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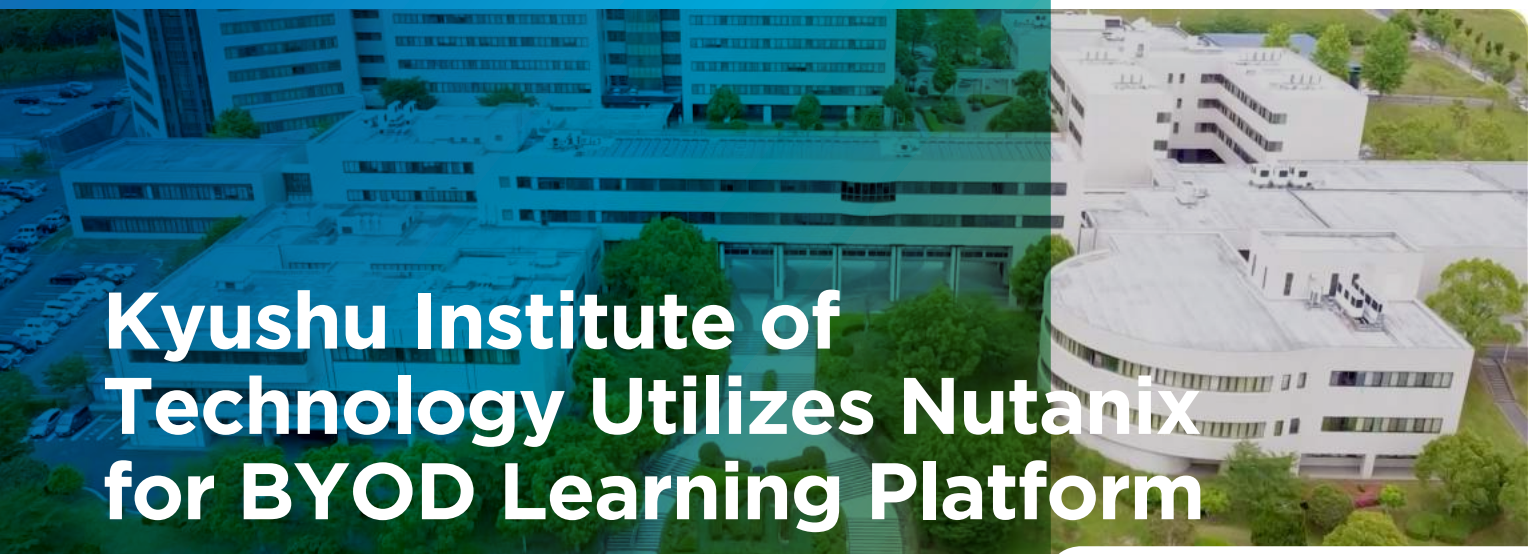

Kyushu Institute of Technology Utilizes Nutanix for BYOD Learning Platform

Established a Learning Platform as a Service on Nutanix to consolidate e-learning and other departmental systems, and quickly expanding the system for distance learning with COVID-19

BENEFITS

- BYOD environment allows students to use educational systems from their own PCs
- Consolidation of learning support services and other departments' systems
- Fast response to COVID by pivoting to remote lectures for distance learning
- Reduction of specialized equipment and easy addition of resources through a software-defined system
- Reduce the load on the Education Center by providing the environment to each department and easily delegating management authority

"Since Nutanix is software, it is easy to configure the learning platform as a service. It also reduces the need for specialized equipment. We used to put the database storage area on a dedicated storage system, but it lacked I/O performance, so we switched to built-in storage. The performance has improved and we can now use it comfortably."

– Toyohiro Hayashi, Associate Professor, Information Science and Technology Center, Kyushu Institute of Technology

CHALLENGES

Kyushu Institute of Technology is a traditional national university with a history of more than 100 years. Since its opening in 1909 as a private institution, Meiji College of Technology, it has trained nearly 70,000 engineering professionals by practicing its founding spirit "Educate gentleman with excellent technology proficiency". The university has been contributing to knowledge creation that will lead to academic progress, enhancement of competitiveness of industry, and regional development. Today, it has approximately 5,600 students in two undergraduate schools and three graduate schools in Tobata and Wakamatsu Ward of Kitakyushu City, and Iizuka City, and has been conducting cutting-edge education and research as an engineering university.

