Transform your SAP landscape with Red Hat and Intel

Gaining actionable insight from data is a top business priority for organizations that identify as digital leaders.[2]

Many organizations use SAP databases and applications to achieve visibility into their business, operations, and customers.

Red Hat and Intel provide a modern foundation for both your IT infrastructure and your SAP landscape, allowing you to build a standardized, consistent architecture throughout your organization.

With this foundation, you can run, simplify, and expand your SAP landscape and overall IT operations to make the most of your data.

Transformation is happening now

Digital transformation continues to be a key objective for organizations across industries. In fact, 90% of surveyed organizations are well into the digital transformation journey.[1] Data and data analysis play key parts in these efforts and gaining actionable insights from data is a top business priority that organizations expect to address using technology.[2] Many organizations use SAP databases and applications to achieve these goals.

As a critical part of your business infrastructure, your SAP environment can benefit from modernization. To continue receiving SAP support organizations must migrate their underlying databases to SAP HANA® and their existing SAP applications to SAP S/4HANA® by 2027. SAP HANA is supported only on Linux® operating systems, so many organizations must also choose and deploy a new Linux foundation in their datacenter.

An in-memory data platform with transactional and analytical capabilities, SAP HANA provides a foundation to conduct real-time data analytics, optimize performance, and simplify business operations—in a single system. Transactions and analytics are processed on a single data copy to deliver insight from live data many times faster than disk-based relational databases. SAP HANA also incorporates databases, advanced analytic processing, applications, and integration services into a single platform that can run all of your SAP enterprise applications, including SAP S/4HANA. These new capabilities increase the demands on your infrastructure and require optimized performance, scalability, and reliability.

Migrating to SAP HANA also presents an opportunity to realign your SAP environment with your overall digital transformation strategy. By modernizing your SAP environment, you can gain faster data access for users and applications, more accurate insight via machine learning models, and increased agility to better support digital business demands.

Choose expert partners to help you transform your IT and business

Red Hat and Intel have common strategic goals and a strong partnership that spans 25 years. Both companies focus on hybrid and multicloud infrastructure as the foundation for the future. Hybrid and multicloud environments bring together the technologies, tools, and processes you need to modernize today and adapt to ongoing change. The companies also help you navigate digital transformation with advanced software-defined infrastructure and industry-standard platforms that improve datacenter agility and flexibility.

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1 Red Hat. "2023 Global Tech Outlook," December 2022.
2 Nash Squared. "Nash Squared digital leadership report 2023," November 2023.

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The business value of using Red Hat for SAP workloads

Red Hat's open source solutions offer measurable business benefits for organizations that run SAP workloads like SAP S/4HANA:[4]

- **99%** less unplanned downtime.
- **32%** higher developer productivity.
- **24%** faster development cycles.
- **$33 million** higher annual revenue per organization.

Read the complete paper to learn more.

Open technologies are a key part of hybrid strategies, and Red Hat and Intel collaborate in upstream open source projects to deliver enterprise-focused features and technologies. For example, Intel and Red Hat continue to be leading contributors to the Linux kernel. For the 6.0–6.5 development cycles, Intel was the top overall contributor and Red Hat was the #4 contributor, together submitting 16% of all changesets for those cycles.[3]

Red Hat and Intel also have long-standing relationships with SAP. Red Hat® Enterprise Linux is one of only 2 Linux platforms certified for SAP HANA and S4/HANA. An optimized offering for SAP workloads, Red Hat Enterprise Linux for SAP Solutions combines the reliability, scalability, and performance of Red Hat Enterprise Linux with features and capabilities that meet specific SAP workload requirements. The included high availability add-on and extended update services provide the reliability and support your organization needs for critical business applications.

Part of a multiyear technology partnership to optimize Intel platforms for SAP applications, the Intel and SAP Center of Excellence demonstrates the capabilities of Intel and SAP technology for digital transformation. Through engineering collaboration, SAP HANA fully supports Intel® Xeon® Scalable processors, allowing significant advances in performance, business continuity, and data insight and analysis.

Red Hat and Intel products also form the foundation of RISE with SAP, SAP's managed cloud offering. RISE with SAP is only offered on cloud instances powered by Intel Xeon Scalable processors, and Red Hat Enterprise Linux is the preferred operating system for net-new deployments.

