



PRORAIL KEEPS TRAINS ON THE RIGHT TRACK, THANKS TO RED HAT

FAST FACTS

Industry	Transportation
Geography	The Netherlands
Opportunity	Maintaining an uninterrupted rail service. Realizing an uptime of 100 percent.
Migration Path	Migrating existing applications, including BEA Weblogic on OpenVMS, building new applications on Red Hat Enterprise Linux
Software	Red Hat Enterprise Linux, Red Hat Network Satellite, Red Hat Global File System with cluster environment, Red Hat Directory Server, Red Hat Network Provisioning Module, Red Hat Certificate System, Red Hat Global Professional Services and Red Hat Training and Certification.
Benefits	Easy update policy, stable system, 100 percent uptime in the first quarter of 2008

ProRail

BACKGROUND:

ProRail manages the rail infrastructure in the Netherlands and is responsible for the Dutch railway network. The organization came into being through a merger of three organizations: the former Railinfrabeheer (responsible for rail maintenance and construction), Railverkeersleiding (rail traffic management), and Railned (rail capacity planning). ProRail has been active since 1 January 2003. The organization has 2,600 employees who run the railway network, and guarantee reliability and safety. The rail infrastructure manager has an operating area of about 6,500 kilometres of track and carries 1.2 million passengers and 100,000 tons of goods every day. This makes the 6,500 kilometres of railway track in The Netherlands among the most used in the world.

OPPORTUNITY:

A failure in the system at ProRail has far-reaching consequences and represents a substantial loss for industry and commerce alike. The technical challenge for ProRail, and the basis for achieving 100 percent uptime, was the

introduction of a sound operating system. This means that the application has no unplanned downtime. ProRail works with OpenVMS (Virtual Memory System), a high-end computer system originally designed by Digital Equipment Corporation and now sold by HP. OpenVMS, a multi-user, multiprocessing virtual memory-based operating system, functions satisfactorily. But in early 2000, the system was no longer available for all the products that ProRail wanted to launch.

Mike Bos, infrastructure manager at ProRail, explains: "At the time Open VMS was running behind Red Hat Enterprise Linux and Windows in terms of layered product applications available. The J2EE applications had performance issues. The need arose for a second operating system. With the addition of Red Hat Enterprise Linux, we are moving to a shorter time to market model."

SOLUTION:

ProRail did not intend to replace the existing OpenVMS with Red Hat Enterprise Linux. "It would have been an enormous job to migrate every existing application," said Bos. "The applications that were easily migrated and/or had problems have been migrated to Red Hat Enterprise Linux. Another decision ProRail made was to allow each new application to be built on Red Hat Enterprise Linux. "After all, you have to use the best tool for the job. We are working to achieve long-term objectives," said Bos.

Red Hat assisted ProRail by implementing Red Hat Network Satellite for the testing and training environment. With Red Hat Network Satellite, different 'virtual' systems can be controlled as a single system. This means that systems can be added to a controlled environment. The ProRail IT network is spread across The Netherlands in 13 local offices. Red Hat Network proxies have been set up at those locations. Every system is installed and managed by the central Red Hat Network architecture, including custom software which needs to be delivered in RPM format by the projects. ProRail also acquired a mix of Premium and Basic Red Hat Enterprise Linux support subscriptions.

Pro Rail is also using Red Hat Global File System. Global File System contains embedded clusters, jointly providing an integrated software framework. ProRail needed to design a complete infrastructure for a new open source solution within its data centres. To help define the organization's needs and design this new architecture, ProRail engaged Red Hat Global Professional Services, Red Hat's consulting practice.

"We wanted a stable, robust, yet flexible infrastructure and chose Red Hat Enterprise Linux. We selected Red Hat Enterprise Linux for most new projects as Red Hat best suits our requirements and objectives for future business plans." Mike Bos, infrastructure manager, ProRail

The new architecture consists of an array of Red Hat tools and software, including:

- Red Hat Network products for provisioning and management
 - Default installation profiles that consist of only the products needed by ProRail
 - Red Hat Directory Server providing multiple master setup for the centralized user management and application needs.
 - Default Red Hat Cluster Suite setups, including Global File System as shared file system with Oracle Real Application cluster
 - Default High-Availability Loadbalancer setup (active/backup)
 - Develop custom applications for current monitoring systems
 - Plans call for Certificate System to be implemented
- Global Professional Services helped ProRail to develop a custom default architecture design to maximize its technology investment.

A Red Hat Consultant, specifically a Dedicated Enterprise Engineer (DEE), installed the framework within the production environment and continues to perform third-level support on-site at ProRail.

The DEE is also responsible for product development and implementing new products from which ProRail can profit.

Examples include:

1. Creating a default workstation install, from which several different workstations could be installed. Before this, every workstation type (differs by application use), had its own installation profile and was built by different partners, so every setup looked different and cost a lot in maintenance effort. The new default modular approach significantly reduces maintenance costs.
2. Virtualization setup within the test/training environment. This makes it possible to mix test setups and training instances on a small amount of hardware and is a good start ahead of Proof of Concept for virtualization within the production architecture. ProRail asked Red Hat to help



them define the skills needed and execute a training program giving ProRail's system administrators the appropriate knowledge to support projects which would use the new architecture and set the default framework in production. This service was also delivered by its (DEE) consultant. Together with the Red Hat DEE, ProRail set up a training track for the current operations managers, so they can cover first-line support on the new architecture using Red Hat Certified Technician (RHCT) skills. To get the maximum performance out of the system, the operations managers at ProRail had to take two Red Hat training courses. "We wanted our people to benefit from thorough training and examination," said Bos. Besides training its own personnel, for second-line support ProRail hired Red Hat Certified Engineers (RHCEs).

BENEFITS:

Thanks to Red Hat Enterprise Linux, ProRail now has a stable and flexible environment. In the first quarter of 2008, Red Hat Enterprise Linux satisfied the requirement of an uptime of 100 percent. "There have been no incidents so far. Hopefully, by the end of 2008, we can realize our goals. Thanks to Red Hat," said Bos.

The maturity and robustness of Red Hat Enterprise Linux is important to ProRail. "We don't want any new, unproven products. Infrastructure managers are conservative," said Bos. "Red Hat's expanding presence in the market is proof of its reliability, and we know that the system is viable for a long lifecycle."

Bos praises Red Hat's update policy too. "Updates can be done very easily with Red Hat. With Red Hat we created a more flexible, reliable environment which is easy to maintain and this leaves us free to concentrate on new projects. We're very happy with the flexibility and reliability we've achieved with Red Hat."



RED HAT SALES AND INQUIRIES

NORTH AMERICA
1-888-REDHAT1
WWW.REDHAT.COM

EUROPE, MIDDLE EAST AND AFRICA
00800 7334 2835
WWW.EUROPE.REDHAT.COM

ASIA PACIFIC
+65 6490 4200
WWW.APAC.REDHAT.COM

LATIN AMERICA
+54 11 4341 6298
WWW.LATAM.REDHAT.COM