What Digital Transformation with SAP Means for Your Infrastructure

SAP is helping its customers achieve their digital transformations by basing the future of SAP solutions on SAP S/4HANA. This strategy gives businesses the potential to consume and make decisions on data quickly, offering an edge in the market. But what does that mean for your infrastructure? This paper will help you understand the repercussions and what you could gain by transitioning your infrastructure to support SAP S/4HANA.

Transforming Your Organization to Keep Up with Change

For the technical architect and all those on the IT team, increasing business agility isn't just a worthy goal. It can also seem like an enormous challenge. Traditional IT simply doesn't adapt at the speed the modern business requires.

SAP understands this dynamic and has built SAP S/4HANA to simplify the complexity of your digital transformation. And with help from SUSE, you can ease your transition to SAP S/4HANA and maintain the performance, availability and security your organization demands.

Target Audience
This white paper is meant for technical architects and other IT professionals who already deploy or are planning to deploy SAP solutions. It will help members of the IT team understand how a move to SAP S/4HANA will affect them.

What Digital Transformation Means for You
Your organization is probably already trying to respond to customer demands by offering fast, personalized and always-on services. It all comes down to digital transformation and how fast you can do it. And that, in turn, means a review of your IT infrastructure. Because no matter what plans the business makes, digital transformation will mean big changes for IT.

Digital transformation is pointing many organizations—including SAP and enterprises that rely on SAP solutions—toward open source technologies.

Any IT organization is going to be concerned with maintaining both security and availability of the new systems required by a digital transformation. As you'll see, embracing SAP S/4HANA with the right partner can actually make it easier to secure systems and implement high availability.

The cloud, too, can make it easier for IT to meet certain business demands. Perhaps most significantly, however, digital transformation is pointing many organizations—, including SAP and enterprises that rely on SAP solutions—toward open source technologies.

Joining SAP in Digital Transformation
SAP has already created a digital transformation roadmap for SAP applications. The company will end support for its current business suite in 2025 and move to a version that runs directly on SAP HANA, the company's in-memory database.

By focusing on a single digital core, SAP's strategy can help you simplify your infrastructure. And to make this simplified infrastructure as robust and interoperable as possible, SAP has chosen to go open source. SAP HANA runs only on Linux, meaning Linux is the future of the SAP data center. The challenge for IT becomes designing a high-performance, highly-available and secure Linux data center. As you'll see, the right Linux can reduce issues for IT and help to make this a reality.

SAP is also making it easier for you to embrace the cloud. Whether your organization is all-in on the cloud or just dabbling with some software as a service (SaaS), it's become reasonable to ask of any application, "Should this be in the cloud?" The same question goes for your platforms and the components of your infrastructure. And when the answer is "yes" and the cloud becomes the way to go, you face choosing among cloud options:

- *Public cloud deployments provide the obvious benefit of enabling you to avoid additional capital expenditures. Their quick setup offers huge benefits, but connectivity can be a challenge. And complying with certain regulations is difficult in public clouds.*
- *A private, OpenStack-based cloud balances agility and governance requirements. It delivers enterprise-ready technology so you can build infrastructure-as-a-service (IaaS) private clouds in your own data center.*
- *A hybrid cloud arrangement offers a little of each of the above options. The trick is to balance them to get the most effective solution for your organization.*

It might also make sense to embrace a platform as a service (PaaS) offering. With PaaS, you can focus on the applications your business needs, instead of the solutions that support them.

One such PaaS offering is the new SAP Cloud Platform. It provides comprehensive application development services so you can collect, manage, analyze and leverage information, or extend and connect your business systems.

SAP Cloud Platform is designed to accelerate your digital transformation without having to maintain or invest in on-premises infrastructure. In fact, SAP Cloud Platform runs on an infrastructure layer provided by SUSE. You will never need to interact with it, but your applications will be supported by enterprise-class open source services such as SUSE® Linux Enterprise Server, SUSE OpenStack Cloud and SUSE Enterprise Storage™, a Ceph-based software-defined storage solution.

SAP's digital core can act as the foundation for the specific digital transformation projects your business users are asking for.

- *To bring big data analytics to your organization, you need to be able to access unstructured data in systems such as Hadoop and the structured data within SAP HANA.*

One solution is SAP Vora, which offers distributed query processing capabilities and bidirectional integration with SAP HANA, so you can run queries on Hadoop and SAP HANA data at the same time. SUSE solutions are behind the scenes here as well: SAP Vora 2.0 runs on the SUSE Container as a Service (CaaS) Platform and leverages both a Docker container architecture and Kubernetes.

- *The potential impact of machine learning continues to grow as it is used in more and more fields. The same is true of Internet of Things solutions. For either endeavor, a unified digital core provides the necessary foundation. Without this core, both projects become more difficult to implement and less impactful. One way to experiment with the extension of your digital core into these areas is through SAP Leonardo, which is SAP's digital innovation system. It is ideal for organizations that want to experiment or are just beginning a digital transformation journey.*

Finding the Right Open Source Solutions with SUSE
Who you choose as your vendor of open source solutions will make a big difference in whether you can offer the highly available, reliable and secure foundation your organization needs.

SAP and SUSE have a long history of working together, including almost two decades of joint testing and development at the SAP LinuxLab. They also have a joint development team working on SAP Cloud Platform. SUSE Linux Enterprise Server is the strategic operating system for many SAP solutions. In fact, SAP uses SUSE Linux Enterprise Server as its software development platform and for its own internal operations.