These partnerships help all 3 companies plan and integrate their technology roadmaps to offer the optimized joint solutions customers demand, faster.

Build a modern, agile IT foundation to support business needs

Red Hat and Intel provide a modern foundation for both your IT infrastructure and your SAP landscape, allowing you to build a standardized, consistent architecture throughout your organization. The companies combine production-grade open source platform, container, automation, and integration technologies with innovative, high-performance processors to deliver a flexible, stable foundation for critical workloads. These components are tested and certified to work together reliably and integrated for increased performance, stability, and manageability:

- Intel Xeon Scalable processors, high-performance processors with built-in accelerators and advanced security technologies designed for hybrid cloud environments and optimized across workloads.
- Red Hat Enterprise Linux for SAP Solutions, a flexible, enterprise Linux platform for bare-metal, virtual, container, and cloud environments, with SAP-specific optimizations and add-ons.
- Red Hat Insights, a unique suite of hosted services that continuously analyzes platforms and applications to predict risk, recommend actions, and track costs across hybrid cloud environments.
- Red Hat Ansible® Automation Platform, an end-to-end automation platform to configure systems, deploy software, and orchestrate advanced workflows.

3 Calculated from LWN.net statistics for 6.0, 6.1, 6.2, 6.3, 6.4, and 6.5 kernel development cycles, retrieved 21 February 2024.

4 IDC White Paper, sponsored by Red Hat. "The Business Value of Red Hat's Open Source Solutions for SAP," August 2021. Doc. #US48065121

Take advantage of world-record performance

Red Hat Enterprise Linux running on Intel Xeon Scalable processors achieved world-record performance for the Business Warehouse (BW) edition of SAP HANA Standard Application Benchmark in each of 3 phases:[5]

- Data load phase, testing data latency and load performance.
- Query throughput phase, testing query throughput with moderately complex queries.
- Query runtime phase, testing the performance of very complex queries.

Read the blog post to learn more about these benchmark tests.

- Red Hat OpenShift®, an enterprise-grade hybrid cloud application platform.
- Red Hat OpenShift AI, a flexible, scalable machine learning operations (MLOps) platform with tools to build, deploy, and manage applications that incorporate artificial intelligence (AI).

A modern Red Hat and Intel infrastructure helps you run, simplify, and expand your SAP landscape and overall IT operations.

Run your SAP environment with high performance, stability, and security

Red Hat and Intel solutions provide a scalable, manageable, and security-focused foundation for all your workloads, across hybrid cloud environments. Run both general IT and SAP workloads on the same infrastructure to improve efficiency and resource use. Consolidate workloads and databases onto fewer systems to reduce costs. Streamline operations and reduce staff training needs by standardizing on a single set of platforms and processes. You can also use your preferred third-party products across your environments, knowing they will work reliably with Red Hat and Intel platforms.

Performance

A high-performance foundation is required for SAP applications to provide the most value to your business. Red Hat and Intel offer software and hardware that are engineered and optimized together to deliver more performance and efficiency for IT and SAP workloads.

Gain greater insight from your data, faster, with our integrated solutions. Red Hat and SAP engineers work together in the SAP LinuxLab to ensure that SAP applications running on Red Hat Enterprise Linux achieve high levels of performance on Intel platforms. For example, Red Hat Enterprise Linux running on Intel Xeon Scalable processors achieved world-record performance for the Business Warehouse (BW) edition of SAP HANA Standard Application Benchmark in each of 3 phases: data load phase, query throughput phase, and query runtime phase.[5]

Intel Xeon Scalable processors also include 6 integrated accelerator engines to speed AI, high performance computing (HPC), security, networking, analytics, and storage workloads. These accelerators help to expedite your data analytics pipeline to handle more transactions and improve data services for informed decision making. For databases like SAP HANA, Intel In-Memory Analytics Accelerator (Intel IAA) helps increase query throughput and Intel Data Streaming Accelerator (Intel DSA) takes on data copy and transformation operations to free CPU (central processing unit) cycles. Together with faster memory and a larger last-level cache, these 2 accelerators enhance performance for in-memory databases, big data analytics, and data warehousing workloads. Finally, accelerators can also offload tasks from CPU cores, reducing the number of cores needed per workload and allowing you to run more applications on each server.

