

Bytes Azure Cost Optimisation Guide

Managing costs is a challenge for organisations using public cloud services but also an opportunity to drive efficient consumption of IT.

Introduction

Microsoft Azure enables you to take control of cost and continuously optimise your spend, while building modern, scalable applications to meet your needs. Azure's breadth of services and pricing options offer the flexibility to effectively manage your costs and keep the performance and capacity you require.

Bytes are a leading Licensing Solutions Provider (LSP) and Cloud Solutions Provider (CSP), with over 1,500 Azure customers. With our licensing and technical expertise we have put this document together to outline some of the ways in which you can reduce costs in Azure.



Commercial Optimisation

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Use the correct purchasing option

Azure costs are typically the same regardless of the agreement you purchase through, however there are some exceptions. There are multiple purchasing motions available:

- Direct from Microsoft options include Pay-as-you-go, or if you are a large organisation then the Microsoft Customer Agreement is an option. The Enterprise Agreement / Server and Cloud Enrolment may also be options for some customers.
 - For larger organisations who can make a multi-million financial commitment to Microsoft to consume Azure services, then the Microsoft Azure Consumption Commitment (MACC) should be explored. MACC can provide customers with Azure consumption discounts along with other benefits such as Azure credits.
- Through a Microsoft partner via the Cloud Solutions Provider (CSP) program. Using a CSP, such as Bytes, often has many added benefits over dealing directly with Microsoft and can lead to a better overall service with

improved costs. For example, the benefits you'll receive as a Bytes customer can include access to Premier Support, proactive Azure cost management, access to cost management tools, access to Azure architects, and many more.

Azure Reservations

Azure Reservations help you save money by committing to one-year or three-year plans for multiple products. Committing allows you to get a discount on the resources you use. **Reservations can significantly reduce your resource costs by up to 72% from pay-as-you-go prices.**

You can pay for a reservation up front or monthly. The total cost of up front and monthly reservations is the same and you don't pay any extra fees when you choose to pay monthly. Monthly payment is available for Azure reservations, not third-party products.

- **Reserved Virtual Machine Instance:** save up to 72% A reservation only covers the virtual machine and cloud services compute costs. It doesn't cover additional

software, Windows, networking, or storage charges.

- **Azure Storage reserved capacity:** A reservation covers storage capacity for standard storage accounts for Blob storage or Azure Data Lake Gen2 storage. The reservation doesn't cover bandwidth or transaction rates.
- **SQL Database reserved vCore:** Covers both SQL Managed Instance and SQL Database Elastic Pool/single database. Only the compute costs are included with a reservation. The SQL license is billed separately.
- **Azure Disk Storage reservations:** A reservation only covers premium SSDs of P30 size or greater. It doesn't cover any other disk types or sizes smaller than P30.
- **Other Reservations available:** Azure Database for MariaDB / MySQL / PostgreSQL, Azure Cache for Redis, Azure Cosmos DB, Azure Databricks, Azure Data Factory, and more!

[Learn more about Azure Reservations](#)

Commercial Optimisation

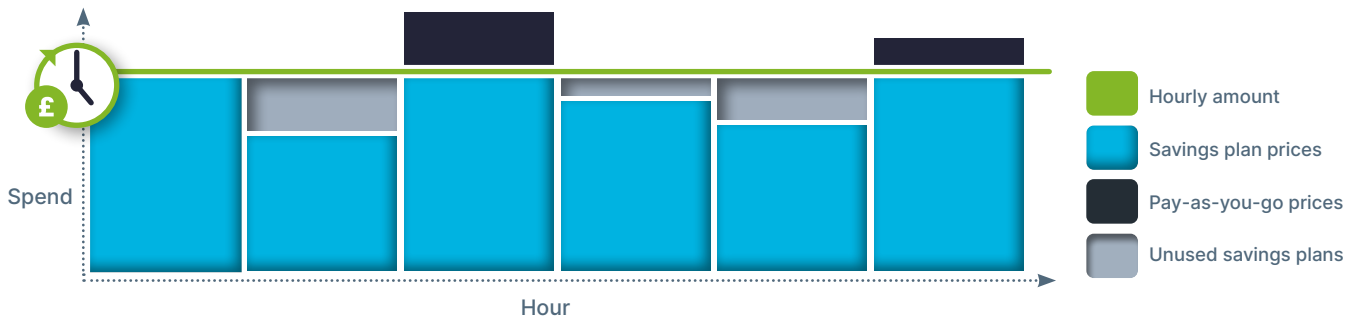
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New! Azure Savings Plan for Compute

