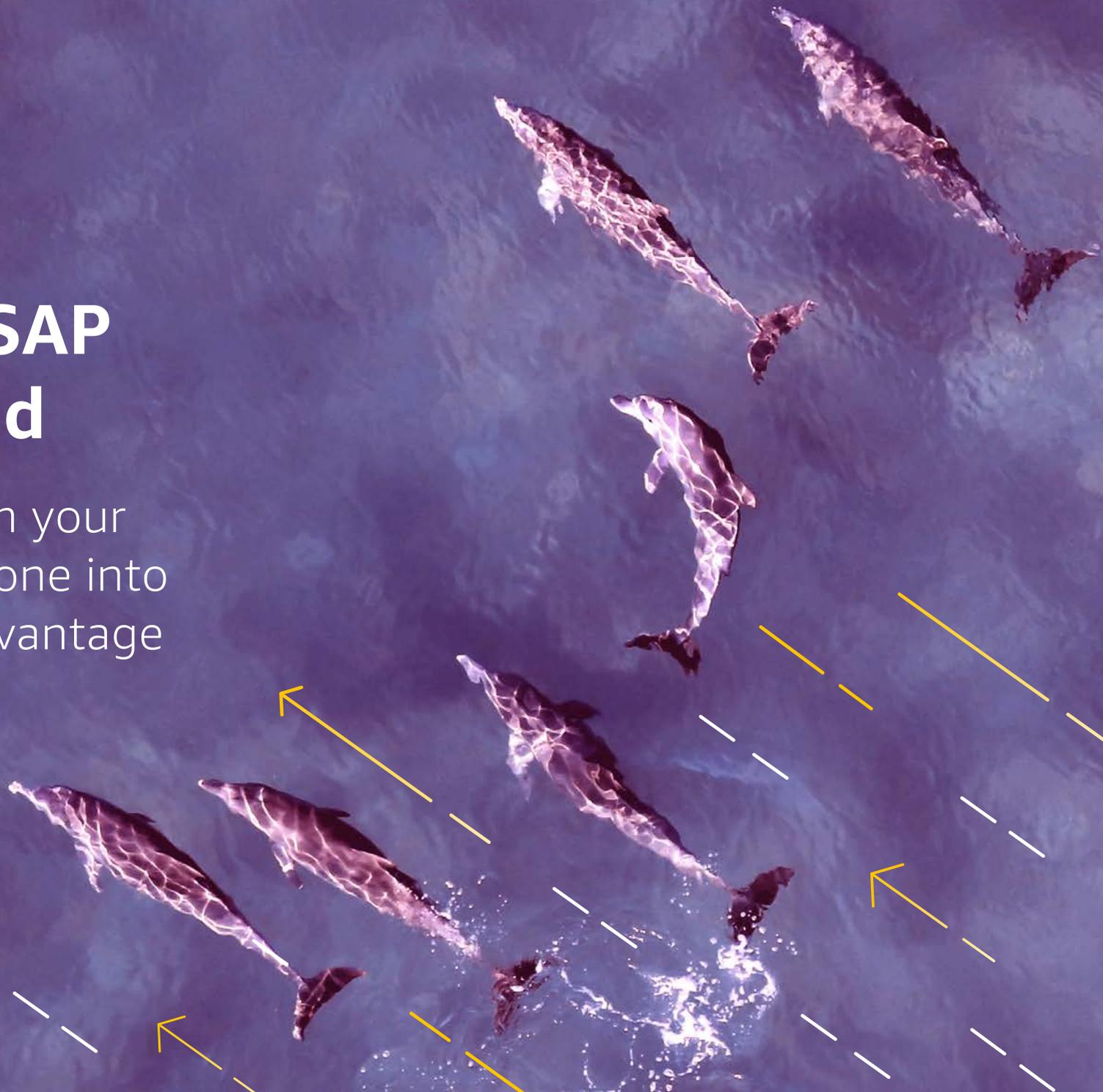




EBOOK

Migrating SAP to the Cloud

How to transform your
enterprise backbone into
a competitive advantage



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Introduction

Powering critical workloads with the cloud

In 2009, Netflix had the goal of becoming a global entertainment company. Seven years later, Netflix unplugged its last data center, going all-in on the cloud to support this initiative. With scale and access to global IT resources, it was able to more easily support a user-base of 86 million members that spanned 190 countries and collectively streamed 150 million hours of video per day¹. By offloading infrastructure management and implementing a DevOps culture, Netflix gained freedom to experiment and the means to do so rapidly, allowing their development teams to deliver new value to their customers. As of 2019, the Netflix user base has ballooned to over 160 million globally².

