

Course Agenda

- Module 01 – Cloud concepts
- Module 02 – Core Azure services
- Module 03 - Security, privacy, compliance, and trust
- Module 04 – Pricing and support

Certification areas (AZ-900)

Study areas	Weights
Understanding cloud concepts	15-20%
Understanding core Azure services	30-35%
Understand security, privacy, compliance, and trust	25-30%
Understand Azure pricing and support	25-30%

- This course maps directly to the exam AZ-900 Microsoft Azure Fundamentals.
- Percentages indicate the relative weight of each area on the exam.
- The higher the percentage, the more questions you are likely to see in that area.
- <http://aka.ms/azfunpath>



Our promises to you...

- Have some Fun!
- Learn at least one thing new!
- Make Ourselves available for you

So please ...

- Engage and enjoy!

Matt Hester

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Frisco, Texas



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Global Director – FUNdamentals
Team, Microsoft

Location

Los Angeles, CA





Module 1 – Learning objectives

- Describe and understand cloud services and their benefits.
- Understand key terms you will encounter when working with cloud services.
- Understand public, private, and hybrid cloud models.
- Understand infrastructure as a service (IaaS).
- Understand platform as a service (PaaS).
- Understand software as a service (SaaS).

Cloud computing

- **Compute power** - such as Linux servers or web applications.
- **Storage** - such as files and databases.
- **Networking** - such as secure connections between the cloud provider and your company.
- **Analytics** - such as visualizing telemetry and performance data.



Cloud providers include Microsoft, Amazon, and Google

Key concepts and terms

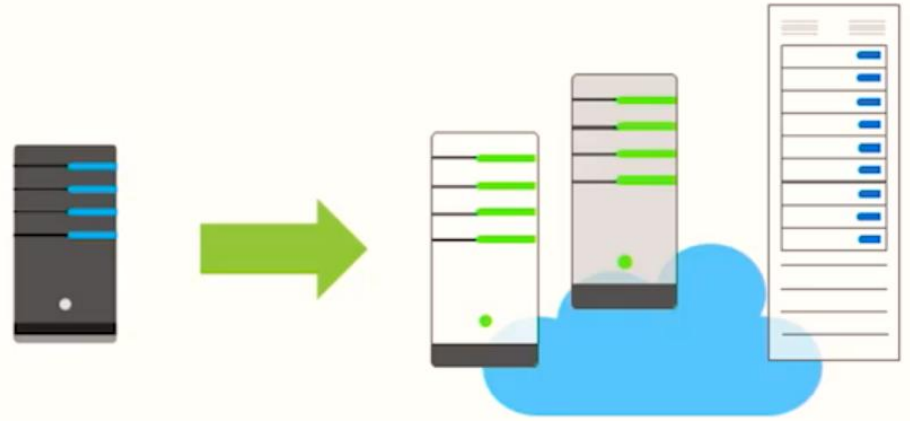
- High availability
- Scalability
- Elasticity
- Agility
- Fault tolerance

Key concepts and terms

- Disaster recovery
- Global reach
- Customer latency capabilities
- Predictive cost considerations
- Security

