Mitsui Chemicals

Mitsui Chemicals Launches Nutanix-Based "Next-Generation Factory DX Infrastructure" to Enable Data-Driven Business

Enabling Edge Computing-Based Sensor Data Aggregation and Real-Time Analysis, Improving Business Continuity Planning (BCP)

BENEFITS

- Adopt edge computing as the next-generation factory infrastructure for digital transformation to enable an advanced production system.
- Increase dynamic production system and optimize the line operation by collecting and analyzing many sensor data at each manufacturing site.
- Enable improved BCP in the event of communications disruption caused by a disaster or some other emergencies.

"By deploying the Nutanix Cloud Platform at each factory, we're able to cope with the increase in data volume and network load due to the sophistication of various sensors and IoT devices. Pre-processing of information such as calculation, analysis, and aggregation required for DX can now be performed in each factory."

– Masato Kuroda, Manager, Team Leader, Business System Infrastructure Team, Technical Architect Group, Information System Div., Mitsui Chemicals, Inc.

CHALLENGES

Since its founded in 1997, Mitsui Chemicals is one of Japan's leading chemical companies with close to 150 subsidiaries and affiliates around the world. Under its "VISION 2030" goal, Mitsui Chemicals laid out its group digital transformation (DX) strategy with an aim to improve business operations, address corporate social responsibilities and achieve sustainable business growth in an increasingly uncertain market.

In 2015, Mitsui Chemicals set out a cloud-first policy and migrated over 500 business systems and ERPs to the public cloud. This created an issue with the government regulation recommended by Japan's National Cyber Security Center's (NISC), as data needs to reside in domestic location within Japan, as stipulated under the "Fourth Action Plan on Information Security Measures for Critical Infrastructure".

INDUSTRY

Chemical Industry

CHALLENGES

- Significant increase in data volume and network load by many sensors and IoT devices
- Increased and delayed data processing at the edge, causing network interruption
- Avoid inefficient operations of deploying separate platforms for each factory
- Risk of keeping all information in one data center

SOLUTION

Nutanix Cloud Platform

- Nutanix AOS
- Nutanix AHV
- Nutanix Files
- Nutanix Prism Pro
- Nutanix Flow
- Nutanix Calm
- Nutanix Karbon

Nutanix Technical Account Manager (TAM) Services

Applications

- Pre-processing system for data generated by sensors and IoT devices
- File servers at each factory and laboratory
- Business application system
- Backup server

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Masato Kuroda, Manager, Team Leader, Business System Infrastructure Team, Technical Architect Group, Information System Div., Mitsui Chemicals, Inc., said, “We manage servers and data inside the factory, but with the increase in digital sensors, there is an increasing need for data sharing opportunities outside the factory and for data aggregation. In addition, our infrastructures were affected at some factories in flooding accidents, caused by torrential rains due to recent abnormal weather. From that experience, BCP measures for data became an urgent task.“

SOLUTION

To move forward with DX, the need to install data processing in various places such as edge and Fog computing has increased. The public cloud alone could not handle low latency, edge-increasing data processing, and network disruptions. Mitsui Chemicals chose Nutanix Cloud Platform to overcome the challenge of enhancing data integrity and strengthening BCP for data by having dual-data model while continuing the cloud-first policy.

Kuroda said, “From the perspective of BCP, we needed an edge computing platform that could store a large amount of data by deploying a high fault-tolerant file server at each factory. He thought that it was appropriate to choose a hyper-converged infrastructure (HCI) because it could be deployed as company-wide unified architecture.“

A preprocessing system and a file server using Nutanix Files are distributed and deployed at five major factories in Japan and the Sodegaura Research Center, and backup data is replicated to the Nutanix Cloud Platform for the head office and branches installed in the datacenter.

“When selecting a solution, we focused not only on scalability and availability, but also on the efficiency of compression and deduplication of large volumes of data, data extension to AWS and Azure, and object storage functions that enable cloud tiering. As a result of this rigorous comprehensive evaluation process, we adopted Nutanix” says Kuroda.

CUSTOMER OUTCOMES

With this next-generation factory DX platform, both DX platform development and BCP can be achieved, and we have succeeded in realizing a decentralized platform development at each factory by renewing the conventional centralized IT platform. Kuroda said, “By deploying Nutanix Cloud Platform at each factory, we were able to cope with the increase in data volume and network load due to the sophistication of various sensors and IoT devices. Preprocessing of information such as calculation, analysis, and aggregation required for DX promotion can now be performed in each factory. In addition, the data processed at each site can be safely finalized in the cloud.“

“When disasters occur, it is difficult to secure a strong network through self-help efforts. Whenever a network failure occurred, there was a problem that drawings and manuals on the file server and SharePoint could not be accessed. With Nutanix Files is used for each base. By distributing them to each other, we are able to access such data even in the event of a network failure between factory and data center.”, says Kuroda.

NEXT STEPS

After reviewing the WAN configuration, Nutanix Objects will be used to send data directly from each site, enabling data processing on the cloud side. Mitsui Chemicals is also working to simplify data pipelines and app distribution using Nutanix Karbon.

“In the future, as the use of Factory Automation (FA) and Laboratory Automation (LA) accelerates, we will need a new platform that allows many sensors and devices to communicate in real time simultaneously. Nutanix Cloud Platform is the core of the next-generation factory DX with edge computing environment for these new workloads. It transforms our working style in the head office, branch operations and the R&D, and realizes machine learning on the cloud. We will continue to evolve the DX architecture by taking advantage of the hybrid multi-cloud environment realized by the company", said Kuroda.

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