SUSE provides open source technologies for all your SAP system needs:
- **Linux**—SUSE Linux Enterprise Server for SAP Applications (includes HA extension)
- **Containers**—SUSE Container as a Service (CaaS) platform with Kubernetes
- **Cloud**—SUSE OpenStack Cloud
- **Software-defined storage**—SUSE Enterprise Storage with Ceph storage technology

Availability

SUSE has been working toward zero downtime for SAP applications and databases by building SAP-specific features into SUSE Linux Enterprise Server for SAP Applications. It includes a high-availability and disaster-recovery cluster solution for SAP applications that integrates into the SAP start/stop framework and is SAP-certified for SAP NetWeaver. The operating system also comes with two resource agents (SAPHana and SAPHanaTopology) that automate takeovers for all common system-replication scenarios, whether scale up or scale out. SUSE was the first to introduce these resource agents to Linux.

Eventually, you will have to patch any operating system. What is unique about Linux is that there is now a live patching solution that minimizes downtime around patches. SUSE Linux Enterprise Live Patching delivers live kernel patching for stability and security updates without the need to reboot. It is built on an open source technology called kGraft, which allows for runtime patching of the Linux kernel without having to stop the kernel. What that means is that you can maintain the security of your systems while reducing planned downtime, so you don't have to interrupt your SAP applications.

Performance

SUSE works with SAP to provide you with the best possible performance on SUSE Linux Enterprise Server for SAP Applications. The operating system owns 55 SAP HANA benchmarks.* It also offers a page cache limit. Administrators can tune the amount of memory the operating system uses for page cache, thus ensuring that memory-intensive programs such as SAP HANA have the memory they need to function at their highest potential.

Security

As the foundation for your business, SAP S/4HANA should have the highest possible security. SUSE has produced a specific Security Hardening Guide for SAP HANA, and SUSE Linux Enterprise Server for SAP Applications comes with a dedicated SAP HANA system firewall to give you maximum system security. It also offers remote disk encryption to provide protection against data theft.

———————

* *See all SAP benchmarks here:* **www.sap.com/about/benchmark.html**

Cloud Flexibility

SUSE Linux Enterprise Server for SAP Applications is available from the major cloud service providers, including Amazon Web Services (AWS), Google Cloud Platform, IBM Cloud and Microsoft Azure. All of the SAP-supporting features mentioned in this paper are available on AWS and Azure. This means you don't have to sacrifice performance, availability or security if you choose the public cloud for your SAP infrastructure.

Ease of Management

All Linux offerings are not the same. Enterprise Linux is crucial in helping to complete your migration to Linux. For one thing, it does not make sense to run the foundation of your business on a version of the Linux operating system that isn't fully validated and supported by SAP.

Most enterprise Linux distributions also offer features not found elsewhere. SUSE Linux Enterprise Server for SAP Applications, for instance, has an SAP installation wizard that can significantly speed up the deployment of SAP S/4HANA and the applications you deploy with it. It offers streamlined system performance tuning for SAP HANA and SAP S/4HANA. And in the event of an error, the SUSE operating system enables you to perform a full system rollback with one click for an ultra-fast recovery.

For organizations moving from Windows Server to Linux, you should look for the rare beast: a Linux version that plays well with Microsoft. SUSE has a long history of working with Microsoft, and SUSE solutions support Remote Desktop Protocol and integrate with Active Directory, so your team can log in using Windows credentials.

"Setting up a system optimized for SAP software used to be tricky. Thanks to SUSE Linux Enterprise Server for SAP Applications, we can deploy a new SAP system 40 percent faster than before with Red Hat Enterprise Linux."

RALF GERHARD
Deputy Head of IT and Group Lead Development
SAGAFLOR AG

If you choose to use SUSE Manager to manage your Linux environment, a management pack can tie it into Microsoft System Center Operations Manager, making it easier to manage a mixed data center from a single console. SUSE also offers no-charge Linux training so you can increase your staff's skills and certifications and support your business while limiting attrition.

Maintenance of your operating system should never get in the way of your SAP applications. SUSE Linux Enterprise Server for

"The combination of the new hardware and the migration to SUSE Linux Enterprise Server for SAP Applications has increased the performance of our SAP systems substantially."

MANFRED BANTLE
Head of SAP Services
Geberit (Switzerland)

SAP Applications comes with extended service-pack overlap support. This increases the time you have to upgrade to the next operating system service pack from 6 months to 18 months so you can perform upgrades on the best schedule for your organization. For instance, you can align your operating system update with your SAP HANA updates to minimize planned downtime.

Add the Finishing Touch to Your SAP S/4HANA Migration

Your organization's move to SAP S/4HANA will involve big changes in your infrastructure. While this infrastructure is the foundation of your SAP S/4HANA system, it is often one of the final decisions organizations make in their move. As the year 2025 nears, don't put off thinking about your migration to SAP S/4HANA. You should be considering and evaluating the cloud, open source solutions and Linux now. As you do, remember that SUSE is ready to support you no matter where your digital transformation and migration to SAP S/4HANA takes you.

Contact your local SUSE Solutions Provider, or call SUSE at:

1 800 796 3700 U.S./Canada
1 801 861 4500 Worldwide

SUSE
1800 S. Novell Place
Provo, UT 84606

SUSE
Maxfeldstrasse 5
90409 Nuremberg
Germany

www.suse.com