AZURE OR AWS
FIVE REAL WORLD SCENARIOS TO CONSIDER
Discussion Paper
Competing solutions for Public Cloud, Private Cloud and Hybrid Cloud provide different benefits and challenges depending on where your organisation is on your Cloud journey. ‘One-size-fits-all’ is a myth, so how do you move beyond the hype to assess what’s best for your organisation?

Marketing claims about the benefits of one Cloud platform over another are often unhelpful because they lack practical context. It is only when you look at specific real-world examples that you get down to the practical considerations you need to consider when comparing options for your organisation.

Amazon Web Services (AWS) enjoyed rapid market penetration with a first-mover advantage in mass-scale Public Cloud services. Microsoft Azure is a growing collection of integrated Cloud services—analytics, computing, database, mobile, networking, storage, and web – with powerful capabilities both in the Cloud and on-premises.

This Data*3 Cloud discussion paper explores five specific use cases as a way to illustrate the strengths of Microsoft Azure and Amazon Web Services (AWS) as alternative Cloud platforms for business, and examines their relative capabilities for Infrastructure as a Service (IaaS), Software as a Service (SaaS), and Platform as a Service (PaaS). Each practical scenario provides insights, tips and questions to ask to facilitate comparison in the context of your organisation.

**FIVE REAL WORLD SCENARIOS TO CONSIDER WHEN CHOOSING BETWEEN MICROSOFT AZURE AND AMAZON WEB SERVICES**

**1. Extending your support agreements to include Cloud**

**2. Extending your Data Centre with Hybrid Cloud**

**3. Disaster Recovery as a Service (DRaaS)**

**4. Identity management on-premises and in the Cloud**

**5. On-premises Private Cloud**
EXTENDING YOUR SUPPORT AGREEMENTS TO INCLUDE YOUR CLOUD

Your business has existing support agreements with various vendors to support your on-premises hardware and software. Your IT infrastructure is now evolving to include Private Cloud on-premises, Public Cloud, or a Hybrid Cloud encompassing elements of both. You are grappling with how to ensure your support agreements won’t further proliferate, and whether they will provide the support you need in this new Cloud environment.

Moving elements of your IT infrastructure to the Cloud is supposed to make life easier by providing scalability and manageability. In the rush to take advantage of those benefits, some organisations appear to overlook careful consideration of support arrangements. Many organisations find when they venture to the Cloud that they end up with multiple support agreements and contracts outside/external to what they already have in place. In an ideal world, organisations would have a support agreement that encompasses Cloud solutions and aligns to existing agreements and support constructs.
Assess your internal capabilities along with all your existing support arrangements

AWS and Microsoft Azure both provide comprehensive support options. If you decide to evolve rapidly to a Public Cloud platform the differences may not be significant. Likewise, if your in-house infrastructure is largely non-Microsoft, then adding an additional support provider probably makes little difference between AWS and Microsoft.

There is no right or wrong here, but it is important that you choose the option that is right for the support needs of your organisation. This requires an honest assessment of your in-house support capability and maturity.

Some Cloud providers make you choose between your Data Centre and the Cloud, and broadly speaking AWS tends to fall into this category. Microsoft Azure, however, has a more hybrid approach in supporting a network of secure private connections, hybrid database and storage solutions, and data residency and encryption features — so your organisation can decide to locate assets where they are most aligned to business objectives.
If your organisation is predominantly running a Microsoft operating environment (for example, using Microsoft Windows Server), then it is significantly advantageous to have one support provider offering support for both your on-premises and Cloud investments. Whether you engage Microsoft Premier Support through an agreement directly with Microsoft or via a Microsoft Partner, you can simply combine your support for on-premises solutions to also include Cloud support cover for Azure and Office 365.

Advantages include:

- your ability to leverage scale to negotiate favourable support pricing, and
- the ability to put in place support agreements with a more significant overview of your entire infrastructure.

In-house skill-sets may also be a consideration. If your IT professionals already have well-honed Microsoft skills, it may be prudent to leverage those skills for your gradual move to the Cloud with Azure. As your business evolves, so do your systems, infrastructure, and the skills of your people. Microsoft Services Premier Support provides a wide range of IT support services, including IT staff training, health and risk assessments, and best practices which may or may not be attractive to your organisation, depending on your level of on-premises, and Cloud reliance, upon Microsoft infrastructure.

A single support contract delivers immense benefits

Questions to consider

Am I able to get support from one provider for both my on-premises and Cloud environments?

