

Leveraging SAP on Azure for IT Transformation

IT Leaders Guide

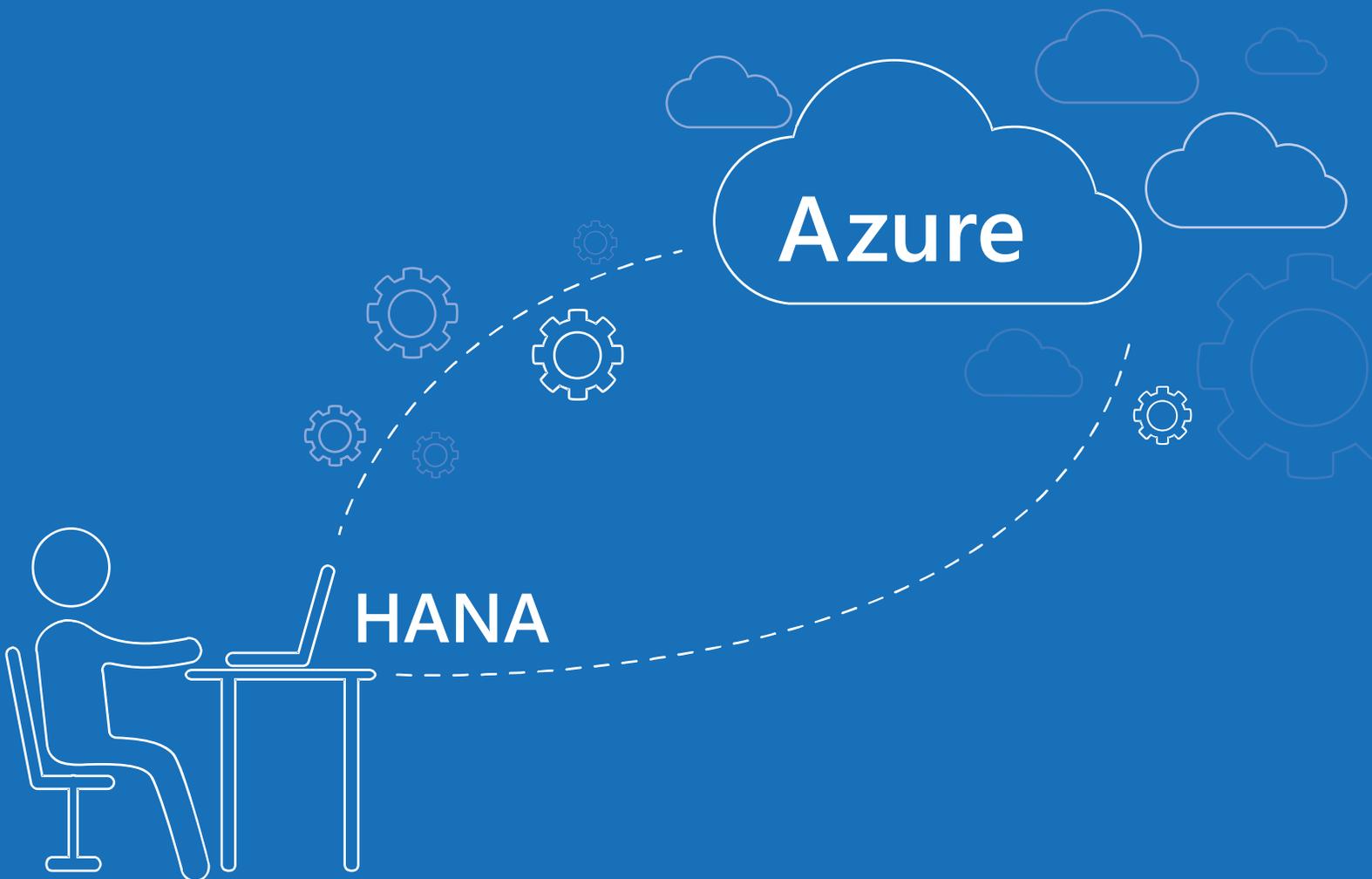


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Introduction

For years, business leaders have sought to enable revolutionary new digital business capabilities, increase their ability to respond to threats and opportunities, and change plans overnight while remaining cost efficient, compliant and secure – all while meeting day-to-day responsibilities with ease. Yet, due to the limitations of in-place ERP deployments and other roadblocks, few companies have transformed their IT operations to enable these capabilities. Business leaders often lay the blame on IT leadership, but the reality for SAP customers has been that the ability to make those changes wasn't possible until recently.

The promise of SAP HANA and the cloud

IT leaders have long heard the promises of what they could do with SAP HANA, what they could do with their ERP in the cloud, and what they could do with all the services available in the cloud – technologies that hold the promise of delivering the revolutionary capabilities that business leaders envision. But these benefits could not be achieved together because the cloud was perceived to not be secure enough and SAP HANA seemed to be incompatible with the cloud.

Microsoft Azure is uniquely positioned for SAP workloads

Here's the good news: All that has changed. One public cloud, Microsoft Azure, has overcome these barriers with the ability to support large enterprise-class SAP HANA workloads and deliver global reach with compliant, high performance services – and some of the largest deployments in the world have proven it. Security concerns have been overcome as built-in threat prevention systems have proven to make the cloud more secure than on-premises security, and customers are now convinced that with limited staff they cannot provide the same security as cloud.