In 2012, Lyft was a ridesharing startup born in the cloud, supporting users in the San Francisco area. With rapid access to geographically distributed IT resources, Lyft was able to grow to 60 cities by April 2014, including a massive launch of 24 cities in 24 hours during that same month. Now, this dramatic expansion has reached over 200 cities, facilitating 14 million rides per month. Along the way, Lyft has adopted a multitude of new cloud-native technologies that enable them to drive efficiency and more easily innovate their offerings. In one particular instance, Lyft's data science team used a cloud-native data warehouse solution to discover that 90% of users requested rides on similar routes, in a similar time frame during peak demand. This insight led to the launch of Lyft Line, a shared ride service that allows users to share a vehicle with other passengers for significant savings.

¹ <https://youtu.be/SorHbAiZ918>

² <https://financesonline.com/number-of-netflix-subscribers/>

³ <https://aws.amazon.com/solutions/case-studies/lyft/>

According to Lyft CTO, Chris Lambert, Lyft Line is the company's biggest driver of growth in its biggest markets³.

These are just two examples of the many large-scale companies that rely on the cloud to run critical IT operations. What these companies and many others are finding is that doing so is not only feasible, but also a realistic means to rapidly build competitive advantages.

Extending cloud benefits to SAP landscapes

Supporting this notion is the growing number of enterprises that choose the cloud to run SAP landscapes – some of the most critical and deeply integrated workloads in one's IT environment. Enterprises running SAP on the cloud include BP, Bristol-Myers Squibb, Liberty Mutual, ENGIE, and thousands more. As a result, these businesses are realizing greater cost-efficiency and agility to power their enterprise backbone.

By reading this eBook, you'll further understand why you should be thinking about migrating your SAP workloads to the cloud today. This eBook includes insights, advice, and real-world examples that explain how cloud benefits translate to your SAP environments, considerations for migrating successfully, and how the cloud can transform SAP into the foundation of your competitive differentiation.

Overcoming misconceptions about the cloud

Separating perception from reality

While many businesses are quickly building a competitive edge by running SAP on the cloud, others remain hesitant. Those not buying into the cloud instead opt to either remain on-premises altogether or migrate select workloads they deem less critical, like dev/test environments or disaster recovery sites. This decision is usually based on several misconceptions about the cloud: it can lead to poor performance, a vulnerable security posture, or migration can introduce risk and disrupt daily operations. As you explore cloud migration, it's important to dive deep into these ideas. When we do, it is clear the perception that many of these businesses hold about the cloud is far different than reality.

| Perception | Reality |
|--|--|
| Cloud resources don't meet the performance standards of critical SAP workloads | Critical SAP workloads thrive on the cloud |

Cloud resources are not one-size-fits-all. In fact, providers have designed virtual machines with varying specs to meet the unique needs of your critical workloads. For SAP in particular, instances are available optimized for compute, storage, or memory and SAP has certified those that meet performance requirements. Enterprises such as BP and Bristol-Myers Squibb trust the cloud to run critical SAP workloads and since 2008, even SAP has run some of its own workloads on the cloud⁴.

⁴ <https://d1.awsstatic.com/enterprise-marketing/SAP/sap-on-aws-overview.pdf>

⁵ <https://www.youtube.com/watch?v=j8qZFkO8ggE>

| Perception | Reality |
|---|--|
| Migrating mission-critical applications at enterprise scale will introduce risk and disruption to day-to-day operations | The right tools and consulting partners reduce risk and streamline migration |

Native migration tools can help you quickly and securely move data and applications to the cloud. For example, using native tools, Zappos upgraded their entire SAP landscape to SAP HANA and moved it to the cloud – all within 48 hours⁵. Furthermore, by working with consulting partners who have demonstrated that they are experts both in SAP and cloud migration you can migrate mission-critical SAP workloads more efficiently, build SAP cloud architectures based on best practices, and get the training and assistance needed to manage your SAP environment in the cloud.

