

Canoo's Innovative Vehicle Design Approach with Rescale on AWS



Case Study

Introduction

Canoo, an electric vehicle (EV) industry trailblazing company, aims to democratize EV ownership. Their unique approach involves building durable electric vehicles tailored to the needs of every user. Unlike traditional automotive manufacturers, Canoo adopts a callout technology equipment manufacturing strategy, focusing on hardware and cutting-edge technology to stay ahead.

Multipurpose Platform Strategy

At the heart of Canoo's innovation lies its multipurpose platform, designed to accommodate various user needs. This platform is the foundation for different vehicle models, including trucks, LDVs (Last-mile Delivery Vehicles), and lifestyle vehicles. By developing a versatile platform, Canoo maximizes space, enhances reliability, and boosts performance, all while ensuring customer satisfaction.

Performance and Reliability Focus

Canoo's engineering team prioritizes performance in extreme conditions like deserts and mountains. Every component undergoes rigorous analysis and development to ensure optimal functionality under challenging circumstances. This focus on performance and reliability is crucial in delivering unique vehicles like Canoo's, which demand a different mindset and approach to design.

Utilization of Rescale on AWS for High-Performance Computing (HPC)

To meet the demands of complex simulations and multiphysics models, Canoo relies on high-performance computing resources. Rescale, a scalable and easy-to-deploy turnkey product, allows flexibility in approaching design problems and accelerates obtaining results. Canoo initially selected Rescale as the platform to run crash simulations on AWS with Amazon EC2 Hpc6a instances. Aerodynamics simulation teams quickly followed. With Rescale and AWS, IT can deploy the platform rapidly, and engineers can run simulations on many computational cores, optimizing designs and reducing turnaround time significantly.

Simulation for Regulatory Compliance and Testing

Meeting federal regulations for vehicle safety is paramount for Canoo. Instead of relying solely on physical crash tests, Canoo leverages simulations to enhance performance and optimize designs. This approach ensures their vehicles meet all regulatory requirements while minimizing extensive physical testing, saving substantial time and resources over physical prototyping alone.

Advantages of Simulation with Rescale on AWS

Simulation technology also enables Canoo to conduct wind tunnel tests and track testing virtually, eliminating the need for physical assets and reducing engineering time and costs. The scalability of Rescale's platform and the reliability and capacity of AWS and Hpc6a enable the creation of complex crash and aerodynamics simulations that would be unrealistic on conventional computers and expensive to deploy on less flexible on-premises systems. With Rescale on AWS, Canoo can develop end products efficiently and effectively.

Conclusion

Canoo's commitment to innovation and customer-centric design sets them apart in the EV industry. By leveraging advanced technology, such as multipurpose platforms, simulations, and high-performance computing services from AWS automated by the Rescale platform, Canoo is revolutionizing how electric vehicles are conceptualized, designed, and tested. Their dedication to efficiency, range, and overall vehicle performance reflects their vision of a sustainable and accessible future for electric mobility.



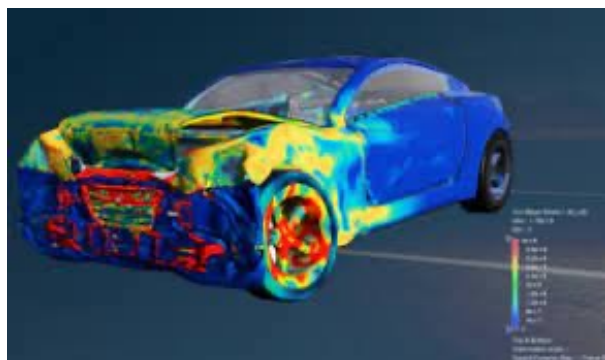
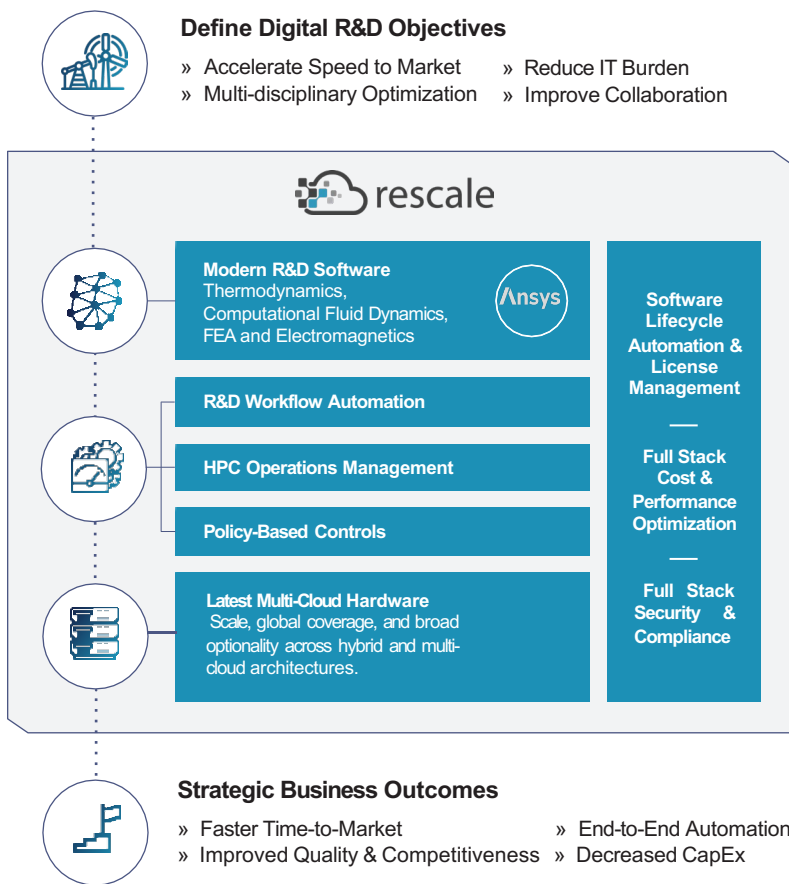
Rescale optimizes 1000+ HPC applications on any AWS EC2 instance

“We use Rescale at Canoo for our high performance computing resources. It’s a scalable product that allows us to be flexible in how we approach a design problem. It gets us results quickly because we’re able to solve on any number of computational cores, giving time back to the engineers to do what they do best.”

- Daniel Stahler, Lead Aerodynamics Engineer



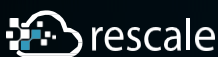
Rescale Integrates Best-in-Class Tools For Digital R&D



Featured Platform Software: Ansys LS-DYNA

ANSYS LS-DYNA is a versatile finite element analysis software used for simulating complex nonlinear dynamic behavior in engineering and physics applications. With its robust capabilities, ANSYS LS-DYNA enables engineers to accurately predict structural response, including deformation, stress, and failure, under various loading conditions.

For more information visit:
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About Rescale

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