All this makes Microsoft Azure uniquely positioned as the best choice for SAP customers ready to make the move to the cloud. This white paper – written for technical decision makers – is one in a series of papers about leveraging SAP applications on Azure to realize the full value of your enterprise's SAP systems and to execute upon IT and enterprise-wide business transformation. The chains have come off and the race has begun. Within your markets, the stragglers will not survive and the first movers will gain share. It's about the need for speed, automation, scalability, time-to-value, and innovation – and cloud delivers. As Frank Gens at IDC noted in 2017:

“The cloud is becoming enterprises' most critical and dependable source of sustained technology innovations.”

Conclusion and recommendations

The status quo and traditional approaches to deploying SAP applications will limit enterprises' success in realizing the full value of their SAP estates and hamper their digital transformation initiatives and goals. Businesses can most effectively move beyond those limitations by leveraging the benefits of Microsoft's global hyperscale public cloud, Azure, which provides a new generation of SAP deployment options that offer on-demand infrastructure, specialized services, and flexibility in the migration process.

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Realizing the full value of SAP applications today requires a careful review of strategic deployment options

SAP HANA represents a new paradigm. It offers significant advantages to the business, but it presents challenges for IT organizations driven by the need for new skills, hardware, and SLAs to managing business stakeholders' changing demands for responsiveness, scalability and security.

Today's environment demands greater flexibility and agility

We no longer live in a static environment. IT no longer has the luxury of planning for some fixed end state. Until recently, IT took a three-year view and built a solution that fit projected needs. But that resulted in over-engineering, rigid topologies, and over-capacity. It's wasteful and often leads to a crisis when capacity is reached. Instead, IT leaders need to build and iterate on a dynamic cloud migration roadmap, remaining agile and flexible to respond to stakeholders' fast-changing needs while providing accelerated time to value.

The pressure to move to SAP HANA and plan for SAP S/4HANA

SAP will stop support for NetWeaver and other databases by 2025, and the pressure to use cloud in a meaningful way is already present. This, combined with the need to migrate to SAP S/4HANA and SAP BW/4HANA application suites and modernize the surrounding applications and business functions, has created an urgency to act. Set the end goal and start taking steps towards it – either move any DB to the cloud, or move NetWeaver to SAP HANA, or take the full step to SAP S/4HANA and SAP BW/4HANA in the public cloud.

Leaders need tools for better decision making and faster action

No matter what industry a business is in, there are new disruptive players turning traditional incremental competition on its ear. To start innovating in this new way requires enterprises to unlock the value of their data; engage and empower employees to access data; and integrate live telemetry from operations, put it in business context, analyze with evermore powerful tools, and take and automate actions.

Deployment options today for SAP landscapes

SAP HANA appliances: One option some enterprises are choosing today is going with SAP HANA appliances, because they don't have the necessary architecture and integration skills in-house. Most enterprises taking this path are finding that they have all the problems of traditional on-premises deployments with additional issues of inflexibility.

Managed services: Some go with managed services, usually chosen for the same reason as above – they cannot easily or quickly hire the expertise to architect, operate and update their landscape. Again, most are finding out that they cannot run any DB and they cannot control their update schedules, versions, OS, or hardening. On top of this, they also lose most cloud benefits, even if the managed service runs in a cloud. The success of the managed services option is limited to small and medium-sized companies.

General purpose public cloud: While the public cloud has been embraced by most enterprises for non-critical applications, many large enterprises have shied away from moving business-critical applications like SAP into the cloud. First, everyone was concerned that cloud security posed serious risks. Second, for business-critical applications with unique requirements – like SAP – the requisite certifications, integration capabilities, and specialized services to support these workloads in the public cloud weren't available or mature.

SAP HANA by itself is not cloud-ready and adapting a general-purpose cloud to fit SAP HANA requirements is not easy – especially for enterprise production deployments. Though the landscape servers and all surrounding applications benefit from the cloud's elasticity, agility and economics – the HANA DB itself is not a born-in-the-cloud DB. The scale-up sizes and features HANA needs are not available in general purpose clouds. Hence, large enterprises have mainly been using the cloud for non-production HANA deployments.

However, Azure has specialized cloud services that retain the value of the cloud while providing the scale up, high SLA, and high business continuity features that enterprises require for mission-critical production workloads.

Azure delivers production-grade SAP environments

The partnership of Microsoft and SAP has invested significantly into scales, topologies, operations, and management for SAP landscapes in the Azure cloud. Azure has honed and proven a dual-purpose strategy that uses VMs for the landscape app servers and surrounding applications and a choice (depending on your needs) of bare metal and VMs for the DB. Only Azure has taken a no compromises approach. It supports the largest sizes supported by SAP, providing bare metal and VMs in close proximity to a rich set of services. Azure also provides enterprise-grade security and compliance needed by industry and offers integrated HA, DR, backup, and a choice of monitoring, automation and management tools.

The advantages of Azure for SAP include increased agility and speed to value, a shift from CapEx to OpEx, support for hybrid models, shorter implementation times, stronger security, and the ability to marry transactional data with other, often unstructured, data sources. Cloud enables the IT organization to focus on innovation and to deliver it faster.

Enterprises are past the tipping point of public cloud adoption

The number of enterprises using the public cloud will increase from 45% in 2016 to more than 90% by the end of 2019 – Morgan Stanley

Public cloud is being embraced by most enterprises today, and the majority of IT spending is now on cloud applications and services. A cloud-first procurement strategy has become the norm, and the tide of moving core workloads to the cloud is rising fast.