Stability

When your business relies on your SAP environment, it must be up and running at all times. Red Hat and Intel help you increase stability through platform reliability and rapid recovery. The Red Hat Enterprise Linux High Availability Add-On—included with Red Hat Enterprise Linux for SAP Solutions—provides failover orchestration across your environment to keep your SAP workloads up and running at all times.

5 Red Hat blog. "Red Hat Enterprise Linux achieves significant performance gains with Intel's 4th Generation Xeon Scalable Processors," 20 April 2023.

Streamline SAP operations

Manual operations can result in poor performance, potential downtime, and increased security risks for your SAP landscape. Red Hat Ansible Automation Platform helps you streamline operations across your SAP and IT environments.

Organizations that use Ansible Automation Platform experience:[6]

- **75%** faster deployment of new storage resources.
- **30%** more efficient IT infrastructure management.
- **29%** more efficient network infrastructure management.
- **30%** more efficient IT security teams.

Read the complete paper to learn more.

Red Hat Update Services for SAP Solutions provides up to 4 years of support—including security patches and critical fixes—for select minor releases of Red Hat Enterprise Linux. When you upgrade to a new minor release, binary compatibility and kernel stability ensure that your system remains stable and that both SAP and custom applications continue to execute smoothly and with the expected performance. Red Hat Enterprise Linux also includes in-place upgrade capabilities and live patching for important and critical Common Vulnerabilities and Exposures (CVEs).

Security

Rapidly identify and remediate threats to availability, security, stability, and performance with predictive operating system analytics. Red Hat Insights delivers proactive, automated, targeted issue resolution to ensure that your environment is operating optimally and avoid problems and unplanned downtime. With more than 600 rules, including many specific to SAP system configuration requirements and best practices, you can identify vulnerabilities before they impact critical operations. Intel Trust Domain Extensions (Intel TDX) offers increased confidentiality at the virtual machine level, enhancing privacy and control over your data. And Intel Software Guard Extensions (Intel SGX) helps protect data in use via unique application isolation technology.

Simplify operation of your SAP and IT environments

Manually managing your SAP environment in a digital, cloud-based world can be time-consuming and error-prone. IT automation can help you migrate to SAP S/4HANA faster and streamline operation of both your IT and SAP environments using infrastructure as code (IaC) approaches. Red Hat Ansible Automation Platform is a single framework that helps you automate all aspects of your SAP and IT infrastructure, from servers and network devices to operating systems, applications, and security. It provides SAP-specific content that you can build into automation playbooks and use in migration scenarios and everyday operations.

Migration

Migrate to SAP S/4HANA more rapidly, efficiently, and reliably with a flexible automation platform. Programmatically provision, configure, and validate your target environment—including infrastructure and network components, operating systems, and applications—according to SAP HANA and SAP S/4HANA requirements. Replicate data to the new environment and redirect virtual IP addresses. And deploy SAP workloads onto new infrastructure in less time.

Ongoing operations

Automating operations with Red Hat Ansible Automation Platform also streamlines both SAP and non-SAP IT management tasks. Automate specific tasks or entire workflows to reduce time spent on manual work, deliver resources faster, and rapidly adapt to market and vendor changes. Create automation content to consistently build and deploy SAP-certified systems when expanding your environment or replacing nodes. Build predictable and repeatable processes for managing configurations and policies across SAP and non-SAP systems to improve consistency and security. Speed recovery from incidents with automated failover and backup processes. And build automated, DevOps-based development and deployment pipelines to speed integration, proofs of concept, testing, and hand-offs between teams.

6 IDC White Paper, sponsored by Red Hat. "The Business Value of Red Hat Ansible Automation Platform," October 2021. Doc. #US48678022

Accelerate AI workloads

With fast memory, large last-level cache, and up to 64 cores per processor, Intel Xeon Scalable processors can handle demanding AI workloads like deep learning inference and fine tuning on models up to **20 billion parameters**.[7]

Expand your SAP environment to the future

IT transformation is an ongoing journey. Organizations must continually adapt to changing technologies, markets, and business demands. Application modernization, cloud technologies, and AI/ML workloads are common transformation initiatives. Red Hat and Intel support these areas to help you transform your SAP landscape, IT infrastructure, and business approaches according to your needs.

