



The next big destination for public cloud

# Cloud sits side by side with business



The business case for using cloud is now not 'if, but when'? : If you have not migrated already, or started to prepare your cloud strategy, don't wait at the start line too long or you will find yourself being lapped.

Chief Information Officers (CIOs) are fast realizing the importance of cloud in digital transformation strategies that play a key role in creating agile, flexible and innovative business models. However, there are some key decisions to make to actually get to cloud.

Cloud is big business. More than \$1 trillion in IT spending will be directly or indirectly affected by the shift to cloud during the next five years, according to analyst firm Gartner (1). This will make cloud computing one of the most disruptive forces of IT spending we have seen since the start of the digital age (behind the invention of the internet).

Cloud computing enables businesses to quickly and easily provision computing resources as and where they are needed, without the enormous cost required in building data centers and running racks of servers, which are often under-utilized, thanks to varying workloads.

Choosing the right cloud strategy is as important to the C-Suite as it is to the IT department. Your cloud provider needs to be as switched on to the business benefits you want to gain through cloud as you are. It isn't just about the technology and its bells and whistles, it is also about the business outcomes. And this is where Microsoft with Azure Stack is stepping in as serious game changer, providing consistent cloud and on-premises environments to build exciting new applications that will revolutionize the way you do business.

"Cloud shift is not just about cloud. As organizations pursue a new IT architecture and operating philosophy, they become prepared for new opportunities in digital business, including next-generation IT solutions such as the Internet of Things," said Ed Anderson research vice president at Gartner. "Furthermore, organizations embracing dynamic, cloud-based operating models position themselves better for cost optimization and increased competitiveness."

Source:

"Market Insight: Cloud Shift – The Transition of IT Spending from Traditional Systems to Cloud."

# The cloud vista is vast



When you first look out over the cloud horizon, you probably think all cloud providers are the same. Enormous data centers dotted around the globe on which, in theory, you can run your entire business.

However, look a little closer and you will see that Microsoft Azure is different. Why? Because it provides a hybrid path to both public and on-premises that has been specifically designed for enterprise needs from the ground up.

## Microsoft Azure is a public cloud.

In essence; Microsoft Azure is a portfolio of cloud computing services, including remotely hosted and managed options, using Microsoft technologies deployed inside a virtual machine. But Azure isn't just about Microsoft Windows. Azure also supports Linux.

Azure is trusted, compliant, secure, scalable - and enables hybrid connectivity to use the Azure platform in conjunction with other clouds and on-premises cloud. Azure isn't just the cloud for Microsoft workflows, it is the cloud for all workflows.

Hybrid cloud is driving the demand for Azure. Hybrid cloud is integrated cloud services that uses both private and public cloud. It connects infrastructures, data, security management, business apps and more within the same enterprise.

With a usage-billing model and no up-front costs, Azure is fast becoming an alluring option for enterprises looking to move across from on-premises Windows servers to the cloud. But it isn't just about cost. The burdensome tasks of administering technologies such as Windows Server and SharePoint, for example, can be greatly reduced by using Azure and Office 365.

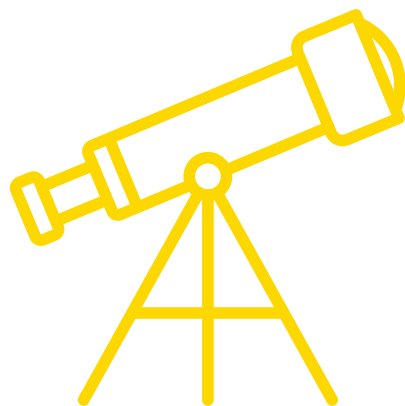
## Where does Microsoft Azure Stack fit into the journey?

Microsoft Azure Stack is Microsoft Azure hybrid cloud running on-premises, bringing nearly all of Azure's public cloud functionality to your own data centers.

In many ways, Azure Stack is a scaled down version of Azure. It shares the same code foundations and runs on standardized hardware configurations (from carefully approved vendors). This means that enterprises and development teams can run a version of Microsoft's cloud computing platform on their own or partners' servers, as opposed to Microsoft's data centers, and all on the same pay-as-you go model as Azure.