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Moving your SAP landscape and SAP HANA applications to the public cloud is the best option – and Azure offers the most complete hyperscale cloud for SAP

The risk today is around not moving to cloud

Today, the risks around the cloud are the opportunity costs of not leveraging its benefits, particularly for SAP and SAP HANA application landscapes. Moving to SAP HANA without a cloud strategy is a dead end. It will have to be redone again when you decide to move the center of gravity of your IT to the cloud, which is inevitable. So do it once, now that it is possible with Azure. The opportunity for SAP customers is realizing the value of a modernized SAP landscape combined with the right global hyperscale cloud, which acts as a value multiplier to SAP benefits.

Azure is the top *enterprise-focused* global hyperscale public cloud

Azure, Microsoft's cloud platform, is an evolving collection of integrated cloud services spanning compute, storage, data, networking, and applications. The platform offers enterprises a smooth and seamless transition to the cloud by offering Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and a hybrid cloud model that leverages organizations' existing on-premises investments with cloud resources.

Two global hyperscale clouds dominate the marketplace

Amazon Web Services (AWS) and Microsoft Azure are the two dominant players; together, they own approximately 70% of the market. [Recent statistics released by Microsoft](#) show that Azure recorded a 98% growth rate in the second quarter of 2017.

SAP and Microsoft's relationship is decades old and multifaceted

Among leading public cloud vendors, Microsoft is the only one that runs their mission-critical apps on SAP, making Microsoft one of the largest SAP customers. In addition, beyond Azure, Microsoft and SAP have been working together on deep integration at the office and desktop level, including analytics and SSO with Active Directory.

Microsoft completes its journey to SAP in the cloud

In February 2018, Microsoft finished moving its entire SAP landscape – an estimated 50 terabytes – to Microsoft Azure, ending a fast-moving year long journey.

“Moving to the cloud will save us money, but this is really about becoming more agile and innovative. This means our teams can stop worrying about keeping our infrastructure up and running and focus on innovating without a lot of heartburn. They can run experiments, learn, and then use those learnings to take us in new directions – and if an experiment doesn’t work, they can easily shut it down and move on to something else.” – Mike Taylor, manager of the Microsoft SAP program in Core Services Engineering and Operations (CSEO).

Estimates are that moving from on-premises to Azure will slash the Microsoft SAP budget by 10 percent to 20 percent or more, cost savings that come from fine-tuning usage, snoozing systems at night and on weekends, and by leaving behind old processes that aren’t needed any more.

Microsoft and SAP are committed to empowering digital transformation and innovation for their customers with a 30-year partnership that is optimized, trusted and seamless:

- **Optimized** – Roadmaps and innovation are by design, driven by co-located developers with unique SAP and Azure capabilities and experience.
- **Trusted** – Not just partners, but customers as well. Microsoft and SAP are both highly committed to their partnership and joint offerings, demonstrated by the fact that SAP is running on Azure for their business-critical systems, and Microsoft runs SAP, including SAP S/4HANA.
- **Seamless** – Integrated enterprise-class support is provided by co-located support staff, while co-located engineering and aligned sales and marketing teams ensure a seamless customer experience.



Microsoft and SAP CEOs announcing their expanded partnership in

In November of 2017 [the two companies announced an expanded partnership](#) offering customers joint cloud capabilities and a trusted road map.

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Why Azure offers the most complete solution for SAP applications in the cloud

Azure uniquely solves for operational challenges for SAP applications in the cloud

The move to SAP HANA and cloud is a challenging but critical step, leaving IT leaders with a number of concerns. Foremost, no one knows what tomorrow will bring, and parameters – like size or location – that are easily satisfied today, may not be so easily met tomorrow.

Azure has had a lot of experience meeting these concerns head on and doing whatever it takes to address them – even if it means architecting new services, such as purpose-built SAP HANA bare metal solutions.

Here is a comprehensive list highlighting why Azure is the preferred and only truly viable choice for SAP mission-critical applications in the cloud today – and securely into the future:



Scalability

Instance size: Scale up from 0.5 to 20TB with 16 configurations to choose from. Azure offers multiple choices of core to memory ratios in the popular range of 2-12TB, giving Azure customers the headroom they need, along with the right size at the right price point.

