

Pinnacle Engines Achieves 80% Turnaround Time Reduction

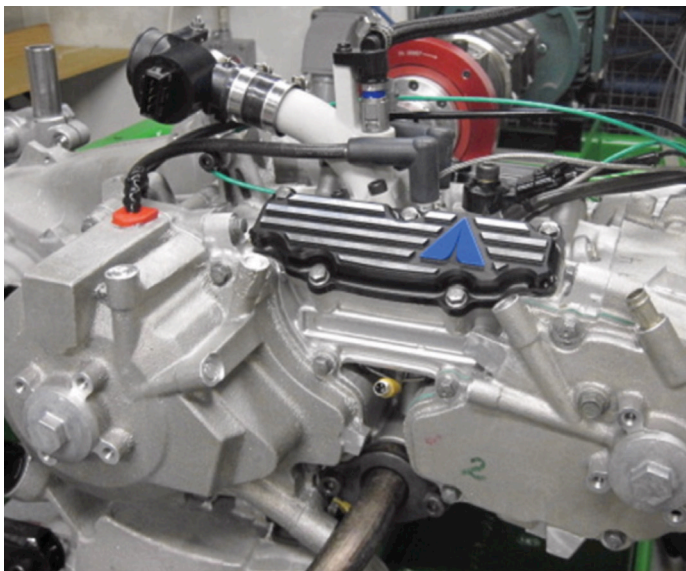
Background

Pinnacle Engines is a game-changing engine company developing and commercializing an ultra-efficient engine architecture. Pinnacle Engines uses Rescale to quickly run a wide variety of simulations, including the analysis of a four-stroke internal combustion engine using the computational fluid dynamics (CFD) tool, CONVERGE by Convergent Science.

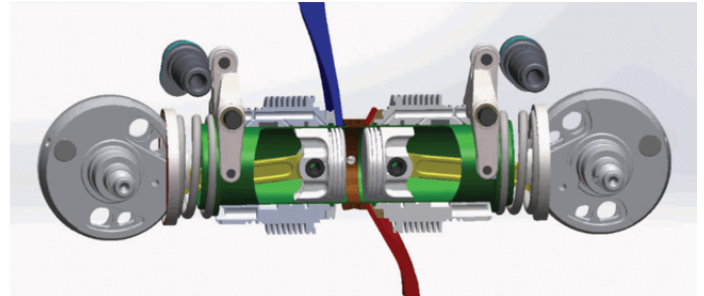
Customer Challenge

For Pinnacle Engines, designing an engine with 30-50% fuel efficiency requires many simulations, constant iterations, and the compute power to accomplish all this within project timelines. To meet strict deadlines while fully exploring the design space, Pinnacle Engines uses Rescale's cloud simulation platform to run injector model characteristic studies, geometrical simplification studies, and reaction mechanism reductions, among others. Each of these analyses is used to design an ultra-efficient and powerful four-stroke engine.

Running tens to hundreds of models simultaneously requires extensive compute resources and access to a large pool of simulation software licenses--equating to large up-front costs and personnel investments. Even with a powerful internal processing cluster, the ability to run parallel jobs can be significantly limited.



Pinnacle Engines' four-stroke engine



Four-stroke engine model simulation by Pinnacle Engines

Simulation Solution

Using Rescale, Pinnacle Engines is able to set up tens of jobs within minutes--customizing simulation resources for each job as follows:

- Job-tailored compute resources are dynamically provisioned within five minutes of job submission
- Run tens of jobs simultaneously without having to queue for software or hardware
- Execute simulations whenever needed using both on-demand Rescale hardware and CONVERGE software
- Gather results and deliver them to local servers for post-processing and analysis
- Securely run proprietary simulation models with end-to-end data encryption on isolated, encrypted clusters

Simulation Solution

Rescale's secure, intuitive, cloud platform combined with on-demand CONVERGE CFD software enabled Pinnacle Engines to efficiently execute 350+ simulations and achieve faster results for improved engine design.

Summary

Rescale's secure, intuitive, cloud platform combined with on-demand CONVERGE CFD software enabled Pinnacle Engines to efficiently execute 240+ simulations and achieve faster results for improved engine design.

"Running jobs on Rescale allows us to reduce capital expenses while still running the simulations needed to design industry-leading engines."

Monty Cleaves, Pinnacle Engines CTO

About Rescale

Rescale™ is the global leader for enterprise big compute. Trusted by the Global Fortune 500, Rescale empowers the world's top executives, IT leaders, engineers and scientists to securely manage product innovation and perform groundbreaking research and development faster at a lower cost. Rescale's ScaleX platform solutions transform traditional fixed IT resources into flexible hybrid, private, and public cloud resources—built on the largest and most powerful high-performance computing infrastructure network in the world. Rescale offers hundreds of turnkey software applications on the platform which are instantly cloud-enabled for the enterprise. For more information on Rescale, visit www.rescale.com.

About Convergent Science

Convergent Science, Inc. is a world leader in Computational Fluid Dynamics (CFD) software. Our flagship product, CONVERGE™, is shifting the paradigm toward predictive CFD revolutionizing the industry. Convergent Science has locations in Madison, Wisconsin, and New Braunfels, Texas, along with distributors worldwide. The staff at Convergent Science are experts in CFD simulations, numerical methods, model development, and design optimization. Since 1997, Convergent Science has been providing quality consulting to the Internal Combustion Engine industry and beyond. For more information: www.convergecf.com

©2019 Rescale, Inc.

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

Produced in the United States of America
All Rights Reserved