SUSE Linux Enterprise Server 15

The secure and adaptable operating system

SUSE

> "SUSE designed SUSE Linux Enterprise (SLE) 15 with the developer community in mind. Developers can easily transition from openSUSE Leap or the free developer versions of SLE to the fully supported SLE 15 distribution."
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> IDC Market Note, 2018

SUSE® Linux Enterprise 15 server is a modular operating system that paves the way for IT transformation in the software-defined era. The modern and modular OS helps simplify your IT environment, modernize your IT infrastructure, and accelerate innovation with an engaging platform for developers.

Product overview

When it comes to relying on a single Linux OS to run all your application workloads, SUSE Linux Enterprise Server adapts to any operating environment while satisfying your requirements for performance, security, and reliability – purpose-built for your needs. It's an engaging and easy-to-manage platform for developers and administrators that allows you to deploy business-critical workloads on-premises, in the cloud and at the edge.

The modern and modular OS helps simplify your IT environment, modernize your IT infrastructure, and accelerate innovation. Many organizations use traditional infrastructure, software-defined infrastructure, or a mix of traditional and software-defined. This leads to a hybrid IT scenario, where different

types of IT infrastructure have different technologies, processes, and business drivers. SUSE Linux Enterprise 15 server, with its multimodal design, helps organizations transform their IT landscape by bridging traditional and software-defined infrastructure.

Key benefits
Simplify your IT environment

The SUSE Linux Enterprise "common code base" platform helps break the silos of IT systems while bridging traditional and software-defined infrastructure. This enables easy migration of application workloads, improves systems management, protects your investments in traditional infrastructure, and eases adoption of containers.

Modernize your IT infrastructure

Improve efficiency and innovate without disrupting the traditional IT infrastructure pillars—stability, security, and proven standards. Architecturally, everything is a module. So, you can get product updates and patches more frequently. The modu-

lar architecture helps an IT administrator reduce risk by simplifying planning and decision making. Starting with one installation image, you can add SUSE Linux Enterprise Server products or add modules with ease as your business needs grow. With the cloud-agnostic design of SUSE Linux Enterprise and Bring-Your-Own-Subscription, you can easily transition to or leverage public cloud—Alibaba, Azure, AWS, Google, IBM, Oracle.

Accelerate innovation

Make it easy for your DevOps teams to adopt open-source software with support for automation, project builds and message-oriented middleware. Accelerate your innovation by connecting with our developer community at SUSE Package Hub. Once you are ready to move to from development sandbox to production you can seamlessly transition from our community Linux distribution - openSUSE Leap - to SUSE Linux Enterprise. Meet the needs of the modern developer and DevOps teams with management and monitoring features such as RabbitMQ, Prometheus and Maven.

Key features

Your teams have the flexibility to run workloads anywhere. SUSE Linux Enterprise's multimodal architecture enables you to bridge your traditional and software-defined infrastructures, so you can innovate freely and easily deploy

and transition business-critical workloads across a broad range of on-premise and public cloud environments.

Adaptability

SUSE Linux Enterprise Server includes a set of APIs and services that abstract the details of the underlying hardware infrastructure to make it possible to write applications that can work with the widest range of architectures, servers, storage, and network options available. This allows SLES to adapt to any operating environment and enables smooth application workload migrations between them. SUSE Linux Enterprise's multimodal architecture enables you to bridge your traditional and software-defined infrastructures, so you can innovate freely and easily deploy business-critical workloads across on-premise and public cloud environments.

Security and compliance

SUSE ensures that compliance standards are applied consistently across your estate. The configuration, auditing and automation features of SUSE Manager make it easy to ensure compliance with internal security policies and external regulations. SUSE is committed to delivering best effort security to its customers and to the open-source community. Our engineers promptly react to security incidents, deliver premium quality security updates, and continuously improve the security-related functionality in SUSE products.

Business continuity

[SUSE Linux Enterprise High Availability Extension](#) is an industry-leading open-source high availability clustering system designed to virtually eliminate unplanned downtime. It's easy to use and can be deployed in both physical and virtual environments. Also included is Geo Clustering, designed to manage cluster servers in the cloud or in data centers anywhere in the world. [SUSE Linux Enterprise Live Patching](#) improves business continuity and saves costs by reducing downtime, increasing service availability, and enhancing security and compliance.

