Red Hat | Microsoft Azure

SAP modernization considerations

Simplify SAP migration and operations
with Red Hat and Microsoft

Modernization is a requirement

Migrating your SAP environment presents an opportunity to modernize your IT infrastructure with cloud technologies to reduce costs, streamline operations, and increase business agility.

When evaluating your options, be sure to consider:

▸ Linux and cloud platform features and optimizations.

▸ Management and automation.

▸ Security and compliance.

▸ Performance and scalability.

▸ Availability and stability.

▸ Flexibility and choice.

▸ Vendor support.

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Migration presents an opportunity for modernization

In today's rapidly evolving digital landscape, organizations are transforming their IT infrastructure and applications to improve efficiency and enhance innovation. With the rise of technologies like artificial intelligence (AI) and machine learning (ML), many businesses are modernizing both internal systems and customer-facing applications. By optimizing your IT environment, you can not only maximize the value of existing investments but also gain opportunities to invest in AI-based solutions and high-value projects that speed business growth.

As an essential part of your business infrastructure, your SAP landscape can benefit greatly from modernization. New features and technologies across SAP solutions provide increased speed, scale, and innovation, as well as cloud capabilities, for your business. Migrating to new SAP technologies and solutions can help you expand your enterprise resource planning (ERP) capabilities and gain detailed insights into critical business functions.

This migration presents an ideal opportunity to modernize the underlying foundation of both your SAP and general IT environments. Open source platforms and cloud-based technologies can help you reduce operational costs, streamline operations and maintenance, and increase business agility and innovation. Modernizing your SAP environment can also help you restructure and decouple your core systems and services to simplify operations and future updates.

Even so, migration and modernization can be daunting tasks. Migrating your SAP landscape often involves both system upgrades and database migrations. And modernization often requires new cloud-native technologies and approaches. Common concerns include:

▸ Designing a unified, enterprise-wide SAP platform strategy across on-site datacenters, public cloud environments, and edge deployments.

▸ Enhancing SAP system performance and availability while minimizing downtime.

▸ Ensuring compliance of SAP hosts with organizational policies and vendor recommendations.

▸ Reducing time spent on routine management tasks and minimizing administrator interventions.

▸ Managing a growing number of applications on diverse platforms with unique deployment models.

▸ Permitting cloud-native developers to consume data from SAP systems.

Red Hat and Microsoft offer modern, optimized solutions that help you run, simplify, and expand SAP operations across hybrid cloud environments.

Modernize more easily with Red Hat and Microsoft

Through long-standing partnerships, Red Hat, Microsoft, and SAP work together to certify Red Hat® and Microsoft products for production deployments of SAP applications, platforms, and databases, based on recommended best practices for cloud environments. This collaboration delivers faster time to value, greater operational efficiencies, and high levels of security for cloud-based deployments.

Red Hat and Microsoft deliver a proven, adaptable, and innovative foundation for your SAP landscape. Based on Red Hat Enterprise Linux® and Microsoft Azure, these validated, prearranged solution configurations let you build a stable, efficient environment in less time. An integrated support model streamlines issue resolution and reduces hassles.

Red Hat provides 2 Red Hat Enterprise Linux offerings that are optimized for SAP environments: Red Hat Enterprise Linux for SAP Solutions and Red Hat Enterprise Linux for SAP with High Availability and Update Services. Both offerings include SAP-specific features and optimizations to meet the demands of complex SAP environments. High availability and update support options provide the reliability and support your organization needs for critical business applications.

You can purchase Red Hat Enterprise Linux for SAP with High Availability and Update Services on demand from the Azure Marketplace and pay only for the time you use, allowing you to scale elastically and cost-effectively. These purchases qualify for both the Microsoft Azure Consumption Commitment (MACC) program and Red Hat's hybrid committed spend (HCS) program.

In contrast, Red Hat Enterprise Linux for SAP Solutions subscriptions are available directly from Red Hat and Red Hat channel partners. You can move these subscriptions between on-site and Azure environments via Red Hat Cloud Access.

