

8 best practices for cost optimisation in **Microsoft Azure**

How to extract the most value from Microsoft Azure, save your business money and boost performance.

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8 best practices for cost optimisation in Microsoft Azure

1



Protecting your data, security and continuity is your responsibility. Ensure your policy controls follow your data – irrespective of whether the workload resides on-premises or in the cloud.

2



A business continuity strategy is vital to organisational resilience. Security and availability must extend beyond physical servers, into your cloud environment.

3



Azure is a highly scalable and adaptable solution that can be right-sized for your organisation's specific needs, now, and into the future. Your Azure instance should be customised to ensure it suits your cloud demands.

4



Your Azure subscription topology should align to your business, with everything containerised in these subscriptions. This way, it's all portable – in case the business changes.

5



With subscriptions streamlined, it's time to start tagging your Azure resources so that you can quickly and easily identify and organise these. Tagging also helps you report on resources accurately.

6



Choosing the right style of storage for your workload and then rightsizing that storage for your needs is a simple way to save. Scrimping on storage to save money can have a detrimental impact on end users.

7



A great way to cut costs with Azure is to shut down machines that aren't mission critical across the weekend or after hours. If you don't need your virtual machines to be running 24x7, shut them down to avoid unnecessary spend.

8



Take advantage of discounts or entitlements available with Microsoft Azure. Ensure your Azure licensing is under control to avoid unnecessary over-spend (in some cases up to 70% more than necessary).

Introduction

In 2022, 80% of enterprises and 59% of SMBs had adopted Microsoft Azure as their cloud platform of choice. This increase in adoption is no doubt spurred by the fact that migrating more workloads to cloud is a top initiative for 57% of organisations¹. However, lifting and shifting more and more processes to the cloud without considering the accompanying increase in cloud spend can leave businesses overspending unnecessarily.

There is no doubt that cloud adoption continues to grow fast – and for good reason. Azure is renowned for the breadth of its services, its speed, flexibility and resilience; and boasts the highest security and privacy certifications of any cloud provider.

Azure empowers workers to be more productive, enabling cognitive learning and AI, ultimately transforming business processes and outcomes.

Yet, as more organisations shift workloads and processes to the cloud, it becomes even more important that work be done to reduce the cost of cloud adoption. Put simply, organisations are paying too much – there are easy ways to save, if you know where to look.

Expertise drives success

Data#3 is Microsoft's largest Australian partner and has unparalleled competencies in Azure, including being an [Azure Expert Managed Service Provider \(MSP\)](#) and a member of the [Azure Modernisation Factory](#), where we're the only Australian Microsoft Partner with a 100% success rate. Our five-stage pathway to cloud success has been proven to successfully guide and support customers through their Azure journey, covering everything from getting started to migrating and optimising workloads for cloud and beyond.

Governance reviews reveal all

As one of the most experienced cloud services providers in Australia, Data#3 has deep experience in working with organisations across all stages of their cloud journey. It's why Microsoft chose Data#3 to assist their customers to transition to Azure.

We have found that running cloud governance reviews which assess the state of customers' cloud adoption is the best way to identify critical issues.

Customers may have incorrectly setup or configured their Azure subscription, have security vulnerabilities or are ultimately paying too much.

“After reviewing the many health checks we have performed on customers' Azure instances, we found that a staggering 75% of customers are paying too much for Azure. Of those customers, some are overpaying by as much as 70%.”

Scott Gosling, National Practice Manager – Microsoft.

Azure pricing structures can be complex and with a combination of different service options, reserved instances, hybrid benefits, and savings plans. As a result many customers do not actively take advantage of all the cost savings available to them. A recent largescale survey found that only 32% of Azure users utilise reserved instances, and only 26% utilise the Azure Hybrid benefit¹.

To us, it's clear that organisations need help in optimising their Azure instances, to reduce costs without compromising performance. The good news? It can be done... you just need to know how. This paper draws upon observations from governance reviews and Data#3 Cloud Optimiser services we have performed for our customers, plus expert insights from our Azure team, to help you identify ways to save on your Azure instance.

Protect your investment in Azure

Before you do anything else, make sure that you have the right levels of security, backup and availability in place for Azure. Ultimately, protecting your data, security and continuity is your responsibility – irrespective of whether the workload resides on-premises or in the cloud.

