

CASE STUDY

DENSO IT Solutions

DENSO IT Solutions is a wholly-owned subsidiary of DENSO Corporation, a leading global manufacturer of automotive parts. After years of repetitive capacity expansions of legacy storage systems that required downtime and complex management, the company turned to Pure Storage® for an efficient, reliable, easy-to-manage, and greener infrastructure that meets current and future user needs.

Business Transformation

DENSO IT Solutions (DNITS) is now able to provide a non-disruptive user experience with its private cloud infrastructure that supports the entire DENSO group while improving performance and operational efficiency. This transition meets their sustainability initiative by reducing space and power consumption.

Challenges

- Achieve high availability and resiliency for non-disruptive operations.
- Eliminate forklift upgrades.
- Avoid data migration.
- Save power consumption and space requirements.

Solution Benefits

- Switching to FlashArray™ all-flash storage enabled the company to meet sustainability standards on power and space.
- DNITS is prepared for future expansion and innovation by reducing the risk of forklift upgrades with the Pure Evergreen™ Storage solution.



DENSO
Crafting the Core

Geo

Japan

Industry

Technology

Company

DENSO IT Solutions (DNITS)
www.dnitsol.com

Use Case

- VMware® Private Cloud

Private Cloud Provider for Global Automotive Parts Manufacturer

DENSO IT Solutions, Inc. (DNITS), an IT solution provider, is a wholly-owned subsidiary of DENSO Corporation, which is a leading global manufacturer of automotive parts, headquartered in Kariya City, Aichi Prefecture of Japan. DNITS provides IT infrastructures including a private cloud environment called ALADIN (Attractive Landmark for All DENSO Infrastructure) for DENSO Corporation and its subsidiaries (DENSO). ALADIN helps DENSO improve the speed of their business and reduce cost as a secure, low-cost infrastructure. It also contributes to Green, a sustainability initiative as part of DENSO's long-term commitment to 2030.

“ALADIN has a virtualization infrastructure that is intended to run their virtual servers on VMware ESX. ALADIN provisions DENSO's virtual servers for operating applications and provisions storage volumes for storing data. While the main production system is at the headquarters in Kariya City, a replication site is in the GTA (Greater Tokyo Area) for disaster recovery. In addition to providing standby operation, the GTA site provides production services with active/active configuration,” said Yoshitaka Tozaki, a member of the IT Infrastructure Development Office in the IT Services Department, who oversees planning, evaluation, and deployment.

Since the first deployment of ALADIN in 2011, it has been regularly upgraded and expanded by several hundred terabytes annually and now in its sixth generation. Adding storage capacity to the legacy systems has been the main factor of expansion. As a result, the current capacity has reached several petabytes. Since 2016, the administrators have been facing the challenge of replacing the outdated systems originally installed from their first deployment.

Choosing Pure Storage FlashArray™

To add storage to ALADIN, DNITS deployed two Pure Storage FlashArray//M70 R2s (315 TB each) in 2017, and added another two FlashArray//X90 R2s (556 TB each) the following year. The storage is distributed in Kariya and the GTA for replication. “We had deployed Pure Storage's FlashArrays for another system, and we were able to see their performance and usability through the experience,” said Yasuhiro Ishida, Deputy Director of IT Services Department and the head of ALADIN. “Pure Evergreen Storage enabled us to avoid a tremendous amount of risk associated with forklift upgrades to replace outdated storage. That's why we selected Pure for ALADIN.” This solution was proposed by the systems integrator, ITOCHU Techno-Solutions Corporation (CTC) who carries a large portfolio of products from various vendors. “CTC recommended Pure Storage as the most optimized solution for us.”

In the automobile industry, the company has seen rapid advances in digital transformation — for example, innovation in design and manufacturing leveraging new technologies such as Digital Twin. There also is an increase in artificial intelligence (AI) use and a large amount of sensor data for practical implementation of autonomous driving vehicles. Under these conditions, the amount of data held in ALADIN's storage and its ability to expand easily can turn into a game of cat and mouse — where storage upgrades for performance, capacity and features are constant to support the increasing demands for more data.

