

## Case Study #4

# Toyota moves high-performance workloads to Oracle Cloud

World's largest automaker shifts high-performance computing workloads to Oracle Cloud Infrastructure to improve car design and development efficiency.



"We now run our HPC workloads on Oracle Cloud Infrastructure as part of our HPC multicloud strategy. OCI has incredible performance, and running computational fluid dynamics simulations with it has allowed us to improve the speed of computations and to optimize costs. This is helping us make the development of cars at Toyota more efficient, and produce cars with better performance."

Shinichi Noda, Group Leader, DX Promotion Division, Toyota Motor

### Products list

- Oracle Cloud Infrastructure

### Business challenges

To continue improving the quality of its cars, Toyota is implementing a "Toyota New Global Architecture." As a structural innovation that stretches across the company's global car manufacturing business, it's meant to bring dramatic improvements to the basic performance of Toyota cars. Increasing the efficiency of automobile design and development through computational tests and simulations and constantly striving to improve are the keys to making cars that have both excellent driving and environmental performance.

Toyota had handled high-performance computing workloads in an on-premises environment. However, while continuing to use its existing on-premises resources, the company began to look into cloud services in order to flexibly meet requests from users, such as quickly increasing resources and testing new technologies.

## **Why Toyota Motor chose Oracle**

The company benchmarked a number of cloud service providers as part of its HPC multicloud strategy, looking into performance, cost, computational accuracy, flexibility, stability, and other requirements. After considering these factors, Toyota decided to move the foundation of its computational simulations to [Oracle Cloud Infrastructure \(OCI\)](#) while also using existing on-premises systems.

Oracle Cloud Infrastructure offers the industry's first, and only, public cloud with bare metal HPC computing. It has a low latency of less than 2 microseconds and 100 Gbps of bandwidth, achieved with a Remote Direct Memory Access network. This protocol transfers data from the memory of a local computer to the memory of a separate, remote computer. OCI's unique HPC solution allows Toyota to run large and complex computational simulations, which require a massive amount of computing power, all in the cloud and without any compromises in performance.

## **Results**

Running high-performance workloads for computational simulations on Oracle Cloud Infrastructure has allowed Toyota to increase the speed and efficiency of car design and development while also optimizing costs.

Also, Toyota has dramatically shortened lead time in computing resource procurement, which used to take more than six months in the on-premises environment. Now OCI needs just a few days, given there is enough physical space available.

With OCI, Toyota can now flexibly handle the testing of new technologies, something that was difficult in the on-premises setup. Toyota achieved a high degree of cost performance with OCI, as it has allowed the company to shorten the time needed to perform computations through improvements to computational ability.

### *Learn more*

- [Toyota, opens in new tab](#)
- [Infographic: OCI for Enterprise \(PDF\), opens in new tab](#)
- [Get the guide to Cloud Essentials \(PDF\), opens in new tab](#)
- [Understand the Oracle Cloud Infrastructure Platform \(PDF\), opens in new tab](#)
- [Get started on Oracle Cloud Infrastructure \(PDF\), opens in new tab](#)
- [Learn more about HPC on Oracle Cloud Infrastructure](#)

### *Products list*

- [Oracle Cloud Infrastructure](#)