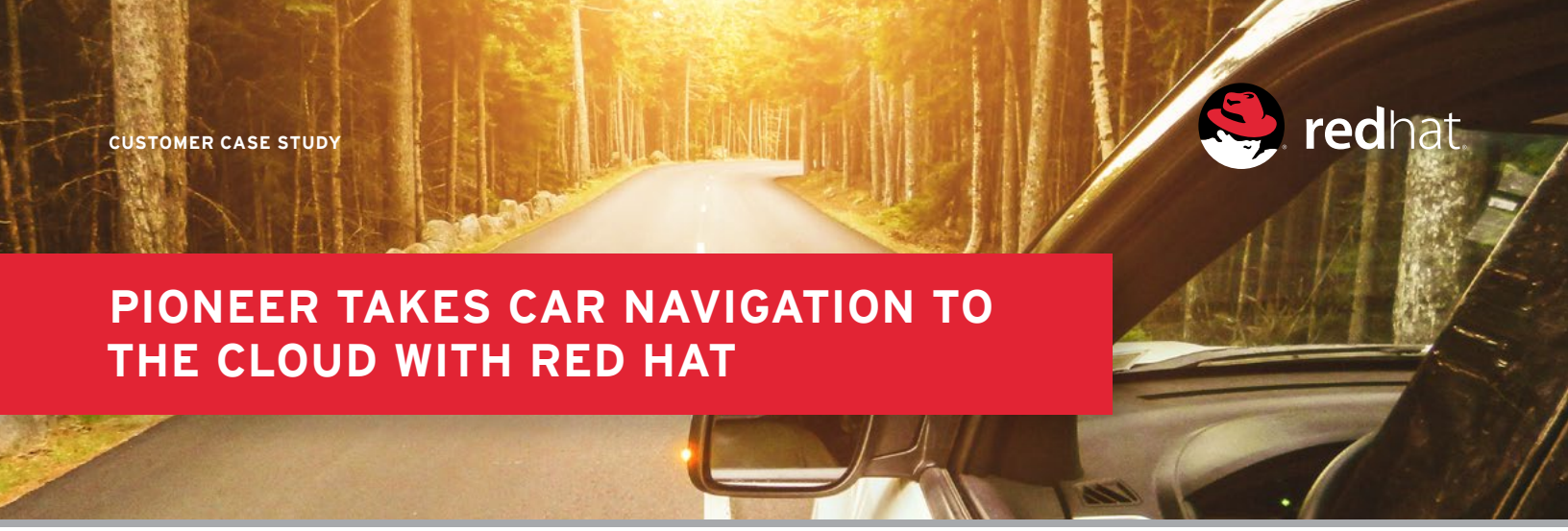


CUSTOMER CASE STUDY

PIONEER TAKES CAR NAVIGATION TO THE CLOUD WITH RED HAT

Pioneer Corporation, a leader in the car electronics industry, is the provider of Super Route Finder, the first service that lets drivers take advantage of cloud resources when searching for routes in their car navigation systems. To create this service, Pioneer used Red Hat OpenShift Container Platform to support container-based route searches. Its new solution improved IT performance and costs and increased scalability and flexibility to accommodate additional device models and users.

SOFTWARE

Red Hat® OpenShift Container Platform

HARDWARE

IBM Cloud Bare Metal Servers

HEADQUARTERS

MANUFACTURING

17,000+ EMPLOYEES

"With the expectation of the numbers of users and various kinds of containers increasing, Red Hat OpenShift Container Platform enables us to implement scalable allocation of containers and readily manage respective container applications more effectively."