If you are choosing, or have chosen, Azure as your main public cloud platform, there is an enormous amount of standardization to be gained by adopting Azure Stack as your on premises private cloud platform.

# Who is Azure aimed at?



Azure is targeted at several audiences. There are enterprises who are migrating to cloud and investing in cloud-based tools and applications, but still want to keep some specific applications on-premises. Others are looking for as much flexibility as possible where their applications can perform best. In addition, Azure can be used to “push to the edge of the cloud” such as in Industrial Internet of Things (IIoT) applications including smart parking meters and manufacturing.

Microsoft is highlighting Azure Stack is an ideal solution for Azure users who require additional options to create solutions. These normally revolve around data sovereignty, regulations, compliancy, performance issues and disconnected structures.

## The twinning of Azure and Azure Stack

The idea behind Azure and Azure Stack is that there is a consistent user experience between public Azure and Azure Stack (private Azure). The twinning will enable enterprises to use Azure public cloud services against data stored in Azure Stack, and set up and use the same Azure services applications on both Azure Cloud and Azure Stack. From a developer’s point of view this means that only small application changes will need to be made to use them on Azure or Azure Stack, which saves both time and money.

The root of Azure deployments are referred to as ‘Templates’. Azure Stack supports a number of development tools and open-source application platforms, languages and frameworks, including Java, Python, Node.js and PHP. Azure Stack will also provide Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS) capabilities.



Is Azure Stack right for you? Here is a list of Azure’s key offerings which you can tick off against your requirements.

- Azure Stack is an extension of Microsoft Azure public cloud into your data center, bringing the agility and accelerated innovation of cloud computing to on-premises environments.
- Azure Stack brings the appealing cloud economic pricing model to on-premises environments with pay-as-you-use pricing.
- Azure Stack enables private and hybrid cloud with strong integration capabilities alongside consistent user experiences. This includes common processes, interfaces and tools.
- Azure Stack can adopt, deploy and utilize cloud to your timelines, optimizing performance for your business.
- Azure Stack provides accelerated speed of deployment and configuration with a purpose-built integration solution.
- The Azure marketplace is a rich catalog of products - alongside developing your own applications using Azure Services and DevOps tools.
- Key Windows and Linux distributions along with other technologies, such as digital ledger Blockchain, open source software Mesos, and Cloud Foundry, an open source PaaS on which developers can create, deploy, run and scale applications, can all be made available in Microsoft Azure Marketplace.
- It supports existing and cloud native Windows, Linux, together with innovative services such as Containers.
- You can utilize higher level PaaS services such as the App, Container or Service Fabric services and benefit from cloud’s elasticity, scalability and agility.
- You can make sure you maximize developer productivity by enabling them to build and deploy applications the same way, whether they run on Azure or Azure Stack.

# Azure Stack builds bridges

Before Azure Stack arrived on the scene, enterprises looking for a private cloud option were forced to go it alone and build their own, which is a complex and time consuming task in itself.

Today, a cloud first strategy is high on the agenda. Cloud compute services are expected to grow from \$23.3 billion in 2016 to reach \$68.4 billion in 2020, according to analyst firm Gartner (2). But still enterprises are worried about moving workloads that are on premises to public cloud. Reasons range from apprehension about placing core business functions outside the enterprise data center, to management resistance due to regulatory and data compliance issues.

Enterprises that have taken the leap and tried to deploy private clouds or a mix of public and private clouds in a blended hybrid architecture have found it complex to implement and difficult to support.

Azure Stack provides a perfect solution for enterprises that want to bridge the divide between Azure public cloud and the intricacies of building a private cloud. Because of the consistent experience that Microsoft has created between Azure and Azure Stack it makes any moves usually both transparent and seamless. Azure Stack offers the same portal, management and many other tools as Azure. This means that automation and code deployments run happily in both Azure and Azure Stack. Code only has to be written once, to be used in either environment.

