SUSE

Imagine Nonstop Productivity
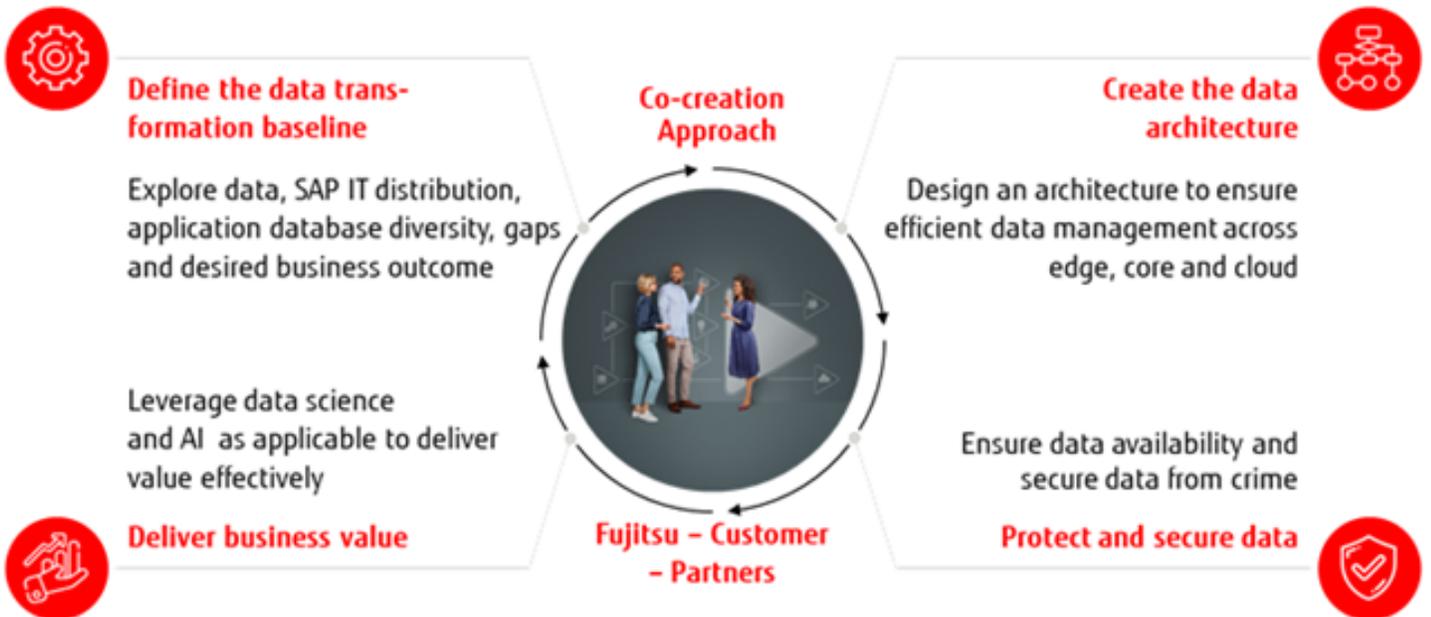
2021

At-a-Glance

Digital transformation is here. Service availability is a business must. All downtime, whether planned or unplanned, costs you — in revenue as well as reputation. Fortunately, today's technology is making it easier than ever to minimize downtime and deliver the availability customers and stakeholders demand. For over 25 years, Fujitsu and SUSE have co-created IT solutions for mission critical workloads to reduce downtime across hybrid environments, from on-premises data centers to the cloud. We deliver services and enhancements which enrich and compliment SAP systems and accelerate your success.

Downtime is never an option

Fujitsu and SUSE are experienced at driving value from your SAP investments and excel at simplifying data driven transformation. In addition and in a data-driven world, Fujitsu developed methodology that enables organizations to unlock the value of data to drive disruptive business decisions – regardless of where it is located across multiple hybrid environments – the Data Driven Transformation Strategy (DDTS). SUSE offers solutions that help simplify, modernize and accelerate business through enterprise Linux, containers, and edge computing - a perfect match for Fujitsu's Data Driven Transformation Strategy.

