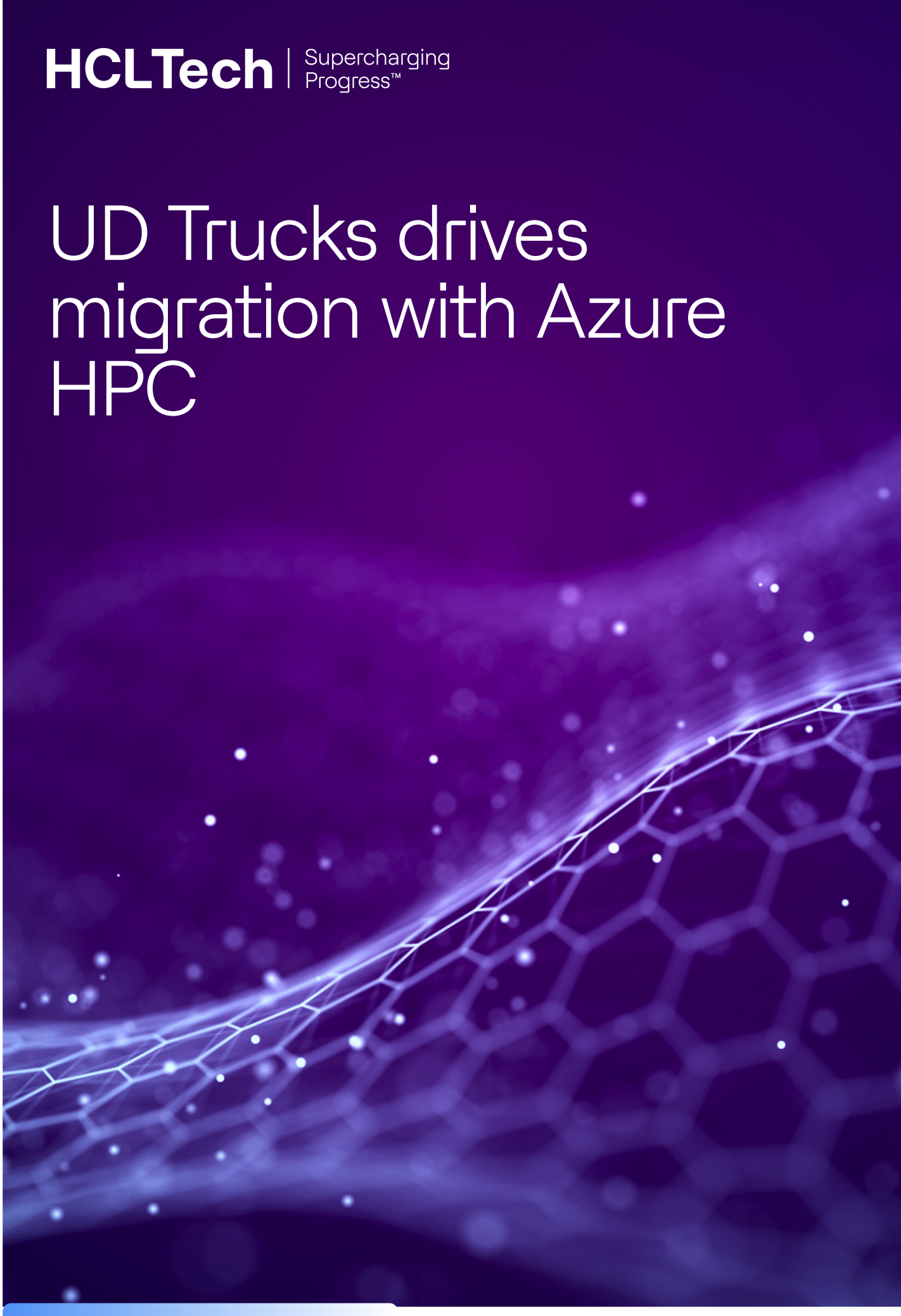
HCLTech | Supercharging Progress™

UD Trucks drives migration with Azure HPC



UD Trucks drives migration, innovation with Azure high-performance computing

> We plan to really move ahead with advanced analytics.... Using the Azure HPC + AI solution to provide accurate preventive diagnostics will help our customers run their businesses without stoppages.
>
> Chidamber Datta: Head of Digital Solutions, Site India, Director of Data Strategy
> **UD Trucks**

> I'm not excited that I'm setting up an IT system with Azure—I'm excited that Azure is helping run my business and run it well.
>
> Kumar Anand: Global Director for Application Infrastructure and Cloud Solutions
> **UD Trucks**

UD Trucks, a Japan-based manufacturer and seller of heavy-duty trucks, operates in more than 60 countries. Formerly part of the Volvo Group, UD Trucks became a part of Isuzu Motors in April 2021. The company's IT team tasked with designing and implementing a new Microsoft Azure HPC + AI (HPC) instance, and the team had only about a month to get it operational. Thanks to determination, skillful teamwork, and a savvy Azure deployment, UD Trucks triumphed at the finish line and had its system up and running on the January 1 deadline.