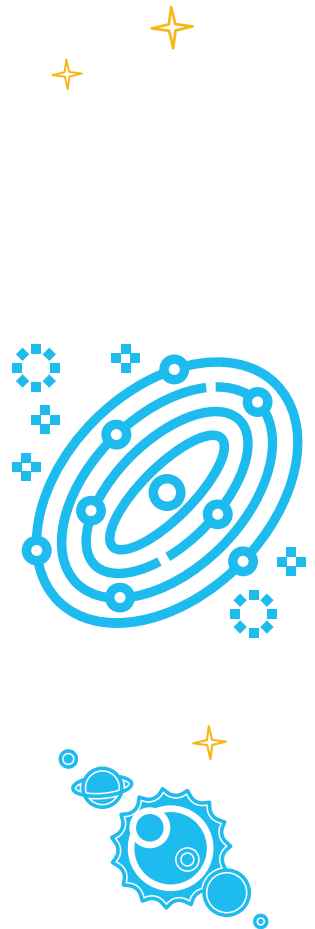
However, the big plus for enterprises is that Azure Stack was designed to enable enterprises to run Azure IaaS and PaaS Services directly from their own data centers. This will allow enterprises to use public Azure services, but maintain them on their own hardware in private or hybrid platform – easing the majority of the security worries that comes with public cloud.

## Filling the gaps in enterprise hybrid computing

Azure Stack is a real game changer for the enterprise world, bridging gaps that have long been outstanding.

Here are 8 Key areas where Azure Stack provides answers to historical problems:

- Consistent hybrid application development, thanks to the lineage between Azure and Azure Stack.
- Developers can accelerate new cloud application development using pre-built components available for Azure, including open source technologies.
- Secure data transfer across private networks.
- Adopt a common DevOps approach across hybrid cloud environments. Azure Stack supports a wide range of development tools and open-source application platforms, languages and frameworks, including Java, Python, Node.js and PHP. Use cross platform development tools such as Azure CLI (any operating system), PowerShell, and Visual Studio.
- Private cloud no longer misses out. Azure services are now available on-premises.
- Flexibility and choice when it comes to deploying applications to best meet business needs.
- Azure Stack uses live migration, no more Virtual Machine (VM) downtime scheduling.
- Azure Resource Manager (ARM) enables you to build application templates and use them to easily deploy and manage network, storage and compute resources. Previously you had to work out these dependencies and required resources. Now it is automated.
- Azure Stack provides RBAC (Role Based Access Control), usage and audit capabilities.



# Joining the dots

Microsoft Azure Stack supports the deployment of PaaS Web apps and IaaS virtual machines, together with components for storage and virtualized networking.

With Azure Stack, Microsoft is offering the power of IaaS and PaaS services – from hyper-scale datacenters to on-premises, enterprise-scale environments to meet your business requirements. Azure Stack enables your business to run Azure IaaS and PaaS services directly to your data centers, providing the full range of Azure public services, but maintained on your own hardware in private or hybrid platforms. This means that your enterprise can adopt hybrid cloud computing based on your own unique business and technical requirements.

## Moving workloads

You can take your workloads and deploy them in Azure and then on-premises with Azure Stack and move them backwards and forwards as required for regulatory reasons for example, or as part of your testing routine.

## The simplicity of containers

With Azure stack you can run IaaS services including Docker integrated Linux containers and virtual machines. Containerization has become appealing to enterprises looking to manage complex processes at scale. Azure itself is ranked as the only public cloud with a container service that provides a menu of open source orchestration technologies, including DC/OS, Docker Swarm and Kubernetes.