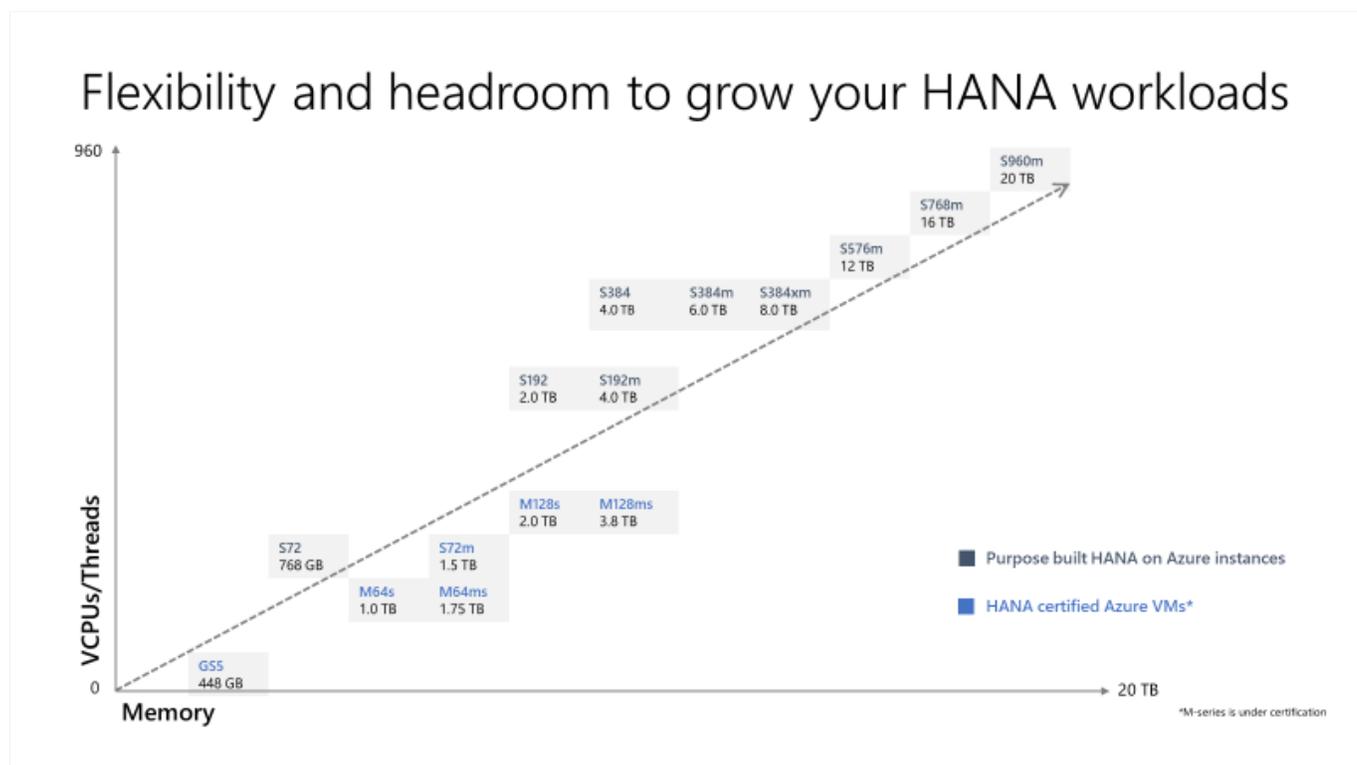
For example, Azure offers a 128 vCPU 4TB VM, a 192 thread 4TB bare metal server, and a 384 thread, 8 socket 4TB bare metal server. The first is perfectly fine for a dev/test/training deployment of 4TB, the second is certified for 4TB OLTP production workloads, and the third is certified for 4TB OLAP production workloads.

Azure’s pioneering two-pronged strategy

Given Microsoft’s enterprise heritage, their customers demanded mission-critical SAP HANA capable IaaS earlier than others. Microsoft was early to realize that the scale, predictability, performance, availability, and management features required by SAP applications was incompatible with general purpose hyperscale cloud characteristics. As a result, Azure pioneered a two-pronged strategy and delivered purpose-built SAP HANA on Azure Large Instances.

SAP HANA on Azure Large Instances (bare metal)

Azure offers you the option to deploy SAP HANA on dedicated bare-metal servers, purpose-built for SAP HANA with specific hardware to provide unparalleled scale and performance. SAP HANA Large Instances offer an IaaS with 99.99% SLAs. SAP HANA on Azure large instances are in close proximity to all Azure services and covered under the same security and compliance umbrella. Large instances are packaged with compute, network, storage, backup, replication, WANs, and OS that are specific to SAP HANA use. These are not individual servers but a multi-tenant bare metal service where replacing the hardware – or resizing it to a larger node, or expanding storage – are supported.



Security and compliance

Cloud security concerns are a thing of the past, as security is now a cloud enabler: As we move into 2018, concerns about the security or viability of public cloud services are mostly a thing of the past. This is because top providers’ cloud data center security has proven to be reliable and trustworthy for years, generally superior to most enterprises’ on-site security capabilities.

Azure security: Microsoft spends about one billion dollars per year on cybersecurity and much of that goes to making Microsoft Azure the most trusted cloud platform. Azure represents the cutting edge of cloud security and privacy with features ranging from strict physical datacenter security to ensuring data privacy, encrypting data at rest and in transit, novel uses of machine learning for threat detection, and the use of stringent operational software development lifecycle controls. With SAP HANA on Azure Large Instances, security includes isolated networks, compute nodes, and storage servers for each tenant as well as OS and data encryption.

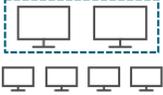
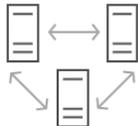
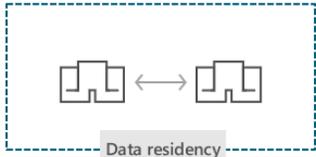
Microsoft's industry-leading security technologies and practices help ensure that Azure infrastructure is resilient to attack, safeguards user access to the Azure environment, and helps keep data secure. With Azure Security Center, Azure is the only public cloud to offer continuous security-health monitoring with a unified view for your entire environment across the Azure cloud, on-premises systems, and other public clouds. You can automatically discover and onboard new Azure resources and apply security policies across hybrid cloud workloads and ensure compliance with security standards. Azure security tools enable you to collect, search, and analyze security data from a variety of sources, including firewalls and other partner solutions.

Azure compliance – more certifications than any cloud: Azure has the largest compliance portfolio of any cloud with [more than 72 international and industry-specific compliance certifications](#). Additionally, Azure participates in rigorous third-party audits that verify their security controls. Certifications include ISO 27001, ISO 27018, SOC 1 and SOC 2 Type 2, HIPAA, and FedRAMP, as well as country-specific standards such as Australia IRAP, UK G-Cloud, and Singapore MTCS.

