



SAP powers some of the world's biggest companies for their most complex and important business processes. Find out what powers SAP, and how it is innovating to help organizations stay ahead.



SAP HANA

Solving for business-critical applications
with a scalable infrastructure

How SAP Innovated for The Cloud

Lenovo™



Intel® Xeon® processor

Snapshot

COMPANY

SAP SE

VERTICAL

Software & Solutions

BUSINESS PROFILE

SAP SE creates application software designed to help enterprises manage business operations and customer relations. About 350,000 customers use SAP solutions to streamline processes, work more efficiently, and generate deep business insight.

CHALLENGES

- To use SAP HANA for internal enterprise applications like CRM & ERP for optimal reliability and performance.
- To do the above without outages, placed huge pressure on SAP's own infrastructure.

SOLUTION

SAP made use of:

- Lenovo System x3850 X6 and x3950 X6
- Lenovo Solution for SAP HANA
- Lenovo ThinkSystem SR950

COMPANY FUNCTIONS BENEFITED

- Internal business systems
- Application Development
- Cloud Services

BENEFITS

- SAP employees have real-time data visibility and access to predictive analytics, while on the move.
- SAP's IT team now enjoys higher availability and maximum up-time.
- IT administration is easy and cost-efficient with advanced management tools.
- Reduced operational costs and excellent TCO, in terms of price-performance.
- Business-critical applications can be brought to SAP employees more efficiently.
- SAP exceeds application demands, having capacity to scale for new workloads at any time.



SAP HANA / 01



Intel® Xeon® processor

SAP S/4 HANA

BACKGROUND ON SAP SE

- Leader in Enterprise Software.
- Solutions for better decision making.
- SAP touches **25 industries** and **12 lines** of business.
- **76%** of all worldwide business transactions touch an SAP system

■ Source: SAP Corporate Fact Sheet, January 24, 2017

35% of SAP Business Suite clients will be running SAP S/4 HANA by 2020.

■ Source: Gartner: How SAP HANA Technology Could Support Your Internet of Things Strategy, September 2016

47% of the costs associated with hardware, software, and labour can be saved with SAP HANA.

■ Source: Forrester Study on Cost Savings with SAP HANA, 2014



Advantages Reaped by SAP's HANA Implementation

SAP HANA is an in-memory column-oriented, relational database management system. It brings together database and application platform capabilities, for businesses to access crucial information and analytics systems efficiently in real-time. Some of the business benefits seen are as below.

THE SHIFT TO REAL-TIME SERVICES

Business cannot afford high latency times when taking decisions, so everyone is moving from "what happened yesterday" to real-time visibility of complete data. This allows for faster analytics, reporting, and reactions to events impacting business. Access to big data processing is also unlocking new insights with predictive, complex analysis.

Accordingly, all internal enterprise applications at SAP are now based on SAP HANA in-memory database. SAP HANA delivers advanced analytics in near-real time, using in-memory database technology that would usually place unique demands on the supporting servers.

EXPLOSION OF MOBILITY AND CLOUD

Conventional patterns of work are changing. Work now needs to seamlessly transfer between mobile devices and workstations, as distinctions between home, office and travel continue to blur. Users expect to connect to corporate resources and tools, regardless of location, and need responsive, reliable IT wherever they may be.

Thomas Saueressig, Chief Information Officer at SAP, reports: "We have a highly mobile workforce. Our vision is to enable SAP to become a fully digital enterprise. This also applies to everything that touches an SAP employee, from the devices we use to the collaboration tools and networks."

To this end, SAP has benefited from being able to run all its enterprise applications on cloud infrastructure.

CREATING A BENCHMARK FOR HIGH AVAILABILITY

Thomas Saueressig explains: "Any workflow interruption damages our performance. With over 100,000 mobile devices to manage, we need outstanding reliability, excellent performance and fast response times. For example, if you are busy working and find yourself waiting for three or four seconds for data, not only have those seconds gone forever but also you will almost certainly have started thinking about something else. Recovering your lost focus and returning to productive work costs more than a few seconds. For an organization the size of SAP, even small changes can have a significant impact."

Martin Heisig, Senior Vice President of SAP Cloud Infrastructure Services, states: "Our priority is to ensure that our internal on-premises solutions and cloud-based applications are always available, and to deliver a stable, reliable service."

By providing high reliability of enterprise applications and preventing interruptions, SAP's HANA helps save time and optimize productivity.

IMPROVING IT INFRASTRUCTURE WHILE LOWERING TCO

Martin Heisig elucidates: "The SAP IT organization must always deliver capacity and scalability within demanding total cost of ownership targets. SAP continuously examines how we can be more efficient and more effective, looking for ways to reduce operational costs while providing the best possible service. TCO efficiency impacts our server platforms, operational administration and management, and every component of our IT infrastructure."

SAP HANA enables higher throughput and smaller data footprint on the servers. It also leads to fewer layers that need to be managed, all of which result in lower operational costs.



"If a customer's SAP solution is not available, their business is immediately disrupted. For example, an application outage for an automotive manufacturer is a potential disaster, given the upstream and downstream disruption to what is likely to be a fine-tuned, just-in-time process with multiple supply-chain partners. This is how we always try to look at our service, through our customers' eyes."