| Perception | Reality |
|---|--|
| The cloud will inhibit visibility and control, and make it difficult to comply with regulatory requirements | Control and assurance programs simplify compliance initiatives |

Cloud providers give you granular control over the placement of data and applications throughout their global footprint, enabling you to more easily meet compliance and data residency requirements. Additionally, assurance programs are available natively, designed to help you meet regulatory requirements, assess whether you are remaining continually compliant, and stay audit ready. Moderna Therapeutics realized these benefits as they leaned on the expertise of partners to ensure compliance with necessary regulations in the biopharma industry.⁶

⁶ <https://aws.amazon.com/solutions/case-studies/moderna-therapeutics/>

⁷ <https://aws.amazon.com/solutions/case-studies/seaco/>

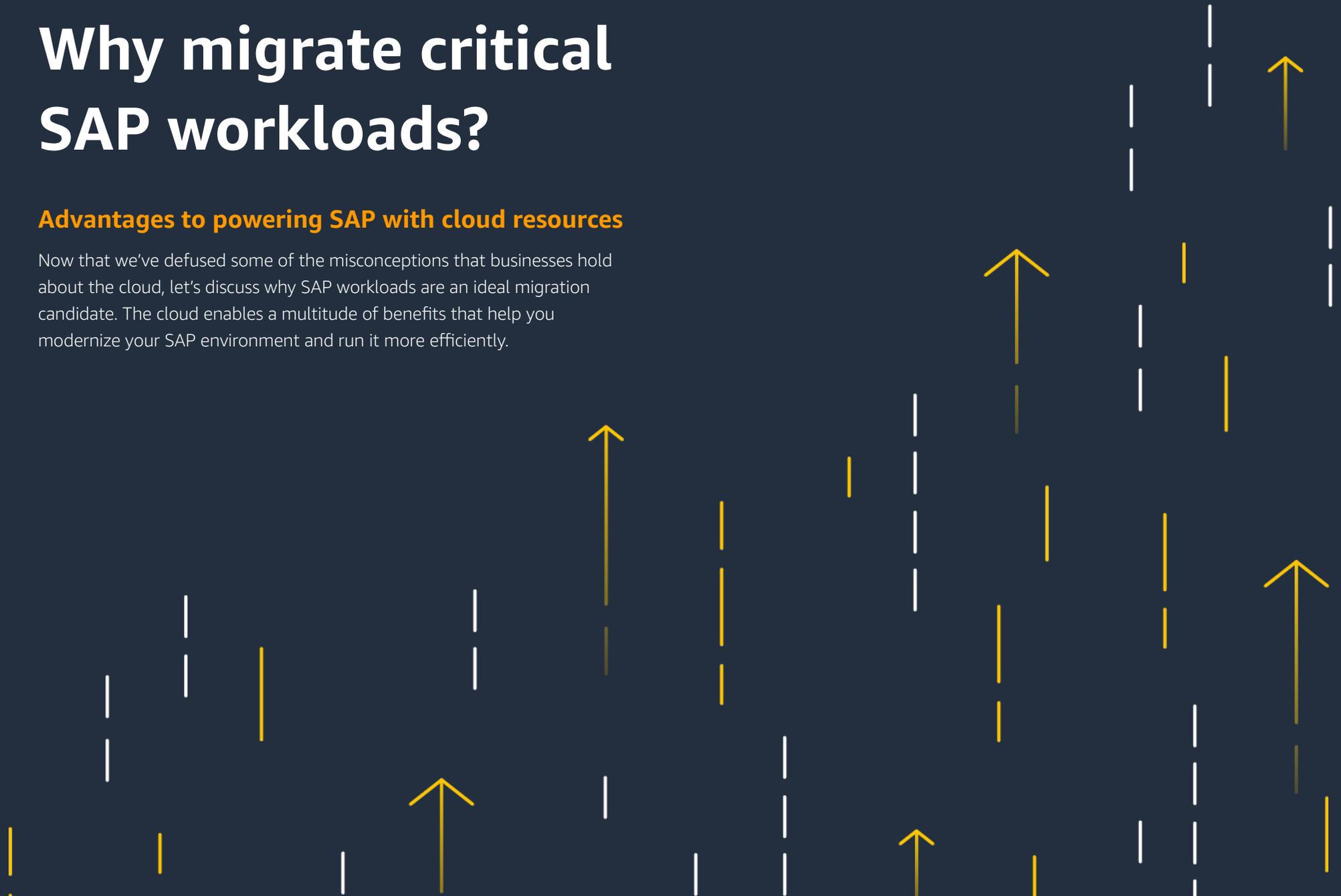
| Perception | Reality |
|--|---|
| By leveraging the cloud, you place sensitive data on shared hardware, inhibiting your ability to meet security requirements. | You can operate more securely in the cloud than on-premises |

