

Cost optimization in Azure

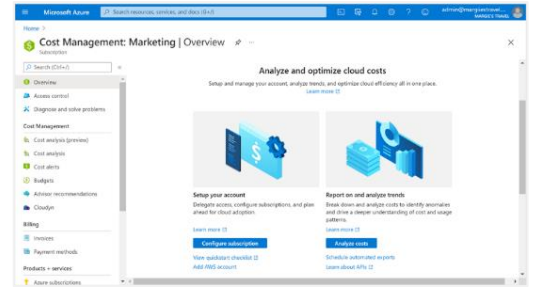
This handout gives an overview of some of the ways that customers can optimize their use of Azure and make cost savings.

Azure Cost Management

Azure Cost Management gives customers the tools to plan for, analyze and reduce their spending to maximize their cloud investment.

Customers who purchase Azure services through a Volume Licensing agreement, or direct from Microsoft either via azure.com or from an internal salesperson, have direct access to the Azure Cost Management tools in the Azure Management Portal.

When Azure services are purchased through the Cloud Solution Provider program, the CSP partner has access to the Azure Cost Management tools, but can give access to customers if required.

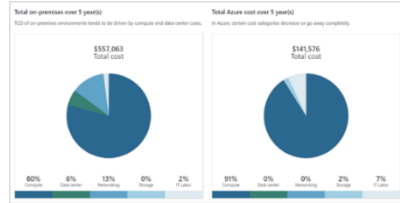


<https://portal.azure.com>

Azure TCO Calculator

The Azure Total Cost of Ownership (TCO) Calculator helps customers to estimate the cost savings that could be realized by migrating their workloads to Azure, by completing the following steps:

- 1 Supply details of on-premises workloads to enable the tool to understand the current TCO and recommended services in Azure
- 2 Adjust assumptions to reflect a particular industry or location, to give a more accurate TCO report
- 3 View reports to see estimated cost savings with Azure over 5 years



<https://bit.ly/2F1ynp3>

Azure Pricing Calculator

The Azure Pricing Calculator helps customers configure and estimate the costs for Azure products. It also highlights where additional cost savings may be made – for example, via Reservations or the Azure Hybrid Benefit:



Savings Options
Save up to 72% on pay-as-you-go prices with 1-year or 3-year Reserved Virtual Machine Instances. Reserved Instances are great for applications with steady-state usage and applications that require reserved capacity. [Learn more about Reserved VM Instances pricing.](#)

Compute (E32s v4) <input checked="" type="radio"/> Pay as you go <input type="radio"/> 1 year reserved (-41% discount) <input type="radio"/> 3 year reserved (-62% discount) \$1,635.20 Average per month (\$0.00 charged upfront)	OS (Windows) <input checked="" type="radio"/> License included <input type="radio"/> Azure Hybrid Benefit \$1,074.56 Average per month (\$0.00 charged upfront)	Software (SQL Server) <input checked="" type="radio"/> License included <input type="radio"/> Azure Hybrid Benefit \$8,760.00 Average per month (\$0.00 charged upfront)	Total \$11,469.76 Average per month (\$0.00 charged upfront)
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<http://bit.ly/AzurePricingCalculator>

Azure Reservations

Azure Reservations enable a customer to make a 1- or 3-year commitment to an Azure service and get savings of up to 72 per cent.

- Payment can be made upfront or monthly
- Popular Reservations include Reserved Instances for virtual machines, and Reserved Capacity for database solutions

Azure Reserved Instances flexibility

Reassign

- Customers can reassign a Reserved Instance at any time to a different Subscription or Resource Group

Exchange

- Customers can exchange one Reserved Instance for another
- Unused duration of original RI is pro-rated and credit is applied to a new 1 or 3-year term RI

Cancel

- Customers can cancel a Reserved Instance at any time
- Refunds are pro-rated with a cancellation fee deducted, although this fee is not currently charged

