



SPANISH MINISTRY OF EDUCATION AND SCIENCE MIGRATES ITS CRITICAL APPLICATIONS TO RED HAT SOLUTIONS

FAST FACTS

Industry	Public Administration
Geography	Spain
Opportunity	Replace mixed proprietary IT environment to simplify management and improve system performance and availability
Migration Path	Sun Solaris and IBM z/OS to Red Hat Enterprise Linux 5 and JBoss Enterprise Application Platform
Software	Red Hat Enterprise Linux 5 virtualization, JBoss Enterprise Application Platform, Tomcat
Hardware	HP, Dell, and Fujitsu Siemens servers
Benefits	Achieved simplified system management and improved system availability, performance, reliability, stability, and platform flexibility



BACKGROUND

The Spanish Ministry of Education and Science (MEC) is responsible for education – including mandatory basic, secondary, and university education – and also controls science and innovation in Spain. The organization's main responsibilities include managing the Spanish-grant, student-aid, competitive-examination, teacher-transfer, and research project-grant systems. It is required to provide the back-office systems with the capability to deliver a fast response to a large volume of users, including university students, lecturers, and researchers to companies participating in scientific projects.

"It took one-and-a-half days to resolve a lecture-transfer process with the proprietary system. It now takes five hours with Linux. After moving MEC's IT systems to Red Hat Enterprise Linux, performance has increased five-fold in comparison with our previous solution," said Africa Cabañas, Head of IT for the Ministry of Education and Science.

OPPORTUNITY

After 2004 government elections a number of changes that affected the MEC IT structure were implemented. As part of these changes, the culture area was separated from

the department of Education while that Ministry of Science and Technology was dissolved. As a result, a new Ministry, called Ministry of Education and Science, was created, assuming the responsibilities of the former department.

The Ministry, which already had highly heterogeneous environments, assumed 400 new users and 60 new applications after the new structure took affect. The integration with the rest of the systems was completed within a six-month period. Additionally, by assuming responsibility for innovation and with the increase in importance of electronic administration, the department was required to provide a greater number of IT services, requiring more servers. This presented the Ministry with an opportunity to renew hardware and software solutions for its IT systems.

SOLUTION

The IT department began the project to renew its hardware and software solutions by virtualizing a large number of machines and executing a project to consolidate various operating systems into a single platform. The department made the decision to replace its existing Sun Solaris and IBM z/OS proprietary operating systems with Red Hat Enterprise Linux 5. "We were already using Red Hat solutions in network-service areas, such as perimeter security.



It was this positive experience with Red Hat, combined with the knowledge of the operating system within the department, that made us select it as our operating system of choice across the Ministry," said Africa Cabañas, Head of IT for the Ministry of Education and Science.

The compatibility between Red Hat Enterprise Linux and the EMC Storage Area Network (SAN), assured by Red Hat certification, was an important factor in the Ministry's decision. "All storage-cabin manufacturers certify against certain operating systems and Red Hat Enterprise Linux is normally one of the first. We could not choose just any Linux distribution; it had to be certified, because the SAN is of core importance to our IT infrastructure," said Cabañas.

The project involved all three architectural levels of MEC's IT system: database servers, application servers, and web servers. "All systems were built on Red Hat Enterprise Linux 5 with virtualization. In cooperation with development areas, we migrated everything that could be moved from proprietary environments to Red Hat solutions," continued Cabañas.

In addition to implementing Red Hat Enterprise Linux 5 and virtualization, MEC also migrated its application servers to Tomcat and JBoss solutions to benefit from the solution's superior technology and to extend the freedom of open source to its middleware layer.

The project was executed in two phases. The application servers were migrated to Tomcat and JBoss solutions during 2006. At this point, the Ministry chose 5 JBoss Application Servers as well as solutions from other providers. In June 2007, the Ministry completed the migration of its corporate Oracle database servers.

In addition to its internal data centre, the Ministry had a number of applications and a large database which were located at an outsourced hosting service. During the migration, the ministry found that the hosted service did not provide the performance required, and decided to also move these services to the new Red Hat servers.

BENEFITS

With server consolidation and 24x7 support provided by Red Hat, the Ministry of Education and Science has resolved its previous performance problems and has successfully reduced system-response times.

"We have objective details. It took one-and-a-half days to resolve a lecture-transfer process with the proprietary system. It now takes five hours with Red Hat Enterprise Linux 5," said Cabañas. "After moving MEC's IT systems to Red Hat Enterprise Linux with virtualization, performance has increased five-fold in comparison with our previous solution."

For the Ministry of Education and Science, changing from Solaris and z/OS proprietary platforms z/OS to Red Hat Enterprise Linux 5 virtualization has resulted in cost reduction, which has enabled increased investment in hardware renewal. Moreover, the administration's IT system has been simplified after system consolidation.

In terms of citizen services, the new platform is especially beneficial for grant requesters, who can now connect at any time of the day. The virtualization capabilities have enabled increased platform availability, which is clustered and migrated automatically in the event of system failure.

The Ministry's migration to an open source environment is ongoing. The organization is looking to remove its existing Windows platforms and has plans to test new functionalities on Red Hat solution, including virtualization, GFS, and desktop Linux.

The Ministry's IT department is satisfied with the results of its migration to Red Hat Enterprise Linux 5 and JBoss Application Platform. "As the migration only affects the back-end systems, the only difference that end users see is faster response times. Acceptance has been good. Changing from a proprietary platform to Red Hat solutions enables us to guarantee the future agility of the platform," concluded Cabañas.