MARTIN HEISIG,
Senior Vice President of SAP Cloud Infrastructure Services



"Our belief in Lenovo's platform extends well beyond joint customer success. In fact, SAP runs Lenovo servers in our internal systems; our enterprise applications based on HANA, like CRM as well as our customer-facing solutions. Our development team itself runs on our servers from Lenovo."

JASON WOLF,
General Manager of SAP Global Technology Partners



Advantages Reaped by SAP's HANA Implementation

POWERING SAP'S HANA SUCCESS

Faced with a potent mix of demands internally and externally, SAP has an incentive to select the best possible infrastructure platform, and relies on Lenovo systems and technologies throughout its IT infrastructure. On-premises and cloud-based SAP applications are hosted on Lenovo servers, powered by Intel® Xeon® E5 and E7 processor families.

SAP has deployed Lenovo System x3550 M5, x3650 M5, x3850 X6, and x3950 X6 servers, which provide a range of capacity, suitable for general office productivity right through to enterprise-scale, high-performance platforms. SAP also operates Lenovo Flex System, which provides a portfolio of integrated compute, storage networking and management solutions. Mission-critical and extremely demanding workloads are handled by Lenovo ThinkSystem SR950 servers, which offer modular design and All-Flash storage solutions as well. Deployments are made faster with Lenovo Solutions for SAP HANA®, Lenovo XClarity and Lenovo Professional Services.

ASSURING ENTERPRISE GRADE RELIABILITY

Martin Heisig avers, "Lenovo is our platform of choice to run our internal SAP S/4 HANA® system, because it's so reliable and stable. Additionally, when it comes to TCO, Lenovo leads the way in terms of price-performance and reduced operational costs. Lenovo servers provide advanced management tools to help us orchestrate, optimize and manage the server estate, keeping administration easy and cost-efficient."

Advanced X6 RAS features, such as predictive failure analysis, light path diagnostics, and hot swap components, provide high availability and maximum up-time for business-critical SAP HANA applications.

SAP continues to develop its relationship with Lenovo, in support of customer-facing services and driving business efficiency, for mission-critical server-side solutions and personal productivity applications.

Thomas Saueressig concludes, "SAP has a very strong Lenovo footprint, which is part of our strategy. Lenovo helps SAP to ensure a consistently great experience and meet customer SLAs." "The Lenovo servers and systems help SAP to enable new business models and optimize processes, and at the same time provide a modern workplace for our employees. For SAP, Lenovo is a key partner at every point of the IT infrastructure, including beautiful devices and enterprise-class reliability. That's the key message for a great partnership."



"Lenovo provides the build quality, reliability and performance that we need to serve our customers efficiently and effectively - and to keep our employees satisfied and productive."

THOMAS SAUERESSIG,
Chief Information Officer at SAP



"Lenovo servers are very stable and very reliable, which is super-important for me, as you can imagine. They also provide a flexible, scalable architecture that helps us manage our ongoing rapid growth in cloud services. When transitioning to new Intel processor families, Lenovo provides excellent feedback and collaboration, and proactively manages issues in advance. The way the Lenovo servers are designed and architected really helps us to maximize uptime in all of our environments."

MARTIN HEISIG,
Senior Vice President of SAP Cloud Infrastructure Services



"Lenovo and SAP have a long, successful history of working together to solve customer challenges, and continue to jointly deliver innovative solutions. Our collective advancements in both software and hardware components are benefiting customers across a variety of industries."

KAMRAN AMINI,
Lenovo's General Manager for Server & Storage System Business Units

Highlights

SAP HANA Reaches Greater Heights with Lenovo

- ▶ Lenovo is an SAP HANA market leader with over 8000 units shipped.¹
- ▶ Next generation SAP HANA was developed using Lenovo's ThinkSystem SR950, SAP relies on Lenovo as a Global Technology Partner.
- ▶ Lenovo helps SAP run its business, and deliver the next generation of cloud applications.
- ▶ Lenovo's SAP HANA platform protects investment - single platform for scale-up/out.
- ▶ Lenovo's servers offer services for fast start-up, maintenance and management.
- ▶ Lenovo's platform delivers up to 31% lower TCO.²
- ▶ Lenovo's servers broke world records in SAP HANA benchmark performance.³

¹ Source: Lenovo server shipment report, June 2017

² Source: Quark & Lepton, December 2016

³ Source: www.sap.com/benchmark (SD 2 Tier & BW-EML)

Lenovo's IT team:

Lenovo's internal IT team is a leading innovator on SAP HANA, winning the Innovation Award for their implementation. Some highlights of what HANA enabled for Lenovo:

**Largest in the Asia-Pacific region, using
2x12 node clusters.**

45x improvement in
reporting performance.

50x improvement in
data loading.

86% reduction in
database size.



LENOVO+SAP INNOVATIONS

- Record-setting 12TB & 48TB S4/HANA configurations, with scale-up & scale-out architectures respectively.
- First-of-its-kind Business Warehouse data-tiering solution.
- 564TB BW4HANA is the largest scale out configuration certified by SAP.
- Collaborations on ITOA (IT Operations Analytics) and performance optimization.



LENOVO+SAP LEADING PERFORMANCE BENCHMARKS

- SD Tier-2 with 22% performance gain (a world record).
- BW-EML result that is 29% performance gain (versus Intel Ivy Bridge-EX processor).

Your organization can benefit from SAP HANA too.
Encourage business growth without bottlenecks.

lenovo.com/solutions



Intel® Xeon® processor

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