Discover a flexible way to save up to 65 percent on compute services

Azure savings plan for compute is a flexible pricing model that provides savings up to 65 percent off pay-as-you-go pricing when you commit to spend a fixed hourly amount on compute services for one or three years.

Save regardless of region, instance series, or operating system. The biggest savings are automatically applied first. Modernise your workloads and keep saving. Choose a one-year or three-year term. Set your plan's hourly amount with personalised recommendations based on your recent usage. Pay in full up-front or pay in part each month at no additional cost. Apply savings across subscriptions, resource groups, management groups or entire Azure accounts.



Azure Hybrid Benefit

Azure Hybrid Benefit is a licensing benefit that helps you to significantly reduce the costs of running your workloads in the cloud. It works by letting you use your on-premises Software Assurance-enabled Windows Server and SQL Server licences on Azure. And now, this benefit applies to RedHat and SUSE Linux subscriptions too.

- Pay less with Azure - AWS is up to 5 times more expensive than Azure for Windows Server and SQL Server. [Read more here.](#)
- Save up to 85 per cent over the standard pay-as-you-go rate by bringing your Windows Server and SQL Server on-premises licences to Azure
- Achieve the lowest cost of ownership by combining the Azure Hybrid Benefit and Azure Reservations.

In addition, migrating Windows Server and SQL Server 2012 to Azure gives you three years of [Extended Security Updates](#) for free. Additionally, Microsoft is providing one more year of extended security update for Windows Server and SQL Server 2008 and 2008 R2 only on Azure (July 2023 and January 2024 respectively). See the Azure Hybrid Benefit [calculator](#) to estimate savings based on the number of licenses you own.

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Azure Spot Virtual Machines

With Spot Virtual Machines, provision unused Azure compute capacity at deep discounts of up to 90 percent compared to pay-as-you-go prices. Deploy workloads that can handle interruptions and don't need to be completed within a specific period. Run workloads for development, testing, quality assurance, advanced analytics, big data, machine learning and AI, batch jobs, rendering and transcoding of videos, graphics, and images at a very low cost. Pay only up to the maximum price that you set in advance (optional). Spot VM instances are ideal for workloads that can be interrupted, providing scalability while reducing costs. Get special Azure pricing and benefits when running Windows Server workloads on spot VMs. Read the Spot Virtual Machines [overview](#).

Azure Dev/Test Pricing

Significantly reduce the costs of on-going dev/test workloads with discounted rates on Azure services—available to active Visual Studio subscribers. Get dev/test rates on Windows and Windows Server virtual machines, Azure SQL Database, Azure Logic Apps, Azure App Service, Azure Cloud Services instances, and Azure HDInsight instances. Save even more with reservations.

- Use the software included with your Visual Studio subscription, for dev/test on Azure Virtual Machines—at no extra charge.
- Save up to 62 percent for Windows Server D2 v3 VM, 96 percent for SQL Server Enterprise D2 v3 VM, and 91 percent for BizTalk Server D2 v3 VM.
- Save up to 65 percent on Azure SQL Managed Instance business critical tier with eight virtual core managed instances, elastic pool, and single databases.
- Save up to 57 percent for a typical web app dev/test environment running SQL Database and App Service.

Regional variances

Azure has datacentres all over the world. Usage costs vary between locations that offer particular Azure products, services, and resources based on popularity, demand, and local infrastructure costs.

There is a handy third party tool (not affiliated to Microsoft) available at <http://azureprice.net> which combines the pricing data for all VM instance sizes across all Azure regions.