“Data accumulated by the user companies has increased year by year, and we have been adding the storage capacity based on the prediction,” said Yoshitaka Tozaki. “The level of expectation for our operations is very high in terms of stability and reliability, and it is important that we can build, operate, and manage our systems while maintaining

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YASUHIRO ISHIDA,
DEPUTY DIRECTOR –
IT SERVICES DEPARTMENT

disruption-free services.” He continued, “in fact, as a precondition of ALADIN, we had announced that the services would be temporarily unavailable three times a year, however, the users requested us to minimize the stoppage time. Some even indicated that they could not transition to ALADIN if there would be any interruption. We needed systems that just stay up.”

At this point, the systems and equipment used in ALADIN have begun reaching the end of their life cycles, and DNITS has been trying to respond to the upgrade intervals. The challenge was to migrate the enormous amount of data from old storage to new storage, which requires a tremendous amount of time and resources. All must be done without incurring downtime to meet the users’ needs. Although the burdens of a forklift upgrade cannot be easily quantified, Tozaki’s comment, “It takes a minimum of seven months to complete the migration,” explains the magnitude of impact.

The Pure Evergreen Storage solution, Pure Storage’s unique combination of upgradeable architecture and a subscription-based upgrade model, enables storage to stay modern and perform with the latest technologies in controllers. Upgrades are done without disruption to existing media, without data migrations and without any loss of performance. While researching controller upgrades with no downtime, DNITS tested the process in a demo environment provided by Pure Storage with the live access patterns.

Reducing Management Resources

“We look forward to experiencing the excellence of Evergreen Storage,” said Fumihiko Nakamura, Professional of the Operations Improvement Office #1 in the IT Services Department, and the subleader of ALADIN project. “The upgraded controllers will be delivered at a later date with our Evergreen Gold subscription, however, Pure Storage’s commitment to forever maintenance gives us peace of mind.”

DENSO benefits not only from the simple and economic hardware upgrade features of Evergreen, but also included new software features. DENSO also benefits from Flat and Fair maintenance rates that do not increase over time, and proactive and predictive technical support. Other favorable characteristics, such as the management tools with simple and easy interfaces and new VM Analytics capability, are also expected to help improve the operational efficiency.

“The level of expectation for our operations is very high in terms of stability and reliability, and it is important that we can build, operate, and manage our systems while maintaining disruption-free services.”

YOSHITAKA TOZAKI,
IT INFRASTRUCTURE
DEVELOPMENT OFFICE

Maintain disruption-free services: The Pure Evergreen Storage solution enables storage to stay modern and perform with the latest technologies in controllers.

- Upgrades are done without disruption to existing media, without data migrations and without any loss of performance.
- Inexpensive hardware upgrades include new software features and proactive and predictive technical support.
- Flat and Fair maintenance rates don't increase over time.
- Management tools have simple and easy interfaces and VM Analytics capability to help improve the operational efficiency.

It has been about a year since their first Pure Storage FlashArrays were deployed, and there have been no significant issues. Considering the fact that the failure rate for all-flash arrays is inherently much lower compared to HDD, it is well recognized that Pure Storage has led to the improvement of operations management efficiency.

Forward-thinking Expansion with Pure Storage Cloud Data Service

As the demands of ALADIN from the user companies in DENSO Group is expected to increase, DNITS plans to strengthen the ALADIN services while staying aligned with DENSO Group's strategy and closely monitoring the market trends. “Our challenge is that, besides reducing the risk of forklift upgrades, we must find a way to improve the operations management efficiency even further so that we can cope with the data explosion,” said Ishida. “It is time to start planning for the next generation of ALADIN. As part of that effort, we will be exploring the most optimal way for utilizing a public cloud.

Pure Storage has announced a new cloud solution, Pure Storage Cloud Data Service, which includes the key features, Cloud Block Store™, Purity CloudSnap™, and ObjectEngine™, that enables seamless integration across hybrid clouds including a public cloud such as AWS.

CASE STUDY



FIG. 1 DNITS provides IT infrastructures including a private cloud environment for DENSO Corporation and its subsidiaries (DENSO).

DENSO is committed to an open and fair procurement policy aimed at selecting the parts, materials, and equipment with the highest quality, availability, and cost efficiency from the global market to pursue globally optimized procurement. Selecting storage for ALADIN is no exception. “We select and purchase the supplies based on fair RFP each year,” said Ishida. This means that Pure Storage is expected to continuously strive to develop new features and services that meet DNITS’s needs.

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