1. Your controls and policy should follow the data to the cloud

Cloud infrastructure is hugely beneficial to organisations looking to shift workloads to an elastic pool of resources that can collapse and expand as demand requires.

This is made simpler with robust monitoring and the ability to only pay for what you use; and you gain huge flexibility and the capability to manage, deploy and control infrastructure from almost anywhere at any time.

However, with flexibility comes great responsibility: security.

Upgrade Defender for Cloud

The basic (free) version of Defender for Cloud provides rudimentary security features for Azure, including:

- ✓ Assess security posture
- ✓ Apply security policy and obtain basic recommendations
- ✓ Analyses the security state of your Azure resources for network security best practices

The basic version of Defender for Cloud provides some good security features, but when it comes to critical data, fairly good needs to become excellent.

Through our engagement with customers, it has become evident that there is a lack of understanding about Azure's built-in security mechanisms. Many Azure users think that the free version of Defender for Cloud will suffice. While the free version is good, Data#3 recommends that all Azure users upgrade from the free version to the paid version. The upgrade to Defender for Cloud unlocks much richer security features at minimal cost and can cover both hybrid and Azure resources (the free version only covers Azure resources).

The paid version unlocks features like:

- Multi-cloud and hybrid cloud security
- Tracking compliance against a range of security and regulatory standards
- Advanced security posture assessment
- Threat protection alerts
- Endpoint detection and response
- Vulnerability assessment for virtual machines, containers, and SQL resources
- Just-in-time VM access
- Adaptive networking hardening and application control

The cost of Defender for cloud is a small incremental cost on top of your subscription costs for resources. It's a small price to pay for premium security.

2. Staying available extends to the cloud

A business continuity strategy is vital to organisational resilience, and organisations rightly invest in rock-solid continuity strategies for on-premises systems. Security updates, patching, backups, server monitoring and more are standard continuity practices. However, what about in Azure? Do Azure virtual machines need the same maintenance and care?

Take ownership of business continuity

While **Microsoft provides a fantastic set of tools for security** and high availability, the configuration and management is your responsibility. Some Azure customers fall into the trap of thinking that Microsoft takes care of everything, which is incorrect. Once you start deploying a virtual machine with a publicly-facing network interface, it's your responsibility to protect this virtual machine.

Storage and backup

While every Azure storage account is provided with replication by default, what do you do if a bad actor compromises your subscription and encrypts your data? The Azure locations replicate your data so that it's highly available – but if the data in one of those locations gets corrupted or compromised, it will replicate across all configured locations.

Many customers mistakenly believe that Azure backs up your data by default. While it does replicate your data, you need to extend your continuity strategy, processes and tools to encompass Azure as well as your on-premises environment.

The good news is that there are many different types of storage and backup tools available. Data#3 can help you choose the most cost-effective option – ensuring that you protect not only your primary data, but also your backup stores, against malicious or accidental loss. Read our **[blog series on Azure Backup](#)** for more advice.

Availability

Then there's the issue of availability. Many customers believe that availability is built-in to Azure by default. While it's true that you do get replication as we mentioned before, it pays to be aware of service level agreements (SLA) with different resources and configurations.

For example, a single virtual machine with HDD managed disks has an agreed SLA of 95%. By using premium SSD you can raise this to a 99.9% SLA. By utilising availability sets you can raise this to a 99.95% SLA.

Just because it's in the cloud, a resource isn't always available. It's up to you to make it highly available, through deployment of redundant resources and choosing the right configuration and availability features to meet your availability needs.

Right-size your investment in Azure

Ditch the lift-and-shift mentality and start seeing Azure for what it really is – a highly scalable and adaptable solution that can be right-sized for your organisation’s specific needs, right now.

Once you start looking at Azure this way, there are cost savings at every turn.

3.

Hand to glove, your Azure instance should be a perfect fit

Azure is not one-size-fits-all. One of the great features of Azure is its ability to easily scale up or down depending on your current needs.

When you first move to Azure, a common mistake we see is customers who just lift-and-shift their on-premises environment to cloud. This has proven time and time again to be costly and doesn’t make the most of Azure’s hyperscale environment.

