European learning management and new email system earn HP top marks from University of Oslo

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Lars Oftedal, assistant IT director, University of Oslo

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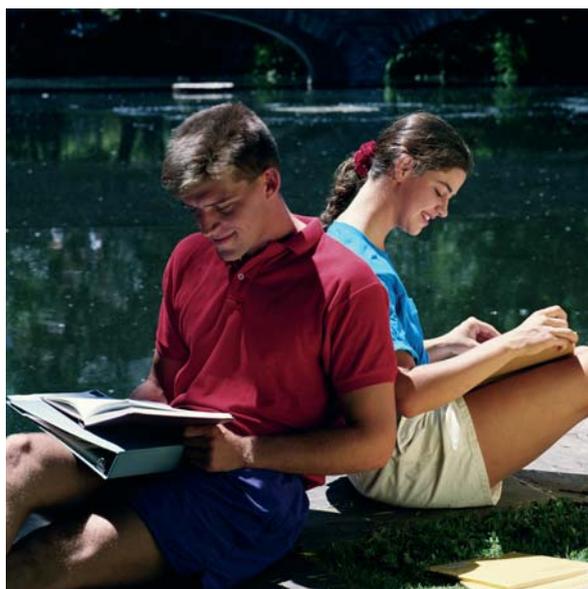
The University of Oslo (UIO) is Norway's largest and oldest institution for higher education. Founded in 1811, it now caters for 30,000 students divided among eight faculties and over 70 departments.

UIO has 5,000 employees and its high standards and its 2,500 permanent academic staff include no less than four Nobel Prize winning research professors.

More than 60,000 email accounts are run by UIO and it deals with over one million emails a day, but this important service was under threat because the ageing Sun-based email infrastructure was becoming unable to cope with increasing load and usage.

"If our email system stops then everything in the university comes to a halt. It is extremely mission critical," said Lars Oftedal, assistant IT director at UIO.

"There were a few things wrong with our old email system, which was based on POP3 (Post Office Protocol). The system was running on many file servers around the university using Network File System (NFS) to deliver mail, which meant that it was difficult to access your mail if you were not in the university. We wanted to move to a POP and IMAP4 (Internet Message Access Protocol) system so we could centralise mail and have various mail clients. We also wanted to move to a system that was a lot more scalable because use of the system was increasing."

UIO's IT organisation's critical goals included improving scalability and manageability, and providing high availability performance and effective failover response to protect critical archives.

Cost concerns

Because it is a publicly funded organisation, UIO had to make the right choice and ensure that it was cost effective. Value for money is absolutely critical to a university. Linux is attractive because it's more economical - the hardware is often less expensive and the licensing fees are lower. Plus, it provides more flexibility. On the organisational side, UIO IT staff are very motivated to work in a Linux environment, making the whole execution easier.

After the operating system selection, UIO needed to decide what software to use and it chose open source Cyrus for IMAP4. Open source was selected because, as an academic institution, UIO is an active contributor to the open source model and UIO wanted access to the sources for a greater flexibility to further develop the mail system in a direction that better suits its needs. Thoughts then turned to what platform to use, taking into account price/performance and features. UIO decided to upgrade to a cluster of three HP ProLiant DL580 servers that deliver high availability at a lower cost than proprietary solutions.

To automatically archive the university's emails, the HP ProLiant server cluster is configured with an HP StorageWorks Enterprise Virtual Array 5000 (EVA5000), a high performance, high capacity and high availability "virtual" RAID storage solution.

For greater availability and reliability, UIO chose to run HP Serviceguard for Linux ProLiant Cluster - the high availability solution that leverages the

strengths of HP's experience in the high availability business to bring mission critical HP-UX technologies to the Linux environment and to ProLiant and Integrity servers.

"We already use Serviceguard for several HP-UX applications and had a very good experience with it. We liked the fact Serviceguard is supported on multiple operating system platforms. That way we did not have to retrain our staff to use another high availability solution. We have also found Serviceguard easy to install and operate, such as adding nodes on the fly and doing rolling upgrade of software packages. Additionally, we wanted hardware, software, and support accountability to be from a single source," said Oftedal.

