



Bosch Group

Aligning its strategy with digital transformation processes, Bosch Group is focusing on innovative, service-based business models and the Internet of Things (IoT). To offer new services, the company needed the ability to integrate with business applications that support real-time analytics. To achieve this, Bosch deployed the SAP HANA in-memory database using SUSE® Linux Enterprise Server for SAP Applications on IBM Power Systems in combination with SUSE Manager to boost automation and productivity.

Overview

Bosch Group (Robert Bosch GmbH) is a leading global supplier of technology and services headquartered in Stuttgart, Germany. The company offers solutions in four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. Bosch employs more than 400,000 people in 60 countries and reports annual sales of EUR 78.1 billion.

To keep delivering innovative products for an increasingly connected world, Bosch focuses on the Internet of Things (IoT) and

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VOLKER FISCHER

Senior Manager Server Services
AIX and Linux for SAP
Bosch Group

develops IoT solutions for smart homes, cities, connected mobility and Industry 4.0.

Challenge

EMBRACING A CONNECTED FUTURE

Taking advantage of the digital transformation happening across all industries, Bosch wants to build on its high-quality solutions and expand its offerings with new, digital services. Dr. Elmar Pritsch, CIO at Bosch Group says: “The importance of IT solutions in the connected world continues to grow, because they are becoming an essential part of the products and their related services. This is why we have systematically realigned our in-house IT division over the past several months. We used to primarily ensure efficient in-house IT infrastructure, but today, we are focusing more on advancing digital business models created by Bosch.”

GETTING READY FOR CLOSER IT INTEGRATION

With IT playing an ever more important role in Bosch’s business strategy around new digital services, the IT division needed to adapt to new challenges and to gain the ability to offer cutting-edge technology solutions more flexibly. The new online

Case Study

SUSE Linux Enterprise Server for SAP Applications
SUSE Linux Enterprise Live Patching
SUSE Linux Enterprise High Availability Extension
SUSE Manager



Source: Robert Bosch GmbH, Photographer: Martin Stollberg



BOSCH
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Bosch Group at a glance:

Bosch Group is a global supplier of technology and services. As an innovation leader, its expertise in sensor technology, software, and services, as well as its own IoT cloud, offers customers connected and cross-domain solutions.

■ Industry and Location

Manufacturing, Stuttgart, Germany

■ Product and Services

SUSE Linux Enterprise Server for SAP Applications
SUSE Linux Enterprise Live Patching
SUSE Linux Enterprise High Availability Extension
SUSE Manager

■ Results

- + Reduces time spent on routine administration tasks substantially despite doubling the number of instances
- + Streamlines SAP HANA operations with integrated management and support
- + Maximizes availability and business continuity of SAP HANA environments through innovative technology solutions

services must be integrated with core business processes and master data stored in ERP systems. To enable this, the IT division had to create the foundations that would allow the company to offer connected solutions that can interact quickly and seamlessly with business applications.

Volker Fischer, Senior Manager Server Services AIX and SUSE Linux Enterprise Server for SAP Applications at Bosch Group says: “To support all of our business sectors in developing innovative business models for the future, in integrating their new offerings into existing ERP systems easily and in leveraging advanced new data analytics tools, we needed to refresh our infrastructure with the latest technologies such as the SAP HANA in-memory database. And in preparation for our broader transformation initiative at Bosch, we also needed to improve the scalability of our infrastructure.”

Solution

RUNNING SAP HANA ON IBM POWER SYSTEMS

To streamline IT operations around its core business systems, Bosch runs all SAP applications centrally. This also means that all subsidiaries around the world rely on the availability of the central SAP applications to do their business. Given the growing importance of IT, the company requires reliable processes to ensure business continuity for all systems, including its new SAP HANA databases.

Bosch had already gained practical experience with SUSE Linux Enterprise Server for SAP Applications from running 100 such systems for the SAP Business Warehouse Accelerator. When business sectors started asking for SAP HANA, the team decided

that it wanted to use IBM Power Systems as a reliable infrastructure platform, which would also align the SAP HANA instances with its main SAP ERP application servers on a common platform. The company looked at the available options and quickly selected SUSE Linux Enterprise Server for SAP Applications on IBM Power Systems.

Volker Fischer explains: “With SUSE Linux Enterprise Server for SAP Applications being the leading operating system for SAP HANA, especially on IBM Power Systems, it was not difficult to get all of our internal clients on board. And since we had been using SUSE Linux Enterprise Server for SAP Applications on x86 servers for many years, we were convinced that the outstanding stability and reliability of this operating system—specifically optimized for SAP software—would help us to expand our service portfolio while keeping the administration workload low.”

TAKING ADVANTAGE OF A TAILORED OPERATING SYSTEM

SUSE Linux Enterprise Server for SAP Applications is an operating system created through joint development by SAP and SUSE; validated and certified by SAP across different platforms, including IBM Power Systems. A dedicated SUSE update channel ensures that all patches, fixes and updates have been thoroughly tested to work smoothly with SAP applications to deliver the best possible performance and reliability. In particular, the dedicated update channel helps to eliminate any potential disruptions in service, enabling enterprises to apply patches without concerns about impacting the stability of their most mission-critical systems.

In addition, SUSE has worked with SAP to include a range of optimizations specifically for SAP software. For example, SUSE has developed the Page Cache Management for SUSE Linux Enterprise Server for SAP Applications to give users full control of page caching. The page cache limit kernel parameter helps Bosch to run a performance-optimized operating system and keep mission-critical SAP applications fast at all times.

During the simple installation routine, the operating system also applies best-practice performance configurations for SAP HANA systems automatically. SUSE also continuously works to further increase security, including in-memory system security hardening techniques. SUSE Linux Enterprise Server for SAP Applications includes a comprehensive security package to protect SAP HANA systems from all kinds of security incidents.

