
White Paper

SUSE Linux Enterprise Server
SUSE OpenStack Cloud
SUSE Enterprise Storage
SUSE Linux Enterprise High Availability Extension
SUSE Linux Enterprise Server for SAP Applications

Migration to SAP S/4HANA— Master the Way into the Future with SUSE

The endgame for Windows- and UNIX-based applications and operating systems in the SAP environment has begun: From the year 2025 on, SAP will neither maintain the standard ERP software and the SAP Business Suite, nor continue to support the traditional databases such as Oracle, DB2, and Microsoft SQL. SAP is fully committed to its new Business Suite SAP S/4HANA. In addition, SAP will only support and further develop the SAP in-memory database SAP HANA, which runs exclusively on the Linux open-source operating system. This makes Linux the operating system of the future in the SAP environment, and SAP customers will have particularly defining and decisive years.

Master the Way into the Future with SUSE

Such a turning point makes many companies uncertain and cautious. The switch to a new operating system, a new business software, and a new database is clearly not a matter of course. New SAP customers, too, will need to deal with Linux as an operating system for SAP solutions.

The IDC white paper “How SUSE Helps Pave the Road to S/4HANA”¹ shows why SAP customers have not yet migrated to SAP HANA and are not planning to do so soon. Besides fears that a migration could disrupt system operations and become too complex, the three most cited reasons were:

- *No need as SAP applications perform well on our non-HANA database.*
- *No urgency because SAP supports non-HANA databases until 2025.*
- *Too costly as the costs associated with migrating to HANA are too high.*

That is understandable. But what are the alternatives?

What is overlooked is that SAP customers that are not switching to SAP HANA and/or SAP S/4HANA will then either have to maintain their systems themselves or commission an external service provider to do so. This can be difficult because neither the customer nor an external service provider can fix SAP code issues or incompatibilities—at least not without considerable uncertainty about system performance and the risk of data loss.

¹ Peter Rutten, Henry D. Morris, *How SUSE Helps Pave the Road to S/4HANA*; August 2017; Sponsored by: SUSE and SAP, Pg. 5

² *Ibid.*, Pg. 2

The only way to avoid switching to the Linux world and being on the safe side is to find another ERP provider. This, too, is a time-consuming and cost-intensive process involving uncertainties as well and the need to train employees on the new ERP world.

Even the Lines of Business Will Love It

These are not really options, especially since the SAP HANA, SAP S/4HANA and possibly the change to Linux brings significant competitive advantages.

As the next-generation business suite, SAP S/4HANA enables businesses to digitally transform and to access critical business information almost in real time. According to IDC additional benefits are that “maintenance is easier, and—as SAP says—customers can expect an overall lower cost of operations on S/4HANA.”²

IDC also found out that there is a significant impetus for the transition to SAP S/4HANA from the individual lines of business—from finance, supply chain management and asset management to human resources and research and development—that want to benefit from the advantages. Examples include:

- *SAP HANA provides a centralized data repository that represents a single version of the truth, which can be shared across business units who need it. This accelerates processes, reporting, and transactions, and makes financial performance software faster.*

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- *Warehouse operations can be automated with RFID and sensors with IoT framework for integration. Picking, shipping, labeling, and automated retrieval are digitalized. This improves warehouse management and increases transparency as warehouse transactions are processed in real time.*

Another System, Different Processes

For IT, however, migrations and implementations are facing some challenges, especially since many companies have little experience with open-source software and Linux as an operating system. And there is likely to be lack of in-house expertise.

What does that mean? For example, system administrators have to get used to new operational processes. The maintenance and installation of patches and updates is different. And availability and disaster recovery behave differently and may be more complex because all layers in the infrastructure change. Deploying failover and recovering the operating system, database, and applications can be challenging.

Realignment Enables Harmonization

On the other hand, realigning the system landscape is an opportunity to harmonize the previous complex IT environment. Here too, the SAP HANA in-memory database and the new SAP S/4HANA Business Suite have proven their qualities and ensure a systematic approach.

Further technological benefits of SAP S/4HANA compared to Business Suite on a traditional database include 3–7 times more throughput, up to 1,800 faster analytics, and integration of applications beyond business processes and functions. Unlimited workload capacity is also available and any type of data can be processed. Furthermore, the data footprint is reduced to less than one tenth: a traditional database of 100 GB is reduced to 20 GB in HANA and to 7 GB in SAP S/4HANA.³ This has the advantage that the server hardware can be dimensioned much smaller. And if companies opt for the deployment in the cloud in whole or in part, hardware costs can be reduced significantly.

Related to the switch to Linux: Linux is available on almost any architecture—from low-cost, low-power Arm processors to x86-based devices of all kinds to IBM z-systems (mainframes), IBM

³ *Ibid.*, Pg. 3

⁴ *Ibid.*, Pg. 5

Power Systems and OpenPOWER systems. And in the cloud, Linux has become the de facto standard.

Additionally IDC expects that “in 2020, Linux will represent 59.3% of all paid shipments of server OS worldwide versus Windows’ 40.2%, which essentially means that the shares between Linux and Windows will have flipped compared with 2016.”⁴

Transition Should Begin Soon

It does not help to put the challenges on the back burner—because it gets shorter and shorter with time! So if you as SAP customer want to ensure the smooth operation of applications and databases in your company and want to run your mission critical workloads safely and smoothly without fear of data loss, you cannot avoid SAP HANA and SAP S/4HANA.

