Kitami Institute of Technology Integrates the Management of Three Universities using Nutanix

Nutanix Cloud Platform Drives University DX to Improve Operational Efficiency through Collaboration and Service Optimization of University Organizations, Education, and Research Across Distances

BENEFITS

- Realize the integration of network and ICT system infrastructure necessary for the management integration of the three universities
- Provide services tailored to the needs of users such as faculty, staff and researchers
- Enable a strong vision for the future after the business integration by developing an infrastructure that can be flexibly expanded

"The consolidated management of IT for the three universities is steadily improving. What is important is that we achieved a cloud infrastructure which organically integrates networks and ICT system infrastructure. We believe that combining multiple cloud services to meet the various requirements from the user side will lead to an optimized environment."

– Hiroshi Masui, Director of the Information Processing Center,
  Kitami Institute of Technology

INDUSTRY
Higher Education

CHALLENGES

- Integrate an optimized environment for the IT management of the three universities
- Create innovation and develop the distance education environment
- Establish a platform that can be flexibly expanded for future initiatives

SOLUTION
Nutanix Cloud Infrastructure (NCI)
- AOS Storage

Nutanix Cloud Manager (NCM)
- Intelligent Operations
- Self Service

Nutanix Unified Storage (NUS)
- Files Storage

Applications
- RADIUS server
- Log Server
- Operation Management Server

CHALLENGES

Kitami Institute of Technology, a national university corporation, opened in 1966 as an engineering college and has been producing many highly skilled engineers. It is the center of knowledge in Hokkaido, based on the concept of "developing technology in harmony with nature." In preparation for the business integration of the three universities with Otaru University of Commerce and Obihiro University of Agriculture and Veterinary Medicine in 2022, they are promoting four initiatives: management reform, collaborative education, open innovation, and distance education.

The goal was to standardize the infrastructure: to build the network, ICT system infrastructure, business systems, and VDI environment all on the same platform. During the preparation period prior to the integration of the university organizations, the authentication gateway operation management system

and the environment for the virtualization system for the three universities of Kitami, Otaru, and Obihiro will be developed. After, the three universities will collaborate on distance education and open innovation centers. There was an urgent need to create a new infrastructure so that all students can start using the new system in 2027.

"Ideally, we would like to have an environment that is robust and scalable. But in the past, systems were introduced at different times due to procurement methods, and we have been operating in a partially optimized yet disjointed environment. The challenge was to create a new environment that could flexibly respond to the needs of users," explained Professor Hiroshi Masui, Director of the Information Processing Center, Kitami Institute of Technology.

SOLUTION

In selecting a new system infrastructure, we proceeded on the premise of a private cloud infrastructure based on hyper-converged infrastructure (HCI), which is highly robust, scalable, and flexible, instead of legacy infrastructure, which had issues with scalability. Masui said, "In terms of execution at the university, we have no experience implementing a public cloud as a base system, and there are no procedures in place. In addition, we thought that a private cloud infrastructure that could be linked to the storage of research data within the university and that would be consistent with the security policy set within the university would be optimal."

We have decided to adopt the Nutanix Cloud Platform as the foundation that will meet the policy of preparing the environment for the integration of the three universities and these system requirements, as well as resolve the issue of scalability. At present, VMware has been selected as the hypervisor, but it is expected to switch to Nutanix AHV in the future to gain cost savings while enhancing compatibility with the cloud platform. In addition, a large number of virtual servers will be used in the integrated network and ICT system infrastructure of the three universities. Nutanix Cloud Manager's intelligent operation enables flexible resource allocation based on usage conditions, resource optimization among virtual servers, and non-stop resource expansion was also highly evaluated.

Nutanix was installed on six virtual servers to develop the network environment, including authentication gateways, during the preparation period. The environment was developed with Nutanix as a common ICT system infrastructure running 180 virtual servers for Kitami, 30 for Otaru, and 30 for Obihiro, for a total of 240 servers – all of these helped enable server virtualization and consolidation, operational efficiency and automation, and server environment integration for the future.

CUSTOMER OUTCOMES

Nutanix as the ICT platform marks an important foundation for academic collaboration and open innovation activities among three universities that excel in three different fields: Kitami Institute of Technology, with its IoT, robotics, and data science technologies; Otaru University of Commerce, with its expertise in data analysis and marketing; and Obihiro University of Agriculture and Veterinary Medicine, with its agricultural needs, weather data, and topographical data.

"It is no exaggeration to say that the ability to safely migrate the application environment is due to the seamless integration of the system infrastructure. If we can make better use of Nutanix Cloud Manager, it will become an ICT infrastructure that can be used smoothly by the three universities," said Masui.

Masui added. "What is important is that the network and ICT system infrastructure is organically integrated into the cloud infrastructure. We believe that combining multiple cloud services to meet the various requirements of users will lead to an optimized environment. With Nutanix as the common infrastructure, we can use the file storage, self-service, and other services provided by Nutanix to meet these requirements."

NEXT STEPS

In preparation for the second phase of the university consolidation, which is scheduled to begin around 2025, Nutanix will be used to develop the environment required for the infrastructure, such as file management and distributed deployment, as well as for server infrastructure integration, data integration, and DR measures.

"We're aiming to turn Kitami Institute of Technology into a datacenter, and we're working to significantly increase the speed of our network to 200 Gbps in conjunction with the migration to the Science Information Network 6 (SINET6) in April 2022. Taking advantage of Kitami's proximity to the SINET data center in Hokkaido, we hope to have the network used as a distributed base or DR base for universities across the country to consider," said Masui about the future prospects.

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