Cloud providers use redundant and layered controls, continuous validation and testing, and a substantial amount of automation to enable the underlying infrastructure to be monitored and protected 24x7. To further strengthen your security posture, you can leverage a wide variety of native and third-party tools and features. One example of an enterprise strengthening the security posture of their SAP applications on the cloud is Seaco, the world's largest sea-container leading company. They used cloud-native services to virtually isolate and granularly control access to resources, monitor their network more closely, and deliver virtual desktops securely.⁷

Why migrate critical SAP workloads?

Advantages to powering SAP with cloud resources

Now that we've defused some of the misconceptions that businesses hold about the cloud, let's discuss why SAP workloads are an ideal migration candidate. The cloud enables a multitude of benefits that help you modernize your SAP environment and run it more efficiently.



“We needed to update our platform while at the same time developing **a new analytics solution and new business model**. Moreover, each local ERP system needed to connect to S/4HANA for development. During the short development timeframe, we needed to scale substantially—which made AWS a compelling option for us.”

– Thierry Langer, CIO Finance Division, ENGIE

Retire technical debt

Businesses often avoid large-scale technology upgrades, such as cloud migration, in favor of applying quicker fixes to prior technology investments. In the short term, this is convenient for technical decision makers and practitioners alike, but it also means preserving antiquated tools and processes that hinder operational effectiveness and agility. And the longer these tools and processes are embraced, the harder they are to move on from. In the long-term, this tradeoff is costlier than the short-term convenience is worth. By opting for cloud migration, you can eliminate technical debt, positioning yourself to improve operational efficiency and realize a pace of innovation for years to come.

Save money versus on-premises

By nature, SAP workloads tend to have volatile demand – monthly, quarterly, and annual reports create temporary peaks followed by extended valleys. On-premises, you're required to pay upfront for IT resources to support these peaks, while watching these investments go largely unused during non-peak times. Adding to these costs is hardware refreshes, which require huge expenses every 3-5 years to keep systems up to date. By running SAP on the cloud, you can solve both problems. Cloud computing provides on-demand resources, which allow you to provision only what you need, when you need it (and de-provision these resources when they're not needed). As a result, you pay only for the IT resources you use. Since the peaks of SAP workloads are quite predictable, you can also provision reserved compute instances, which can save you up to 75% depending on the cloud provider. Cloud providers handle all hardware maintenance and refresh costs, meaning recurring capital investments in hardware are a thing of the past.

“To date, we’ve achieved a **52 percent reduction in our total cost of ownership** due to using the AWS Cloud and plan to continue migrating critical applications to AWS... ”

– Ben Cabanas, CTO, GE Transportation

Accelerate digital transformation

“We have increased the value of our SAP systems by integrating SAP with AWS technologies because we can **steer the business in near real time.**”

– Yuriy Volosenko, Director for Enterprise Applications and Architectures, Zalando

To modernize SAP workloads and drive new value, businesses can integrate emerging technologies like IoT and machine learning with their SAP landscapes. On-premises, this initiative presents numerous challenges: upfront costs can be massive, and it can take months or even years to plan and implement – let alone drive value. Because of this, many deem the risk too high to seek the reward. Part of the beauty of running SAP on the cloud is that leading cloud providers continually updates their services with the latest technology offerings. Because they are available natively, integrating these services with your SAP workloads can be done quicker, more cost-effectively, and with significant less risk compared to on-premises deployments. This makes it easier for you to innovate and continually drive new value from your SAP landscape.

