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How Rescale Helps a Global Auto Parts Maker Become More Agile and Competitive

Rescale provides expert guidance for harnessing GPU-based supercomputing clusters and software to power massive-scale engineering analysis, helping the manufacturer carry out rapid-fire product designs to win contracts from major automakers

CASE STUDY

INDUSTRY
Automotive
Manufacturing

KEY RESULTS

» Sourced massive GPU burst capacity

» Optimized specialized software performance

» Radically accelerated R&D and product design processes

» Improved competitiveness in bidding for orders from major automakers

» Accelerated path to adopt AI for R&D

In the automotive business, major automakers send out requests for bids to equipment manufacturers when they need a new part. These requests typically have very short timelines, requiring a response in just a few weeks.

The potential business from these contracts—often for millions of parts—is central to the success of auto parts manufacturers. It is essential that they can quickly engineer new equipment designs that perform to specifications, are reliable, and can be sold at a profitable margin.

One of Rescale's customers faced this exact challenge. The R&D teams for this auto equipment manufacturer are at the center of its efforts to develop new designs to win contracts with the major automakers. So it is imperative the company does anything it can to better power its engineering and design process.

By using the Rescale platform, the auto parts manufacturer was able to achieve unprecedented engineering speed and create a major competitive advantage in its efforts to earn new business.

TECHNOLOGY CHALLENGES

To gain greater speed, many R&D teams are turning to a relatively new kind of semiconductor chip. Known as GPUs (graphics processing units), these chips can provide up to 10 times the performance of traditional CPUs (central processing units), which are common in corporate servers and PCs.

But because of their advantages, demand for GPUs is intense across the globe. And given this manufacturer's extraordinary need to run hundreds of simulations in parallel to complete the tens of thousands of analyses necessary for its "design of experiments" (DoE), it struggled to find a cloud provider with a uniquely scalable GPU-powered architecture.

Critically, the manufacturer had a price limit on the cost per computational unit it was willing to pay, making its search for a suitable cloud provider even more difficult.

Despite looking across the market, the manufacturer was not able to find a provider that could meet its scale and cost requirements.

Rescale's comprehensive market insights helped the automotive manufacturer find the ideal cloud partner for its unique requirements.

Without the necessary compute power, the automotive manufacturer was limited in its abilities to fully research and test its new designs before making a bid.

Fortunately, the customer was already a Rescale customer. With the Rescale platform, the company was able to source the necessary cloud infrastructure and optimize key R&D software to address its digital engineering challenge.

HOW RESCALE HELPED

The range of costs and capabilities is enormous among the major and niche cloud providers across the globe. But with Rescale's unparalleled knowledge of the computational R&D market, the customer found the ideal cloud partner that could offer both the necessary GPU compute capacity and reliability, as well as meet pricing limits.

Rescale also used its unique expertise to help troubleshoot and tune the performance of the GPU clusters with the customer's specialized simulation software. Because GPUs are relatively new, software is still evolving for this compute infrastructure.

To address any initial performance issues, Rescale led a close collaboration with the customer, the cloud provider, and the software vendor. After a pilot program and refinements, the team met all the performance requirements for supporting the manufacturer's ambitious computational goals.

In its initial effort using the Rescale platform, the manufacturer was able to complete tens of thousands of analyses for its DoE within just one week, matching even its most hopeful expectations.

RESULTS

By gaining access to massive supercomputing scale to run burst DoEs for rapidly designing new products, the global auto parts manufacturer can now perform all the digital simulations necessary to make its bids with confidence.

This confidence in its design process directly ties to the company's revenue and profitability. Previously, the customer would have run a small set of simulations and analysis, which would be incomplete. They would pair that digital analysis with the expert assessments of their senior engineers, and then make their bid.

With its burst DoE capability, such guess work is virtually eliminated. The manufacturer's new engineering agility means the company can design more rapidly, price its bids more accurately, and win new business to power its growth.

Such precision is also helping the customer eliminate bid price "padding" to compensate for incomplete design assessments. It now can confidently submit more competitive bids.

Looking ahead, its comprehensive computational analyses are generating a consistent and expansive set of data, ideally suited for training AI, which will then help the manufacturer accelerate its R&D efforts.

By being able to innovate in ways that their competitors can't, this auto parts manufacturer now has a critical advantage in its efforts to win new business.

Rescale's expertise in high performance software for R&D helped troubleshoot and tune application performance on the GPU-based hardware infrastructure.

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About Rescale

Rescale provides high performance computing built for the cloud to empower engineers while giving IT security and control. The Rescale platform makes it simple for engineers and scientists to harness the most advanced software and computing architectures for cutting-edge, simulation, and AI-driven innovation. For IT, the Rescale platform provides full-stack security and support, and delivers policy-based financial and architectural controls to maximize performance and efficiency. Rescale powers the world's leading companies to accelerate innovation across industries including life sciences, automotive, energy, semiconductor, aerospace, and manufacturing.

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