Do I have to call different service desks or numbers in order to receive different levels of support?

Can I extend my current support agreement to cover Cloud? Are my support agreements flexible?

Which provider offers superior Service Level Agreements (SLA)? Are they both suitably financially backed?
Your on-premises Data Centre has served you well, but you are experiencing peaks where you need additional storage or compute capacity. You know that Public Cloud solutions can provide surge capacity but there are some sensitive applications and datasets that your organisation isn’t ready (yet) to allow off-premises. You want to take advantage of Public Cloud when it makes sense, and also find ways to bring some of the efficiency of Cloud models to your on-premises infrastructure.

Microsoft Azure both provide options (albeit with distinct considerations concerning interoperability, directory services, and integrated support for on-premises and Cloud infrastructure). Many organisations recognise the value of Cloud but simply are not ready to move the entire enterprise to the Cloud. The reasons can be many and varied. Perhaps your CFO has vetoed key financial data moving to the Cloud? Perhaps your legal team are still running arguments about sovereignty concerns. You could debate the relative merits of these arguments (and there are absolutely valid counter arguments to be made) but the reality is that this scenario is common.

A willingness to move some but not all of your IT to the Cloud should not be considered an impediment. It is here that some organisations start to discover differences of approach between the major Cloud services. The differences stem from their development approach.
How they differ

AWS was developed with a relentless focus on scalable Public Cloud using the efficiencies of standardisation and mass-scale to provide highly reliable surge capacity at low cost. This approach and first-mover advantage enabled rapid market penetration.

Alternatively, Microsoft Azure reflects Microsoft’s heritage in on-premises infrastructure by providing relentless focus on interoperability between on-premises and the Cloud — for example native integration of Active Directory, Windows Server infrastructure, and an evolving Azure platform.

This does not mean one approach is right, and one is wrong — far from it. It is however a subtle, but significant difference for organisations that are needing both on-premises and Cloud capabilities, and want the ability to adjust that balance gradually over time.

Extending your Data Centre with AWS

AWS provides cost-effective Public Cloud, which is great if you are ready to make the leap. It does have characteristics of an all or nothing decision though, which some organisations simply are not ready for. Most organisations find it’s largely an either/or decision to move to AWS because it lacks seamless integration to truly span from on-premises to Cloud and roll-back again easily if you want or are required to. For example, if you use Blob storage on AWS, organisations often discover that they need to use third-party tools to extract data to bring it back on-premises.
Extending your Data Centre with Azure

Microsoft Azure provides an attractive option for organisations that need a Hybrid approach spanning on-premises and Cloud. As a practical example, many organisations want a back-out plan for Cloud. This is fine as a starting point, but when you’re running a true Hybrid Cloud, what you really need is the ability to put a dataset or workload into Public Cloud, pull it back on-premises, and continue to shift that balance when it suits you. Microsoft Azure comes into its own in this scenario. This is not a requirement for every organisation, but it is a thought for many so it’s worth considering.

If interoperability is a focus for your organisation and you are already invested in the Microsoft platform (Windows Server, Services, System Center, Hyper-V) then Azure currently provides stronger capability than AWS. Examples include:

- SQL integration with Azure Blob storage for backups
- Super low-cost long term backup solution and natively supported (depending on SQL version)
- Windows Server integration with Blob storage (as per SQL) for backups/directly mounted large storage
- High speed, on-premises storage, but with the enormous, low cost storage availability of Public Cloud, via StorSimple
- OMS integration with SCOM delivering impressive dashboards (that executives love) and dual monitoring capability using on-premises and Cloud OMS
- System Centre Configuration Manager integration with Intune, providing single-pane-of-glass management of your on-premises servers and workstations, as well as mobile devices from the Cloud
- Azure Site Recovery integration with your on-premises server environment to provide business continuity in the event of an outage at your Data Centre, as well as seamless migration for servers from your Data Centre to the Cloud.

You can do many of these things with AWS and Windows Server, but often you need a third-party tool or agent to provide the same functionality. Azure is built on Windows, so if you want to integrate Windows with the Cloud then Azure often makes more sense.
Questions to consider

Can I transparently run a hybrid application across Cloud and on-premises?

Can I get a transparent view of my Cloud and on-premises infrastructure and application through one management console?

Does my organisation need to be able to reduce the effort spent managing server platforms by leveraging Platform as a Service (such as Azure SQL databases and Azure AD)?

