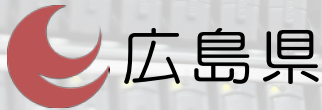




Customer story
Local Government



Hiroshima Prefectural Government


The Hiroshima Prefectural Government has renewed a large-scale file server that supports the work of approximately 7,000 users. An integrated environment with shared storage for virtual platforms was built. One notable feature is that a secondary backup to the public cloud enhances data protection, recovery systems, and operational continuity.

Cloud Volumes ONTAP for Microsoft Azure with cloud-connected all-flash array realized the data protection for 400TB of integrated storage

The Hiroshima Prefectural Government has created an integrated environment comprising a 300TB-scale file server and 100TB-scale storage for virtual infrastructure, using the NetApp AFF all-flash array. Using Snapshot, a standard function of NetApp AFF, the system automatically provides a backup six times a day. It also uses SnapMirror to perform a secondary backup once a day on Microsoft Azure. Data protection and recovery systems have been enhanced to ensure operational continuity. Cloud Volumes ONTAP for Microsoft Azure was used to achieve the Hiroshima Prefectural Government's advanced DR environment, combining on-premises and public cloud resources.



1/33
smaller footprint



1/23
lower power consumption

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“The decision to use the public cloud as a backup center was a major turning point in the Hiroshima Prefectural Government’s BCP strategy. We believe that Cloud Volumes ONTAP is currently the most rational choice for data protection and resiliency in the event of a catastrophe.”

Business Process Re-engineering Division, Hiroshima Prefectural General Affairs Bureau
Nobuyoshi Sakamoto, Director of Policy Planning

Challenges

Digital transformation in anticipation of new growth at the Hiroshima Prefecture

The Hiroshima Prefecture is aiming for sustainable growth through the application of advanced technologies while leveraging its strength as a cluster of diverse industries, including car manufacturing, shipbuilding, and steel. The Hiroshima Sandbox, which is promoted by the prefecture, is widely known as a successful example of digital transformation (DX) in local governments. Active use of IT is also helping prefectural employees change the way they work. Nobuyoshi Sakamoto, Director of Policy Planning in the Business Process Re-engineering Division of the Hiroshima Prefectural General Affairs Bureau gives the following explanation:

“In July 2019, we established a Digital Transformation Promotion Headquarters and announced our commitment to expanding digital government services and promoting industrial development in the General Hiroshima Prefecture, through application of the latest digital technologies. The Business Process Re-engineering Division in the IT Planning Department of the Hiroshima Prefectural Government is responsible for realizing advanced digital administrative services and for strengthening the infrastructure so that we can provide better administrative services to the citizens of the prefecture.”

At the core of the operations of the Hiroshima Prefectural Office is an information infrastructure called the “Hiroshima Prefectural Government LAN/WAN System”. This environment connects the central government office with 75 regional organizations and data centers, and supports the daily work of approximately 7,000 users, including prefectural employees.

“In 2018, we implemented a major system upgrade. The project had two main goals. These were to optimize the overall system infrastructure and to further promote change in the way they work through the use of IT. Using the latest hardware products and virtualization technology, we simplified the configuration of our equipment and worked to create an environment that enables effective information sharing and collaboration.” (Sakamoto)

One of the main elements of the project has been the renewal of storage for the “File Sharing Service”, which has around 7,000 users. For this, the all-flash array NetApp AFF A220 (OEM model FUJITSU Storage ETERNUS NR1000 A220 by Fujitsu) was adopted.

Solutions

Integration of 300 TB file server and 100 TB storage for virtual infrastructure

The NetApp AFF A Series is an all-flash array which offers industry-leading performance and superior



Hiroshima Prefectural General Affairs Bureau
Business Process Re-engineering Division
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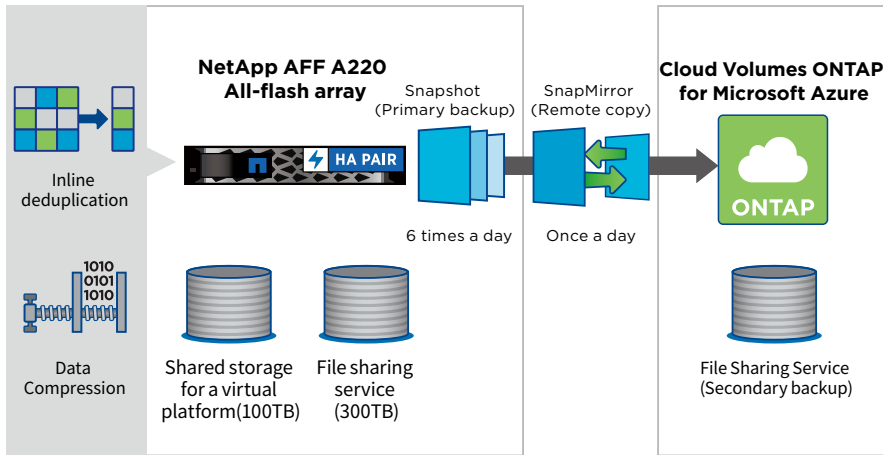
data management capabilities with NetApp ONTAP 9. NetApp AFF A220, used for the “Hiroshima Prefectural Government LAN / WAN System,” operates two controllers in Active-Active in a compact 2U housing, and provides outstanding IOPS performance and multiprocessing capabilities.

