

ING-DiBa FUTURE-PROOFS, MIGRATES FROM SOLARIS TO RED HAT ENTERPRISE LINUX



ING-DiBa is the third-largest retail bank in Germany. As a branchless bank with a direct banking model, the underlying platforms powering its services are mission-critical. The introduction of Red Hat® Enterprise Linux® and Red Hat Satellite helps ING-DiBa achieve increased efficiency, performance, and scalability by migrating from the SPARC-Solaris servers to x86 systems running on Red Hat Enterprise Linux.

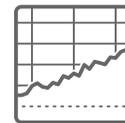
SOFTWARE

Red Hat Enterprise Linux
for x86 systems

Red Hat Satellite

HARDWARE

40 x86 servers HP
(DL-380 with 384 Gigabyte
RAM, 2 CPU Sockets)



**FINANCIAL SERVICES
INDUSTRY**

**CUSTOMER SINCE
2007**

“All project requirements were more than fulfilled. Red Hat Enterprise Linux has proved its value as the operating system platform for mission-critical applications and the Red Hat Satellite management system is a flexible solution that offers a high level of potential for expansion and automation.”

HEIKO MICHELSEN
TEAM LEADER FOR VIRTUALIZATION
AND CLOUD SERVICES, ING-DiBa

BUSINESS OBJECTIVE:

Replace SPARC-Solaris systems
with x86 systems running
Red Hat Enterprise Linux



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PROPRIETARY SOLUTIONS REACH THEIR LIMITS

The Virtualization and Cloud Services team at ING-DiBa, Germany's third-largest retail bank, faced a decision. Its hardware had reached its limits, and a system upgrade or replacement was essential. It could upgrade its existing proprietary hardware and software, remaining locked in to an IT architecture it had already outgrown, or it could migrate to a much more scalable, open source environment. At this critical time, ING-DiBa was running a total of 100 physical servers. On the server side, Sun Solaris systems were being used together with a highly fragmented range of hardware systems, including Sun's SPARC servers, Sun x86 servers, and 25 unmanaged Linux servers. Out-of-date hardware increased the risk of unplanned downtime, and the heterogeneous IT infrastructure resulted in considerable challenges for system administration, such as the large number of manual operations required to service applications across the server estate. Almost all Java™ applications had reached their upper performance limits, and the limited scalability of the systems made it difficult for the IT department to keep pace with the increasing requirements of the business.

ING-DiBa's IT mission was clear. It needed to significantly cut overall costs and administrative effort without sacrificing quality or performance and achieve a higher level of deployment and operation automation in order to lower server deployment time to fewer than three days. The solution also needed to be standards-based and feature a high degree of flexibility, with the ability to upgrade in the future.

RED HAT ENTERPRISE LINUX MEETS ALL REQUIREMENTS

ING-DiBa examined several options and narrowed its decision down to two main contenders. Variants on infrastructures consisting of Solaris VM and Solaris 10 on Oracle x86 machines were compared to ones with VMware ESX 4.1 and Red Hat® Enterprise Linux® on HP x86 machines. Here, the solution combining products from Red Hat had a clear competitive edge, but there were reservations about migrating to open source technology.

Companies in conservative, risk-averse industries like financial services have been slow to consider open source solutions over proprietary, despite the rising trust in and prevalence of open source technology. In ING-DiBa's case, while the choice to upgrade its existing proprietary system would appear to be less risky, it would inevitably lead to the same decision being made in the future as the bank continued to grow. After an in-depth evaluation of enterprise-class Linux solutions, ING-DiBa realized its initial concerns about operating reliability, software quality, and flexibility were unfounded, and the IT team decided to migrate to Red Hat Enterprise Linux. Its ABI/API stability allows for changes to be made with a very low risk and is one of its most valuable features. It has been proven by thousands of independent software vendor (ISV) and original equipment manufacturer (OEM) certifications and covers the operating system's 10-year life cycle.

"Decisive criteria in favor of this mix included the reduced administration workload, higher flexibility, shorter deployment times, and increased reliability and availability. The fact that the Red Hat solution offered us security for the future was also a big plus," said Heiko Michelsen, team leader for Virtualization and Cloud Services at ING-DiBa.

A SMOOTH MIGRATION IN RECORD TIME

Red Hat facilitated the migration to Red Hat Enterprise Linux by providing a step-by-step implementation architecture and roadmap called Standard Operating Environment (SOE). It was delivered by Cologne-based Red Hat Advanced Business Partner DASS IT, which specializes in developing and implementing customized open source solutions.

The migration project saw 100 SPARC systems replaced with 40 HP x86 systems. Migration of the Solaris banking environment to a virtualized system based on Red Hat Enterprise Linux was achieved quickly, cost-effectively, and with minimal effort. Examples of the new infrastructure's flexibility as ING-DiBa provides today:

- All kinds of changes could be handled in less than 48 hours.
- A single employee installed 74 virtual machines in just four days, and 13 Red Hat Enterprise Linux servers were installed in 23 minutes.
- A SAP machine was restored in four minutes.
- A complete new parallel banking environment was introduced within three days.

Based on the highly standardized architecture of their online banking environment ING-DiBa can easily provide new infrastructures to support new business models. For the provisioning of a parallel banking environment for mobile devices only minimal efforts and time were needed due to the high degree of reusable components and existing automation.

