



Improving medical research and health outcomes with 3D edge computing

"With our solution on Precision workstations, you can explore 3D medical scans in a virtual world in real time. You can instantly zoom into a patient's MRI scan to examine their bones and pivot to examine their organs or other soft tissue."

John Schacher

Chief Technology Officer, Perspectus

Situation Analysis

Exploring medical images in 3D using AR, VR and MR.

MRI, CT and other medical images capture a complete picture of bone and tissue. Perspectus is driving industry transformation by enabling hospitals, universities and healthcare companies to explore images not just in 2D but in 3D, using augmented reality (AR), virtual reality (VR) and mixed reality (MR). For example, with Perspectus' solution:

- Physicians can convert a series of 2D images into 3D VR renderings to better understand and explain patients' medical issues.
- Medical students can explore anatomical scans in 3D VR, zooming into bone, tissue and vascular systems.
- Researchers and pharmaceutical companies can examine treatment efficacy to improve research and development and illustrate outcomes for demonstrations.

Pivoting to meet opportunity.

When Perspectus learned that the hardware vendor that supported its university lab POC could not deliver workstations to fill its first customer order and meet internal employee requirements, Perspectus purchased consumer-grade laptops. However, even though the systems met the desired specifications, they could only deliver 50% uptime levels. To meet its immediate and long-term goals, Perspectus partnered with Dell Technologies OEM Solutions to provide:

- Edge solutions that drive real-time 3D experiences with mission-critical reliability.
- Responsive, reliable services including timely hardware deliveries.
- Global 24x7x365 support for customers.
- Industry-proven hardware to increase solution credibility and customers' peace of mind.
- Partnerships and engineering expertise to help with emerging challenges.

Design Partnership

Medical breakthroughs with edge technology.

Perspectus worked with Dell Technologies OEM Solutions to redesign its edge platform:

- Precision 3660 XE Towers with high-end NVIDIA® GPUs and high-end Intel® CPUs support deployments in labs.
- Precision 7770 mobile workstations with high-end NVIDIA GPUs and high-end Intel CPUs deliver platform computing power anywhere to users such as students working from home and clinicians meeting with patients in hospital rooms.

John Schacher, chief technology officer of Perspectus, says, "It takes so much

processing power to paint each 3D voxel that our GPUs run continuously at 80–100% capacity. The Precision 3660 XEs and 7770s include the GPUs and the cooling we need to deliver seamless experiences."

Along with providing the right hardware to meet customers' requirements, Dell Technologies OEM Solutions also:

- Procures workstations and expedites manufacturing cycles as needed to meet customers' requirements.
- Delivers 24x7x365 assistance for customers' hardware-related solution issues via Dell ProSupport.

Outcome

Transforming 2D images into 3D experiences to improve understanding and educational outcomes.

By partnering with Dell Technologies OEM Solutions, Perspectus:

- Improves engagement and learning outcomes in courses such as anatomy because students can explore 3D renderings of medical scans in real time to virtually dissect all the layers of bone and tissue captured in images.
- Provides a new mechanism for reviewing pathologies and the unique anatomy of individual patients - creating an environment that can greatly improve patient engagement and treatment compliance.
- Gives universities, hospitals, and other organizations a collaborative AR, VR and MR platform that enables groups of up to 100 users to simultaneously explore the same images to share insights regardless of where they're located.
- Deepens patients' understanding about their medical conditions and treatment effectiveness, which can improve their

communication and trust in their physicians.

- Minimizes the need and cost of human cadavers for scientific study.
- Delivers 99% platform reliability.
- Provides customers with immediate expert support for any hardware issue while keeping Perspectus' staff focused on innovation.
- Ensures prompt, reliable customer deployments and reduces risk.
- Simplifies the development of future offerings such as FDA-cleared medical appliances, security-hardened designs, and offerings for other industries such as geophysics and applied chemistry.
- Facilitates 6x growth in one year. "All of our sales have been positively influenced in a significant way as a result of our relationship with Dell Technologies OEM Solutions," says Erick Miranda, chief operating officer of Perspectus.

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