Many of those who run heavily virtualised infrastructure on-premises have no real idea of the cost of that virtual machine when first installed. They overprovision to avoid virtual machine failure if capacity limits are reached.

It’s only when they go to cloud that they get an idea of the true cost, paying for overprovisioned infrastructure by-the-minute and often leads to bill shock.

Data#3 helps customers who are about to embark on a migration or build a new app in the cloud to choose the right size for their workload, ensuring the appropriate configuration and associated costs per workload.

Monitor and autoscale

Beyond the migration, it’s important to continue to monitor your Azure instance to make sure it performs as desired. Azure Advisor is helpful here. This free, yet often underutilised tool, scans your environment and resources, making recommendations around availability, performance, security and cost.

You can also use Azure’s incredible autoscaling engine to inject elasticity and agility into your infrastructure. To our previous point about overprovisioned virtual machines, we repeatedly see customers who are unaware that they can set triggers to autoscale their Azure instance up or down based on thresholds such as dates or percentage utilisation.

For example, if you’re running a large marketing campaign directing traffic to an eCommerce website, you can auto trigger the system to scale out to a virtually infinite number of servers, sized to your requirements for the big event, then scale right back down again once the increased site traffic has passed. It’s all done automatically – saving you time, resources and the cost of running virtual machines when you don’t need them.

4.

Your Azure subscriptions should align to your organisational structure

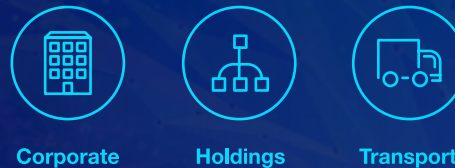
The way you set up your Azure subscriptions can save you money, or end up costing you, if it's not set up properly. Ideally, your Azure subscription topology should align to your business, with everything containerised in these subscriptions. This way, it's all portable – in case the business changes.

The best way to explain this is with an example. The fictitious Contoso Group is made up of two discrete business units with a governing unit sitting on the top:



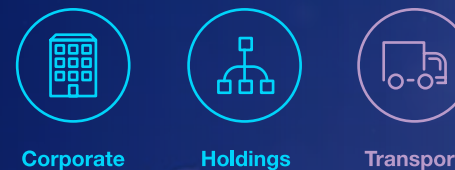
The recommended subscription model to reflect the business structure is shown below. This model allows for core shared applications to be hosted and shared from the corporate subscription, while the other two lines of business can deploy their own infrastructure within each of their subscriptions:

Azure Tenant – Contoso Group



The major benefit of this topology is that if Contoso Group sold off part of their business, for instance Transport to another organisation, then the entire subscription can be detached and moved to the new incumbent Fabricam Group. There's significantly less human effort – and therefore cost – involved in the move.

Azure Tenant – Contoso Group



Azure Tenant – Fabricam Group



The five-stage pathway to cloud success: Designing for the Future State

When initially adopting Azure, it might make sense to have a simple single subscription structure. However, how will this support you as you grow, modernise your applications, and deploy additional applications?

The five-stage pathway to cloud success provides best practice guidance to help define your operating model and align your Azure landing zone architecture, aligning to this.

An infrastructure as code (IaC) approach to deployment of your Azure landing zones and subscriptions will allow you to ensure you are deploying to a set of defined configuration standards and setting up naming conventions, policies and rules to make sure that a subscription is not open to vulnerabilities.

5.

With subscriptions streamlined, it's time to start tagging your Azure resources

Imagine that all of your Azure resources were marbles in a bucket. If you needed to find the red marble quickly to run a report on it, it might take a significant amount of time to find the right one. Costs can escalate while you waste time looking for what you need. This is where tagging comes in. It's used to identify and organise our resources in Azure so you can find what you need, fast. Further, tagging helps you report on resources accurately – it's a powerful cost-management tool.

To help you understand tagging, let's look at an example. Say you're deploying App X which is comprised of a web server, a load balancer, a virtual firewall, virtual network and so on. By tagging each of these resources with App X, you can then view costs for a specific tag to show exactly how much App X has cost the business for the last six months.

Without tags, you don't have clear granularity, and there is a lot of manual leg-work required to work out the application's true cost. The same would apply at a business unit level to determine usage for chargeback billing.