Application modernization

With adaptable, integrated platforms, Red Hat and Intel help you modernize on your schedule and deliver flexibility without sacrificing stability. Advanced integration technologies let you continue to use existing applications and connect them to new applications over time. Container- and microservices-based platforms let you refactor legacy applications and custom extensions that integrate with your SAP environment to operate more flexibly and efficiently. They also provide a foundation for new, cloud-native and containerized applications and workloads. Developers can rapidly create new applications and extensions with reusable microservices and container architectures.

Hybrid cloud environments

A Red Hat and Intel foundation lets you extend your IT infrastructure to the cloud, giving you more choice for workload deployment. Many SAP applications are supported in private and public cloud environments and consistency across private, hybrid, public, and multicloud infrastructure lets you deploy these workloads where you want, without requiring changes. Red Hat Enterprise Linux for SAP Solutions is certified and easily deployable on major cloud providers like AWS, Microsoft Azure, Google Cloud, and IBM Cloud. Additionally, several cloud and managed service providers offer Red Hat OpenShift as a service, allowing you to deploy containerized workloads with less effort. With Red Hat and Intel, you can place your applications on your choice of infrastructure to optimize performance, costs, scalability, and security and move them as needed.

AI-enabled applications and insights

Red Hat and Intel also offer technologies to help you adopt AI and MLOps efficiently and successfully. Advanced integration capabilities let you connect both SAP and non-SAP systems and data across your organization and provide faster, more accurate insight and decisions. And AI-specific capabilities help you build, deploy, and manage AI-enabled applications that take advantage of your combined data sources.

Red Hat OpenShift AI provides tools for training, tuning, serving, monitoring, and managing AI/ML experiments and models on Red Hat OpenShift. OpenShift AI gives data scientists and developers a powerful technology platform for gathering insights and building intelligent applications. Teams can quickly move from experiment to production in a collaborative, consistent environment.

OpenShift AI includes a core set of development and deployment features—like AI/ML libraries and frameworks, hardware accelerator support, and data science pipelines—integrated with an ecosystem of trusted AI tools like those from Intel. Data scientists can start with their choice of tools, access self-service infrastructure, and collaborate in real time, while developers can integrate container-ready models into AI-enabled applications with less effort. At the same time, IT operations teams can deploy containerized models and applications on a unified, security-focused platform and quickly scale workloads to handle demands on-site, in the cloud, or at the edge.

7 Based on Intel internal modeling as of December 2023.

About Intel

For nearly 50 years, Intel and SAP have been turbocharging the next wave of breakthrough innovations that help foster intelligent enterprises to make better and faster decisions, unleashing the potential of data. Their co-innovations help enterprises increase business agility and flexibility with real-time analytics and reimagined performance. Customers can protect and future-proof their investments with a modern infrastructure of validated and SAP-certified components and accelerate speed to market with an optimized, enterprise-ready platform designed for innovation.

Intel Xeon Scalable processors are designed with AI workloads in mind and include AI-specific accelerators. With fast memory, large last-level cache, and up to 64 cores per processor, Intel CPUs can handle demanding AI workloads like deep learning inference and fine tuning on models up to 20 billion parameters.[7] They excel in a range of AI use cases, including generative AI, recommender systems, natural language processing (NLP), machine learning (ML), and image classification. Intel also offers dozens of pretrained, optimized AI models that are ready to use and easily customized.

Get help from the experts

Not every organization has the time, resources, or desire to research, build, integrate, and deploy a new IT foundation themselves. Red Hat Consulting provides a variety of services to help you modernize faster and more easily. By combining open tools and standards, industry insight, organizational knowledge, and proven methodologies, Red Hat Consulting can help you modernize your IT architecture, migrate to a flexible cloud infrastructure, implement a storage solution, or accelerate business agility by deploying containers on cloud. Red Hat and Intel also work with leading systems integrators (SIs) to help you migrate and modernize your SAP landscape.

Learn more

Build a modern, agile IT foundation to support your business needs now and in the future. Red Hat and Intel offer the infrastructure, expertise, and innovation to run, simplify, and expand your SAP landscape.

Learn more at redhat.com/sap, intel.com/sap, and intel.com/redhat.

About Red Hat

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. A trusted adviser to the Fortune 500, Red Hat provides award-winning support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

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