“The previous File Sharing Service environment suffered from chronic capacity shortages and performance issues. We secured 100 TB of capacity thinking it would give us 5 years of use, but this turned out to be a major miscalculation as we had used it all up in the first 2 years. The aim of this renewal project was to secure sufficient capacity to handle the growth of data and, at the same time, establish a suitable capacity management system. We felt that an all-flash array would be essential in maintaining an agreeable response time, even when many users were accessing it at the same time,” says Sakamoto.

The NetApp AFF A220 uses large-capacity SSDs to secure an effective capacity of 400 TB in a 2U housing.

"Hiroshima Prefectural Government LAN/WAN System" Main Data Center (Hiroshima)

Backup Center (Microsoft Azure East Japan Region)



It provides 300 TB of capacity as a file server for 7,000 users for 5 years and, from the same housing, provides 100 TB as shared storage for virtual infrastructure.

“Thanks to NetApp AFF, the storage equipment now takes up only 2U of space, as opposed to more than half of the rack before. Capacity has quadrupled and yet the space occupied is less than 1/33 of what it was previously and the power consumption is 1/23 the amount used before. For servers and storage as a whole, the number of racks has been reduced to one-sixth of one rack, significantly reducing data center costs. It’s amazing how hardware has evolved.” (Sakamoto)

The operating rules for the renewed File Sharing Service have also been revised. Capacity can now be allocated by section rather than by bureau, and delegation of operational authority to sections has made it possible to achieve fine-grained capacity management. Furthermore, a system has been established whereby capacity can be allocated step-by-step on an annual basis. This ensures stable operation is maintained for five years while suppressing excessive consumption.

“We’re having more and more opportunities to experience the benefits of the high performance all-flash. File search results can be obtained rapidly, and large files exceeding 100 MB can be browsed and saved instantly. With the new file sharing service environment wait time has mostly been eliminated,” says Sakamoto.

Enhanced BCP through cloud backup with Cloud Volumes ONTAP for Microsoft Azure

With the previous File Sharing Service environment, local backup and data protection at remote locations were implemented. However, in this project, the data center was changed to enhance business continuity (BCP), and the procedures and systems for data backup were overhauled.

“We have relocated our core operational system to a data center in Hiroshima Prefecture equipped with the latest facilities and made this the main data center. We use Microsoft Azure (East Japan Region) for our backup center to ensure we are even more prepared for large-scale disasters,” explains Sakamoto.

Primary backup is achieved by Snapshot with NetApp AFF installed

in the main data center. SnapMirror is then used to copy this to Azure daily as a secondary backup. This is achieved using the software product Cloud Volumes ONTAP for Microsoft Azure, which enables use of ONTAP storage OS functions in Azure. ONTAP makes it possible to manage and access data on the public cloud with the same kind of performance as when working in the on-premises environment.

“NetApp AFF performs local backups six times a day during business hours and transfers to Azure once at night. Because of this ability to make backups frequently, we are able to flexibly respond to requests from prefectural employees to restore files that were accidentally overwritten several hours ago” (Sakamoto).

The data stored in the Snapshot area can be referenced as a folder by the system administrator and can be easily restored by simply copying the data locally. Also, returning data from the secondary backup on Azure to on-premises NetApp AFF is just as easy.

“The decision to use the public cloud as a backup center was a major turning point in the Hiroshima Prefectural Government’s BCP strategy. We believe that Cloud Volumes ONTAP was currently the most rational choice for data protection and resiliency in the event of a catastrophe” (Sakamoto)

With NetApp AFF A series, inline deduplication and data compression are available as standard functions. In this environment, this has reduced data on the file server by about 30% and reduced data on the shared storage for the virtual platform by about 50%, thereby reducing data transfer time to remote locations and cutting costs.

Benefits

Making best use of on-premises and public cloud resources

“The number of devices that make up the infrastructure has been significantly reduced, and the File Sharing Service has evolved to be easy to use. We feel we have made significant progress towards our goal of optimizing the overall system infrastructure and further promoting change in the way they work through the use of IT. The storage area provided by NetApp AFF will also be used for virtual desktops (VDI),

which are being planned as additional ICT-BCP measures. The flexible use of information, irrespective of location, will continue to progress,” anticipates Sakamoto.

The reborn “Hiroshima Prefectural Government LAN / WAN System” is a perfect example of the Hiroshima Prefectural Government’s basic policy of using on-premises and public cloud resources in the right places. It is also expected to play a role as a foundation for the digital transformation strategy promoted by the prefectural government.

“We don’t just want to protect data in the cloud; we are also thinking about actively using data to create new value. For that purpose, an environment where data can be accessed more seamlessly, without needing to be being aware of whether it is stored on-premises or in the cloud, is ideal. In view of this, we are deeply sympathetic to NetApp’s vision of a data fabric. We hope that NetApp will continue to contribute to the realization of the Hiroshima Prefectural Government’s IT and digital transformation strategies with innovative technologies.”



Solution components

NetApp Products

NetApp ONTAP 9

NetApp AFF A220
All-Flash Array

Cloud Volumes ONTAP for
Microsoft Azure

[For details](#)

<https://www.netapp.com/us/products/storage-systems/all-flash-array/aff-a-series.aspx>

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