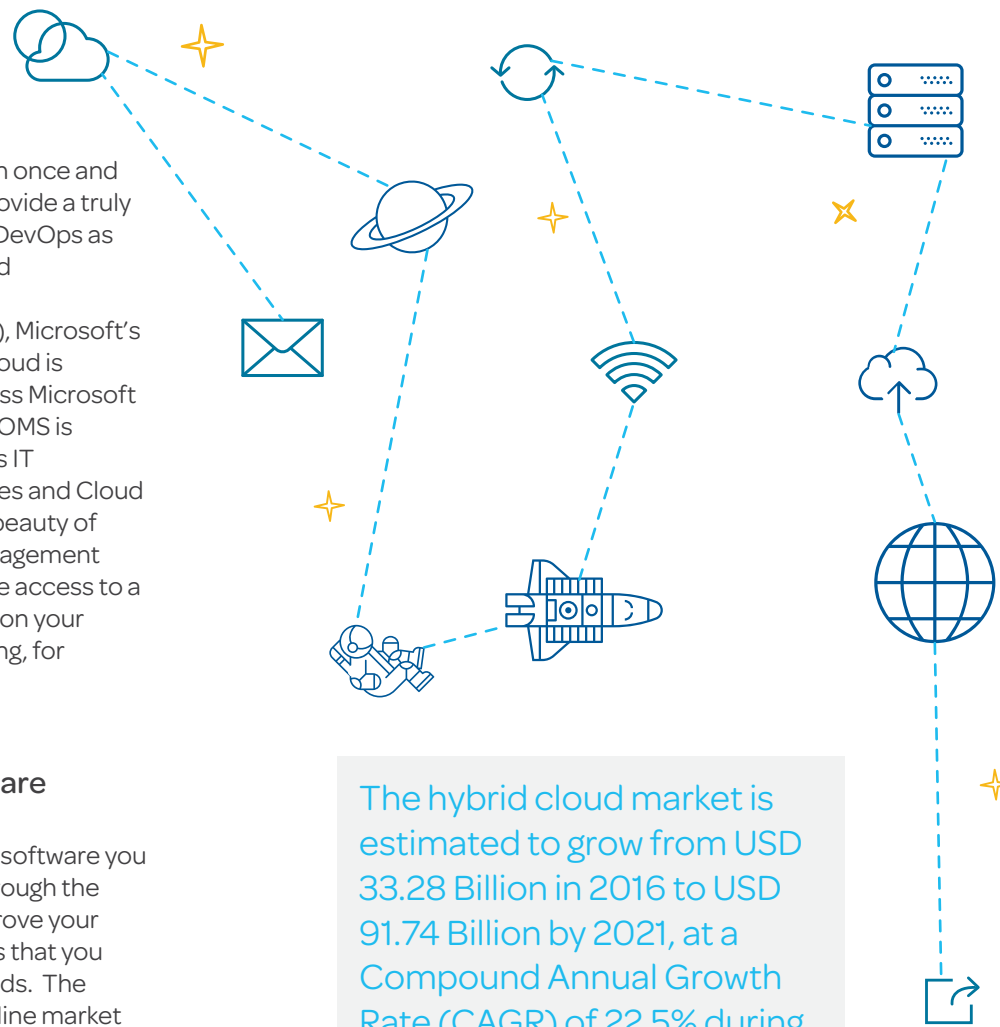
With containers an app can be written once and deployed everywhere. Containers provide a truly open, agile and portable solution for DevOps as they can run on any hardware or cloud

Operations Management Suite (OMS), Microsoft's IT management solution for hybrid cloud is capable of managing containers across Microsoft Azure and Azure Stack on-premises. OMS is basically a SaaS platform that enables IT administrators to manage on-premises and Cloud IT assets from a single console. The beauty of OMS is that you can access your management environment from anywhere you have access to a browser. You can install the OMS app on your smartphone to access data monitoring, for example.

## Making the most of your software development

You can increase the adoption of the software you have written by making it available through the Azure Marketplace. You can also improve your applications by using of PaaS services that you know will be in other Azure Stack clouds. The Microsoft Azure Marketplace is an online market for purchasing and selling finished Software as a Service (SaaS) applications and premium datasets. It has been designed to connect enterprises looking for innovative cloud-based solutions with partners who have developed solutions that are already being used.

The added bonus is you can run your own cloud and monetize Azure services in your data center, expanding your catalog of services as they become available.



The hybrid cloud market is estimated to grow from USD 33.28 Billion in 2016 to USD 91.74 Billion by 2021, at a Compound Annual Growth Rate (CAGR) of 22.5% during the forecast period.

(3). Source: Markets & Markets – Hybrid Cloud Market report 2016

(4)Source: Gartner – IT Market Clock for Hybrid Infrastructure Services.

# Spotlight on Productivity

Productivity - a word that is at the top of every CIO's checklist. Azure Stack has been designed with this in mind, utilizing a write once deployment to Azure or Azure Stack built around APIs that are consistent between both. This is music to a CIO's ears, bringing with it both financial gains and timesavings.

