

THE UNIVERSITY OF TOKYO

Leading university meets exacting demands of study and research

ESSENTIALS

Industry

Higher education

Company size

10,500 employees, 27,000 students

Business challenges

- Spikes in access
- Improving system response times
- Meeting strong data growth
- Expanding storage capacity

Results

- Provides rapid user access to data and services
- Ensures scalability on demand
- Delivers high availability
- Supports big data and future growth in technology use

Solution

- Dell EMC Isilon S-Series
- Dell EMC Isilon NL-Series
- Dell EMC Isilon SnapshotIQ

Educational computing system upgrade

The University of Tokyo is one of the most well-known and respected institutions in the world and IT plays a central role in the educational programs offered at this research-intensive university. The university's Information Technology Center (ITC) is tasked with managing and innovating the university's IT platform to meet the demands across a broad range of disciplines.

Central to delivering the university's educational objectives is the Educational Campus-wide Computing System (ECCS). ECCS connects to over 1,300 user terminals, supporting file servers and student email system, as well as various software packages and services, across the university's Hongo, Komaba, and Kashiwa campuses. The scale of ECCS is considerable. Over 30,000 accounts, shared storage, and mail hosting services are accessed each day, which adds to the challenges of providing an efficient and reliable platform within a dynamic and changing organization and IT landscape.

To this end, the system is regularly updated using public request for proposals (RFP), reflecting the IT team's insistence on the latest technology to deliver the best possible user environment. With a planned upgrade of ECCS, the ITC team was looking to refresh both the terminals and migrate to a storage solution that could store individual user data such as home directory and mail, and scale to meet the increasing data volumes involved in research. Etsuya Shibayama, Professor, Campus-wide Computing Research Division, Information Technology Center at The University of Tokyo, says, "The solution for the ECCS2016 storage platform needed to remain relevant and fit for purpose for four years, until our next major overhaul. High performance is essential, as well as the capacity for long periods of stable operations to deliver the user a highly reliable and available system. The system also needs to undergo maintenance without interrupting the provision of services to users—these were non-negotiable criteria."

After evaluating responses to a public RFP, the University of Tokyo selected a proposal which included Dell EMC Isilon scale-out NAS as the storage platform for ECCS2016.

The University of Tokyo now has a high performance, highly scalable, and reliable storage platform to meet the varied and intensive demands of its students, staff, and researchers across academic disciplines. The Dell EMC Isilon platform provides the foundations for an upsurge in big data usage and will support the university's continued innovations in the use of technology in delivering world-class education.

“We are satisfied with the performance, reliability and availability of the Dell EMC Isilon storage. The workload profile of an academic or research storage platform is quite different to that of an enterprise solution, and yet the storage solution meets our exacting demands.”

Etsuya Shibayama,
Professor,
Campus-wide Computing Research
Division, Information Technology Center,
The University of Tokyo

Environment

The University of Tokyo deployed a single Dell EMC Isilon S210 cluster with 10 nodes to meet spikes in demand, and a five node Dell EMC Isilon NL-Series cluster to balance the need for cost-efficient, long-term data storage. Dell EMC Isilon SnapshotIQ enables regular snapshots of data to eliminate data loss, with the IT team now able to quickly and easily recover data in the event of an emergency.

The ECCS workload often translates to a large number of individual users logging on to the system and accessing small yet specific files at certain points during the day, creating spikes in demand. Shibayama explains, "We required a storage solution suited to these users in terms of offering the fastest access to files. Dell EMC Isilon offers data processing across multiple nodes and this approach to IT architecture has proven to be a solid match for the needs of the university. Dell EMC Isilon also brings high levels of redundancy, adding several layers of protection to user data."

Speeds access to data and services

The university has recognized a number of benefits from migrating to the new ECCS2016. There has been a significant improvement to terminal response times, improving user experience and access to services and information. Kazuya Okada, Assistant Professor, Campus-wide Computing Research Division, Information Technology Center at The University of Tokyo, explains, "We have achieved a boot time of 60 seconds from switching on the user terminal to when the user can start to access their files and data. User feedback has been positive and we've eliminated the waiting time for access to the system."

This improved responsiveness has continued through different elements of the user experience. Shibayama says, "Data that is accessed most frequently is now stored on flash devices, making it instantly available to users. These detailed protocol policies have been made possible with Dell EMC Isilon and we're very satisfied with the response times that we are seeing from the new solution."

Seamless user experience

System stability is a critical component in the smooth running of operations within the university. This has been enhanced through the use of Dell EMC Secure Remote Support, which provides the university with remote system monitoring. Okada says, "We can't afford any interruptions to services we provide to our users. We experienced the high availability of the Dell EMC platform when we needed to complete some maintenance work and the team could do so without stopping or shutting down the system. When we need to fix or replace hardware, there is no noticeable difference to user experience, which is something we are very happy with."

Company Overview

The University of Tokyo is a research university located in Bunkyo, Tokyo. Established in 1877 as the first national university in Japan, The University of Tokyo has approximately 27,000 students, and around 6,000 academic staff spread across 10 faculties, 15 graduate schools, and dozens of research institutes and centers.

High scalability

The Dell EMC Isilon storage is also improving user experience through its ability to scale. As a storage platform, ECCS2016 can now store more data than the previous system, which means that the university has almost doubled the personal storage allocation to students and faculty at up to 8 gigabytes and 16 gigabytes respectively. In addition to meeting the demands of growing user data, the system now has the flexibility to be able to store software and applications used during lectures and seminars.

Future proofing academic environments

Looking to the future, big data will play a critical role in the university's continued innovation through technology. Shibayama says, "We are expecting expanded use of big data, by both faculty and students. As a result, we might face some challenges with regards to growth in data volumes going forward. Dell EMC Isilon storage helps prepare our IT environment for dynamic changes in the role of technology in academia, and meet new demands in educating our future cohort."



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