Define the data transformation baseline

Explore data, SAP IT distribution, application database diversity, gaps and desired business outcome

Leverage data science and AI as applicable to deliver value effectively

Deliver business value

Co-creation Approach

Fujitsu – Customer – Partners

Create the data architecture

Design an architecture to ensure efficient data management across edge, core and cloud

Ensure data availability and secure data from crime

Protect and secure data

"The combination of Fujitsu FlexFrame for SAP Business Suite and SUSE Linux Enterprise Server for SAP Applications continues to offer us everything we need to drive our business."

Pascal Ottens
Solution and Innovation Architect
MyBrand

As businesses undergo digital transformation, IT systems — such as SAP HANA and other SAP applications — become more mission critical. That puts a lot of pressure on your team to provide continuous service and access to data.

Planned downtime for maintenance and patching is hard enough to manage, but unplanned downtime from data corruption, hardware failure, operational mistakes or power outages can more seriously affect your profits and the perception customers have of your business.

One-hundred-percent uptime might seem out of reach even today, but it is possible to get very close to zero downtime. To do that, you need a strong disaster recovery (DR) and high-availability (HA) strategy. SUSE and Fujitsu have the tools and technologies to deliver just that, so your SAP solutions and other applications remain accessible and running smoothly. We both want to build a solid data-driven future and trusted relationship which you can rely on for all your SAP workloads, now and in the future.

Lost productivity is just the beginning
Downtime is very costly, but the impact is more far-reaching than lost productivity. 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.

In the age of GDPR (General Data Protection Regulation) and CPNI (Customer Proprietary Network Information), customers also expect their personal data, like buying history and payment information, to be protected. Ongoing security vulnerabilities from both hardware and OS's are an unfortunate fact of life for IT organizations. It's critical that these are dealt with swiftly and effectively to minimize risk to your business operations and your customer.

The potential cost of downtime

150
The number of employees affected by every application outage[1]

17
The number of daily outages experienced by customers running legacy systems (prior to implementing SAP S/4HANA)[1]

$1.9 million
The cost of lost productivity from 17 outages per day (risk-adjusted present-value over three years)[1]

$40 million
The cost to a business of a data breach of 1 million records[2]

$350 million
The cost to a business if 50 million records are compromised[2]

75%
The proportion of consumers in the United States that will not do business with a company they cannot trust to protect their data[2]

The Total Economic Impact of FUJITSU Integrated System PRIMEFLEX for SAP Landscapes, Forrester Report

Approaching Continuous Uptime for Your SAP Solutions

The top causes for unplanned system downtime are the same ones that have been around for years: software or operator errors; operating system, disk or host crashes; hardware or power failure; and data corruption. While you might not be able to completely get rid of these issues, there are some important things you can do to minimize their effect on your SAP solutions and other business systems.

Eliminating the single point of failure is the key — and you can do this with a well-rounded strategy that focuses on preventing component downtime, maximizing service availability through clustering and live patching, reducing human mistakes, and finding the right provider of DR and HA solutions.

Increasing System Uptime

Choosing the right hardware and operating system is critical. Regardless of your choice of server platform, you need a system that provides the stability and availability features that will help reduce downtime.

Together, Fujitsu and SUSE make it easier to get the best out of your SAP infrastructure solutions, with Fujitsu Integrated System PRIMEFLEX for SAP Landscapes and Integrated System PRIMEFLEX for SAP HANA. Both run SUSE Linux Enterprise Server for SAP Applications since the 1990s – our customers feel very confident with our joint solution. It provides integrated management functions to set up and run SAP-optimized infrastructure. Implementation, operation and enhancements are highly automated. To ensure efficient provisioning of optimal performance, you can allocate system

resources dynamically and distribute workloads with flexibility.

[SUSE Linux Enterprise Server for SAP Applications](#) is a secure open source server operating system, built to power physical, virtual and cloud-based mission-critical workloads. Linux has long been known for its stability, security and flexibility, and SUSE has added features that enhance system availability and reliability for SAP environments.

SUSE Linux Enterprise Server for SAP Applications is the premier operating environment for SAP environments, and it has a range of features that help reduce downtime and other issues.

SUSE, Fujitsu and SAP have been constantly working on improving the scalability and high availability of SAP HANA for decades so customers can grow their deployments to include multiple nodes for system replication and application failover across multiple geographic locations.

The experience Fujitsu and SUSE have with SAP means they know the importance of optimizing the value you get from your SAP technologies, particularly SAP HANA. They offer a highly reliable and high-performance infrastructure that helps support mission-critical SAP solutions and that you can introduce into a heterogeneous environment without interrupting live operations.