Microsoft Azure delivers cloud-based compute capacity with advanced security for your workloads. Flexible sizing and scaling options let you deploy only the resources you need now and expand as your needs grow. A suite of on-demand Azure virtual machines and SAP HANA® large instances lets you optimize your environment according to the needs of your workloads.

Considerations for deploying your SAP landscape

With an in-memory data platform that includes transactional and analytical capabilities, SAP solutions provide a foundation to conduct real-time data analytics, optimize performance, and simplify business operations—in one 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 solutions also incorporate databases, advanced analytic processing, applications, and integration services into a unified 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.

The following sections discuss considerations for migrating and modernizing your SAP environment.

Linux platform

Your underlying operating system can greatly impact how well your SAP applications perform. Standardizing on a single operating system can ease migration to new SAP solutions while improving stability for critical applications and workloads.

Prepare for new technologies

SAP Edge Integration Cell is a hybrid integration runtime that lets you manage APIs and execute integration scenarios within your private SAP landscape while keeping sensitive data on-site.

Red Hat OpenShift® forms a Kubernetes-based, hybrid cloud foundation for SAP Edge Integration Cell deployments, allowing your organization to take advantage of new technologies and innovation.

Read more about the SAP Edge Integration Cell on OpenShift Solution.

SAP has chosen 2 enterprise distributions of Linux as the operating system for SAP HANA and SAP S/4HANA. As a leading operating system for servers and other large-scale systems, Linux provides the power, flexibility, and reliability needed for critical applications.

Open, flexible, and security-focused, Red Hat Enterprise Linux for SAP with High Availability and Update Services and Red Hat Enterprise Linux for SAP Solutions combine the reliability, scalability, and performance of Red Hat Enterprise Linux with additional content specific to operating SAP landscapes, making it easier to manage your SAP environment. A single subscription model and operating system provide a cost-effective, consistent platform that streamlines operations and increases stability. Red Hat provides SAP-specific repositories that contain additional packages for running SAP applications. It also includes features and optimizations for SAP environments to provide better performance and stability. Standardizing your SAP environment on Red Hat Enterprise Linux simplifies management and consistency, allowing you to derive more value from your investments.

Cloud platform

Co-locating business applications and SAP technologies on a unified cloud platform helps streamline data flow and improve overall system efficiency. By deploying these workloads together, you can reduce integration complexity and ensure compatibility, leading to simplified operations and faster decision making. Red Hat and Microsoft technologies support this strategy by providing a stable, flexible foundation that offers increased performance and scalability for both SAP solutions and adjacent applications across hybrid cloud environments.

Microsoft Azure provides cloud-based, security-focused, resizable compute capacity for workloads and applications. A suite of Azure instances, supported by both SAP and Red Hat platforms, lets you select the right configuration for your applications. For example, SAP HANA large instances are purpose-built to run large in-memory databases and can contain up to 24TB of memory in a single instance. You can also start with smaller instance sizes and easily transition to larger instances as your data grows.

Microsoft continually deploys the latest hardware innovations, so you can take advantage of computing advances without needing to research, procure, integrate, and refresh hardware yourself. Additionally, all Red Hat platforms and tools work consistently across both on-site and Azure infrastructure, allowing you to create a standardized hybrid environment.

Management and automation

To be most effective, all systems in your SAP landscape must be current and in compliance with security and regulatory policies. Consistent management and configuration across development, test, and production environments are key. Visibility and insight into your environment and operations help to optimize administration and processes.

To streamline operations, Red Hat includes intelligent management tools in SAP-optimized Red Hat Enterprise Linux offerings. Red Hat Enterprise Linux system roles are predefined automation content that configures your systems for optimal performance based on guidance from Red Hat and SAP. With a stable application programming interface (API) across Red Hat Enterprise Linux major releases, system roles let you use the same processes and procedures to manage your entire deployment rapidly and consistently.