Business continuity

Azure offers IaaS for SAP applications with guaranteed reliability for any database – including SAP HANA – and application servers, delivering superior business continuity at a low cost.

Azure availability for SAP applications

Large Instance SLA	Large Instance SLA	Large Instance DR	
99.9%	99.99%		
VM SLA 99.9% with premium storage	VM SLA 99.95%	VM SLA 99.99%	
			
Single Instance Self Healing	Availability sets Protecting against failures within datacenters	Availability zones Protection from entire datacenter failures	Region pairs Regional protection within Data Residency Boundaries

- For any **single instance VM** using premium storage for all operating system disks and data disks, Azure guarantees customers will have virtual machine connectivity of at least 99.9%. Single VM SLAs make it possible to calculate stand-alone and scale-out configurations with features like self-healing, on-demand updates, and help with availability.
- For all VMs that have two or more instances deployed in the same **availability set**, Azure guarantees customers will have virtual machine connectivity to at least one instance at least 99.95% of the time. Availability sets are appropriate for application servers for N+M redundancy and scale elasticity.
- **Availability zones** offer protection for entire datacenter failures with the ability to configure 99.99% HA pairs using SAP HANA System Replication or SQL Server AlwaysOn or equivalent DB replication techniques. Availability zones are fault-isolated locations within an Azure region, providing redundant power, cooling and networking. Availability Zones allow customers to run mission-critical applications with higher availability and fault tolerance to datacenter failures.
- For SAP HANA on Azure VMs that have been configured in a high availability **region pair**, Azure guarantees customers will have connectivity to at least one instance at least 99.99% of the time. For databases running in a high availability mode, we recommend utilizing the database vendor’s data replication technology such as AlwaysOn for SQLServer or Oracle DataGuard for Oracle database.
- With **Azure Backup and Azure Site Recovery**, customers can eliminate the hassle and cost of secondary datacenters and tap into nearly infinite capacity that enables them to achieve low recovery point objective (RPO) and recovery time objective (RTO) targets.

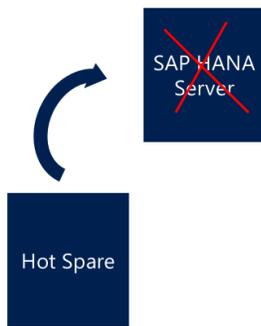
“With disaster recovery in Azure, I no longer have nightmares about what will happen if our datacenter goes down. We can ensure that SAP, the nerve center of our business, is running at all times.” –

Abdulkareem Al Khalawi, Chief Information Officer, Al Muhaidib Group

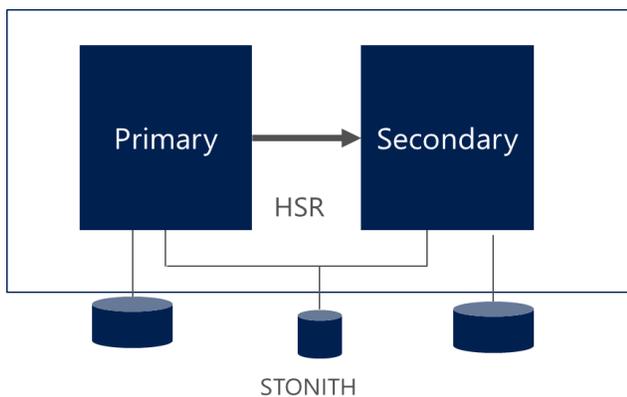
SAP HANA on Azure Large Instances availability

Azure’s SAP HANA Large Instances are appropriate for very large SAP HANA database servers and mission-critical production workloads. Built-in HA/DR features include redundant storage, network, power, and management components.

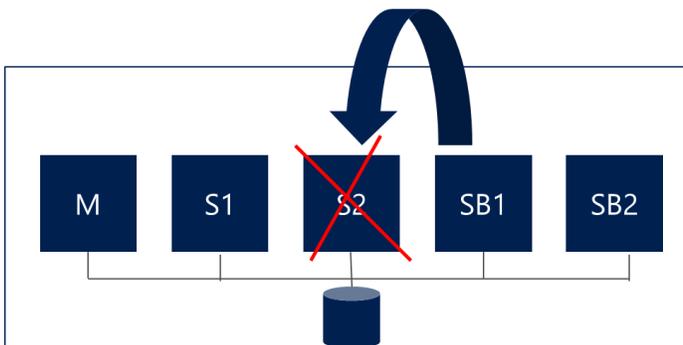
- **Single** – Single nodes come with an SLA of 99.9% and use hot buffers to replace a failed bare metal server without any changes on the customer’s part (similar to Azure VM self-healing capabilities).



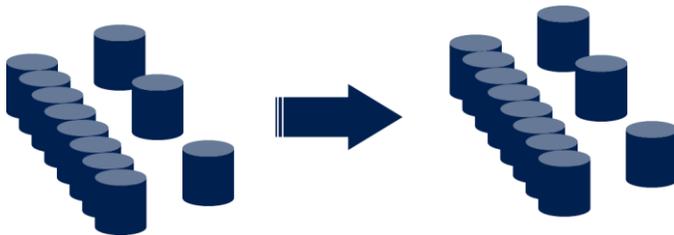
- **HA pair** – An HA pair configuration on Large Instances provides an availability SLA of 99.99%. SAP HANA System Replication provides high availability and servicing without downtime. Shared block device and shared layer 2 networks support native OS clustering and VIP-based automatic failover.



