DELL Technologies

Bringing **high performance** compute and two-phase immersion to the edge

"The world demands the ability to do more at the edge, at the data center and wherever compute is needed. We can meet these needs because we work with Dell Technologies OEM Solutions."

Brad Furnish
Vice President of Global Sales, Strategy and Marketing, TMGcore

Situation Analysis

Redefining high-density data centers with cutting-edge solutions.

Many companies are finding that their compute solutions can't keep up with data and the demands of business today, especially when it comes to being at the edge. While the opportunities at the edge can seem endless, they can also seem impossible to realize. Real-time analytics, artificial intelligence, machine learning and deep learning all require advanced data center and edge strategies.

Data is most efficiently processed when computing power is close to the source generating it because that reduces latency. The problem is that places such as oil rigs or the center of a cornfield are not conducive to computing. This challenge, and the desire for a competitive advantage, keeps many CTOs up at night wondering how to support their mission-critical applications by putting compute where it needs to live.

As the creation of data continues to explode and the pressure to support this data rises, companies are desperate to find a solution.

The companies that design solutions for the edge will be future leaders in their markets. That's where TMGcore comes in, bringing compute to myriad environments outside of the data center. Founded in 2017, the technology company designs and manufactures data center hardware and software for large-scale, high-density computing operations at the edge. But TMGcore needed a partner to bring its innovative ideas to life. The company chose Dell Technologies OEM Solutions Partner UNICOM Engineering to collaborate with Dell Technologies and integrate its solutions on Dell EMC PowerEdge servers.

Putting compute in impossible places

TMGcore's solutions can function in any environment for two key reasons. The first is two-phase liquid immersion cooling, which

intel

Situation Analysis (continued)

offers the most efficient thermal transfer in the industry. Two-phase immersion cooling creates a hospitable environment for compute anywhere by using specially engineered fluids that are safe for sensitive electronics and have lower boiling points than water. Hot components, such as CPUs and GPUs, cause the engineered fluids to boil, rapidly transferring heat away from components and keeping the silicon at a stable temperature, regardless of workload. Vapor is then captured in the tank and condensed back into liquid, restarting the cycle. Secondly, TMGcore's solutions can be placed anywhere, thanks to

the robotic data center platform and nodal network, which enables remote management and operation. Prior to partnering with UNICOM Engineering and Dell Technologies OEM Solutions, TMGcore had revolutionary ideas, but it lacked a platform on which to build this game-changing data center technology. The company needed an OEM solution that could be submerged and meet its specific thermal, size and electrical requirements. TMGcore also wanted to achieve CE and UL certifications, which would demonstrate adherence to both U.S. and European safety standards.

Design Partnership

An innovative partnership redefines high performance computing.

TMGcore immediately knew that it wanted to team up with Dell Technologies OEM Solutions because of its reputation for leading reliable solutions. Ashley Panfil, senior vice president of global sales, channel and marketing at TMGcore, explains, "We wanted to work with the best, so we chose Dell Technologies."

After in-depth discussions and evaluations with Dell Technologies and UNICOM Engineering, TMGcore selected Dell EMC PowerEdge C6400, C6520 and C6525 servers to act as the base of its hardware platform. Providing four high performance dual processor server nodes in only 2U of space, the Dell EMC PowerEdge C6500 series appliances are ideal candidates to showcase the density and power efficiency achievable with two-phase immersion cooling. These servers were customized by removing components that were no longer needed, such as traditional cooling elements, and updating the system sensors to accurately monitor hardware performance while submerged.

In selecting its OEM provider, TMGcore prioritized technology that its customers were familiar with. Brad Furnish, vice president of global sales, strategy and marketing at TMGcore, explains, "Having a leading OEM platform sit inside of our units allows us to offer best-in-class compute and two-phase

liquid immersion. We build trust with our customers by working with Dell Technologies OEM Solutions and UNICOM Engineering."

Panfil adds, "Throughout the whole process, Dell Technologies OEM Solutions and UNICOM Engineering offered us superior services, support and technology. The benefits we've gained from these strategic relationships enable us to deliver a world-class two-phase immersion solution."

By working with UNICOM Engineering and Dell Technologies OEM Solutions, TMGcore gains:

- Industry-leading hardware, customized to be submersible and meet precise thermal, size and electrical requirements.

- A secure and industry-proven manufacturing and program management process to help build confidence in potential customers.

- A reliable, knowledgeable integration partner with UNICOM Engineering, which also has deep ties to Dell Technologies. This collaboration is a testament to the synergy, innovation and experience that Dell Technologies OEM Solutions and UNICOM Engineering can offer TMGcore.

- A third-party support services partner, discovered through Dell Technologies, to strengthen TMGcore's global reach.

intel.

Outcome

Helping companies gain a competitive edge by bringing compute where it needs to live.

From an oil rig to the bottom of a cell tower to a pharmaceutical lab, TMGcore's innovative solutions allow companies to place compute anywhere. The solutions offer extreme density and world-class efficiencies. "Our customers sometimes see cost savings of 50% or more with greater power efficiencies, smaller water needs, and reduced infrastructure and space requirements," shares Furnish. But the benefits of TMGcore solutions extend even further with its robotic platform, which allows single-pane-of-glass management and remote operation. Panfil says, "We're enabling businesses to put compute where it's never been able to go, which effectively eliminates latency, and we're providing a simple way to manage the solution. We couldn't have done it without the collaboration of Dell Technologies and UNICOM Engineering."

By partnering with UNICOM Engineering to build on Dell Technologies OEM Solutions, TMGcore can:

· Create and deliver innovative data center solutions to organizations.

· Scale and distribute its solutions and services around the world.

· Improve its competitiveness by building a solution based on leading technology.

· Help customers achieve incredible ROIs.

· Achieve CE and UL certifications.