Fujitsu's tailored, future-proof infrastructure solutions for SAP applications are based on SUSE Linux Enterprise Server for SAP Applications. SUSE offers features that help ensure stability for critical workloads, including high availability with automated failover and security hardening through the operating system.

From the operating system and HA features to the installation wizard and security features, you get one Linux solution that is optimized for both SAP HANA and SAP application servers.

The SUSE solution also features OS security hardening to help reduce downtime due to security issues. Securing the underlying OS is important because hackers often target the OS and not the database directly.

As an added layer of protection, SUSE provides a firewall for SAP HANA systems. SUSE has a history of focusing on IT security, including an aggressive international security certification program as well as an integrated antivirus solution for SAP environments. For more information, see the [security hardening guide for SAP HANA](#).

Additionally, SUSE Linux Enterprise Server for SAP Applications includes a key server to protect data on remote storage systems with enhanced encryption management.

Accelerate your digital journey to becoming a data-driven intelligent enterprise with FUJITSU Integrated System PRIMEFLEX for SAP HANA. The solution simplifies business operations and inspires organizations to adopt innovation. Using next-generation in-memory technology, we provide organizations with a competitive and agile way to process high volumes of data in real-time alongside any infrastructure environment, safely and securely with nearly zero downtime.

PRIMEFLEX for SAP HANA encompasses pre-tested, pre-installed, scale-up systems that are equipped to run across edge-core-cloud. The solution includes a gamut of flexible configurations to choose from, called Tailored Datacenter Integration (TDI) model and a set of ready to use, standardized configurations certified by SAP. In line with the SAP HANA Tailored Datacenter Integration (TDI) model, we offer both scale-up and scale-out options which further goes through customized disaster-tolerant set-ups. PRIMEFLEX for SAP HANA is complimented by a range of additional flexible services across all project phases enabling you to gear up your business to take advantage of the latest and greatest HANA capabilities such as SAP S/4 HANA.

Simplifying business operations in a data-driven world is crucial to ensuring customer experience remains central to your organization's business focus. Optimization and efficiency requirements across heterogeneous application environments are key to achieving on-time response and scalability to meet Service Level Agreements (SLAs). With FUJITSU Integrated System PRIMEFLEX for SAP Landscapes, we optimize your entire SAP environment across heterogeneous databases to deliver the flexibility and scalability you need for future business growth.

Fujitsu PRIMEFLEX for SAP Landscapes simplifies the management of complex SAP environments, drives business continuity, reduces costs and optimizes planning, operations and change management while increasing agility by up to 50%. It's an integrated system composed of a pre-defined, pre-integrated and pre-tested combination of servers, software, network connectivity and storage that's designed, delivered and supported as one product. It enables the simplified and secure set up of infrastructures optimized for SAP application, across SAP and non-SAP databases.

Maximizing Service Availability

SUSE Linux Enterprise Server for SAP Applications helps ensure high availability in a number of ways.

Automated SAP HANA Failover
SAP HANA has a business continuity architecture that replicates the in-memory data so administrators can initiate failover to a secondary backup in case of a primary system failure.

SUSE Linux Enterprise Server for SAP Applications enhances this capability by providing resource agents that automate that failover action. This means failover happens without needing an action from the administrator, so systems recover automatically while your IT team is focusing on other projects.

SUSE developed and implements two resources agents for this: SAPHanaSR, which performs the actual check of the SAP HANA database instances, and SAPHanaTopology, which runs information about the status and configuration of system replications.

SUSE Linux Enterprise Server for SAP Applications currently supports failover automation for the following SAP HANA scenarios on premises or in the cloud:

- Performance-optimized scale up
- Cost-optimized scale up
- Chain topology scale up
- Performance-optimized scale out

Here are SUSE best practices for mission-critical SAP applications, including setup guides for system replication.

SUSE Linux Enterprise High-Availability Extension

SUSE Linux Enterprise Server for SAP Applications comes with an SAP-certified HA extension for NetWeaver clusters. This feature allows you to cluster physical servers, virtual guests or any combination of the two.

That means you can maximize your system's flexibility while improving service availability and resource usage. Its easy-to-use graphical user interface makes cluster configuration and management simple, even simulating failure scenarios before they happen.