Seamlessly execute mergers and acquisitions (M&A)

Successfully executing a merger or acquisition requires an organization to integrate the IT assets of their newly acquired entity with existing systems without disrupting operations. This includes understanding application and process dependencies to eliminate overlaps and redundancies, bridging new siloes in their architectures, consolidating ERP systems, modernizing environments where needed, and eventually retiring unneeded data centers. This process is arduous and predictably, the rigidity of legacy IT systems only bottlenecks it further, slowing time-to-value. Inversely, running on the cloud generally accelerates the time it takes to integrate IT systems and drive value from M&A because it eliminates hardware management, reduces manual configurations, and enables businesses to modernize systems faster. Furthermore, you can spin up IT environments to support new divisions in a matter of hours, compared to weeks or months on-premises.

“When our CIO said we had to start planning how to extend SAP BPC to new users after the merger, it was great to be able to tell him **how easy it would be with Amazon AppStream 2.0**. What could have been a big headache without AppStream 2.0 turned out to be something we barely had to think about.”

- Kevin Adams, Global IT Infrastructure Manager, Tidewater

What can you do to streamline your SAP migration?



Follow Migration Best Practices

Migrating your SAP environments can be a highly involved endeavor and since these workloads are critical in nature, you'll want to ensure you're following a proven path to success. To streamline this process as much as possible and execute migration reliably, you should consider performing the following activities before beginning your migration:



1. Gather baseline information

SAP workloads are some of the most deeply integrated in many enterprises' on-premises environments. To account for this through migration, it is necessary to gather as much baseline information about your on-premises environment as possible. Application ownership, utilization data, and dependency mapping, for example, are critical to minimizing disruption.



2. Cleanse your environment

As enterprises expand, through both internal growth and mergers and acquisitions, it is common for applications to become redundant or overlapped and for data between applications to be inconsistent or missing. Third-party tools can help you understand your environment and eliminate redundancies and gaps before migration.



3. Leverage an expert

For businesses lacking SAP expertise, cloud providers often have partners and professional services organizations that provide tools and best practices to help you successfully migrate SAP workloads.

Weigh the pros and cons of modernizing on SAP S/4HANA

As businesses explore options for modernizing their SAP environments, many are evaluating SAP S/4HANA, an ERP system that leverages artificial intelligence to help companies digitally transform operations. The system is powered by SAP HANA, an in-memory relational database management system and data platform that supports real-time processing for transactions and analytics. It also allows you to manage all your SAP data in one place, eliminating the need to manage and maintain separate legacy systems and siloed data. As a result, organizations can support their business using real-time data, while also reducing their data and hardware footprint. This is driving many customers to adopt SAP S/4HANA as part of their cloud migration. This enables an organization to realize the benefits of both S/4HANA and cloud immediately after their migration. While SAP S/4HANA offers significant benefits, migrating existing SAP applications to S/4HANA is a significant undertaking.

For this reason, other customers are electing to lift and shift existing SAP applications to the cloud and delaying their S/4HANA migration for the time being. These customers can still realize significant benefits, including cost savings, improved performance, increased agility, and access to innovative offerings such as IoT, AI/ML, and real-time analytics, which are complex and costly to build on-premises.

It's important to select a cloud provider that will support your particular SAP strategy. Some cloud providers force customers to modernize on S/4HANA during migration. AWS encourages customers to pursue the strategy that works best for them and will never force S/4HANA modernization as part of migration. Regardless of a customer's decision, AWS provides a number of programs and tools that streamline SAP migration to the cloud.

AWS SAP Migration Acceleration Program (SAP MAP)

SAP MAP provides consulting support, training, and services credits to reduce the risk of migrating to the cloud, build a strong operational foundation, and help offset the initial cost of migrations. It includes a migration methodology for executing legacy migrations in a methodical way as well as robust set of tools to automate and accelerate common SAP migration scenarios.

AWS Launch Wizard for SAP

A wizard-based experience that helps customers increase their operational efficiency by providing built-in prescriptive guidance for sizing and provisioning of EC2 clusters for SAP workloads.

AWS Quick Starts for SAP

Rapidly deploy SAP landscapes with architectures that follow AWS best practices for security and high availability. AWS Quick Starts are deployment accelerators, with offerings for SAP HANA, S/4HANA, NetWeaver, and Business One for HANA.