Technical Optimisation

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Consider B-series VMs

B-Series VMs provide discounts of between 15-55% compared to equivalent VMs. B-series VMs provide a low-cost option for workloads that typically run at a low to moderate baseline CPU performance, but sometimes need to burst to significantly higher CPU performance when the demand rises. These workloads don't require the use of the full CPU all the time, but occasionally will need to burst to finish some tasks more quickly. Many applications such as development and test servers, low-traffic web servers, small databases, micro services, servers for proof-of-concepts, build servers and code repositories fit into this model.

Modernise to PaaS

Look for areas in the architecture where it may be natural to incorporate platform-as-a-service (PaaS) options. These options include caching, queues, and data storage. PaaS reduces time and cost of managing servers, storage, networking, and other application infrastructure.

With PaaS, the infrastructure cost is included in the pricing model of the service. For example, you can provision a virtual machine as a jumpbox. There are additional costs for storage and managing a separate server. You also need to configure a public IP on the virtual machine, which is not recommended. A managed service such as Azure Bastion takes into consideration all those costs and offers better security.

Move workloads to containers

Containers are more lightweight than VMs. You can run several containerized applications on one physical host, up to dozens of containers per host in some cases. Repackaging your applications as containers can help reduce VM utilisation and substantially reduce your costs. Consider transitioning applications from traditional Azure VMs to a container service like [Azure Kubernetes Service](#) (AKS) or [Azure Container Instances](#).

Right-size or shutdown underutilized virtual machines

One of the great benefits of Azure VMs is the ability to change the size of your VM based on the needs for CPU, Network, or disk performance. If you have underutilised VMs then switching to a smaller instance or to another family of VMs can save you money. If a virtual machine is not required at particular times, such as outside of working hours, or is only required on-demand, then you can save costs by shutting it down using the Start/stop VMs during off-hours feature.

Use Standard Storage to store Managed Disks snapshots

To save 60% of cost, we recommend storing your snapshots in Standard Storage, regardless of the storage type of the parent disk. This is the default option for Managed Disks snapshots. Migrate your snapshot from Premium to Standard Storage. Refer to Managed Disks pricing details.

Learn more here <https://azure.microsoft.com/en-us/pricing/details/managed-disks/>

Technical Optimisation

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Identify and delete orphaned disks

When you delete a virtual machine (VM) in Azure, by default, any disks that are attached to the VM aren't deleted. This feature helps to prevent data loss due to the unintentional deletion of VMs. After a VM is deleted, you will continue to pay for unattached disks. Delete any unattached disks to reduce unnecessary costs.

Choose the Right Storage Tiers

Data stored in the cloud grows at an exponential pace. To manage costs for your expanding storage needs, it can be helpful to organise your data based on how frequently it will be accessed and how long it will be retained. Azure storage offers different access tiers so that you can store your BLOB data in the most cost-effective manner based on how it's being used. Azure Storage access tiers include:



Hot tier

An online tier optimised for storing data that is accessed or modified frequently. **The Hot tier has the highest storage costs, but the lowest access costs.**



Cool tier

An online tier optimised for storing data that is infrequently accessed or modified. Data in the Cool tier should be stored for a minimum of 30 days. **The Cool tier has lower storage costs and higher access costs compared to the Hot tier.**



Archive tier

An offline tier optimised for storing data that is rarely accessed, and that has flexible latency requirements, on the order of hours. **Data in the Archive tier should be stored for a minimum of 180 days.**

Cloud Governance

Cloud governance is a set of policies and rules adopted by companies that run services in the cloud. The goal of cloud governance is to improve data security, manage risk, reduce cost, and enable the smooth operation of cloud systems.

Enforced Tagging

Tags are metadata elements that you apply to your Azure resources. They are key-value pairs that help you identify resources based on settings that are relevant to your organisation. For example, you can track Azure resource spend within Cost Centers by adding a tag with a value of 'Cost Center'. Fully formed, the key-value pair becomes Cost Center = LR6775 (with the value being the code allocated to cost centers within your business).