By the end of 2012, a total of 850 virtual servers were in active use, and that number rose to 1,230 by mid-2013. Beside their SAP infrastructure, the complete application server and web tier of ING-DiBa's online banking infrastructure now run on top of Red Hat Enterprise Linux. "The application server tier, which is based on Red Hat JBoss Middleware, has heavily increased the availability and scalability of ING-DiBa's banking systems," said Jörg Forstner, head of Technical Engineering and Application Services at ING-DiBa.

Because Red Hat had experience meeting comparable requirements to those of ING-DiBa, the migration was completed smoothly in parallel to ING-DiBa's daily business. In addition, Red Hat's standard operating environment is based on its solution portfolio and open source best practices and covers standardization, reduces complexity, and increases operational efficiency and scalability in an IT environment. This results in faster deployment times, lower support costs, economies of scale, simplified management, and greater agility—all attainable based on the standard operating environment.

"Red Hat used its standard operating environment to present a well-established methodology and solution that perfectly fit the project requirements and contributed towards the success of the migration," said Heiko Michelsen.

"The critical success factor of this project was the perfect combination of platform, tools, and methodology," said Dirk Herrmann, head of Strategic Consulting, Red Hat Germany. "Red Hat Enterprise Linux as the best-fit platform solution offers a high level of stability and flexibility and a huge ecosystem of solutions and support. Red Hat Satellite, a flexible, scalable tool, is an integrated systems management solution that offers significant potential for integration, expansion, and automation. Last but not least, our standard operating environment methodology has matched perfectly with the business needs and targets of ING-DiBa. Achieving this level of standardization, automation, and internal knowledge in the extremely short timeframe of one year is a powerful proof of the value of our SOE solution offering."

SIMPLIFIED SYSTEM MANAGEMENT WITH RED HAT SATELLITE

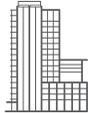
To help ING-DiBa deploy, scale, and manage Red Hat Enterprise Linux, the bank uses Red Hat Satellite (previously known as Red Hat Network Satellite), a system management solution that includes all of the tools necessary for efficient system administration. Red Hat Satellite supports management across the entire software and system life cycle and enables fully automated

ABOUT ING-DiBa AG

ING-DiBa, with its more than 8 million customers, is third largest retail bank in Germany.

It offers its customers a wide range of products and services. The core business is savings, mortgages, brokerage, consumer loans, and current accounts for private individuals.

The business model focuses on few and transparent products with low costs and a high cost efficiency. The German business magazine *Euro* awarded ING-DiBa the title Germany's "Beliebteste Bank 2013" ("most popular bank").



ABOUT RED HAT

Red Hat is the world's leading provider of open source solutions, using a community-powered approach to provide reliable and high-performing cloud, virtualization, storage, Linux, and middleware technologies. Red Hat also offers award-winning support, training, and consulting services.

Red Hat is an S&P company with more than 70 offices spanning the globe, empowering its customers' businesses.

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provisioning and installation of operating systems on all servers across the network. Red Hat Satellite can be used to apply software updates, carry out configuration management, and monitor physical and virtual Red Hat Enterprise Linux servers.

Automated management is especially important for companies like ING-DiBa that need to remove potential sources of human error, as well as reduce the required time, cost, and additional personnel needed over the long term.

"As a financial service provider, we cannot make any compromises as far as the reliability and stability of the solutions used in datacenter operations are concerned. And it is exactly here that Red Hat Enterprise Linux as a platform has convinced us completely, without question," said Heiko Michelsen.

PREPARED FOR THE FUTURE WITH EFFICIENT OPERATIONS, LOW ADMINISTRATIVE WORKLOAD, AND REDUCED COSTS

A study on the Red Hat Enterprise Linux platform by research firm IDC found that deployment consistency, tools, and lack of diversity were the main drivers for productivity and efficiency. Accordingly, ING-DiBa has significantly reduced the administration workload since the introduction of the new solution, which enables a single administrator to manage up to 250 servers without complication. The fully automatic, wave-based patch management has enabled the IT team to apply patches to their 1,200 servers in waves of up to 150 systems at a time. Based on the high reliability of Red Hat Enterprise Linux, the high level of automation, the ability to handle changes in a very fast and efficient way, and the increased efficiency of quality testing the number of incidents has been reduced significantly. As an example, ING-DiBa has decreased their on-call service utilization from 2-3 times per week to 1-2 times per month.

Dirk Janssen, system engineer at ING-DiBa, explained the changes in regard to IT service reliability and dependability with the following example: "In the past we received 2-3 calls per week on our on-call service mobile phone to fix some incidents in our IT services. Now my biggest concern is if the mobile phone is still working since it does not ring anymore."

Finally, the replacement of the old systems has resulted in ongoing cost savings for the bank. Hardware maintenance costs are more easily and cost-effectively managed thanks to a three-year inclusive hardware maintenance contract, and software licensing costs have been lowered by replacing the UNIX systems.

"The successful implementation of the project exceeded expectations. Red Hat Enterprise Linux has proved its value as the operating system platform for mission-critical applications and the Red Hat Satellite management system is a flexible solution that offers a high level of potential for expansion and automation. It is important to stress the very high level of expertise that Red Hat and its partners have to offer. The next project will review the remaining Database Systems still running on Solaris and benchmark it to Red Hat Enterprise Linux" said Heiko Michelsen.