Both offerings also contain Red Hat Insights, a unique suite of hosted services that continuously analyzes platforms and applications to help you proactively identify and remediate a variety of conditions to avoid outages, security events, and compliance risks. Insights incorporates years of Red Hat support

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experience—including SAP expertise and best practices—to find malware and vulnerabilities before they impact critical operations. If a system contains a known issue, Insights automatically alerts you and provides instructions for fixing the problem. And with a comprehensive rule set based on SAP and Red Hat recommendations, Insights ensures that your SAP servers use only supported and certified configurations, maximizing the performance of your SAP landscape.

Red Hat Enterprise Linux for SAP Solutions also includes Red Hat Satellite with cloud-based remediation capabilities. A scalable lifecycle administration platform, Satellite lets you provision, patch, configure, and fully control all of your Red Hat infrastructure, including development, test, and production systems. Automation and monitoring features help you ensure that systems have the latest security patches and rapidly remediate configuration drift. Complete auditing capabilities record and report the historical state of your systems at various points in time. Satellite also provides subscription management capabilities, so you can optimize subscription use across your organization.

Security and compliance

Your critical systems must be protected at all times. Many issues within SAP environments arise because services do not have the most current security patches and updates. Control of security updates and system patches is essential as you adopt new SAP solutions. Automated detection and notification capabilities can alert you when systems and software require updates, helping you keep pace with system security and compliance requirements.

Red Hat and Microsoft provide advanced security features to protect your environment. Red Hat's integrated software stack allows you to implement a continuous security approach to protect your business and infrastructure from operating system to application. Integration between Red Hat Enterprise Linux, Satellite, and Insights delivers increased monitoring and remediation capabilities and proactive compliance controls. Security-Enhanced Linux (SELinux) isolates SAP processes to mitigate attacks via privilege escalation. Plus, Red Hat Product Security continually scans for and responds to emerging threats and rapidly providing patches for vulnerabilities.[1]

Microsoft's policies, architectures, and operational processes are built to the stringent requirements of the most security-sensitive Azure customers. The company manages the security of its underlying cloud infrastructure and provides guidance and expertise for your workloads and configurations through online resources, personnel, and partners. Microsoft also maintains many compliance programs and certifications from accreditation bodies across geographies and industries, reducing your compliance burden. Azure environments are regularly audited to ensure continuous compliance.

Additionally, Red Hat and Microsoft provide security advisories for current issues and can work with you to resolve problems when needed.

Performance

A high-performance foundation is required to maximize the business value of your SAP applications. Migration provides an opportunity to optimize your environment for the best possible performance. For example, SAP HANA requires massive amounts of data to be held in-memory, so the settings and parameters of the underlying operating system must be tuned for this.

Red Hat and Microsoft provide a high-performance foundation for SAP environments. Red Hat and SAP engineers work together in the SAP Linux Lab to ensure that SAP applications running on Red Hat Enterprise Linux achieve high levels of performance across hardware platforms. Azure provides a selec-

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1 Learn more about Red Hat Product Security at access.redhat.com/security/overview.

Adopt a consistent platform across workloads

While Red Hat Enterprise Linux provides a stable platform optimized for SAP workloads, its robust architecture also supports a range of other workloads, from traditional applications to modern cloud-native deployments, offering reliable performance and high availability for critical business operations. This versatility makes it an ideal choice for organizations looking to streamline operations with a single, trusted operating system.

Learn more about the use cases for Red Hat Enterprise Linux.

Streamline your migration and modernization efforts

Red Hat and Microsoft provide architectures and tools to help you migrate and modernize faster.

▸ The SAP on Azure architecture center provides architectural guidance—including implementation, configuration, and deployment instructions—for SAP workloads running on Azure.

▸ SAP-specific Red Hat Ansible® Automation Platform content allows you to automate common migration and management tasks with less effort and in less time.

tion of purpose-built, SAP-certified instances to optimize the performance of SAP workloads. For example, SAP HANA large instances provide up to 16 sockets and 24 TB of memory supporting 896 vCPUs.

Scalability

In addition to high performance, database scalability is required to support large datasets. SAP solutions can handle several hundred terabytes of data, and their performance depends on the scalability and performance of both the operating system and the underlying infrastructure.

