

# Case study

## Yamagata University

VMware Horizon View 5 enhanced the security of 500 desktops running on Yamagata University's virtualization environment, while Fujitsu's PRIMERGY Server BX922 S2 and ETERNUS Storage DX80 S2 systems were chosen as the virtualization infrastructure.

### The customer

Customer: Yamagata University  
Industry: Education  
Founded: May 1949  
Number of students: 9,261



With six faculties for; Literature and social sciences, Education, Art and Science, Science, Medicine, Engineering and Agriculture. And four campuses; Kojirakawa, Iida, Yonezawa and Tsuruoka. Yamagata University promotes education, research and social responsibility.  
Website: <http://www.yamagata-u.ac.jp/index.html>

### The challenge

- Standardization of client systems, Office software and improvement of security level

### The benefit

- Reduce the support work by standardization of client environment.
- Reduce the risk of information leaks as data is no longer taken from the computers.

### Overview

As one of the largest universities in East Japan, Yamagata University built a thin client virtual desktop environment using VMware Horizon View 5. Fujitsu and Fujitsu Systems East were responsible for constructing the system and Fujitsu's 'PRIMERGY Server BX922 S2' and 'ETERNUS Storage DX80 S2' were selected as the platform for the virtual environment. Yamagata University is planning to expand the thin client system and is also considering the possibility of cloud migration in the future.

### Customer background

#### The most advanced university virtual desktop system.

Yamagata University has 10,000 students enrolled across six faculties; Literature and social sciences, Education, Art and Science, Science, Medicine, Engineering and Agriculture. As one of the largest universities in East Japan, Yamagata University is spread over four campuses; Kojirakawa (Education, Art and Science, Literature and Social Sciences, Science), Iida (Medicine), Yonezawa (Engineering), and Tsuruoka (Agriculture). With a strong emphasis on education, research and social responsibility, the university has set goals they strive to accomplish; University administration with a focus on student learning, fostering those who possess profound humanity and a high-level of expertise, knowledge generation, collaboration with local and global communities and continuing efforts for reform.

Yamagata University is a leading university in Japan and in 2011 opened a Research Center for Organic Electronics at the Yonezawa campus. This facility featured divisions for the development of organic EL, organic solar, and organic transistors, and leveraged a research "dream team" formed by prize winning professors of the universities staff. Through the strength of this, the university established it's self as one of the world's best research centers for prominent industrial innovation and industrial clusters. In October 2012, the Literature and Social Science department built a research institute for the 'Lines and Geoglyphs of Nazca and Pampas de Jumana' in Peru to investigate its mystery and collect the data for its protection plans that University is working since 2004.

Yamagata University has an administration team of 500 staff within the 4 campuses. In an effort to continue to efficiently support the students and world leading research centers, they proactively worked on the informatization of all administration tasks.



Mr. Kiyoshi Yaguchi,  
Manager in External  
Relations Department  
Yamagata University

## Products and services

- Fujitsu Server PRIMERGY Server BX922 S2
- Fujitsu Storage ETERNUS Storage DX80 S2
- Fujitsu Smart-UPS RT5000 Uninterruptible Power Supply
- VMware vSphere 5 Server virtualization
- VMware Horizon View 5 Desktop virtualization

For example, previously office PCs were updated individually, therefore when a new PC was deployed it was not standardized. The PC's OS would vary from Windows 2000, Windows XP, Windows Vista, Windows 7, while software versions were different depending on installation dates. As a result the complex environment was becoming increasingly hard to manage and the university was becoming more prone to security risks. While training on security awareness had been completed in regard to the impact of human error, risk prevention also needs to be performed on the system itself.

Mr. Kiyoshi Yaguchi, Manager in External Relations Department, Yamagata University, said "At the suggestion from the director in-charge at the time, the decision was made to install thin clients. Our 500 office PCs needed to be replaced to thin clients as a standardized solution that could also help prevent information leakages."

### The focus

#### VMware Horizon View 5 virtualized 500 desktops.

In 2010, after thin clients had been confirmed as the preferred solution for Yamagata University, they began to evaluate various thin client systems that could meet their needs. As there were very few cases of other universities using this type of solution, Yamagata University



Mr. Masatoshi Yamakawa,  
Chief of External Relations Department  
Yamagata University

requested potential vendors to demonstrate the advantages of each of their systems for comparison includes Fujitsu that had previously implemented the IT system used in the Networking and Computing Service Center located at the Kojirakawa campus. However the new thin client environment also needed to cover all applications used by the current PCs including; financial accounting system, travel expense calculator system, documentation management system, and school affairs system.

Mr. Masatoshi Yamakawa, Chief of External Relations Department, Yamagata University, said "The terminal service system has applications that can only be used on a specific client's OS, in addition the workload required for installation is excessive. This was a big part of our decision to eliminate the individual terminals and select a virtual client system."

As the Networking and Computing Service Center was already using virtualized servers with VMware vSphere, the universities staff was able to get clear picture of how the virtual system would operate on the thin clients with the virtual server status monitoring. In late 2011, following the tender process and vendor evaluation, thin clients running on Fujitsu's virtual desktop 'VMware View 5' was selected as the ideal solution for Yamagata University.

