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The Business Benefits of Choosing the Right Linux for SAP Systems

SAP Platinum Partner

Managing costs while also maintaining system availability is important to any IT organization. However, pressure from the business to deliver innovative services faster does not usually come with a budget increase. When choosing a Linux platform for your SAP environment, it is not only important to look at subscription and support prices, but also to consider the value you receive from additional features that reduce costs, increase efficiency and provide operational excellence in other areas of the business.

Considerations when Choosing a Linux Platform

In 2011, SUSE® introduced SUSE Linux Enterprise Server for SAP Applications—the first Linux platform specifically tailored and optimized for SAP workloads. Based on a foundation of the current release of SUSE Linux Enterprise Server, it adds features that address the need for fast, reliable and secure SAP systems while reducing the administrative workload.

One of the first and most important features added to SUSE Linux Enterprise Server for SAP Applications was high availability (HA) clustering system support and configuration to eliminate unplanned SAP service outages. It is important to keep mission-critical SAP systems up and running, but if you already have an HA solution, you might be thinking that SUSE Linux Enterprise Server is a more cost-effective option.

SUSE Linux Enterprise Server for SAP Applications, however, includes innovative features designed specifically for SAP environments that are not available with the base Linux OS. These features can help you:

- Reduce business downtime costs by delivering faster recovery from SAP HANA system outages and improving system security.
- Enable greater efficiency for business users by optimizing the performance of SAP applications.
- Improve the operational efficiency of IT staff by automating routine tasks and providing SAP-specific lifecycle support.
- Avoid additional software costs for high availability, security and support.

Improve Reliability and Security

Since SAP systems are typically mission-critical, delivering high availability and security is essential. Business processes such as supply chain management (SCM) and enterprise resource planning (ERP) depend on systems being available for employees, partners and even customers. Outages and security breaches affect not only productivity, but also indirectly affect your bottom line costs and revenue.

A recent Forrester report commissioned by SAP estimates that for every application outage, 150 employees are affected. In Forrester's example, a customer running legacy systems prior to implementing SAP S/4HANA experienced as many as 17 outages a day, resulting in a lost productivity cost of nearly $1.9 million (risk-adjusted present-value over 3 years).[1] A key difference in the infrastructure is that SAP S/4HANA systems all run on SAP HANA, which runs predominately on SUSE Linux Enterprise Server for SAP Applications. This solution is SAP-certified to manage NetWeaver clusters.[2] SUSE Linux Enterprise Server enhances the SAP HANA failover features to prevent system outages and to reduce recovery time when outages occur. These capabilities are not availablewith the base Linux operating system.

Lost productivity is just the beginning. For example, when the procurement department cannot access ordering systems, manufacturing systems are unable to build products on time. This means retailers who do not have inventory potentially face increased competitive threats and lost revenue. IDC reported that for a Fortune 1,000 enterprise, the average cost of an infrastructure failure is $100,000 per hour and climbs to as much as $1 million per hour when a critical application fails.[3]

Keeping critical business data secure is also a high priority, and the more data you have, the greater your exposure to cost impacts. A recent IBM security study found that, on average, a data breach of 1 million records costs a business nearly $40 million, which soars to $350 million if 50 million records are compromised.[4] The report goes on to say that the cost of lost business is a key factor, citing an IBM/Harris poll report that 75 percent of consumers in the United States will not do business with a company that they cannot trust to protect their data. You not only need to protect the intellectual property data that gives your business a competitive advantage, but also your customers' personal data.

These security concerns are why SUSE Linux Enterprise Server for SAP Applications enhances the base Linux firewall specifically to protect SAP HANA in-memory systems from unauthorized and malicious access.

1 "The Total Economic Impact™ of SAP S/4HANA," Forrester, June 2018
2 See the complete list at www.sap.com/dmc/exp/2013_09_adpd/enEN/#/solutions?search=high%20availability
3 "DevOps and the Cost of Downtime: Fortune 1000 Best Practice Metrics Quantified," IDC, 2014
4 "2018 Cost of a Data Breach Study: Global Overview," IBM

Enhanced encryption management protects SAP application data in remote storage volumes with a built-in key server to automatically encrypt and decrypt thousands of storage devices in remote data centers. This feature not only reduces the administrative time of decrypting SAP storage systems after a reboot, but also eliminates the cost of separate key server licenses and support. In addition, SUSE provides a guide for how to harden the SAP HANA system to ensure additional protection of the system against malicious attacks.