Create cost-effective infrastructure based on your mission critical systems requirements. SUSE Linux Enterprise provides proven sup- port for a range of mission-critical systems—Mainframes IBM z System and LinuxONE, Midrange servers powered by IBM POWER8 and scalable Intel/AMD/ARM 64-bit servers.

Achieve higher service availability by clustering servers together and removing single points of failure. SUSE Linux Enterprise High Availability Extension offers an industry-leading, mature high availability solution. Starting with SUSE Linux Enterprise 15, Geo Clustering is included within High Availability extension itself, so you can easily connect data centers across the world using the integrated Geo Clustering functionality.

Virtualization

[Server and application virtualization](#) maximizes flexibility without sacrificing performance, security, or reliability. Each [SUSE Linux Enterprise Server](#) subscription includes support for the leading hypervisor technologies and [cloud platforms](#). As a result, you get more from your underutilized systems and lower the costs of acquiring and maintaining hardware.

Increase virtualization and reduce data footprint using virtualization technologies that suit your business needs. SUSE Linux Enterprise Server provides built-in support for Xen and Kernel Virtual Machine (KVM), Containers for application automation, and virtualized driver packs for enhanced virtual machine performance. SUSE Linux Enterprise Server is optimized to deliver superior performance with VMware vSphere and Microsoft Hyper-V. VMware drivers and tools (open-vmtools) are fully supported and integrated into SUSE Linux Enterprise Server in an all-in-one package with their performance fine-tuned.

Cloud ready

Accelerate innovation and time-to-market with SUSE solutions optimized for public cloud. Shift upfront CAPEX to pay-as-you-go OPEX. Whether migrating existing workloads or developing and deploying new applications, SUSE eases your transition to the public cloud. SUSE Linux Enterprise Server simplifies your efforts to run on the cloud. Our cloud images are available, optimized, and ready to run for Amazon Web Services, Microsoft Azure, Alibaba Cloud, Google Cloud, IBM Cloud and Oracle. Bring-Your-Own-Subscription (BYOS) makes it easy

to implement hybrid/multi cloud. You can bring your existing subscriptions to SUSE-certified public cloud providers and to spin up on-demand instances.

Containers

SUSE Linux Enterprise Server supports Linux containers and open-source container engines. You can manage Linux containers using common virtualization framework (libvirt). To support open-source container engines, a private registry is included with tools to collaborate securely, apply security patches, and automate application deployment inside Linux containers.

Packages and open build service

Pick and choose functionality from a menu of packages made available by Modular+ architecture. Create reproducible builds across architectures and Linux distributions using Open Build Service technology. Take advantage of thousands of open-source packages from the user community on SUSE Package Hub.

Modules

In SUSE Linux Enterprise 15 with modular architecture, everything is a module. So, you can innovate without being out of pace with the traditional enterprise software delivery model. The modules available in SUSE Linux Enterprise Server provide faster integration with upstream updates. This design approach

lets you balance the flexibility of the modular architecture and stability of the infrastructure. Using Unified Installer, customers can search for a package they like and choose the set of packages they want in the system.

Full system rollback

Gain better resiliency with Full System Rollback that allows you to take snapshots of the system, including the kernel files, and roll back. System administrators can boot from a snapshot to improve data safety. When you upgrade to a new service pack for your SUSE Linux Enterprise Server, the full system rollback capability minimizes the risk and allows you to rollback easily.

Skip service packs

Save time and resources with "skip service packs" functionality, which lets you skip upgrades of prior service packs and jump straight to latest service pack. Along with the Rollback feature that enables going back to a good state at click of a button you can minimize human error and save even more time.

ARM AArch64 and Raspberry Pi

Improve power efficiency using ARM 64's low power consumption and efficient design for your servers and network infrastructure using SLES for ARM and SUSE Linux Enterprise Server for Raspberry Pi.

Salt

Track and manage configurations using Salt integrated in base system. Salt provides a very scalable, fast, and secure way of communicating with systems in real time. In addition, you can seamlessly integrate with SUSE Manager to take full advantage of Salt's configuration management capabilities.

Full support for KIWI

With one configuration, you can use KIWI to create OS images for physical deployments (DVD, USB) as well as provision it into virtual hypervisor environments (Xen, KVM, VMware, HyperV), container frameworks and public and private clouds. In addition, SUSE Linux Enterprise Server supports Linux Containers and open-source Docker container engine. You can manage Linux Containers using common virtualization framework (libvirt). To support open-source Docker container engine, a private registry is included with tools to collaborate securely, apply security patches, and automate application deployment inside Linux Containers.