 Virtual machines Save by buying Reserved Instances for 1 or 3 years	 Azure Blob Storage Save by buying Reserved Capacity for 1 or 3 years	 Azure Database for PostgreSQL Save by buying vCores for 1 or 3 years	 Azure Data Explorer Save by buying Reserved Instances for 1 or 3 years	 Azure Red Hat OpenShift Save by pre-purchasing plans for 1 year	 Data Factory Save by buying Reserved Capacity	 SQL Database Save by buying Reserved vCores for 1 or 3 years
 Azure Dedicated Host Save by buying Reserved vCores for 1 or 3 years	 Azure Managed Disks Save by buying Reserved Disks for 1 year	 SUSE Linux Save by pre-purchasing SUSE software for 1 or 3 years	 App Services Save by buying Reserved Instances	 Azure Synapse Analytics Save by buying Reserved Capacity for 1 or 3 years	 Azure Database for MySQL Save by buying Reserved vCores for 1 or 3 years	 Azure Databricks Save by pre-purchasing DBUs for 1 or 3 years
 Red Hat Plans Save by pre-purchasing plans for 1 or 3 years	 Azure VMware Solution Save by buying Reserved Instances for 1 or 3 years	 Azure Cosmos DB Save by buying Reserved Throughput Capacity for 1 or 3 years	 Azure Database for MariaDB Save by buying Reserved vCores for 1 or 3 years	 Azure Cache for Redis Save by buying Reserved Instances for 1 or 3 years	 Azure VMware Solution by CloudSimple Save by buying Reserved Instances for 1 or 3 years	 Azure Files Reserved Capacity Save by buying Reserved Capacity for 1 or 3 years

Azure Hybrid Benefit

The Azure Hybrid Benefit is a cost-savings benefit which enables customers to bring eligible licenses to Azure to achieve the lowest cost of ownership for Windows Server and SQL Server solutions.

Windows Server

Eligibility

CSP: a benefit included with 1 or 3-year Server Subscriptions for Windows Server Standard Core licenses

VL: a benefit for Windows Server Standard or Datacenter Core licenses with active Software Assurance

Rights to use Windows Server licenses:

- For on-premises physical or virtual servers, OR
- For virtual machines running in Azure



SQL Server

Eligibility

CSP: a benefit included with 1 or 3-year Server Subscriptions for SQL Server Standard or Enterprise Core licenses

VL: a benefit for SQL Server Standard or Enterprise Core licenses with active Software Assurance

Rights to use SQL Server licenses:

- For on-premises physical or virtual servers, OR
- For virtual machines running in Azure, OR
- For the Azure SQL Database service, OR
- For Azure Data Factory SQL Server Integration Services

Azure Spot virtual machines

Azure Spot virtual machines let customers access unused Azure compute capacity at deep discounts compared to pay-as-you-go VM prices. Spot VMs are ideal for workloads that can handle interruptions and don't need to be completed within a specific time frame.

- Customers can choose the maximum price to pay for a Spot VM in advance
- Workloads are evicted when Azure no longer has compute capacity and must reallocate its resources. Customers can choose to deallocate or delete VMs upon eviction, dependent on whether they will be redeployed later



Constrained core VMs for SQL Server

These virtual machines are optimized for database workloads like SQL Server that often require high memory, storage, and I/O bandwidth, but not a high vCPU core count. They constrain the vCPU count of the virtual machine to reduce the cost of software licensing, all while maintaining the same memory, storage, and I/O bandwidth. The licensing charged for SQL Server is constrained to the active vCPU count while the compute cost, which includes OS licensing, remains the same as the original size based on underlying vCPUs.

For example, for virtual machines in the West US data center:

	E32s v4 (regular)	E32-8s v4 (constrained core)
Cores	32 in total	8 active, 32 underlying
Compute	\$1,635.20	\$1,635.20
Windows Server	\$1,074.56	\$1,074.56
SQL Server	\$8,760.00	\$2,190.00
Total monthly cost	\$11,469.76	\$4,899.76

Prices are identical for the Compute and Windows Server part, but the SQL Server costs are a quarter in the second VM – because a quarter of the cores are being used

VM automatic shutdown

The Auto-shutdown feature enables customers to shut down virtual machines during inactive periods, saving money since they only pay for what they use.