Table 1 compares reliability and security features:

Technology/Feature	SUSE Linux Enterprise Server	SUSE Linux Enterprise Server for SAP Applications
Full System Rollback	Included	Included
NVDIMM Support for SAP HANA	Included	Included
High Availability and Disaster Recovery Support	Add-on (SUSE Linux Enterprise High Availability Extension)	Included
Live Linux Kernel Patching Support	Add-on (SUSE Linux Enterprise Live Patching)	Add-on (SUSE Linux Enterprise Live Patching)
Automated SAP HANA Failover and Recovery	Not available	Included
SAP HANA Firewall	Not available	Included
Remote Storage Disk Encryption	Not available	Included

Table 1: Comparison of reliability and security features.

Boost Performance of SAP Applications

Transforming your business to SAP's concept of a digital enterprise means you need to collect data from a variety of sources, analyze it and deliver insights to the business users who run critical operations. Increasing operational efficiency requires instant access to the most recent data so you can make the best decisions for cost management and revenue growth. A study by Bain and Company reported that top-performing businesses embed data into their decision-making with advanced analytics. As a result, top performers are five times more likely than their market peers to make decisions faster and three times more likely to execute the plan as intended.[5]

Building your SAP S/4HANA digital core on the right infrastructure can give you the real-time access to business data you need to be a leader in your market. SUSE Linux Enterprise Server for SAP Applications delivers key features that enable a performanceoptimized infrastructure. This includes:

- Built-in tuning features that SUSE engineers developed in collaboration with SAP to optimize the performance of SAP applications such as SAP Adaptive Enterprise, SAP Business Objects and SAP HANA systems based on best practices recommendations.
- A feature, developed by SUSE engineers, called "Workload Memory Protection" (formerly "Page Cache Management"), which isolates selected application memory from Linux kernel maintenance such as swapping to disk so that SAP applications maintain fast access to data and analytics results.

5 *The value of Big Data: How analytics differentiates winners," Bain and Company, 2013*

Table 2 compares performance features:

Technology/Feature	SUSE Linux Enterprise Server	SUSE Linux Enterprise Server for SAP Applications
SAP Application Tuning (saptune)	Not available	Included
Workload Memory Protection	Not available	Included

Table 2: Comparison of performance features.

Improve Operational Efficiency

A key goal of IT transformation is to gain efficiencies in resource utilization not only in business operations, but also in the IT organization. This includes enabling your SAP system administrators to spend more time delivering innovative solutions and less time on routine maintenance. The Forrester economic study referenced above highlighted reduced staff to manage ongoing operations as a key benefit. The study cited one case of a customer that reduced the need for operations staff by 20 percent, enabling these experienced employees to work in key areas of growth.[6]

This is why SUSE Linux Enterprise Server for SAP Applications includes a number of installation wizards and guides as it helps you more easily set up your SAP environments.

SUSE Linux Enterprise Server for SAP Applications provides a powerful deployment option that performs a fully-automated installation of complete SAP software stacks on a single node and clustered environment based on customizable scripts that are included with the product and designed for automated deployment. This is ideal for repeated installations of SAP HANA or SAP NetWeaver applications and is deployed on premises or with any cloud environment based on SUSE best practices.

The Installation Wizard is essentially a wrapper around the SAP installation that speeds up the installation and configuration of SAP applications and SAP HANA on server systems, reducing the time from several days to just a day or even a few hours. The Installation Wizard leverages built-in mechanisms to initiate an unattended software stack installation of SAP applications and SAP HANA.

An additional package automates the complex task of updating SAP HANA to a new version (including deployments in clusters), while the cluster remains available. Integration with SUSE Manager makes it possible to use this console as a single pane of glass for installation and configuration management.

The SAP HANA Firewall is also integrated into the deployment automation options so that it can be automatically configured when the software is installed. If the SAP HANA Firewall is already installed, a wizard will automatically analyze the system and provide step-bystep recommendations for the best configuration options.

