



Arrival Drives Modern Sustainable Product Development on Rescale

Case study



Headquarters: London, UK
Industry: Technology, Automotive
Founded: 2015

Challenge & Solution

Arrival product designers and engineers needed a scalable and flexible HPC solution that met their evolving business environment requirements. Rescale provided a platform for multiple teams to intelligently run various high fidelity models on the most cost-effective and performant hardware for the job.

Outcomes Achieved

- » **Performance & Efficiency:**
The latest, best-fit hardware and continuous cost-performance optimization
- » **Control at Scale:**
Complete IT/HPC controls simplify operations and manage cost & security risks
- » **Empowered R&D:**
Turnkey R&D compute tools accelerate productivity

Software Deployed on Rescale:



Rethinking an Entire Industry From the Ground Up

Sustainable technology company, Arrival, set out to shift the automotive industry to more sustainable products and services, but doing so from the ground up required a unique approach. The company formed a team of specialized engineers called the Rapid Engineering Design and Central Analysis Team (RED-CAT) to apply a broad set of simulation techniques to find new ways to build more robust vehicles and optimize the overall engineering process. To meet their complex computational needs, RED-CAT utilized the Rescale platform to optimize and accelerate their engineering workflows.

A Solution for Modern, Data-Driven Product Development

Completely overhauling how vehicles are developed requires validating numerous combinations of materials, designs, and processes. Critical product simulations for crashworthiness, vibration, and aerodynamics require enormous data sets and compute capacity. Arrival looked to cloud for operational agility, increased collaboration, and financial flexibility but standing up advanced workflows and navigating infrastructure in the cloud posed new challenges.

To accelerate bringing a best-in-class vehicle to market, Arrival chose Rescale to achieve speed, efficiency, and reliability in their high performance computing (HPC) operations. RED-CAT needed an HPC simulation process that could be easily learned and quickly implemented by new engineers. Rescale platform intelligence gave the team the data to select the most cost-performant hardware across multiple leading cloud service providers for each specific simulation workload across LS-Dyna, STAR-CCM+, Siemens NX, and nCode. Arrival's unique needs required Rescale's flexible options for integrating their existing cloud storage and taking advantage of on-demand licensing. Nathan Baker the Head of RED-CAT says "The Rescale platform has enabled Arrival to meet its rapidly growing computational needs, run higher fidelity models faster, and improve collaboration across the company."



Unifying R&D Innovation Across the Entire Enterprise

Fast-growing companies like Arrival depend on Rescale to deploy highly scalable, manageable, and reliable HPC across multiple teams and projects. RED-CAT now uses Rescale to optimize and automate engineering workflows across several teams including their Bus, Van, Technology, Charging, Jet, and Roborace projects. As user adoption grows within the organization, the need for collaboration and secure data sharing demonstrates the value of one unified for enterprise HPC management. Each of their 30+ end users has the flexibility they need to access the latest hardware and software, while managers can easily gain traceability of each project's spend, user-access, progress, and efficiency. As Arrival prepares to launch new products and production lines globally, anyone from engineers and designers to business and technology leaders have a shared system of record to enable limitless R&D exploration and innovation.



Rescale optimizes 1000+ applications
on the latest hybrid cloud HPC architectures

Hewlett Packard
Enterprise

DELL

ORACLE
Cloud Infrastructure

aws

Google Cloud

IBM

"Arrival works with Rescale to manage a broad software portfolio and ensure engineers have access to the right applications, the latest versions, and the most performant hardware across each simulation project."

- Nathan Baker, Head of Rapid Engineering Design, Central Analysis Team



Rescale Integrates Best-in-Class Tools For Digital R&D



Define HPC and R&D Goals:

- » Accelerate Simulation Results
- » Standardize Best Practices
- » Increase Consultant Productivity
- » Reduce Overhead and IT Burden

ARRIVAL



Modern R&D Software
Computational Fluid Dynamics, Finite Element
Analysis, Electromagnetics, and more...

R&D Workflow Automation

IT / HPC Operations Automation

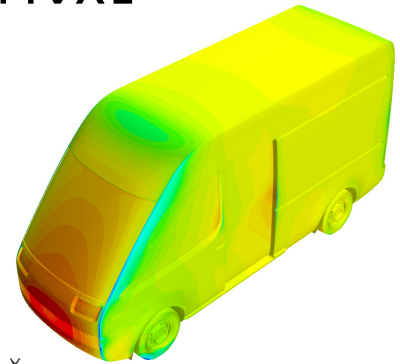
Policy-Based Reporting & Controls

Latest Cloud Hardware
Scale, global coverage, and broad
optionality across cloud architectures.

Software
Lifecycle
Automation &
License
Management

Full Stack
Cost &
Performance
Optimization

Full Stack
Security &
Compliance



Featured Platform Software: Simcenter STAR-CCM+ by Siemens

STAR-CCM+ is a complete CFD multiphysics solution for the simulation of products and designs operating under real-world conditions. Simcenter STAR-CCM+ brings automated design exploration and optimization to the simulation toolkit of every engineer, allowing you to efficiently explore the entire design space instead of focusing on single point design scenarios.

For more information on AiDL visit:
plm.automation.siemens.com

Strategic Business Outcomes

- » Faster, easier engineer onboarding
- » End-to-End Automation
- » Improved Simulation Fidelity
- » Decreased Capital Expenditures



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About Rescale

Rescale is high performance computing built for the cloud to empower engineers while giving IT security and control. From supersonic jets to personalized medicine, industry leaders are bringing new product innovations to market with unprecedented speed and efficiency with Rescale, a cloud platform delivering intelligent full-stack automation and performance optimization. IT leaders use Rescale to deliver HPC-as-a-Service with a secure control plane to deliver any application, on any architecture, at any scale on their cloud of choice.