

SPECIALIZED ACCELERATES ENGINEERING BREAKTHROUGHS ON RESCALE

Case Study



Headquarters: Morgan Hill, CA

Founded: 1974

Industry:

Engineering & Manufacturing of
Performance Bicycles

Challenge & Solution

Specialized faced internal constraints of the computing resources needed to simulate complex new product design. By shifting their HPC simulations to Rescale, their Road bike team was able to simplify and accelerate their R&D innovation cycles by optimizing their HPC capacity and performance with no additional IT burden.

Benefits Achieved

- » **Simplified Simulation:**
Access to preinstalled software and the latest hardware from AWS
- » **Continuous Optimization:**
Improved HW and SW cost and performance
- » **Accelerated Innovation:**
Faster simulation uptime and simulation cycles

Software & Hardware Optimized:



Specialized's R&D Engineers Push the Limits of Innovation

Up against the limits of their internal compute capacity, Specialized Bicycle Components needed a more flexible and simplified solution to power their computer-aided engineering simulations. Before gaining access to massively distributed compute on Rescale, their R&D teams faced slow solve speeds which constrained product design cycles. Rescale provided instant access to compute scale and over 600 HPC applications to simulate their bike frames' drag, weight, and stiffness and overall performance. This enabled their engineers to generate and simulate more iterations of product designs and configurations in less time.

Breaking Away from Compute Constraints

In a hyper-competitive industry, Specialized's mission is to be the best cycling brand in the world. Today they sponsor the top #1 and #2 professional cycling teams in the world. Bicycle R&D teams face pressure to come up with better bicycle shapes and components each year with improved quality and performance. While Specialized operates a proprietary wind tunnel for performance testing, they also employ computer aided engineering. Using Simcenter STAR-CCM+, a complete CFD multiphysics solution for the simulation of products and designs available on Rescale, they gain a competitive edge in R&D prototyping. Prior to adopting Rescale, Specialized's existing simulation workstations became insufficient for the Road Bike R&D team's growing high performance computing needs.

In order to increase the accuracy, scale, and speed of simulations needed to drive new innovations, Senior R&D Engineer, Mio Suzuki, quickly onboarded Rescale to fill the need. Mio explains:

“Previously we were constrained by a workstation with only a small number of cores, whereas Rescale doesn't have limits on cores or memory. So we can run hundreds of simulations in parallel. We aim to rapid prototype at a startup's pace and always incorporate the latest technologies. With Rescale I can fine tune the simulation and massively distribute the solving process. We can compile different kinds of answers and then down select to the best design choice. Before using Rescale, the Specialized Road team was using mostly wind tunnel testing, and now the ratio has completely flipped.”

From Compute Constrained to Compute Empowered

Specialized now tests hundreds more iterations of bicycle frame geometries and material combinations in less time by optimizing their compute resources on Rescale. The R&D team can quickly and easily leverage the most optimal software and hardware options as soon as they come available. This ensures that they always have the innovation capacity, agility, performance, and efficiency they need to continue being a leader of best-in-breed bicycles.



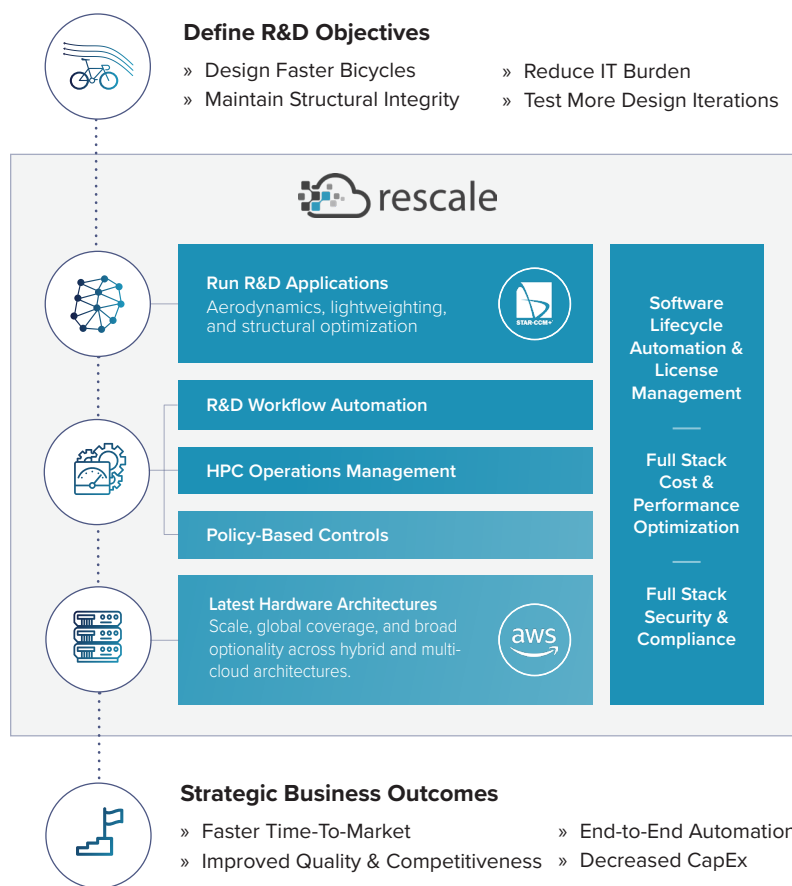
Rescale optimizes 600+ HPC applications on 50+ specialized hybrid architectures

"Rescale allows us to innovate faster in a way that is systematic and logical."

- Mio Suzuki, Senior R&D Engineer - Specialized Bicycle Components



Rescale Simplifies & Accelerates Specialized's R&D Innovation Lifecycle



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 visit www.plm.automation.siemens.com

Amazon Web Services

AWS provides the most elastic and scalable cloud infrastructure to run your HPC applications. With virtually unlimited capacity, engineers, researchers, and HPC system owners can innovate beyond the limitations of on-premises HPC infrastructure.

For more information visit aws.amazon.com/hpc



Headquarters

33 New Montgomery St., Suite 950
San Francisco, CA 94105

1-855-737-2253

About Rescale

Rescale helps organizations accelerate science and engineering breakthroughs by eliminating complexity. From supersonic jets to personalized medicine, industry leaders accelerate new product innovations with unprecedented speed and efficiency with the Rescale Platform - a solution for intelligent full-stack automation for big compute and R&D collaboration on hybrid cloud. Rescale enables IT leaders to deliver high performance computing as a service, with software automation on a hybrid cloud control plane with security, architecture, and financial controls. Learn how you can modernize high performance computing at Rescale.com