If you have a tag policy in place that requires employees to put their names against resources they use, you can run reports to see who is using what. You might discover that John Smith has deployed a number of resources that are tipping your Azure spend into the red, when in fact he didn't need those resources to get his job done.

Nearly every resource type within Azure can be tagged and policies can be employed to enforce tagging. Multiple tags can also be used for individual resources therefore increasing reporting granularity.



6. Save on storage – Overspending is a common mistake

Choosing the right style of storage for your workload and then rightsizing that storage for your needs is a simple way to save. Through the health checks we've performed, Data#3 consistently sees a lack of monitoring and capability in deploying the right storage services. It's clearly evident that storage presents a real opportunity to save. Beware of scrimping on storage to save money – if you choose the wrong storage tier, it could impact your end users.

Azure offers a range of durable, highly available and massively scalable storage solutions: file, disk, blob, data lake storage and archive. These different solutions suit different needs and are flexible for when your needs change.

The challenge lies in selecting the right storage for your needs – which is where Data#3 can help. For something that's highly transaction-based, you should pay for premium storage to ensure you get the performance you need. But do you need premium storage for your backups? Probably not. You could use standard storage to get the same result while saving money. It's the in-between cases where we find customers paying much more than they need to.

All Azure instances should use Azure Monitor and Azure Advisor to track storage, set alerts and take proactive action. With these tools in place, you're in a better position to ensure you aren't paying too much for storage. Or, worse, that performance is compromised because the storage you chose is the wrong type for your demands.

7. Your virtual machines should have the weekend off too

A great way to cut costs with Azure is to shut down machines that aren't mission critical across the weekend or after hours.

If you're in the PAYG model – that is, you didn't apply Azure reserved instances and are not paying upfront for virtual machines – then it is worth evaluating whether you need these machines to be running 24x7.

For example, say you've got a group of development servers. If your infrastructure is non-mission critical (such as development/test machines), you could consider shutting it down at 5pm and bringing it back up at 8am, or setting up a mechanism to only start these machines on demand. It's a proven way to realise cost savings.

While you're at it, suspend any dormant virtual machines. Azure Monitor and Azure Advisor are useful here, tracking in-out traffic, CPU usage and more to provide useful reports on dormant machines and help you identify those that could be switched off.

Get the best deal on your investment in Azure

Many customers have no idea that discounts or entitlements are available with Microsoft Azure, and therefore miss out on huge savings.

Data#3 has found that customers are spending up to 70% more than they need to.²

8 ■ If you were offered a big discount, you'd take it, right?

There are a number of ways that you can save with Azure. To make sure that you are not overpaying and that your Azure licenses are correctly structured for your needs, lean on an expert partner like Data#3.

Save up to 80% with Azure Hybrid Benefit with Windows Server + Azure Reserved Instance VM Instances (RI)³.

Azure Hybrid Benefit

The first benefit – often missed by customers – is the Azure Hybrid Use Benefit (AHUB). As Microsoft's largest Australian partner, Data#3 understands how you are licensed and if the AHUB benefit applies to you; we can assess the relevant services, which include virtual machines, App Services, SQL Servers and Azure SQL Server, and have the AHUB entitlement applied, if you're eligible.

To provide an idea of the saving, a D2 v3 virtual machine runs at \$0.32 per hour without the benefit applied.

It comes down to \$0.19 per hour with AHUB. That's a dramatic saving of over 40%. If you have software assurance, then you could be essentially paying twice the amount you need to.

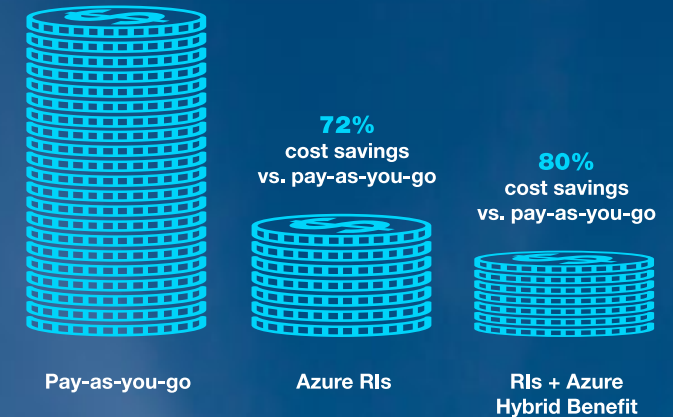
Azure Reserved Instances

Then there's Azure Reserved Instances (RIs). Compared to PAYG prices, RIs help you reduce costs by up to 72%³ – all it takes is some planning. You need to commit to use that instance for a one-year or three-year term for a Windows or Linux virtual machine, an App Service or SQL Databases. RIs are great for applications with steady-state usage and those that require reserved capacity, with a significant saving.