DEPLOYING A COMPLETE SOLUTION

It highlights the capability of SUSE solutions, that although the majority of Bosch’s more than 1,000 SAP systems currently use other operating systems and databases, the company’s 80 SAP HANA databases run exclusively on SUSE Linux Enterprise Server for SAP Applications on IBM Power Systems. To meet the performance requirements of new services enabled by IoT solutions as well as the growing interest in real-time data processing, more and more divisions at Bosch are starting to look at the SAP HANA in-memory database. Volker Fischer confirms: “At the moment, we have 16 large IBM Power Systems E880 servers running SAP HANA. Using IBM PowerVM virtualization, we run SUSE Linux Enterprise Server for SAP

Applications and the IBM AIX operating system side by side on the same platform to leverage our management infrastructure and platform knowledge, and to use our resources efficiently.”

Thanks to this flexible virtualization solution, Bosch has complete freedom of choice about where to run its SAP HANA databases and can maximize resource utilization. The company can also avoid downtime by moving systems from one physical server to another easily if necessary—for example, during planned server maintenance or hardware infrastructure component upgrades.

Another reason for Bosch’s selection of SUSE Linux Enterprise Server for SAP Applications was its seamless integration with SUSE Manager—an IT infrastructure management solution that helps Bosch to keep its servers up to date by streamlining and automating system administration tasks.

To be able to offer its internal clients maximum business continuity when necessary and minimize unplanned downtime, the team also installed SUSE Linux Enterprise High Availability Extension, which is included with SUSE Linux Enterprise Server for SAP Applications. Based on mature, industry-leading, open-source high-availability clustering technologies, SUSE Linux Enterprise High Availability Extension offers easy and fast setup of SAP HANA clusters. It simplifies cluster management and offers a graphical user interface for user-friendly monitoring of the clustered environment. Should a business sector request it, Bosch can now easily deploy a complete high-availability solution for SAP HANA.

Results

BENEFITING FROM TOP PERFORMANCE AND SUPPORT

By choosing SUSE Linux Enterprise Server for SAP Applications to run SAP HANA on IBM Power Systems, Bosch is taking advantage of a successful partnership between three major IT vendors. Volker Fischer remarks: “The SUSE support is second to none—thanks to the close collaboration between SUSE, SAP and IBM, we get quick and comprehensive responses from the support team and can keep our systems running reliably. Furthermore, the inclusion of SUSE Extended Support Pack Overlay Support gives us additional security against critical vulnerabilities and helps us facilitate long-term IT infrastructure planning to increase the stability of our deployments.”

To streamline its server operations, Bosch wanted to deploy SUSE Manager on IBM Power Systems too. Volker Fischer confirms: “It was important for us to run the management solution on the same platform as our SAP HANA databases. SUSE was very flexible and made SUSE Manager available on IBM Power Systems rapidly, helping us to leverage our existing infrastructure.”

SAVING TIME WITH INTEGRATED MANAGEMENT

Thanks to the simple user interface and comprehensive set of features, Bosch can automate many routine system administration tasks with SUSE Manager.

Volker Fischer elaborates: “SUSE Manager has had a significant impact on the workload of our administration team. When we started using SUSE Linux Enterprise Server for SAP Applications, we did not

immediately use SUSE Manager. The manual workload to keep our 100 instances updated was immense: one member of our team was almost exclusively working on routine administration and patching tasks. With our move towards SAP HANA, we also implemented SUSE Manager with a single installation that integrates both our physical servers on x86 and our virtualized systems running in logical partitions on IBM Power Systems. Today with SUSE Manager, we have doubled the number of instances but substantially reduced the time needed for the management of the systems, freeing up resources we can use to create additional value for our internal clients and expand our services, instead of just keeping operations running.”

Automating systems management for SAP HANA allows Bosch to decide about the future of its 1,000 SAP systems without limitations, since the existing IT team can easily scale up the operational processes to include many more SAP HANA systems.

GAINING FLEXIBILITY TO OPTIMIZE OPERATIONS

Running SAP HANA with SUSE Linux Enterprise Server for SAP Applications on IBM Power Systems gives Bosch the flexibility to combine scale-up and scale-out configurations based on the individual business needs. The company runs scale-up environments with up to 8 TB and scale-out solutions with up to five nodes and 5 TB per node.

Bosch has also already evaluated SUSE Linux Enterprise Live Patching for IBM Power Systems and plans to put it into production soon. Volker Fischer notes: “SUSE were the first to bring Linux live patching

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DR. ELMAR PRITSCH

CIO
Bosch Group

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to IBM Power Systems. We have tested it with the goal of maximizing availability further and improving business continuity, and we're planning to start using this brand new, cutting-edge feature in production. It will allow us to apply patches to the Linux kernel without rebooting our systems and keep our applications running smoothly to get even closer to zero-downtime deployments.”

By deploying SUSE Linux Enterprise Server for SAP Applications on IBM Power Systems, Bosch has created a stable platform for the future. Volker Fischer concludes: “SUSE has become a very valuable partner to us. Thanks to the close

collaboration between SUSE, SAP and IBM, we can now respond quickly to new requirements from the business. Since our strategy is to add more and more digital services and integrate our products with IoT solutions, it is essential that with SUSE Linux Enterprise Server for SAP Applications on IBM Power Systems, we are ready for these real-time analytics and growth challenges.”

Looking at the broader picture, Dr. Elmar Pritsch states: “IT is an essential part of the products and services of tomorrow. Digital business models require an IT infrastructure that is powerful, scalable, open, and secure at the same time.”