ZENRIN DataCom CO., LTD.

Consolidate 1,800 virtual servers using VMware Cloud™ on AWS and Amazon EC2 for a fully cloud-based infrastructure

Services currently using
- VMware Cloud on AWS
- Amazon EC2
- Amazon Aurora
- Amazon SageMaker
- AWS IoT Greengrass

Business challenges
- Full-cloud IT infrastructure
- Reduce costs and development time associated with moving existing systems to the cloud
- Reduction of system renovation load due to cloud migration

Why AWS
- Existing virtual servers can be shifted to cloud as they are
- Continuous use of existing assets on product functions, human resources, know-how, and operation
- Cloud's benefits such as being free from hardware limitations

Benefits and future developments
- Reduce on-premises hardware costs and management man-hours
- Reduction of license / maintenance cost by moving commercial database to Amazon Aurora
- Promote use of managed services such as Amazon SageMaker and serverless architecture as a real-time information distribution platform for high-precision map data

ZENRIN Datacom migrated 1,800 virtual servers in on-premises VMware vSphere environment to VMware Cloud™ on AWS in addition to the 2,400 virtual servers already deployed on AWS for a complete cloud-based platform adoption in 2020. The use of AWS services is expanding year by year, such as migrating Oracle Databases to Amazon Aurora by utilizing linkage with AWS native services, and adopting Amazon SageMaker machine learning model for generating high precision map data.

Focusing on flexibility, functional scalability and cost savings

Zenrin Datacom provides IT solutions using map services and location information. The company's services cover a wide range, including map apps for individuals such as “Itsumo NAVI”, APIs for developing map services for corporate customers, dynamic management, and telematics.

Zenrin Datacom has been consolidating its service-based servers into VMware's virtualization solution since 2010 for efficient use of IT resources. In addition, some commercial services and API servers have started switching to the cloud leveraging Amazon EC2. "Our initial goal was to deal with sudden increase in server access. We thought that AWS could flexibly scale resources in times of access-concentration such as heavy traffic, heavy rain, or media coverage," said Masayoshi Oku, Director and Executive Officer, Head of Engineering Division.

Then, by 2017, all physical servers were consolidated into 1,800 on-premises virtual servers, and 2,400 virtual servers on AWS. Furthermore, as a mid-and-long term policy for 2020 and beyond, we have decided to switch to full cloud platform by consolidating all virtual servers into AWS.

Oku continued, "when we re-calculated our costs, we found that a full migration to AWS, which is scalable compared to on-premise, offers overwhelming benefits. The ability to periodically reduce costs while expanding functions was also a key point in moving to full cloud environment."

Adopted VMware Cloud on AWS to migrate virtual machines directly to the cloud

"Initially, we planned to migrate systems running on virtual servers to AWS as they are. However, in such cases, OS and middleware version upgrades, program modifications, and operation procedure changes, etc., were expected to result in significant cost increases and a prolonged development period. It was also expected that the development department in charge of the migration would say, ‘We want to focus on new system development,’ and from the sales department, ‘Is there an advantage worth the migration cost?’ In this context, we found VMware Cloud on AWS, which runs VMware virtual machines on Amazon EC2." Daisuke Watanabe, Deputy General Manager, Technology Planning Department, Technical Division, commented. "We appreciate the ability to use the existing assets such as system functions, human resources, knowledge, and operation mechanisms, while at the same time achieving the benefits of the cloud, which is free from hardware management."

In February 2018, the company conducted its first VMware Cloud on AWS PoC with the Oregon region, verifying basic operation to identify the issues at the time. In October 2018, Zenrin Datacom conducted a second PoC (Tokyo region) and officially adopted VMware Cloud on AWS after being satisfied with the updated service's functional enhancements and on-premises migration.

The transition project kicked off in February

Masayoshi Oku

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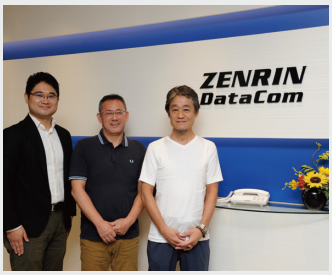
Customer profile

ZENRIN DataCom CO., LTD.

- Established: April 13, 2000
- Capital: 2,283.01 million yen
- Employees: 358 (As of April 1, 2019)
- Business Activities: Intelligent Transport System (ITS) business, Internet Service business, Mobile Service business, overseas business, etc.



"We decided to move to a full cloud platform, focusing on the functionality, flexibility, scalability, and evolution of managed services in AWS."

Masayoshi Oku

Director & Executive Officer, Head of Engineering Division, ZENRIN DataCom CO., LTD.

2019. After environment design and infrastructure building in April 2019, migrating systems running on-premises began. As of October 2019, a total of about 800 machines (approx. 400 virtual machines in the development environment and about 400 virtual machines in the production environment) have been migrated.
Takuya Kido, Senior General Manager, Technical Division talks about the future plan. "By around June 2020, we will have about 50 commercial services running, replacing all of our on-premises systems with VMware Cloud on AWS and AWS services. And we plan to abolish the data centers running on-premises servers in September of the same year."

Migrate commercial Data Bases to Amazon Aurora to reduce licensing costs

Zenrin Datacom plans to keep the on-premises VMware environment intact during the migration of the production environment while operating in parallel with VMware Cloud on AWS. During the migration, dual management for on-premises and cloud will occur, but the company estimates that one year after the complete migration, effects of the cost savings will be realized.
In addition, migrating to VMware Cloud on AWS requires very little effort because there is no need to recreate virtual machines and requires little post-migration testing. Administrators can use VMware management tools to continue operations in the same environment as before the migration.
Zenrin Datacom is also working on a project to migrate on-premises databases from Oracle Database to Amazon Aurora. "We appreciated the scalability of automatically scaling resources and the high availability comparable to commercial databases," says Watanabe.
The company is currently migrating to Amazon Aurora for a commercial database update in July 2020.
"We expect licensing fees to be reduced by tens of millions of yen annually, and we estimate that adding database maintenance fees would provide considerable cost benefits," says Kido.

Utilizing machine learning model of Amazon SageMaker for high precision map data distribution

In the future, Zenrin Datacom will use hybrid operations with VMware Cloud on AWS for services that are difficult to change applications and AWS for active and innovative services. Watanabe commented, "In the VMware Cloud on AWS environment, we will build a scalable infrastructure, with studying the container service that VMware plans to deploy, and using the Amazon EKS in the AWS native environment as a starter."
The use of AWS is expanding not only in IT infrastructure but also in next-generation map services. For example, the use of AWS managed services and serverless architecture is being promoted for real-time distribution platforms that provide traffic information. Amazon SageMaker builds the machine learning model for a system that recognizes road traffic signs and signboards from video, still images acquired from in-vehicle cameras and drive recorders and automates updating of map information, and a system that recognizes falling objects/obstacles on the road and notifies them in real time.A prototype using AWS IoT Greengrass is configured for computing resources of the edge device.
"Using managed services from AWS eliminates the need to build from scratch, shortening development time and reducing management load. In addition, you can use Edge Computing to securely capture and manage edge data," says Kido.
The Proof of Concept (PoC) for traffic information recognition system using Amazon SageMaker and AWS IoT Greengrass has been completed and is currently being prepared for a beta release. "We will continue to receive the latest information from AWS and also continue to enhance and digitize map services while matching customer needs," said Oku about his future vision.

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