You can apply tags to your Azure resources, resource groups, and subscriptions. Using Azure Policy, you can configure certain tags to be required on any resource that

is created to ensure they are assigned. Enforcing tagging on resources can also be done by configuring them to be inherited from the Resource Group and Subscriptions, which may be a simpler way to manage this.

Once proper tagging is in place, the next step is to gain comprehensive and unified reporting of your cloud spend - all based on the business logic of your own company. This can be done by leveraging Azure's native, cost management tool as well as third-party solutions such as Bytes' Quantum tool, which provides not only comprehensive cost analysis, but also cost optimisation recommendations that can be implemented in just a few clicks.

Cost Alerts

In addition to cost analysis and cost optimisation recommendations, Quantum can also configure cost alerts. These alerts can be set up to notify you of either being over budget or, more importantly, forecasting that you will

be over budget, based on the current cost trend. This will give you forewarning if you are likely to go over budget on a specific subscription or resource group.

Azure Policy

Azure Policy helps to enforce organisational standards and to assess compliance at-scale. Through its compliance dashboard, it provides an aggregated view to evaluate the overall state of the environment, with the ability to drill down to the per-resource, per-policy granularity. It also helps to bring your resources to compliance through bulk remediation for existing resources and automatic remediation for new resources.

Common use cases for Azure Policy include implementing governance for resource consistency, regulatory compliance, security, cost, and management.

Want to know the next step in minimising cloud costs but maximising capabilities in the cloud? Speak to Bytes.

Quantum for Azure

As a Bytes customer you will have access to Bytes' Quantum technology. Quantum is a cloud-based platform, hosted in Azure that provides technical and spend analytics on Azure usage. It comprises of a set of easy-to-use dashboards and PowerBI reports that you will have direct access to enabling you to track, monitor and cut cloud costs effectively - providing impressive visibility across your public cloud services.



Go one Step Further with Cloud Essentials

Deliver immediate value with the Bytes Cloud Essentials service. It is an advisory service which allows customers to overcome the challenges of cloud adoption with technical support, consulting, and optimisation services to meet your specific needs.



Support Services

- ✓ Reactive support available 24x7 with major incident (P1) response times starting from 30 mins as standard. Incidents are managed through to resolution and can also be escalated to the vendor.
- ✓ Proactive support includes regular health checks, patching, upgrades and other maintenance activities.



Optimisation Services

- ✓ Commercial optimisation analyses your cloud spend and determines cost-saving strategies using existing licenses, upfront purchasing and shifting spend to/from marketplace. Bytes will track ROI and advise on/make changes to ensure savings are maximised.
- ✓ Technical optimisation reviews your cloud services to determine rightsizing opportunities, remove unused/orphan services, identify potential for spot instances, and shut down services when not required.



FLEX Consulting Services

- ✓ Access to consultants across infrastructure, cyber security, modern workplace, change management, user adoption, training and commercial services.

< Why Bytes 1 | 2 >

With the aid of the Quantum platform, Bytes will be able to provide proactive advice and guidance regarding a wide range of governance and optimisation opportunities.

On a regular basis (recommended monthly) Bytes would monitor actual cloud usage and anticipated future activities, which may impact cloud consumption, to determine the type and quantity of spend to support the use of Bring Your Own License ("BYOL")/ Hybrid Benefits (HB), Reserved Capacity or Reserved Instances.

Sounds great right? But how can you take advantage of Cloud Essentials?

Cloud Essentials services are all accessed and paid for using Service Tokens, which are procured upfront and used when either an incident is raised on the Service Desk, when proactive maintenance activities are booked, or when consultants are required.

If an incident is raised on the Service Desk, the amount of Service Tokens consumed will vary, increasing for out-of-hours and weekend support. Service Token charges also vary based on the technical area and experience of the consultant required. Consultants can be used in half-day units for remote work or full days for onsite activities.

Discover more about Bytes Cloud Essentials and how we can deliver immediate value to your business, contact us on tellmemore@bytes.co.uk | 01372 418500 | bytes.co.uk