Can I push and pull workloads from my on-premises environment to the Public Cloud, seamlessly?

Is it important to be able to integrate our existing environment with the Cloud, and migrate over time without impacting staff?

Can I do all of this with native tools, or do I need to buy third-party applications?

Third party ecosystems

One-size fits all is a myth, sometimes you may want to integrate point solutions

AWS has a healthy online marketplace for third-party products to extend AWS with point solutions

Microsoft Azure also has a dynamic online marketplace with over 3,500 third-party products that integrate seamlessly with Azure
You need to automate the orderly recovery of services in the event of a site outage or critical data loss regardless of whether the loss occurs on-premises or in the Cloud. Regardless, you need to minimise potential for critical business interruption, and have the ability to restore workloads and data in an orchestrated way so that even complex multi-tier workloads and services can be resumed quickly and efficiently. You also want to be able to test disaster recovery plans whenever you want without disrupting services at your primary location.

Microsoft Azure provides simple, automated protection and disaster recovery (DR) in the Cloud. You can protect your environment by automating replication of virtual machines based on policies that you set and control. Azure Site Recovery can protect Hyper-V, VMware, and physical servers, and you can use Azure or your secondary Data Centre as your recovery site. Site Recovery coordinates and manages the ongoing replication of data by integrating with existing technologies including System Center, SQL Server AlwaysOn and StorSimple. Azure enables automated protection and replication of virtual machines, remote health monitoring, orchestrated recovery when needed, with automated replication to—and recovery in—Azure.

AWS storage solutions are designed to deliver secure, scalable, and durable storage for businesses looking to achieve efficiency and scalability within their backup and recovery environments, without the need for an on-premises infrastructure. Amazon S3 and Amazon Glacier automatically replicate data across multiple Data Centres, and are designed to deliver 99.9% durability. However, the ability to take on-premises data and replicate (push up and back) is a weaker story for AWS. It is technically more complex to do because of the different storage environments. Many organisations find they also need third-party tools to achieve their desired ends.
So what are the key differences to note when it comes to how these platforms handle DR? Microsoft provides StorSimple, which allows you to directly integrate to your Public Cloud, to cache recently used data on-premises, and provide transparent access to the Public Cloud at the back end. It presents as an iSCSI target which allows simple integration with most major backup software vendors, such as Veeam, Veritas and others. With Azure, you also don’t pay for data going in; only data coming out (excluding any metered service provider charges). So in the case that you don’t have to restore, it doesn’t cost you anything. In other words it is free until you need to use it.

Microsoft also has a virtual StorSimple that enables you to mount one of your backups in Azure, pulling the individual file out of the backup without having to restore the full backup. This file-level recovery can be extremely valuable. By contrast with AWS, you’re not backing up your on-premises data, you’re only focused on your Public Cloud. StorSimple provides true hybrid backup, covering both Public Cloud and on-premises with the same infrastructure — one skill set, one management interface, one all-encompassing backup solution.

Questions to consider

Do I need to purchase third-party tools to integrate with my third-party back-up provider?

Would my organisation be better off not having to purchase third-party tools?

Do I want to remove complexity from running our company Disaster Recovery infrastructure via simple integrated tools, hardware and monitoring?
Your business already uses Microsoft Active Directory on-premises to manage access and provisioning for users and groups. Now, as your organisation is extending IT to the Cloud for Software as a Service (SaaS), Infrastructure as a Service (IaaS), and/or Platform as a Service (PaaS) offerings, you are grappling with how to manage user identity in the Cloud and enable single sign-on for user convenience and IT management control.

Organisations extend to the Cloud for scalability and agility. Those benefits are reduced if your move to the Cloud adds complexity to your identity management processes.

Questions to consider:

- Do I want to remove separate identity credentials for our third-party SaaS applications?
- Would I prefer to simply leverage my current AD environment for Cloud authentication?
- Do I require context-based (multi-factor) user authentication?
Making use of Active Directory

If your organisation uses Active Directory (AD) on-premises for identity management, Azure AD enables you to extend that identity management to also manage Cloud users and groups. You can centrally manage employee access to Microsoft Online Services such as Azure, Office 365, Dynamics CRM Online, Windows Intune, and thousands of non-Microsoft SaaS applications.

Azure AD delivers Platform as a Service. This provides the benefit of being able to have a directory in the Cloud, extended across all geographic regions, without having to manage the underlying virtual servers, operating systems, and network connectivity between directory servers.

