Top reasons for running SAP solutions on Red Hat and IBM infrastructure

SAP HANA deployments require superior performance, maximum availability, and increased security.

Together, IBM, Red Hat, and SAP offer a complete hardware and software foundation that combines advanced server capabilities with the leading enterprise Linux operating system to maximize SAP HANA performance and efficiency.

Deploy a comprehensive foundation for SAP workloads

As part of greater digital transformation initiatives, many organizations are deploying data-intensive, real-time workloads on SAP® HANA®. To be effective, these workloads require robust, scalable multisocket server architecture. These IT platforms must also provide the flexibility to run multiple, mixed workloads, expand system capacity, and deploy SAP HANA in on-site, cloud, and hybrid environments.

Together, IBM, Red Hat, and SAP offer a complete hardware and software foundation for SAP HANA workloads. Based on Red Hat® Enterprise Linux® for SAP Solutions and IBM Power® Systems, this integrated solution delivers the flexibility, resilience, and performance SAP HANA requires.[1]

Achieve enterprise-grade performance

SAP HANA applications can deliver rapid, efficient insight. Your underlying operating system and hardware platforms can greatly impact the performance of your analytical workloads. To support demanding applications, IBM Power Systems feature simultaneous multithreading, allowing them to execute more threads per core and more instructions per clock cycle than x86-based servers. IBM's built-in virtualization hypervisor—IBM PowerVM®—isolates workloads running on the same server for improved performance. Red Hat Enterprise Linux for SAP Solutions adds automatic non-uniform memory access (NUMA) capabilities and SAP-specific performance tuning to deliver unrivaled speed to insight for users.[2]

Increase server density and capacity

Saving costs is a top priority for 54% of organizations.[3] Red Hat Enterprise Linux and IBM Power Systems provide high server density and scalability, allowing you to process large volumes of data using fewer processor cores and run SAP workloads at a significantly lower cost. With IBM POWER9 processors and IBM PowerVM, Power Systems can host up to 16 production SAP HANA databases on a single server.[4] You can granularly allocate memory and cores across SAP HANA instances to meet precise capacity needs. Support for shared processor pools lets you dynamically distribute compute capacity across SAP environments, reducing total cost of ownership (TCO). On-demand workload scaling allows you to quickly and easily add more cores and memory to SAP HANA workloads—without configuration recertification by SAP.

Enhance memory performance and protection

SAP HANA relies heavily on in-memory data processing, placing extreme demands on memory management, input/output (I/O), and other system resources. This solution provides high memory resilience, so you can reliably meet these demands. IBM Power Systems deliver enhanced reliability, availability, and serviceability to keep SAP HANA environments up and running at all times. Additionally, a single scale-up server can support up to 64TB of physical memory.

1 *Learn more about SAP HANA performance requirements in* SAP Note #2235581.

2 *Learn more about performance tuning in* SAP Note #2777782.

3 *Harvey Nash and KPMG, "CIO Survey 2019: A Changing Perspective," 2019.* home.kpmg/xx/en/home/insights/2019/06/harvey-nash-kpmg-cio-survey-2019.html.

4 *Learn more about server densities in* SAP Note #2230704.

Red Hat Enterprise Linux for SAP Solutions offers efficient, reliable, and balanced memory-management algorithms to support critical memory-intensive workloads. If faulty memory is detected, the operating system dynamically updates the virtual memory map to mark faulty regions and seamlessly move processes to healthy regions. Page cache management limits swapping to more efficiently handle memory pressure scenarios with large datasets.

Improve availability, security, and reliability

Downtime — even for patching system vulnerabilities or deploying regular upgrades — is unacceptable for critical business applications. Red Hat and IBM help you improve reliability, availability, and security for your SAP environment. IBM Power Systems offer the highest reliability rating among major mainstream server products.[5] Red Hat Enterprise Linux provides in-place upgrade capabilities and live patching for important and critical Common Vulnerabilities and Exposures (CVEs), allowing most stability and security issues in the Linux kernel to be fixed while the system is still running. This eliminates the need to reboot servers, increasing availability and business continuity. Red Hat Enterprise Linux for SAP Solutions also includes the Red Hat Enterprise Linux High Availability Add-On, helping to further enhance the reliability of SAP applications.