- **Scale out** – For scale-out configurations, unlike any other public cloud, Azure bare metal provides N+M scale out configurations and a single node SLA of 99.9%. This allows host automatic failover and app level SLAs nearing 99.99% at a lower cost.



- Backup, restore and DR** – Azure Large Instances have in-built support for live, full, consistent snapshots to a paired DR site in seconds, convenient for many hourly or daily snapshots to be available at all times for low RTO point in time zero RPO recoveries. Other clouds require users to stop operations to take a backup. Customers can recover from a disaster that takes down a datacenter, and they can also recover from application level corruption or attack, because Azure also has the snapshots at the DR site.



Global Reach

The Azure cloud is the leader in global coverage: The Azure cloud is supported by a growing network of Microsoft-managed datacenters, backed by Microsoft's multi-billion dollar investment in global datacenter infrastructure. At the start of 2018, Azure has 50 regions worldwide available in 140 countries and supports 10 languages and 24 currencies.

Global network with high-speed connectivity:

The full value of SAP HANA applications is only possible once it is connected to every office, factory, warehouse, and branch of the enterprise – and surrounded by solutions using IoT, analytics and AI. This requires the connectivity that Azure makes significantly easier. Azure has a global dark fiber mesh network that may be surpassed only by the largest telcos in the world. Over 1,500 meet me points in every metro in 140 countries connect hundreds of Azure datacenters and give enterprises the ability to run their own Azure Stack private clouds. This gives an enterprise a global intelligent footprint with uniform, connected, and consistent management, commercial, programming APIs, and user interface.

Operational Agility

Running your SAP estate on Azure provides IT teams with significant operational agility and a wide choice of options for key operating environment parameters. You can start with any database, instance size, OS, and version of SAP – in any location.

Choose any DB, including Azure SQL Database, Oracle, DB2, ASE – and SAP HANA. Azure SQL Database is an intelligent, fully-managed relational cloud database service that provides the broadest SQL Server engine compatibility, so you can migrate your SQL Server databases without changing your apps.

Choose any OS, including RHEL and SUSE Linux – even Oracle Linux

Red Hat Enterprise Linux (RHEL) – Azure supports RHEL. In addition, Red Hat and Microsoft are working together to provide more choice and flexibility for hybrid cloud deployments by delivering simplified container technologies, rigorous security standards, and an integrated support experience. In January 2018, Microsoft and Red Hat announced the upcoming availability of OpenShift Dedicated in Azure, along with new capabilities using SQL Server, Azure Stack, and Windows Server.

SUSE Linux – This versatile Linux platform seamlessly integrates with Azure services to deliver an easily manageable cloud with patches and support delivered directly from SUSE. Over 11,400 applications are certified and supported on SUSE Linux Enterprise Server and, notably, SAP NetWeaver is officially supported on SUSE Linux VMs on Azure.

Support for Windows Server to Oracle Linux – Because Oracle Linux and Oracle on Windows are supported in Azure, customers who have invested in SAP NetWeaver on Oracle can migrate to Azure.

Change your database, OS or VM size, or move to bare metal

With Azure, you get the full choice and flexibility to manage and migrate your database. You can change your database type or OS using SAP Database Migration Option (DMO), transfer data between locations using backup/restore, replicate data with SAP HANA System Replication (HSR) for quick failover recovery, and resize any VM instantly or step up to a bare metal configuration.

Enjoy agile refresh cycles

Azure enables faster setup of refresh cycles:

- You can spin up dev/test QA environments on demand
- Production-consistent snapshots are also available at your DR site
- Integration with SAP Landscape Management (LaMa) gives teams the ability to clone and prep production data for development by cloning environments and securing for dev
- Infrastructure, configuration, and SAP HANA deployment templates as code allow for the reliable and rapid creation of environments

Operate with flexibility and automation

Azure automation and policies enable agile operations, including snoozing of unused capacity while persisting data and configuration without the costs. Azure also supports operations like failover, failback, DR test, DR failover, and patching – which can all be automated.

“By using Azure, we stood up an infrastructure in Japan in two to three weeks. We couldn’t even have signed a hardware P.O. in that time if we were building our own datacenter. We simply could not have gotten into the Japanese market without Azure.

– Tom Phillips, Vice President of Data and Infrastructure, Ambit Energy

Development Agility

Azure is the only cloud that offers fully integrated enterprise capabilities with tools that have been built from the ground up to work together – from core infrastructure to integrations and data intelligence – and with Office 365 as well. Azure’s agile tools and support for a broad range of open technologies enable developers to rapidly try innovative approaches without large commitments.