It also enables you to provide single sign-on capabilities, simplifying user access to thousands of Cloud applications. User attributes can be automatically synchronised to your Cloud directory from multiple on-premises directories, and if you prefer not to synchronise passwords to Azure you can federate your on-premises AD with Azure AD, thus keeping your passwords on-premises whilst still leveraging the benefits of Azure AD. If you need additional security, Azure also supports additional layers of user authentication. For instance, multi-factor authentication can be used to prevent unauthorised access to both on-premises and Cloud applications. You can also mitigate potential threats with security monitoring and alerts, and machine learning-based reports that identify inconsistent access patterns.

Azure AD also provides a single sign-on platform for third-party SaaS providers. This is an inbuilt capability which is contributed to by third-party providers integrating their SaaS solutions with Azure AD (such as Salesforce, ServiceNow, etc). There is no ongoing management of the authentication infrastructure required, as it is all taken care of by Microsoft and the SaaS providers.

AWS also provides options for directory service integration. AWS Directory Service makes it easy to setup and run Microsoft Active Directory (AD) in the AWS Cloud, or connect your AWS resources with an existing on-premises Microsoft Active Directory. Once your directory is created, you can use it to manage users and groups, provide single sign-on to applications and services, create and apply group policy, domain join Amazon EC2 instances, as well as to simplify the deployment and management of Cloud-based Linux and Microsoft Windows workloads. You can also use AD Connector to enable multi-factor authentication, should you need it.

So the broad capabilities of Azure and AWS are similar, but you will still need to assess the implications for your particular IT infrastructure by asking the right questions.
You understand the scalability and manageability benefits of Cloud, and you use virtualisation on-premises to establish and manage new virtual instances. You aren’t yet ready to move to Public Cloud, and would ideally like to explore options for Cloud approaches entirely on-premises.

This scenario is not relevant to every organisation but for some it is significant. If you are using virtualisation and it is meeting your needs, great. There are Cloud concepts though that provide attractive considerations. Cloud computing really should be seen as a concept, not a location.

AWS is designed for Public Cloud and it is very good at it. Rapid and sustained market penetration is evidence of that. It is not designed for on-premises management. That’s not a fault, it is just a design principle that may or may not suit your organisation.

The release of Azure Stack changes the picture though for on-premises management. Radically.

Azure Stack allows an organisation to leverage Azure management, provisioning and automation, building it all into an on-premises environment. This is not a hybrid solution where you need to keep managing multiple virtual servers. Spinning up a new virtual server has benefits, but the reality is it is still an additional instance to manage.

With the introduction of Azure Stack however the model changes completely. You no longer need to make an either/or decision. You can continue to leverage your existing on-premises servers, but manage as if in the Cloud, since Azure provides seamless management over your entire environment, including those on-premises servers you already have. You actually get the full benefits of a Cloud approach with the ability to just allocate capacity to manage surge, and without needing to continuously add new virtual instances that require ongoing management. This is Azure Cloud, pure and simple; it just happens to be physically using your on-premises servers.
Questions to consider

Why would you consider this model?

If you are ready to move en-masse to the Cloud, AWS and Azure both provide credible options. If your organisation isn’t there yet - and may not be for some time - then a mixture of on-premises and Cloud may be your reality for the foreseeable future. In such a scenario, Azure Stack provides all the benefits of Azure Cloud Resource Management, applied to your on-premises servers. This can provide the best of both worlds for organisations that need it. Azure Stack provides the same services (with a few exceptions) from on-premises and from the Azure Cloud, so from a business point of view you can just consume IT services and not care where the service is hosted.

Does my organisation need to be able to deliver IT as a Service, irrespective of whether the service is hosted in the Cloud or on-premises?

Do I want to preserve my existing investment in on-premises hardware and software while also leveraging the benefits of Cloud?

Do I have highly sensitive data or compliance/regulatory requirements where some data must reside on-premises?
Regardless of which Cloud solution you are investigating, the ‘questions to consider’ in this paper should help you to assess your options. And if you need help, seek independent advice from a trusted advisor.

Data#3 can assist. We provide market-leading business technology solutions across a wide range of industries throughout Australia and Asia Pacific. Our business, structure and technology solutions are all designed to help customers meet their specific objectives. Through consultation, we can help you design, deploy and manage your ideal IT environment. It’s ‘Your Cloud. Your Way.’

If you are interested in implementing the solutions discussed in this whitepaper, visit www.data3.com/yourcloud-yourway/ or contact a Data#3 specialist.