INDUSTRY

Higher Education

CHALLENGES

- The educational system can only be accessed on university computers
- The old virtualized system must be upgraded and BYOD must be implemented at the same time
- Separate procurement and independent operation and management of systems for the IT Organization, Learning and Education Center, and each department
- Ensure 100% uptime for services during maintenance or upgrades

SOLUTION

Nutanix Cloud Infrastructure (NCI)

- Nutanix AOS
- Nutanix AHV hypervisor
- Nutanix Prism

Applications

- Moodle Learning Management System (LMS)
- Learning and Teaching Center (LTC) Database
- Learning history database
- Application Delivery Service Numecent Cloudpaging
- Information Infrastructure Center (ISC) Authentication, DNS, and Web server

NUTANIX

Kyushu Institute of Technology's administrative organization manages systems such as human resources, groupware, admissions, and course registration, while the Learning and Education Center of the Organization for the Advancement of Education operates and manages the e-learning service using the Moodle learning support system. The Information Technology Center manages the university-wide network and security infrastructure, integrated ID management, e-mail, and the computer system for information technology education and research called the education system.

Each faculty, department, graduate school, multiple research centers, and library has its own separate system, which is managed by the education and research organization. This is a unique feature of engineering, as each faculty and department must have its own system to be able to offer classes," said Toyohiro Hayashi, Associate Professor at the Information Technology Center, Kyushu Institute of Technology. Among the many systems that exist at Kyushu Institute of Technology, we have decided to revamp the educational system managed by the Information Infrastructure Center."

SOLUTION

Until 2018, we had about 400 terminals in the Tobata Center Lecture Room and the Iizuka Center Lecture Room, where students took classes and did exercises such as programming. The terminals for the exercises were running Linux and Windows without disks, and we were operating a terminal server to manage them, a file server for the students' home directories, a virtual infrastructure, and a Moodle infrastructure. Cisco UCS was used for the terminal management server, the virtual infrastructure, and the Moodle infrastructure, while NetApp was used for the file server, resulting in a legacy architecture.

"We had been looking at integrating these systems in preparation for the 2019 model refresh, but we had a major change in policy. The role of the classroom system was changed from 'providing classroom terminals' to 'supporting BYOD'," recalls Hayashi.

Hayashi said, "Until now, the university had always provided the terminals for classes, but with the system renewal, we decided to allow students to use their own terminals. In addition, it became necessary to integrate the e-learning system and the systems of other departments so that they could operate together. This led to the issue of what to do with the existing virtual infrastructure, file servers and storage."

"From an engineer's point of view, we proceeded to consider the next system. We are looking for a better structure than a three-tier structure, technology that utilizes DAS, and is software-based equipment that can come close to a dedicated machine. As a result of our research, Nutanix's hyper-converged infrastructure (HCI) became a candidate, and we immediately conducted an assessment," said Hayashi.

CUSTOMER OUTCOMES

At the time we deployed Nutanix, we found it to be a very interesting technology, with frequent updates and 1-click non-disruptive updates that increased functionality and improved performance. Since Nutanix is a software, it can be easily configured into a learning platform as a service. It also reduces the need for specialized equipment," said Hayashi. "After comparing different products, we decided to go with Nutanix Cloud Platform."

The system has been running reliably as a BYOD platform and a large-scale platform for Moodle since it was revamped with Nutanix in 2019. We can easily integrate the services of other departments, and were able to achieve a smooth system procurement," said Hayashi.

In 2020 due to the COVID pandemic, Kyushu Institute of Technology needed to deliver all lectures remotely. "We had to put all the content in Moodle. We were worried at first, but by simply adjusting the amount of resources in Nutanix Prism's intuitive administration, we were able to immediately allocate 90% of our server infrastructure resources to Moodle. We used to put the database storage on a dedicated storege system, but its I/O performance was lacking and so we've now switched to built-in storage with Nutanix Cloud Platform. Since we can utilize the internal disks, the performance of the data storage has improved and we can now use the service comfortably," says Hayashi.

NEXT STEPS

At the end of FY2020, Kyushu Institute of Technology added one node of Nutanix and plans to expand by two more nodes by end of FY2021 in order to systematically integrate and consolidate the rest of the resources procured by other departments.

"We have heard that Nutanix is offering new technology services such as network virtualization and 1-click pay-as-you-go (DBaaS) database. In the future, we plan to utilize these new technologies to strengthen our information infrastructure and consolidate our services," says Hayashi.

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