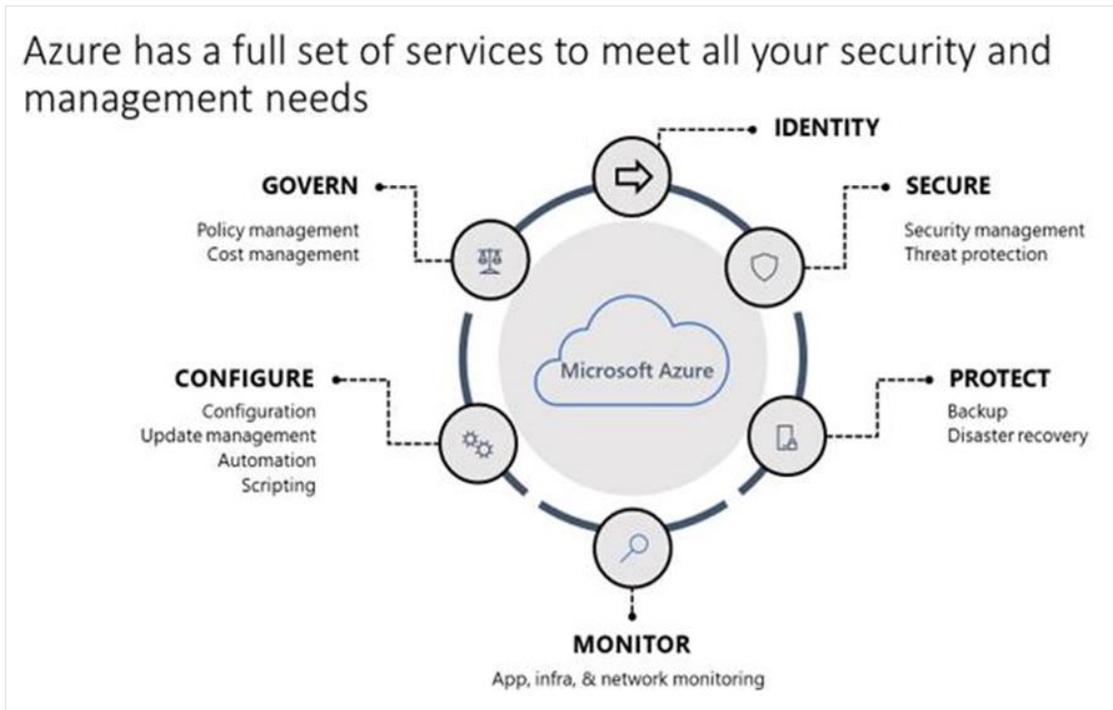
“As enterprise-wide analytics and supporting new digital capabilities such as IoT from SAP and Microsoft become essential, Azure provides the broad platform that can accelerate their adoption.” – [Accenture, SAP on Azure](#)

The largest choice of open tools of any global hyperscale public cloud

While Azure works seamlessly with Microsoft applications and services, Azure also supports the open source technologies millions of IT pros already rely on and trust. In fact, Microsoft is one of the biggest contributors to open source technologies. From Node.js to Ubuntu, developers can bring their favorite open source software tools and technologies to Azure. Notably, one in four Azure VMs run Linux.

Manageability

IT Pros want the same level of control as on-premises deployments when it comes to managing their SAP applications. With Azure, IT operators can maintain access to SAP tools while gaining capabilities beyond the manageability that on-premises deployments offer. For example, greater insights into application usage and logins, better visibility into costs – with the ability to spot and eliminate waste – and policy-based management and controls for team access and permissions.