This robust set of migration offerings is only one of the reasons that customers choose run their SAP workloads on AWS.

Choose AWS to run SAP

As you evaluate cloud providers to support your critical SAP workloads, you should understand why more than 5,000 SAP customers choose Amazon Web Services (AWS)—far more than any other cloud provider:

Longest Track Record of SAP Customer Success

For over 12 years, AWS has been running SAP workloads on the cloud – the longest track record among cloud providers. In this time, AWS has worked back from the customer, gathering feedback from over 5,000 organizations to inform the development of new offerings and the improvement of others. SAP themselves rely on AWS to help customers build systems of differentiation. That's why they run ten SAP Cloud Platform regions on AWS⁸.

⁸ <https://discovery-center.cloud.sap/viewServices>

Resources to Support Even the Largest SAP Workloads

Customers can confidently run their SAP applications with strong performance on AWS. Since 2008, SAP and AWS have jointly innovated to help customers run SAP on the cloud. Born out of this partnership is a broad variety of hardware purpose-built and/or certified for SAP. AWS offers the largest cloud-native virtual instances certified for SAP HANA in production and multiple SAP-certified options based on the latest hardware and technology from Intel. Customers can also run SAP on bare metal instances on AWS with AWS Nitro System. This eliminates the virtualization overhead to make 100% of the server addressable, while delivering the same flexible and elastic experience you'd expect from the cloud.



Choose AWS to run SAP

AWS and Intel engineers work together to design custom hardware based on Intel's latest technology – optimizing for the performance and features SAP customers require. You can change your Amazon EC2 compute infrastructure in a few clicks to take advantage of the latest SAP certified instances featuring the latest from Intel. Optimize your SAP workloads for the price to performance you need. Because Amazon EC2 runs on 2nd Generation Intel® Xeon® Scalable processors, your SAP workloads will already be optimized for performance from the start.

Partners and Tooling to Modernize at Your Own Pace

No matter what SAP system you run or strategy you'd like to adopt, AWS and AWS Partner Network (APN) Partners have the experience, tooling, methods, and best practices to streamline your migration or transformation. Other cloud providers will push you to adopt SAP S/4HANA as part of your migration, but AWS encourages you to pursue whatever strategy is best for your business, whether that includes S/4HANA or not.

Unlike other cloud providers, AWS has a partner Competency specifically dedicated to SAP. Before receiving this competency, APN Partners must complete specialized business and technical trainings, prove their knowledge of the AWS Well-Architected Framework, and demonstrate previous SAP on AWS customer success.

Most Extensive Set of Cloud Services to Innovate with SAP

Once running on AWS, you can leverage the broadest and deepest set of native cloud services to innovate with SAP data. By integrating these services with your SAP workloads, you can more easily take advantage of cutting-edge technologies like machine learning and IoT to derive new value from SAP.

With the help of AWS, Intel, and APN Partners, you can reliably migrate your SAP workloads to the cloud and transform them into a competitive advantage for your business.

“BP needs the agility to be competitive when prices, policy, technology and customer preferences are changing - and that's what we get with AWS.”

– Steve Fortune, Group CIO, BP



Resources to get started

- [Learn more about running SAP workloads on AWS](#)
- [Find Amazon EC2 Instances SAP-certified and powered by Intel for your application](#)
- [Find an APN Partner to help you transform your SAP environment](#)

About AWS

For 14 years, Amazon Web Services has been the world's most comprehensive and broadly adopted cloud platform. AWS offers over 175 fully featured services for compute, storage, databases, networking, analytics, robotics, machine learning and artificial intelligence (AI), Internet of Things (IoT), mobile, security, hybrid, virtual and augmented reality (VR and AR), media, and application development, deployment, and management from 70 Availability Zones (AZs) within 22 geographic regions, with announced plans for 15 more Availability Zones and five more AWS Regions in Indonesia, Italy, Japan, South Africa, and Spain. Millions of customers—including the fastest-growing startups, largest enterprises, and leading government agencies—trust AWS to power their infrastructure, become more agile, and lower costs.

To learn more about AWS, visit aws.amazon.com.