The real value of this vision is bringing the large-scale ecosystem, comprising of structures, languages, tools and applications that are the domain of Azure into data centers through Azure Stack – kick starting the Azure Stack community. Developers have the freedom to create applications in a host of technologies and languages that can be deployed and utilized the same in on-premises data centers as in Microsoft Azure datacenters.

## Twining brings consistency

As already mentioned, the real innovation behind Azure Stack is a cloud API that is identical to Azure, providing a completely consistent experience between private and public cloud.

With a truly consistent API you can confidently invest in automating development, deployment and processes, safe in the knowledge that they will re-written to use with Azure services. At the same time you can deploy, update or delete applications in one operation.

On the development side, applications developed in Azure Stack can be easily moved across to Azure because the two environments are effectively twins in terms of platforms.

Users can use the same tools they use in Azure and be confident in the fact that they will work in Azure Stack. This means that your business technology can focus on the bottom line and not use valuable time on endless tooling transitions.

## Secure environments

There are enterprises that have data that they are reluctant to, or cannot put in the cloud, but don't want to be left out of the cloud curve.

According to the IDC CloudView Survey 51.4 per cent of large enterprises (with 1,000 or more employees) are already using both public and private cloud infrastructures. A further 29.9% expect to adopt this model by the end of next year.

Source: IDC White Paper, sponsored by Dell EMC, The Power of Hybrid Cloud, May 2017

One of the key reasons for moving to hybrid cloud is data protection, and with the new General Data Protection Regulation (GDPR) looming in Europe, many companies are making the jump. Why? Because hybrid cloud enables them to lock down sensitive/critical data in the private cloud and share day-to-day data in the public cloud.

Azure Stack is an ideal solution for enterprises that require the scalability that public cloud offers, but need a high level of governance and security. Azure Stack gives you the freedom to decide where applications and workloads reside without being tied down by the technology.

## Innovate to grow

In a time of disruption and change, CIOs are fully aware of the importance of innovation as key to business success – driving growth and ensuring a competitive edge. Microsoft has therefore designed Azure Stack to stay in tune with Azure through a roadmap of continuous innovation.

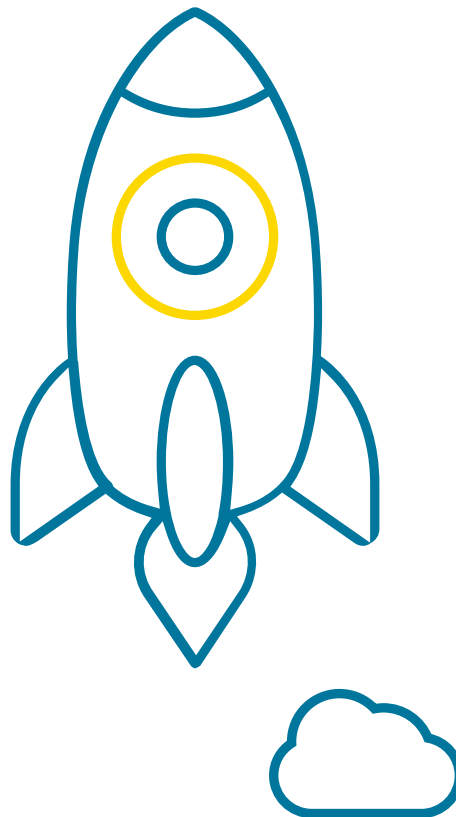


# Business case for Azure Stack

As we have documented, Azure and Azure Stack's big attraction is that they have a standardized architecture, including the same portal, a unified application model, and common DevOps tools.

On the DevOps front it can help to drive a development culture within your enterprise, where previously it may not have been as easily accessible.

On the tooling front, developers can use Visual Studio, PowerShell and other open-source DevOps tools enabling the same valuable end user experiences as in Azure. They can create applications that will run in both places enabling users to interact with applications in exactly the same way in both environments.