KAZUHIRO MIYAMOTO
GENERAL MANAGER, DEVELOPMENT DEPARTMENT,
INFORMATION SERVICE PLATFORM CENTER,
PRODUCT MANAGEMENT DIVISION,
PIONEER CORPORATION

BENEFITS

- Gained support for provisioning current and future services using cloud resources and capabilities
- Improved IT performance and costs
- Increased flexibility and scalability to easily accommodate additional device models and users as needed

facebook.com/redhatinc
@redhatnews
linkedin.com/company/red-hat

redhat.com

RUNNING CAR NAVIGATION ROUTE SEARCHES IN THE CLOUD

Pioneer Corporation launched an innovative new service, Super Route Finder in January 2017. This service uses cloud computing resources to conduct route searches for the latest CYBER NAVI in-car navigation system models.

Super Route Finder is the first service to calculate optimal routes in the cloud using an in-car device's internet service, instead of processing these searches through a device itself. Drivers can find optimal routes based on more complicated route calculations. For example, the service can propose various routes according to current or different conditions, such as prioritizing tolls or times. In addition, the service can easily change server-side parameters to analyze rate discounts for specific times at tollways, as well as ETC (Electronic Toll Collection System) 2.0 discounts.

"With traffic congestion, calculation and processing become more complex, and current car navigation systems are reaching the limits of in-vehicle device processing," said Hirofumi Tanigawa, manager of development, Information Service Platform Center, Products Management Division, Pioneer Corporation. "With Super Route Finder, as processing volumes increase further, our server-side processing will become definitively faster, even accounting for communication time."

Pioneer developed server-side route searching based on in-car device programs. Because this capability was originally run on an embedded system, its source code is massive, written C languages and largely dependent on libraries and operating environments. As a result, reproducing the operating environment to scale the service—or prepare multiple operating, testing, and production environments—is difficult, and the service often does not run well.

To overcome these challenges, Pioneer chose to use container technology. Containers create modular, separate operating environments within a single Linux® instance for operating a specific application and its dependent resources in an isolated package.

CHOOSING A RELIABLE, SUPPORTED CONTAINER PLATFORM

To begin creating Super Route Finder, Pioneer focused on developing the application and consulted with Nippon Information and Communication Corporation (NI+C) on infrastructure design.

The company researched several container solutions, including Kubernetes—a key component of Red Hat OpenShift Container Platform—and Docker's genuine management tool. However, Docker lacked necessary functionality, and Pioneer did not want to build the required platform for Kubernetes. As a result, Pioneer decided to deploy Red Hat OpenShift Container Platform on IBM Cloud Bare Metal Servers.

"Red Hat OpenShift Container Platform has more freedom compared to other platforms," said Tatsuya Hishiki, Manager, Solution Business, Cloud Technical Sales, NI+C. "When we evaluated other container platforms, cloud lock-in became an issue. Red Hat OpenShift Container Platform was superior in several ways, including log functionality and reliability."

In addition, a key factor in Pioneer's decision was Red Hat's strong support reputation. This service was important for Pioneer, as its car navigation systems must operate 24 hours a day, 365 days a year. "Having peace of mind in terms of support and product quality with Red Hat was a major factor in our decision," said Hishiki.

Pioneer, NI+C, and Red Hat collaborated to determined the scope and schedule of the project. The service launched just five months after Pioneer's initial inquiry.

ACHIEVING SAVINGS TODAY AND TOMORROW

COST-EFFECTIVE FLEXIBILITY AND PERFORMANCE

The combination of its IBM Cloud Bare Metal Servers and Red Hat OpenShift Container Platform provides more flexibility, better performance, and financial savings.

Navigation route searches require central processing unit (CPU) power but not much memory. IBM Cloud lets users flexibly configure CPU and memory—for example, by scaling the number of node servers up or down as needed.

With these capabilities, combined with OpenShift's cost-effective socket offerings, Pioneer can cost-effectively meet future expansion needs.

AGILE FOUNDATION FOR FUTURE GROWTH

With OpenShift Container Platform, Pioneer can easily expand Super Route Finder to support future CYBER NAVI models.

"Use will grow with sales. We are cautiously expecting that, at first, access will be concentrated to between a few thousand and tens of thousands of devices," said Tanigawa.