Red Hat Enterprise Linux for SAP Solutions also includes Red Hat Smart Management and Red Hat Insights to help you more easily keep your environment up-to-date and in compliance with security and regulatory policies. Red Hat Insights provides predictive operating system analytics for rapid identification and remediation of threats to availability, security, stability, and performance. SAP-specific rules help you optimize your operating environment to support business transactions and big data initiatives. Red Hat Smart Management helps you more effectively manage and update large Red Hat Enterprise Linux deployments.

Furthermore, Red Hat and IBM simplify workload migration to new hardware architectures. Built-in resilience and application binary interface (ABI) compatibility allows existing SAP workloads running on Red Hat Enterprise Linux and older IBM Power Systems to run without change on newer IBM POWER9-based servers. You can seamlessly migrate workloads to POWER9-based servers using the live partition mobility capabilities in IBM PowerVM. Processor state, memory, attached virtual devices, and connected users are transferred to the new systems without service disruption.

Maximize flexibility

Organizations need to run a variety of applications at different times to meet changing business needs. This flexible solution allows you to run both SAP and non-SAP applications — including transactional, analytical, memory-intensive, and I/O-intensive workloads — on a single platform. You can also run legacy SAP applications alongside SAP S/4HANA® workloads and migrate at your own pace. Flexible resource allocation lets you support short-term, long-term, and shifting demand. And consistency across on-site, cloud, and hybrid infrastructure delivers reliable customer experiences, regardless of where workloads are deployed.

Access expert multivendor support

Issues in your SAP environment can cause costly downtime. IBM, Red Hat, and SAP have long-standing alliances that incorporate collaboration and co-engineering to deliver integrated, proven solutions and support for enterprise organizations. The three companies work together to quickly identify and resolve issues with a single support call.

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5 *ITIC, "ITIC 2019 Global Reliability Survey Mid-Year Update," October 2019.* ibm.com/downloads/cas/DV0XZV6R.

Learn more

IBM, Red Hat, and SAP deliver a powerful, consistent platform that boosts business agility and IT efficiency. With enhanced performance, security, availability, and reliability, this certified solution provides a robust foundation for critical SAP workloads, allowing you to make the most of your infrastructure investments.

Learn more about IBM, Red Hat, and SAP solutions at redhat.com/sap.

About IBM Power Systems

IBM Power Systems are designed for critical applications and emerging cognitive era workloads, including artificial intelligence, machine learning, deep learning, advanced analytics, and high-performance computing. These servers deliver efficiency across private, public, and hybrid cloud environments and benefit from a wide range of open technologies, many of which stem from collaboration with fellow OpenPOWER Foundation members. Learn more about running SAP HANA on IBM Power Systems at ibm.com/power/hana.

About SAP

As the Experience Company powered by the Intelligent Enterprise, SAP is the market leader in enterprise application software, helping companies of all sizes and in all industries run at their best: 77% of the world's transaction revenue touches an SAP system. Our machine learning, Internet of Things (IoT), and advanced analytics technologies help turn customers' businesses into intelligent enterprises. SAP helps give people and organizations deep business insight and fosters collaboration that helps them stay ahead of their competition. We simplify technology for companies so they can consume our software the way they want — without disruption. Our end-to-end suite of applications and services enables more than 440,000 business and public customers to operate profitably, adapt continuously, and make a difference. With a global network of customers, partners, employees, and thought leaders, SAP helps the world run better and improve people's lives. For more information, visit sap.com.

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 integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.
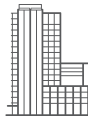
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