Implement DevOps

Support automation, project builds and message-oriented middleware, all combined with management and monitoring features (such as RabbitMQ, Prometheus and Maven).

SUSE Linux Enterprise Live Patching

Update security patches without rebooting machines and without waiting for your next service window.

Data security

Improved hardware-based data security using AMD's Secure Encrypted Virtualization (SEV) technology. It enables guest virtual machines to run in encrypted memory, helping protect them from memory scrape at- tacks from the hypervisor.

Complete offline installation/ disconnected operations

Enhance security with disconnected offline installation that helps you to maintain physical segregation from external networks. Complete offline installation is a big benefit for many applications such as Oracle, SQL, and SAP and businesses such as government and defense.

Open vSwitch with DPDK (Data Plane Development Kit)

Efficiently implement virtual network functions using Open vSwitch with DPDK (Data Plane Development Kit) that accelerates the user space data plane and provides the packet processing capabilities needed for Software Defined Networking (SDN) and Network Function Virtualization (NFV) solutions.

Combined with the broad hypervisor support of SUSE Linux Enterprise Server the new network function virtualization capabilities provide SUSE customers with a complete virtualization solution for cloud and on-premises deployments.

NVDIMM

Reduce downtime by reducing rebuild time upon power restoration with integrated NVDIMMs that save data in seconds and make data immediately avail- able on reboot. Downtime sensitive applications such as online transaction processing and financial applications can benefit from persistent system memory functionality. Improve performance by running applications such as storage and database acceleration at far higher speeds using system memory persistence capabilities of NVDIMM. As an example, SUSE Linux Enterprise Server is optimized for Intel® Optane™ DC persistent memory with SAP HANA® workloads.

Exploiting hardware RAS

Enhance your system reliability and reduce service costs. SUSE Linux Enterprise Server includes exclusive processes to exploit the RAS features of your hardware platform.

Certified applications

SUSE Linux Enterprise Server supports a wide variety of third-party ISV applications. For the complete list of certified software applications for SUSE Linux Enterprise (all versions), please visit: https://www.suse.com/susePSC/home

Certified hardware

Most leading hardware vendors support our Linux server OS, so you can save money by using your existing physical servers or low-cost commodity hardware.

NVMe over fabrics

Improve application performance with fast local NVMe (Non-Volatile Memory Express) and remote storage devices with NVMe over Fabrics (NoF). Using NVMe you can fully exploit the benefits of modern solid-state memory technology.

Enhanced YaST® installer

Improve resiliency and automate processes right from installer stage using auto update of code with the powerful administration tool YaST (Yet another Setup Tool). YaST gives you the capability to customize your system quickly during and after the installation. YaST is now written in Ruby so it's open and more easily customized.

SUSE Customer Center (SCC)

Using SCC, you can centrally manage your SUSE subscriptions, access software updates and contact SUSE Customer

Support. The user-friendly interface gives you a central view of all your SUSE subscriptions, allowing you to easily find the information you need.

Security standards compliance

SUSE Linux Enterprise Server is successfully certified after Common Criteria Certification at EAL4+. In addition, multiple cryptography security modules are validated to fulfill the requirements of FIPS 140-2. Those modules are OpenSSL, OpenSSH client and server, Strongswan (IPSecbased VPNs), the Kernel Crypto API, Mozilla NSS (Level 2) and libgcrypt.

TPM 2.0

Implement hardware-based security with se- cure cryptoprocessor standard TPM (Trusted Platform Module) 2.0.

Disk encryption

Protect data at rest without additional software cost. Local and remote disk encryption is supported using cryptctl for all on-premises, cloud, and hybrid installations. Integration via Enterprise Key Management KMIP standard.

Single sign-on

Shibboleth support in SUSE Linux Enterprise Server enables single sign-on using one identity across different domains for computer networks and web infrastructure.

Embedded systems

For those seeking an embedded operating system to build into their products, SUSE Embedded Systems deliver secure, flexible, and scalable enterprise Linux software and support. Ideal for manufacturers of devices, hardware, and appliances, SUSE Embedded Systems makes it easy to develop, maintain, grow, and manage embedded Linux solutions across a wide range of platforms and industries.

Edge computing

Organizations want smarter, digitized products and new innovative ways to interact with customers and other products. SUSE Linux Enterprise Micro provides a platform that allows for key products — from cars to medical devices to 5G equipment or point of sale solutions — to become more intelligent and deliver exceptional customer experiences. With SUSE, organizations can deliver innovative products and boost productivity while maintaining highest security standards.