In addition to supporting new navigation models, Pioneer will be able to support a growing number of users, and subsequently, an increased number of containers are needed to support the system's software and data.

"With Red Hat OpenShift Container Platform, construction to support more users and containers becomes easy," said Tanigawa. "Red Hat OpenShift enables the scalable, easy management of container allotment and scheduling."

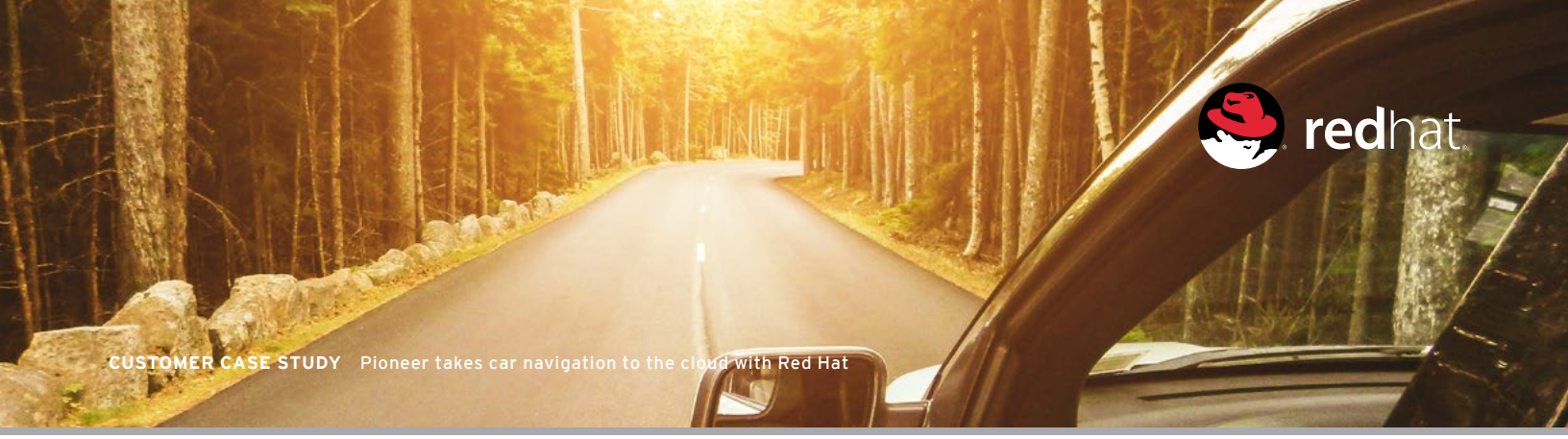
STABILITY AND SUPPORT FOR A STRONG FUTURE

Super Route Finder is still new, and Pioneer has big plans for its future.

"We would like to continue to evolve it into something even better," said Tanigawa. "Additionally, we are considering containerizing other web services, like mobile apps for smartphones."

Stable operations will be key to advancing these projects from development to live operation.

"We will continue to work with Red Hat for innovative technology and expert support," said Tanigawa. "We have big expectations for running reliable services with new container technology using Red Hat's products."



CUSTOMER CASE STUDY Pioneer takes car navigation to the cloud with Red Hat

ABOUT PIONEER CORPORATION

Pioneer Corporation, established in 1938, is a Japanese company focused on car electronics. The organization delivers diverse values to customers around the globe, driven by its philosophy to "Move the Heart and Touch the Soul." Since releasing the world's first consumer GPS car navigation system in 1990, Pioneer has expanded its business to included additional fields like organic EL lighting and medical equipment.

ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to provide reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

NORTH AMERICA
1 888 REDHAT1

EUROPE, MIDDLE EAST, AND AFRICA
00800 7334 2835
europe@redhat.com

ASIA PACIFIC
+65 6490 4200
apac@redhat.com

LATIN AMERICA
+54 11 4329 7300
info-latam@redhat.com

facebook.com/redhatinc
@redhatnews
linkedin.com/company/red-hat

redhat.com
#f8513_0318