The HA extension has a cluster simulator, which lets you test and validate configuration changes before implementing them. This can cut down on unplanned downtime by ensuring that changes are made only when you know they'll work.

Security Patching Without Interruption

SUSE Linux Enterprise Live Patching allows you to deploy multiple live Linux kernel patches for stability and security issues — all without re-booting for up to one year. No interruption, no downtime. Even better, it works independently from the applications that run on top, so you can use it on an SAP application server or on SAP HANA or other databases.

SUSE Linux Enterprise Live Patching increases security while minimizing downtime, because you don't have to risk security exposures waiting for the next maintenance window or interrupt mission-critical workloads to fix vulnerabilities immediately.

The solution is ideal for in-memory databases such as SAP HANA, as well as time-consuming simulations or having to make a quick fix in a large server farm without wanting to stop operations.

Minimizing Human Mistakes

No one is perfect, but some IT mistakes can cause major downtime. With SUSE solutions, you get simple tools that can help reduce operational errors.

System Snapshot and Rollback

If a mistake is made, SUSE Linux Enterprise Server for SAP Applications can get your systems back up and operational in just one click. It has built-in automatic snapshot and rollback capabilities that let you quickly jump the whole system, including kernel files, back to a previous known state.

Automated System Management

SUSE Linux Enterprise Server for SAP Applications has a management framework that allows you to configure your systems correctly from the start. Other management tools help you by automating provisioning, patch management, health monitoring and compliance management.

A stable and reliable infrastructure goes a long way toward helping you achieve near-zero downtime. If you are not using FlexFrame Orchestrator to provision, manage and maintain your SAP infrastructure solutions, SUSE Manager can help keep your system running smoothly. It delivers powerful management tools for SAP HANA that can maintain the proper configurations for both SAP and non-SAP applications.

Its core is automated patch and update management, which integrates all relevant OS components in your SAP HANA environment. Handling system management and updates from a single central location greatly minimizes the complexity of SAP HANA environments.

It also gives you precise control over the environments needed for your unique business operations, whether they're development, test or production. And because SUSE Manager automates a variety of recurring manual tasks, it helps your IT team save their most valuable resource, time.
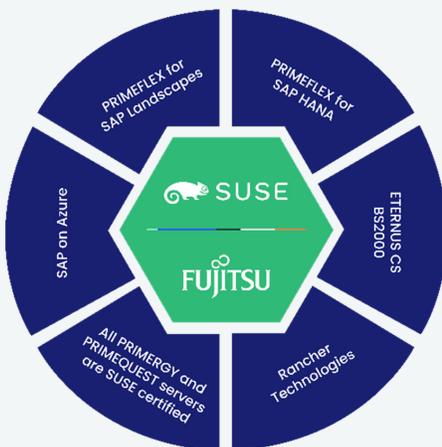
> "We were literally sold out before deployment because we could finally offer SAP HANA services on demand in the most cost-effective and high-performing way."

Ludi Nel
Managing Director
iSphere Technologies

A Long-standing Partnership of Development
To most effectively reduce planned and un-planned downtime, it's important to use the tools and technologies from providers that have experience and expertise in HA and DR, as well as intimate knowledge of SAP systems.

SUSE and Fujitsu have all three. As the leading platform for SAP applications on Linux and a recommended Linux provider for SAP HANA, SUSE is uniquely positioned to deliver solutions optimized for your SAP systems. SUSE, Fujitsu and SAP have a long-standing trusted partnership of development, and SAP itself uses SUSE for its development and production environments. No other Linux provider knows SAP applications like we do.

Plus, we have a serious commitment to providing HA and DR tools to keep those SAP solutions operational and accessible. When downtime is not an option, the simple choice is SUSE.

It's not impossible to control complexity in your IT environment and support SAP infrastructure solutions at the same time. You simply need the right partners. With their long experience in SAP solutions, Fujitsu and SUSE can help you optimize the value of SAP applications and SAP HANA. Build a reliable, agile and interoperable foundation for SAP infrastructure solutions and a trusted future of your business with Fujitsu and SUSE in a data-driven world.

Learn more about **Sustaining Uptime of your SAP Systems** or find out more about SUSE Linux Enterprise Server for SAP Applications

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Thank You