One major benefit of RIs is that they can help you maintain a CAPEX model if that is the preferred approach for year-on-year budgeting. Pay up front, realise the savings over a three-year term and control your costs.

When you combine the cost savings gained from Azure RIs with the added value of AHUB, you can save up to 80% on your Azure investment³.

Save up to 80% with RIs and Azure Hybrid Benefit



Azure Savings Plans for Compute

However, what if your servers are not static and you can't commit to them for at least one year under a reserved instance? This is where Azure savings plan for compute comes in.

You can save up to 65% on PAYG prices by committing to a set hourly spend on compute⁴. The saving plan is locked in for a one year or three-year term - and this can also be used in conjunction with AHUB.

Whilst this may not save you quite as much as a reserved instance, it provides greater flexibility.

Platform as a Service

PaaS is one of Azure's key strengths. Completely serverless, you don't have to worry about infrastructure – no more managing the server, patching the server and so on. Identifying which workloads can move to PaaS is key, as not all workloads are fit for this environment.

However, for those that do suit a PaaS usage model, you gain an increased functionality at a lower cost.

With PaaS, there are also cost savings from a resourcing perspective. Your IT team no longer needs to spend time deploying, configuring, managing and maintaining IaaS infrastructure. Instead, they have more time to do what they do best – innovate for your business and realise new opportunities.

The more you modernise, the lower your operational costs.

Use Azure Migrate and total cost of ownership analysis to better understand what gains can be achieved by moving to Azure.

Free extended support for Windows 2012/2012 R2

If your business uses Windows 2012 or 2012 R2, or SQL Server 2012, you may be aware that these server editions are coming to end of support, Windows Server 2012 on October 10, 2023, and SQL Server 2012 end in July 12, 2022. Beyond that, unless you buy an extended support package (which can be very expensive), your servers will be exposed to zero-day vulnerabilities with no ongoing patches available. Microsoft is now offering three years of extended support for free to those who migrate 2012 and 2012 R2 servers to Azure. It means you can start reaping the benefits of cloud now, while you plan your Windows or SQL Server upgrade.

Lower subscription rates for development/test

Enterprise Agreement customers can run development and testing workloads on Azure, at a lower subscription rate. The reduction in cost comes from the exemption of license requirements for Microsoft products, resulting in virtual machines charged the same as Linux virtual machines. By avoiding the cost of licensing for the operating system, which is up to 40% of the cost of virtual machines, you can achieve further significant savings.

Optimise your Azure spend with Data#3's Cloud Optimiser

As Microsoft's largest Australian partner, Data#3 has unparalleled experience in Azure, licensing, system integration and managed services. After conducting Azure Health Checks for hundreds of customers, we have uncovered areas of optimisation in every instance and found the vast majority of customers have been overspending on their Azure environment.

That's why we created [Cloud Optimiser](#), your all-in-one managed service to help you gain a deeper understanding of your existing cloud services and prevent unnecessary cloud spending.

There has never been a more important time to ensure you're not overspending on your Azure environment.

To discover more Azure best practices and how Data#3 can support your cloud optimisation visit the [Data#3 Azure Periodic Table](#). Our interactive map presents hundreds of Azure 'elements' to explore.

Let us show you how you can optimise your Azure investment and take back control of your budget.

[Sign up for your free Cloud Optimiser demonstration](#)



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A leading and award-winning Australian IT services and solutions provider, Data#3, is focused on helping customers to harness the power of people and technology for a better future.

Built on a foundation of over 40 years' experience, combined with world-leading vendor technologies, Data#3 is constantly evolving its solutions and services to enable its customers' success.

Leveraging solutions such as cloud, modern workplace, security, data & analytics and connectivity, combined with Data#3's services across consulting, project services and managed services, Data#3 is delivering the digital future.

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