### System overview

#### Increase in security with the "Anywhere desktop", as data is no longer taken from the computers.

By March 2012 the advanced solution, developed by Fujitsu and Fujitsu Systems East, became operational and was recognized as one of the leading thin client systems amongst all universities. Based on 'Fujitsu Blade Server PRIMERGY BX922 S2' as a platform, VMware Horizon View 5 was implemented at the server room of Kojirakawa campus.

In total 500 thin clients were deployed across Kojirakawa, Iida, Yonezawa and Tsuruoka campus, allowing the staff to access a personalized virtual desktop and operate their applications from any terminal within the university. 'Fujitsu Storage ETERNUS DX80 S2' was then selected as the storage system for the new environment and was connected via fiber channels to the PRIMERGY BX922 S2. While two 'Fujitsu Smart-UPS RT5000' were also deployed to provide an uninterrupted power supply. Mr. Masaki Endo, Chief of General affair division, Kojirakawa campus service department

Yamagata University, said "Only a small number of staff are now needed for day to day management of the thin client system. However we also have the support of engineers from the Networking and Computing Service Center who have experience with



Mr. Masaaki Endo,  
Chief of General affair division,  
Kojirakawa campus service department  
Yamagata University

VMware products for any larger issues regarding the virtualization infrastructure."

Since implementation, the virtual desktops have been operating steadily without incident, and the staff hasn't required any new knowledge or training to work with the new system. The change has also improved user support Mr. Endo explains "We previously had 4 OSs; Windows 2000, XP, Vista and 7, this meant support, particularly over the phone, was a real challenge. Now, with the new operating system the OS has been standardized to Windows7 running Office2010". Previously in the case a staff member needed to move departments, there were cases that they had to copy their data to USB memory and then reinstalled at the new location. But now we have been able to avoid that as the virtual desktops provide the exact same environment wherever the user logs in. This has significantly improved our level of security.

## Future possibilities

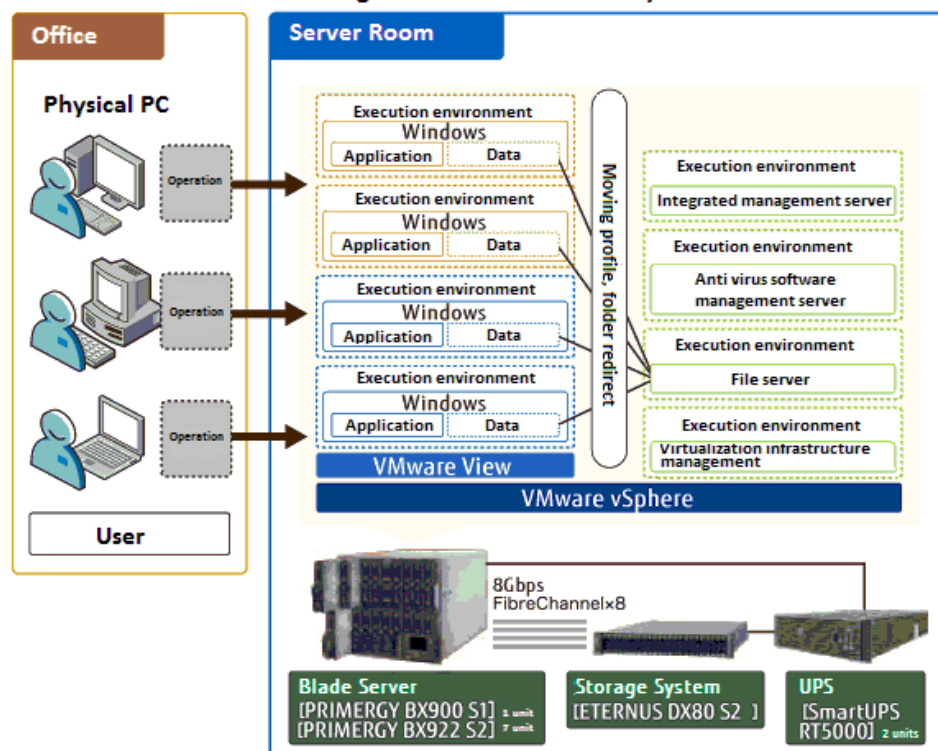
Following the success of the thin client system, the university is considering possibilities around migrating to the cloud.

Responding to Yamagata University's request, Fujitsu installed a measurement tool that analyses the thin client's disk level performance allowing to monitor overall system status. "We recognized Fujitsu's pragmatic approach from installation right through to the performance tuning performed after the system was operational. Some vendors are unable to flexibly adjust specifications to accommodate our needs, although Fujitsu provided suggestions and advice above and beyond the original requirements" Mr. Yamakawa stated.

The success of the thin client system in the administration office has meant Yamagata University has started to look at changing other PC systems to virtual desktop solutions. "In the facilities department we design buildings and a large amount of plans are created through a CAD system utilizing standard PCs. However, after the realizing how smoothly the new thin client solution works, there have been requests to implement the virtual desktop here as well" Mr. Yaguchi declared.

Furthermore with the increasing trend of using applications through a network, Yamagata University is also considering migrating to the cloud. In particularly, the cloud environment with the latest authentication system that could help to reduce operational costs.

Outline figure of office thin client system



In collaboration with  
**vmware®**

**Contact**  
FUJITSU Limited  
Address: 1-5-2  
Higashi-Shimbashi,  
Minato-ku, Tokyo 105-7123  
JAPAN  
Website: [www.fujitsu.com](http://www.fujitsu.com)

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