SAP has made it clear that open source is the way of the future and that it only intends to support SAP HANA, the foundation for S/4HANA, on Linux. This means that Microsoft Windows Server® administrators will eventually need to learn to work with Linux. In SUSE Linux Enterprise Server for SAP Applications, features were added that interoperate with existing Windows Server environments to help ease the transition to SUSE Linux, including graphical interfaces for the most common tasks within the SUSE system administration tool.

6 "The Total Economic Impact™ of SAP S/4HANA," Forrester, June 2018

Table 3 compares operational efficiency features:

Technology/Feature	SUSE Linux Enterprise Server	SUSE Linux Enterprise Server for SAP Applications
Configuration package (sapconf)	Included	Included
Package Hub	Included	Included
Hyperscaler-accessible images available	Alibaba Cloud, Amazon Web Services, Google Compute Cloud, IBM Cloud, Microsoft Azure	Alibaba Cloud, Amazon Web Services, Google Compute Cloud, IBM Cloud, Microsoft Azure
Installation Wizard (servers only)	Not available	Included
Deployment automation (server and cloud)	Not available	Included
Automated SAP HANA Firewall configuration	Not available	Included
Automated clustered SAP HANA updates	Not available	Included
Integration with SUSE Manager	Not available	Included
SAP S/4HANA transition support	Not available	Included

Table 3: Comparison of operational efficiency features.

Benefit from SAP-Specific Lifecycle Support and Services

As a 20-year partner with SAP, SUSE is committed to working together to provide seamless integrated support to customers. SAP prefers that customers initiate a support request using regular SAP escalation channels and will contact SUSE if the request involves the OS. You get this support even when you have a subscription to SUSE Linux Enterprise Server. However, there are some advantages to choosing SUSE Linux Enterprise Server for SAP Applications support:

- Lifecycle 24x7 priority support, which gives you access to updates and technical support for the full 4.5-year lifecycle of each service pack. This saves on the cost of purchasing subscriptions for Long Term Service Pack Support (LTSS).
- The flexibility to contact SUSE level 3 support directly for OS-specific inquiries.
- An additional update channel dedicated to patches, fixes and updates of SAP-specific packages. This means you can take advantage of the latest enhancements without waiting for the next service pack.

Table 4 compares support features:

Technology/Feature	SUSE Linux Enterprise Server	SUSE Linux Enterprise Server for SAP Applications
Support Options	24 hours x 7 days (Priority)[7]	24 hours x 7 days (Priority)
Support Duration for Service Packs	1.5 years + 3 years LTSS (Add-on)	4.5 years including ESPOS
Dedicated Update Channel for SAP Features	Not available	Included
Direct Contact to SUSE Level 3 Support	Not available	Included [8]

Table 4: Comparison of support features.

SUSE also offers consulting and support services to help you determine the right infrastructure for your SAP operations, fill skills gaps and support your ongoing operations.

Choose the Option that Best Fits Your Operations

SUSE is the trusted and preferred open source platform for SAP customers who want to unlock data intelligence and drive innovation. SUSE Linux Enterprise Server and SUSE Linux Enterprise Server for SAP Applications are both validated operating systems for SAP environments. SUSE Linux Enterprise Server for SAP Applications is also endorsed by SAP.

Mid-sized businesses with SAP Business One version for SAP HANA on one or two servers typically do not need the rich set of features in SUSE Linux Enterprise Server for SAP.

Applications. Larger enterprises that have built SAP HANA Tailored Datacenter Integration (TDI) systems on SUSE Linux Enterprise Server find themselves coming back to the full-featured SUSE Linux Enterprise Server for SAP Applications that exists on most SAP HANA appliances. The cost is higher, but you get significant additional value in SAP application-specific reliability, security, performance, operational efficiency and support.

Learn more at:
www.suse.com/products/sles-for-sap

SAP® Endorsed App
Premium Certified

7 12 hours x 5 days Standard Support is available with SUSE Linux Enterprise Server but not for SAP production environments

8 Level 3 Support Contact is available for subscriptions purchased from SUSE and SUSE partners and used on-premise and in the cloud. Pay-as-you-Go subscribers contact the cloud service provider for support.