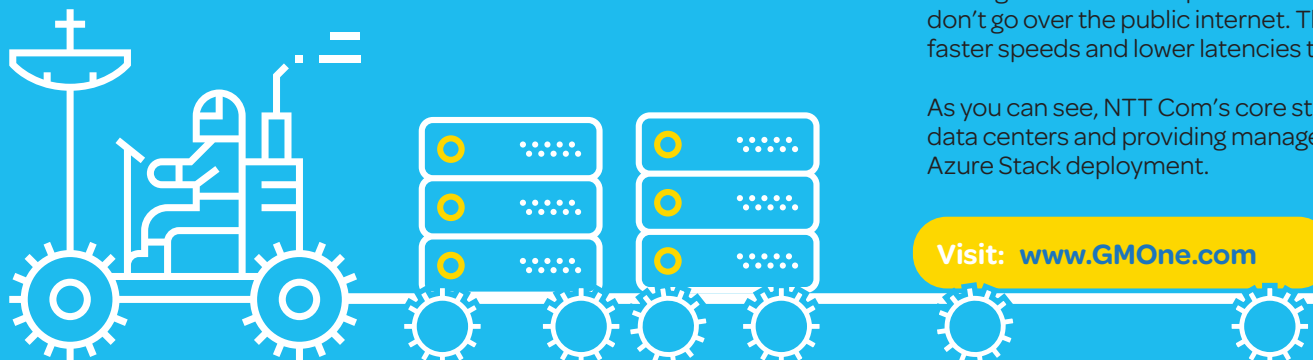


## Ten business reasons for adopting Azure Stack:

1. The only hybrid cloud platform that offers a truly consistent experience with a public cloud.
2. An extension of Azure public cloud – but under your control, with your own dedicated security and performance optimized for you.
3. Pay only for what you consume model.
4. Benefit from the agility, flexibility, speed and elasticity of cloud.
5. Azure Stack has a totally automated and secure software and hardware infrastructure, which offers savings on integration costs and infrastructure management.
6. Azure Stack will run in remote locations not connected to Azure such as mines or ships or on high security, isolated systems – enabling companies to develop in the cloud and deploy in their chosen locations.
7. The ability to develop and deploy applications in Azure and deploy on-premises with Azure Stack to meet local regulatory issues surrounding location of data or policy requirements, with no code changes.
8. Benefit from all the innovation that goes with Azure, but located on-premises
9. It will enable your IT teams and Dev-Ops to deliver services and projects that bring real value into the business. Self-service tools will allow users to access resources as needed, for example, saving time and speeding up processes.
10. All the benefits of public cloud in your own data center – and under YOUR control.



# Why choose NTT Com as your Managed Service Provider for Azure Stack



Azure Stack provides a new way of running your data centers and offers a compelling service-focused model. Azure is a highly scalable and globally distributed public cloud service. Azure Stack will enable enterprises to benefit from the same functionality and run the same applications in their own data centers.

But – and there is a big ‘but’. The Azure ecosystem is as complex as it is powerful. Few companies have the capabilities or skill set in-house to fully leverage the benefits of hybrid cloud themselves. They therefore need to look outside for this competence.

Moving some or all of your operations to or from public cloud is not a simple forklift style lift. With 20 plus years pedigree in the industry - here are a few reasons why NTT Com can ensure you get the most out of your Azure Stack investment:

- This isn't new to us: We are a Microsoft “early adopter” and our team of engineers have been working directly with the Microsoft Azure support labs in Redmond for nearly a year. Making us one of the leading technical authorities on this new cloud platform.
- It's all about choice: On-shore, near-shore or off-shore; NTT Com has over 120 data centers dotted around the globe to select from to house your Azure Stack cloud. In fact, in some countries Microsoft choose us to host Azure cloud.
- We make life simpler: It's a small thing, but we can fully manage your hybrid cloud environment with a single contract and single service level agreement. Making life much easier for our clients. This also includes your Azure “pay-per-use” licensing charges.

The other big plus point is that we are a Microsoft Azure ExpressRoute partner. You can leverage a much faster private connection to Azure cloud as ExpressRoute connections don't go over the public internet. This gives you the advantage of greater reliability, much faster speeds and lower latencies than offered by typical service providers.

As you can see, NTT Com's core strengths are in high speed networks, a global footprint of data centers and providing managed hybrid cloud, making us the perfect home for your Azure Stack deployment.

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