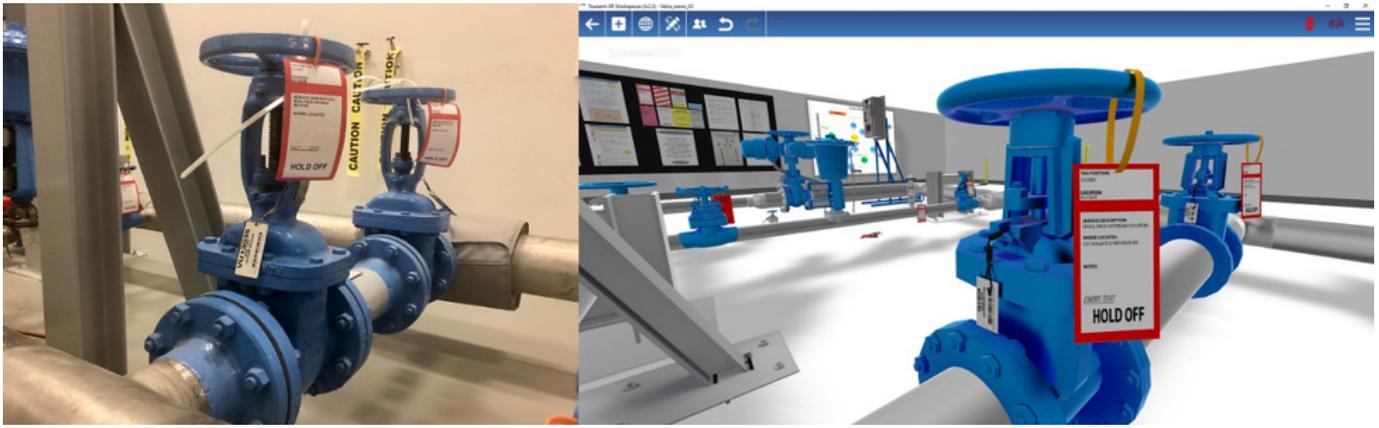


Figure 2. A comparison of the physical training facility (left) and the virtual training environment in Tsunami XR* Workspaces (right) for the Callaway Energy Center

immersive environment. Crucially, the virtual laboratory can also be duplicated so that multiple teams can train at the same time, which can help remove the training backlog. The virtual spaces are persistent on the Tsunami XR platform, so trainees can pick up where they leave off on subsequent days.

Virtual Reality Promotes Efficiency and Enthusiasm

Ameren expects that its new training using the virtual reality tool will be more effective and efficient than the existing training that it is designed to replace. More users can train in the virtual laboratory, and they can repeat their training more easily. With these more efficient training procedures, Ameren hopes to reduce operational costs, so it can keep energy rates low for its customers.

And even though this particular virtual reality application is not a game, it has already generated much enthusiasm among future trainees, which itself improves its effectiveness. Says Lorne Poindexter, a maintenance manager who works on the corporate innovation team at Ameren, “This project has been really exciting. When you’re offering this up as a solution, it really catches on. Everyone is eager to try it, eager to learn.”

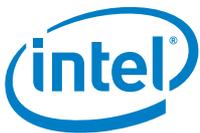
Innovation Built on Intel Xeon Processors

The speed and performance delivered by Intel Xeon processors opens new possibilities for businesses like Tsunami XR and Ameren to solve important problems in more efficient ways. Through their efforts, Tsunami XR, Ameren, and Intel are all driving innovation and showing other businesses how they can realize new benefits in the digital revolution.

Learn More
For more information about Tsunami XR, visit <https://tsunamixr.com>.
To learn more about Intel hardware and supported software, go to: <https://software.intel.com/en-us/home>

“EPRI is very excited about the explosion of industrial usages of immersive technologies, virtual and augmented reality. We look forward to working with leading providers in the industry to create impactful training and operations applications that increase efficiency and reduce costs.”

– John Simmins, Senior Technical Executive,
Electric Power Research Institute



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