Virtual learning system (LMS)

As a result of email system success, UIO looked to deploy other systems on Linux with high availability demands, and implemented ClassFronter - an innovative and motivational virtual learning management solution from Fronter, based on European learning philosophies delivered within a pedagogical framework.

This web-based system, implemented by University of Oslo, uses core components of HP's Linux reference architecture, open source software from MySQL, PHP and Apache, and again HP Serviceguard for Linux and ProLiant servers.

UIO's deployment has attracted more than a million system users in eight countries and is continuing to expand rapidly. The 400 institutions already using it include schools, universities, hospitals, corporations, SMEs (small to medium enterprises), public institutions and governing bodies.

In Oslo alone, the virtual learning management solution is used by all 175 schools and over 67,000 students and was rolled out to 65 schools in less than a year.

"Subscribers include customers such as Queen Elizabeth College in Darlington, the Swedish Rescue Services, City of The Hague and the Norwegian Court System," added Oftedal. "Our ClassFronter deployment is growing rapidly and as a result, we are migrating the current 32-bit solution to HP Serviceguard for Linux A.11.16 and x86-64 ProLiant servers, to meet the growing performance and availability requirements with a full 64-bit solution.

"We wanted a highly available, scalable solution and we needed more performance and HP Serviceguard has given us that. Today, on the email system, we have about 20 Serviceguard packages that are spread across the three HP ProLiant servers so when we buy a new server, it's easy to scale. If a server fails, that package is automatically moved to another server so we don't have any downtime and we can also carry out upgrades without interrupting the service to users.

Users benefit

"The new email system at University of Oslo is faster and more available to users wherever they are, and that is extremely important to us because it is mission critical to our educators, students and alumni.

"As a result of this migration, we have achieved increased e-mail service functionality, enhanced manageability, greater service reliability and scalability, improved archiving and storage failover functionality."

Working with HP to upgrade its email system and to institute its impressive distance learning facility has placed University of Oslo at the forefront of educational excellence.

Challenge

- Over 60,000 people use the mission critical email system at the University of Oslo (UIO).

- The old Sun-based system had become unreliable and could no longer cope with increased use.

- A new system was needed that would deliver improved reliability, manageability and scalability within tight cost constraints.

Solution

- UIO installed three HP ProLiant DL580 servers and SGLX (Serviceguard for Linux) for the mail system and two separate SGLX clusters for its virtual learning system, one including five HP ProLiant DL580 servers and the other with three DL585 servers.

- Failover archiving was achieved with an HP StorageWorks EVA 5000 RAID array.

- It chose open source program Cyrus as its new mail system.

Results

- These innovations have brought increased functionality and better manageability to the email system.

- The system is more scalable and gives increased performance.

- Archiving and storage failover have improved.

- Students and professors can communicate over the university's virtual learning system.

Customer at a glance

- **Industry sector:** Higher education
- **Company:** University of Oslo
- **Headquarters:** Oslo, Norway
- **Founded:** 1811
- **Telephone:** +47 22 85 50 50
- **Number of employees:** 5,000
- **URL:** www.uio.no

Why HP?

- UIO wanted a large and respected supplier who could provide hardware, software and services from a single source.

- It had good previous experience of HP Serviceguard.

- It believed that an HP ProLiant cluster would deliver high availability at a lower cost than other solutions.

Hardware

- 8 x HP ProLiant DL580 servers
- 3 x HP ProLiant DL585 servers
- HP StorageWorks Enterprise Virtual Array EVA 5000

Software

- HP Serviceguard for Linux ProLiant Cluster
- Open source Cyrus mail application
- Open source LDAP and PostgresSQL database
- Open source Linux server operating system
- Open source reference architecture components - MySQL, PHP and Apache
- ClassFronter virtual learning management solution

HP Services

- Warranty service and support

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