High performance computing

SUSE Linux Enterprise High Performance Computing (HPC) is a highly scalable, high performance open source operating system designed to utilize the power of parallel computing for modeling, simulation and advanced analytics applications such as artificial intelligence and machine learning Fueled by the need for more compute power and scale, businesses around the world today are rec-

ognizing that a high-performance computing infrastructure is vital to supporting the analytics applications of tomorrow.

Real time computing

SUSE Linux Enterprise Real Time is tailored for precision timing and predictability. The business success of many organizations depends on high availability and responsiveness of their enterprise IT systems. Whether it's an IoT sensor monitoring industrial devices or an edge system that must act instantly on external inputs, SUSE Linux Enterprise Real Time is an open-source real time operating system designed to ensure near instant execution of applications and processes. It is designed to reduce latency and increase the predictability and reliability of time-sensitive, business-critical applications SUSE Linux Enterprise Real Time help you stay ahead of the competition.

Point Of Service (POS) devices

SUSE Manager for Retail includes SUSE Linux Enterprise Point Of Service clients and provides a best-in-class open source infrastructure management solution for your retail environment. It is optimized and tailored specifically for the retail industry. From Mainframe and HPC Clusters, bare metal servers and VMs down to point of service terminals, kiosks, self-service and reverse-vending systems Linux deployments, SUSE Manager for Retail helps you reduce costs, optimize

operations, and ensure compliance across your IT infrastructure.

Workstation

SUSE Linux Enterprise Workstation Extension enables you to turn your enterprise server into a fully featured development or administrator workstation to improve productivity and improve code quality. It includes all the productivity applications that are included in the desktop version, so you can conveniently access the workstation functionality you need from your server.

SAP applications

SUSE Linux Enterprise Server for SAP Applications is the leading Linux platform for SAP HANA, SAP NetWeaver and SAP S/4HANA solutions and is endorsed by SAP. Our customers reduce the risk from service outages, spend less time and effort undertaking systems maintenance, and deploy services faster, on premise and in the cloud.

Power

SUSE Linux Enterprise Server for POWER providesan enterprise-grade Linux distribution with optimizations for POWER8 and POWER9 processor-based systems. It is designed to deliver increased reliability, reduce costs formission-critical applications, provide a high-performance

platform to meet increasing business demands and accelerate innovation while improving deployment times.

Arm

[SUSE Linux Enterprise Server for Arm](#) is an enterprise-grade Linux distribution that is optimized for unique 64-bit Arm chip capabilities. It enables solution providers and enterprise early adopters to gain faster time to market for innovative server and Internet of Things (IoT) device solutions. SUSE Support services options include up to 1-hour response times and 24 x 7 access to reduce problem resolution time for mission-critical operations, as well as access to updates and fixes.

IBM Z and LinuxONE

[SUSE Linux Enterprise Server for IBM Z and LinuxONE](#) is an enterprise-class, highly reliable, scalable and secure open source server operating system, optimized for IBM z and LinuxONE and built to power physical, virtual and cloud-based mission-critical workloads.

Desktop

[SUSE Linux Enterprise Desktop](#) coexists with Windows, Mac, UNIX, and other operating systems. The desktop gives you dozens of leading applications, including a web browser, email, collaboration tools, and multimedia players—all at no extra cost. This Linux desktop comes with security

features such as application security system, integrated VPN and antivirus tools, so you can deliver bullet-proof security in your enterprise and protect from harmful virus attacks, malware, and other security threats. In addition, it includes a suite of tools that make it easy to install, configure and maintain your Linux desktop.

For further details visit: https://www.suse.com/products/server/

Documentation: https://documentation.suse.com/en-us/sles/15-SP3/

Release Notes: https://www.suse.com/releasenotes/x86_64/SUSE-SLES/15-SP3/

System requirements
Minimum Linux server system requirements for installation

- 1024 MB RAM, 512 MB Swap recommended
- 2 GB available disk space (8.5 GB for all patterns), 32 GB for snapshot/rollback of the OS
- 800x600 display resolution (1024x768 or higher recommended)

Supported processor platforms

- x86_64 (Intel 64, AMD 64)
- ppc64le (IBM POWER LE)
- s390x (IBM Z and LinuxONE)
- aarch64 (Arm64)

For detailed product specifications and system requirements, visit: https://documentation.suse.com/en-us/sles/15-SP3/

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