The challenge

The acquisition presents migration challenges
As is often the case with the transfer of a technologically complex company like UD Trucks, the company faced challenges around migrating its IT infrastructure. One of its most vital and demanding computing tasks revolves around high-performance computing (HPC), which it uses for running scientific and engineering applications during simulations and design processes. UD Trucks relied on Volvo's on-premises datacenter for HPC resources, but an agreement was struck in June 2021 to transfer all primary computing resources by January 1, 2022. UD Trucks had to execute this timeline aggressively while ensuring service continuity for its R&D teams' important and ongoing work.

The UD Trucks IT team discussed a variety of migration scenarios, including cloning resources to another on-premises environment. But the utilization and configuration requirements didn't match up, and the on-premises cost was higher and required a five-year commitment. The team then did a proof of concept (POC) with other available products, which initially seemed promising, but hardware, security, license dependencies, and the HPC specifications that UD Trucks required presented insurmountable hurdles.

The solution

As the timeline grew tighter in late 2021, UD Trucks turned to Microsoft for a use case proposal, and it responded with a scenario that seemed within reach. To move quickly, however, the project needed an executing partner. Fortunately, HCLTech, which had previously operated as a strategic partner with Volvo, had recently signed a hybrid cloud agreement with UD Trucks and had the company's complete confidence. The result was a fruitful three-way collaboration with UD Trucks defining the requirements, Microsoft facilitating information and resources, and HCLTech providing key technical configuration insights and skills.
As the executing partner, HCLTech helped provision Azure resources to create a test environment. Azure support teams worked with HCLTech and UD Trucks to troubleshoot and optimize the setup. UD Trucks finally had what it needed, with no time to spare. Kumar Anand, Global Director for Application Infrastructure and Cloud Solutions at UD Trucks, sums it up:

"Our cloud journey is now with Azure. We needed the advantages of managed services in Azure, and we needed the implementations done very quickly, with the same latency or better than our on-premises system."

UD Trucks took advantage of HCLTech's expertise to build an optimized Azure setup that matches and exceeds its on-premises standards. HCLTech urged it to use the flagship Azure HBv3 virtual machine (VM) for the compute node (using Azure Blob Storage) and the Azure D4s_v4 VM for the head node and the admin host (with local SSD disks and the BeeOND parallel file system for fast, cost-optimized scratch storage space during simulations). Azure CycleCloud was used for managing and scheduling tasks.
The company's previous HPC environment was underpinned by AMD processors and excelled in its simulation and modeling workloads. AMD 3rd Gen EPYC™ processors also power the Azure HBv3 VM, which was crucial for HCLTech's recommendations. "The nature of the workloads and the total core requirements led us to an AMD-based VM," says a representative at HCLTech. "We consulted with Microsoft, and it also recommended using this VM. We tested other options, but the performance wasn't on par with AMD, which provides more cores and more bandwidth per core for better performance."
Another benefit for UD Trucks in using the HBv3 VM, driven by AMD processors, was the switch to the upgraded AMD EPYC™ CPU featuring AMD 3D V-Cache™ technology (codenamed "Milan-X")—a free

upgrade from Azure that comes with significant performance improvements. The upgrade occurred seamlessly with no negative impacts during the switchover, and the UD Trucks team immediately noticed the speed improvement in its HPC workloads.

The impact

Saving money and improving results with smooth and rapid cloud migration
After the infrastructure was set up, UD Trucks transitioned without issue. "During the crucial two or three weeks leading up to the launch, HCLTech did one POC, moved into user acceptance testing, and immediately went into production. With Azure, the approach was quite agile and rapid, and there were no issues at all. Coming out of the migration, the direct benefits for the company have been considerable, and reliability and stability have been impeccable. "We've had no incidents in the six months since our migration, and I haven't seen any services go down so far," says Anand. He estimates the cost reduction of moving to Azure at approximately 30 percent annually.

Additionally, scheduling jobs is no longer an issue. With its on-premises solution, UD Trucks had to juggle capacity and resources. Still, the Azure HPC + AI solution can start new workloads whenever needed because it can use separate clusters to run the jobs. The company's R&D teams use HPC for testing simulations of component behavior under various road, weather, and vehicle conditions, and Azure HPC + AI provides them with myriad precise simulations for forecasting engineering designs. More HPC power and flexibility at lower cost means being able to run more simulations and, ultimately, discover more useful results.

UD Trucks designs a new future for its data with HPC

UD Trucks is turning to the Azure HPC + AI solution for potential avenues of innovation. The company is also exploring advanced analytics and machine learning capabilities to help its customers. "We plan to really move ahead with advanced analytics, both predictive and proactive, which is key for our business," says Chidamber Datta, Head of Digital Solutions, Site India, and Director of Data Strategy at UD Trucks. "We work with logistics services partners, and for them, trucks have to be on the road. Using the Azure HPC + AI solution to provide accurate preventive diagnostics will help our customers run their businesses without stoppages."
Thanks to its HPC migration, UD Trucks is expanding its cloud-based plans. "After this success, my vision is to move all of our systems to the Azure environment," says Anand. "The power of Azure to seamlessly and flexibly scale up and down based on business needs represents a real opportunity for our company." Ultimately, he adds, Azure will help the company run at its optimum state. "I'm not excited that I'm setting up an IT system with Azure—I'm excited that Azure is helping run my business and run it well."

HCLTech | Supercharging Progress™

hcltech.com