Companies that want to migrate need to plan carefully if the transition is to be completed before 2025. It takes time until the complete enterprise infrastructure is changed and a new system is integrated and established across the company. After all, the larger the system landscape, the higher the effort.

Many SAP customers are already using SAP HANA database technology and are now preparing to switch to SAP S/4HANA. They will need to decide which customizations from their traditional SAP environment they want to carry forward. Others may be running the SAP system on a different database (such as Oracle, DB2, or SQL Server). Their path to SAP S/4HANA is through switching to the SAP HANA database and potentially to the Linux operating system.

SUSE, SAP and Others—Paving the Way

SUSE and SAP collaborate for almost 20 years, including joint test and development activities in the SAP Linux Lab. This paved the way for the first SAP HANA solution on SUSE® Linux Enterprise Server (SLES). SAP data centers also rely on SUSE solutions. As a result, SLES is currently deployed for more than 95% of all SAP HANA applications.

SUSE’s collaboration with SAP is also focused around OpenStack and Cloud Foundry. In addition, SUSE OpenStack Cloud and SUSE Enterprise Storage are key components of the SAP Cloud Platform Enterprise Edition. They provide robust infrastructure services to businesses to run applications, such as collecting, managing, analyzing, and deploying information of all kinds, as well as extending and connecting business systems. OpenStack

is used for the Infrastructure as a Service layer (IaaS) and is essential for Microsoft Azure and Amazon Web Services. With Cloud Foundry applications are developed for various environments.

And a particular highlight is the SUSE Linux Enterprise High Availability Extension which is integrated into SUSE Linux Enterprise Server for SAP Applications. Together, they support the automated failover functions of SAP HANA and SAP S/4HANA. According to IDC⁵, SAP emphasizes SUSE HA for its 99.999% availability in automated system replication in HANA Enterprise Cloud (HEC).

SUSE's Comprehensive Cloud Approach

SLES for SAP Applications is available for all SAP S/4HANA deployment scenarios:

- *The on-premise solution with all SAP S/4HANA functions and all industry solutions including annual updates for software fixes and new features.*
- *The managed private cloud HEC (HANA Enterprise Cloud), which runs mainly on SLES on OpenStack, thus making the switch to SAP S/4HANA easier.*
- *The SAP Cloud Platform is a Platform as a Service (PaaS) solution that is based directly on in-memory technology. It allows access to a development environment in the cloud with services for integration, enterprise mobility, collaboration, and analytics. It is built on SUSE OpenStack Cloud and SUSE Enterprise Storage.*
- *All SAP S/4HANA public cloud options facilitate the smooth transition from an on-premise approach to a cloud strategy or a combination of both on the same operating system. Here is to be noted that SAP S/4HANA public cloud editions are only available as standardized packages for which SAP only allows limited modifications.*

SUSE supports SAP Cloud Platform also in non-SAP Cloud environments. The focus here lies on Microsoft Azure, and Amazon Web Services (AWS). Since the end of 2017, SUSE offers the cloud platforms Google Compute Engine and IBM Cloud on SUSE Linux Enterprise Server for SAP Applications images as well.

⁵ *Ibid.*, Pg. 7

Thanks to the full integration with Azure, SUSE Linux Enterprise Server for SAP Applications is helping to improve the reliability and security of an SAP S/4HANA environment on Azure. Replication and disaster recovery are integrated and comparable to on-premise replication and operational reliability on SUSE.

SUSE has been working with Amazon on Linux and SAP HANA for many years. Since then, larger instance types have been offered for the bring-your-own-license (BYOL) deployment mode, including for SAP Business Suite on SAP HANA and SAP S/4HANA on SUSE Linux, both productive and non-productive.

Working closely, SUSE and Google have made SUSE Linux Enterprise Server for SAP Applications widely available to Google Compute Engine. This open source solution not only scales from single instances to global cloud computing. Customers also have the option of using the SUSE OS on a pay-per-minute basis.

The IBM Cloud provides customers with an open source platform for SAP applications in the cloud based on SUSE Linux Enterprise Server for SAP Applications. This solution makes companies more agile and lowers operating costs through the pay-per-use model. With SUSE Linux Enterprise Server for SAP Applications in the IBM Cloud, customers can quickly build and deploy mission-critical workloads in SAP HANA.

Next Steps and Outlook

Even if 2025 seems far away, companies that want to migrate for the sake of benefits should consider timely the different migration options and the related issues and decisions. To ensure a smooth transition, business leaders should consider the following:

- *The (double) migration to SAP S/4HANA and/or SAP HANA and thus Linux needs time, which should be calculated exactly. The larger the system landscape, the higher the effort.*
- *Companies should look for service providers with extensive experience in the Linux, SAP, and cloud environments to support migrations at next to minimal risk and with minimized complexity and establish a process for smooth transition to Linux and SAP S/4HANA.*
- *Do not just consider processes and individual developments related to the change. Also, remember that coding and process structures need to be transferred even if the business suite is already running on SAP HANA.*

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- *Think about whether you want to have your applications and database available on-premise, or if you prefer a move to the cloud, or if you want to run a combination of both deployment options.*

SUSE Linux Enterprise Server for SAP Applications provides businesses with ideal configurations for running business-critical systems reliably and securely. This unique distribution for SAP environments features extensive security, high availability,

virtualization, and Windows interoperability functions, which businesses can use to operate, manage, and renew their infrastructure. IDC believes⁶ that with SUSE Linux Enterprise Server for SAP Applications as the vehicle and close collaborations with technology leaders SUSE has created the best environment for customers to master the future in the Linux world.

⁶ *Ibid.*, Pg. 13

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