Red Hat and Microsoft solutions streamline scaling, so you can start with only the resources you need now and rapidly expand as needs change. On-demand availability and scaling ensures your environment is never resource-constrained. SAP Landscape Management (LaMa) Connector for Azure helps you simplify resource management; monitor, collect, and analyze performance and use data; automate cloud management; and detect and diagnose application issues across your SAP landscape.

Finally, Azure's global footprint lets you choose where to place workloads to support new markets, customer demands, and regional regulations.

Availability and stability

SAP workloads are critical for your business and downtime is unacceptable.

Together, Red Hat and Microsoft provide:

▸ Management and deployment capabilities for SAP applications in high-availability environments.

▸ Your choice of SAP applications for use with Red Hat and Microsoft high-availability solutions. Choose from automated SAP HANA System Replication, SAP NetWeaver ASCS (ABAP SAP Central Services) and ERS (Enqueue Replication Server), and SAP S/4HANA ASCS/ERS based on Standalone Enqueue Server 2 (ENSA2).

Additionally, both Red Hat Enterprise Linux for SAP offerings include the Red Hat Enterprise Linux High Availability Add-On to keep your SAP workloads up and running at all times. The High Availability Add-On provides failover orchestration across environments running in 1 or more Azure availability zones. Using Pacemaker and specialized Azure and SAP resource agents, Red Hat Enterprise Linux offers a standards-based approach for high-availability operations.

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, documented interfaces and kernel stability ensure that both SAP and custom applications continue to execute smoothly.

Flexibility and choice

Every organization is different. You need technology partners that allow you to tailor your environment with the technologies, services, and products that meet your organization's requirements today and in the future.

Red Hat and Microsoft give you an extensive choice of services and third-party products to customize your environment. Red Hat Enterprise Linux runs consistently across both on-site and cloud infrastructure, allowing you to move applications and workloads without changing them. A suite of Azure instances—supported by both SAP and Red Hat platforms—lets you select the right configuration for your

Get help from the experts

Take advantage of professional services to help you migrate with less hassle and effort.

▸ Red Hat Consulting offers expert migration and modernization services, based on years of experience.

▸ SAP on Microsoft Azure advanced specialization partners offer extensive consulting and delivery services for SAP landscapes.

applications. You can choose to purchase Red Hat Enterprise Linux with High Availability and Update Services directly from the Azure Marketplace, or move your Red Hat Enterprise Linux for SAP Solutions subscription to Azure via Red Hat Cloud Access. The Azure Marketplace also offers a variety of independent software vendor (ISV) solutions that are certified to run on Red Hat Enterprise Linux, so you can easily add the products you require. Plus, Red Hat, Microsoft, and SAP partner with systems integrators to ease your migration to new SAP solutions, Red Hat Enterprise Linux, and Azure.

Red Hat and Microsoft also work together to help you take advantage of the latest technology without disrupting your business. Tight integration between Red Hat products and Azure services ensures that all new products, features, and services are available and supported by both companies soon after launch. Joint development and reliable interoperability strengthens business continuity. And support for multiple processor models lets you use the appropriate platform at all times.

Support

Issues in your SAP environment can cause costly downtime. To maintain business continuity, you need technology partners that provide ongoing, easy-to-access, enterprise-grade support.

With Red Hat and Microsoft, support is simple and hassle-free. Red Hat and Microsoft work with SAP and certified hardware and cloud providers to support your SAP environment. An integrated support model gives you a single point of contact for issues. Call Microsoft, Red Hat, or SAP, and the companies work together internally to identify and resolve issues quickly, minimizing downtime for your environment.

You can also engage a Red Hat Technical Account Manager (TAM) to provide specialized product knowledge and industry expertise and help you plan and implement your migration.

Learn more

Migrating to new SAP solutions presents an opportunity to modernize and realign your underlying IT infrastructure with digital business needs. Red Hat and Microsoft provide certified solutions for your SAP landscape that improve datacenter innovation, efficiency, and flexibility.

Learn more about Red Hat and Microsoft solutions for SAP.

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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