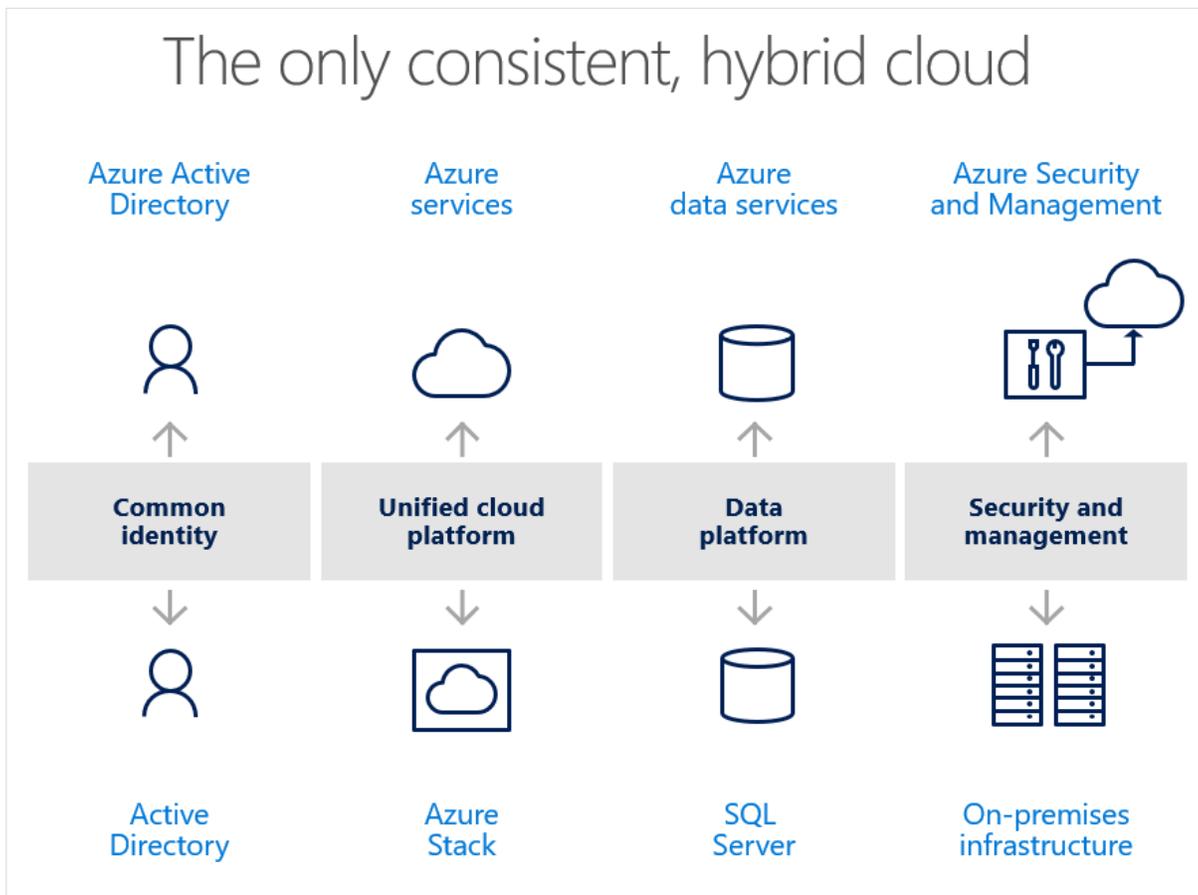
Azure's Integrated Toolset

- Azure Active Directory
- Azure Security Center
- Azure Backup
- Azure Site Recovery
- Azure Patch Management
- Azure Automation
- Azure Cost Management (Cloudyn)

Azure Management and Security is a collection of management services that were designed in the cloud from the start. Rather than deploying and managing on-premises resources, Azure Management and Security components are entirely hosted in Azure. Configuration is minimal, and you can be up and running literally in a matter of minutes. Azure Management and Security enables Azure customers to gain visibility and control across hybrid cloud landscapes with simplified security and operations management and immediate insights across workloads. Customers can also respond faster to security threats and enable consistent control and compliance.

Azure delivers on the long-promised value of hybrid cloud: Microsoft is in a unique position to deliver on the promise of hybrid cloud with its combination of widely adopted on-premises offerings along with a hyperscale public cloud platform. Microsoft's hybrid strategy lets users integrate applications that run on local servers with counterpart applications in Azure, making adoption of Azure compellingly attractive to Microsoft customers.

If you have on-premises applications (including SAP), they can be easily integrated with SAP in Azure using Azure networking features like ExpressRoute and Azure Active Directory integration with Active Directory on-premises. If these applications need computing close to the edge, they can use Azure Stack to deploy Azure services.



“Other cloud providers told us that this kind of hybrid-cloud architecture was impossible to construct, but with Microsoft, we not only accomplished it, but we did so in a very performant way that wasn’t all that complicated to set up.”

– Tom Phillips, Vice President of Data and Infrastructure, Ambit Energy

Fully managed cloud in partnership with SAP – SAP HANA Enterprise Cloud with Azure: Many SAP application developers and mid-size companies do not mind giving up control of their SAP HANA infrastructure for the benefit of not having to hire people to architect, deploy and operate it. For this, SAP HANA Enterprise Cloud is a perfect solution. SAP provides end-to-end managed services for in-memory applications, database, and platform. Azure provides best-in-class infrastructure and a wide range of services with global coverage across high-demand regions. At the start of 2018 the solution supports up to 2.0TB SAP HANA DB with the roadmap for larger SAP HANA configurations coming soon.

Economics – reduced CapEx, costs and TCO

SAP landscapes are made up of parts, like the application server pools that benefit from the elasticity provided by the cloud, and the database server itself (which cannot be scaled down since it is DB-size dependent). Azure provides the right combination that can reduce costs as much as 70% with a one to three-year commitment. Non-production environments can have the whole landscape spin up when needed, which is supported by Azure with large VMs. By applying these techniques Azure customers have saved 40% of their costs while cutting down weeks-long wait times teams used to suffer before gaining access to a new test/perf test environment.

Long-term archival of DB backups can be done using less expensive Azure Blob Storage, and peak loads are handled by surging app servers. Additionally, with the cloud you can right-size your landscape while having the ability to step up sizes as needed, even to bare metal servers.

Azure Cost Management, licensed by Cloudyn, a Microsoft subsidiary, allows you to track your cloud usage and expenditures for Azure as well as other clouds. It enables IT teams to rapidly gain visibility into cost issues and apply intelligent policies and put quotas in place to eliminate waste and reduce costs. Additional cost drivers for a reduced TCO of SAP on Azure include: turning off resources when not in use; elimination or reduction in servers, storage, datacenter heating and cooling costs; reduction in IT management overhead costs; and savings on archival costs by leveraging economical Azure cloud storage.

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Conclusion and recommendations

The status quo and traditional approaches to deploying SAP applications will limit enterprises' success in realizing the full value of their SAP systems and hamper their business and IT transformation initiatives.

Businesses can most effectively move beyond those limitations by leveraging the benefits of a global hyperscale public cloud. Microsoft Azure provides a new generation of SAP deployment options that offer on-demand infrastructure, specialized services, and flexible execution, making Azure uniquely positioned as the best choice for SAP customers ready to make the move to cloud. Azure enables large enterprises to realize the full value of their SAP applications and to execute upon IT and enterprise-wide business transformation.

In a separate installment of this white paper series for technical leaders, *Your Roadmap to SAP on Azure and a New IT Foundation*, we cover how to build a dynamic cloud migration roadmap to guide your journey from core ERP systems to new analytics capabilities and new technology solutions – IoT, bots, ML and AI – all while adapting to a new cloud operating model that relieves the burden of maintenance and frees IT to focus on innovation.

Also see our companion whitepaper for business leaders, *Leveraging SAP on Azure for Business Transformation*.

For additional information please visit the [SAP on Azure website](#)