Economies of scale

- Less expensive
- More efficient
- Pass benefits on

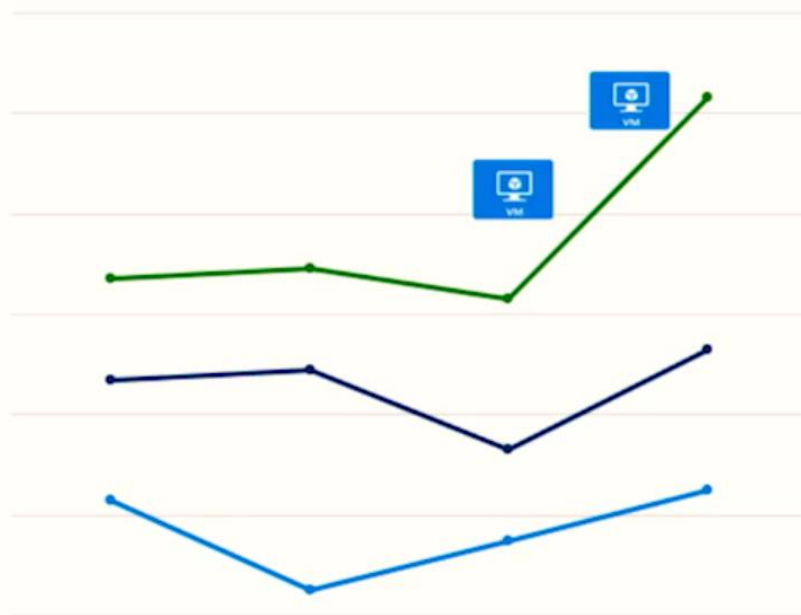


CapEx vs. OpEx

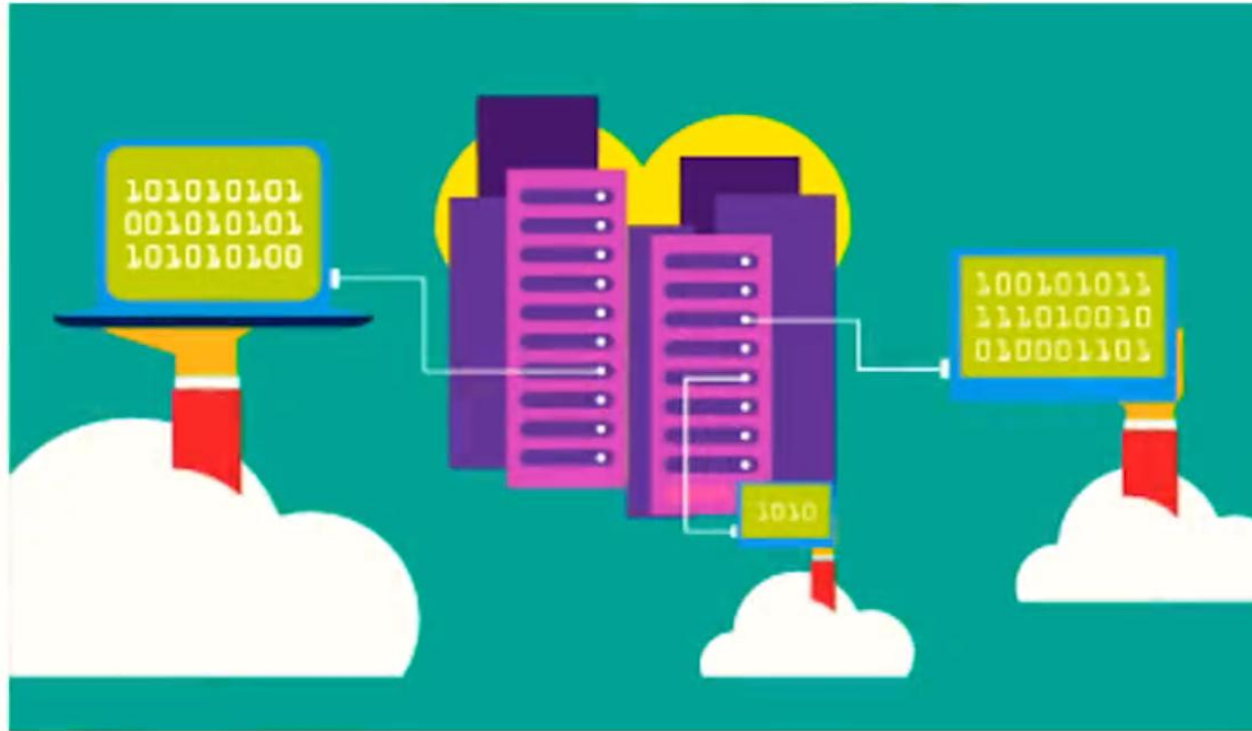
- Capital Expenditure (CapEx)
 - Spend on physical infrastructure upfront.
 - Deduct the expense from your tax bill.
 - High upfront cost, value of investment reduces over time.
- Operational Expenditure (OpEx)
 - Spend on services or products as needed.
 - Get billed immediately.
 - Deduct the expense from your tax bill in the same year.
 - No upfront cost, pay-as-you use.

Consumption-based model

- No upfront costs.
- No need to purchase and manage costly infrastructure.
- Ability to pay for additional resources as they are needed.
- Ability to stop paying for resources that are no longer needed.



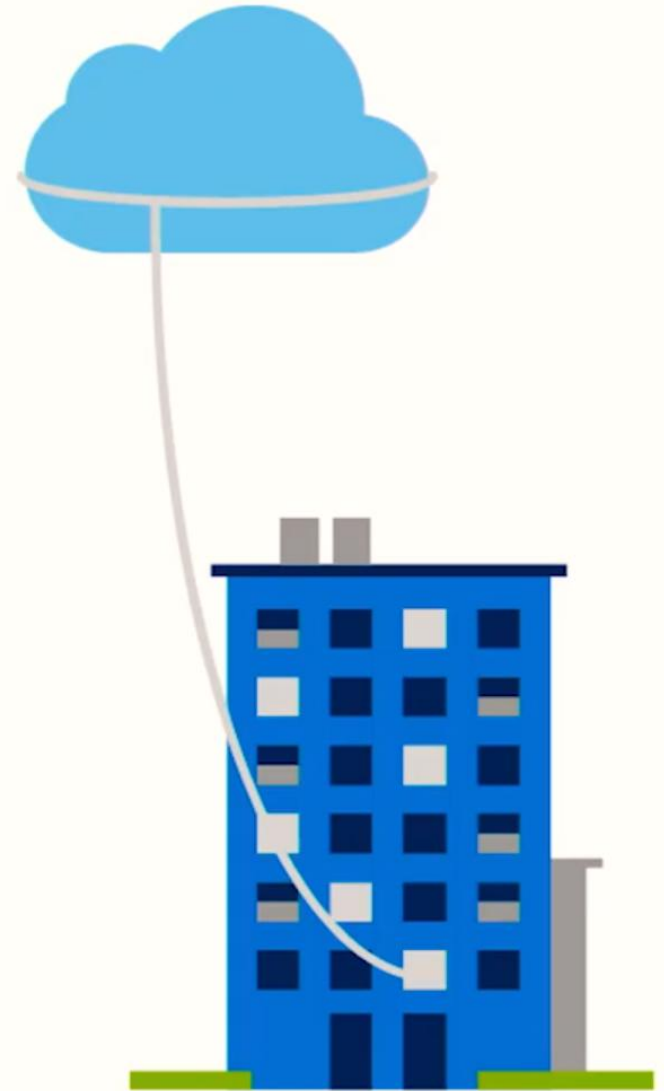
Public cloud



- Owned by cloud services or *hosting* provider.
- Provides resources and services to multiple organizations and users.
- Accessed via secure network connection (typically over the internet).

Private cloud

- Owned and operated by the organization that uses cloud resources.
- Organizations create a cloud environment in their datacenter.
- Self-service access to compute resources provided to users within the organization.
- Organizations responsible for operating the services they provide.



Hybrid cloud



Combines *Public* and *Private* clouds to allow applications to run in the most appropriate location.



Cloud model comparison

Public cloud:

- No capital expenditures to scale up.
- Applications can be quickly provisioned and deprovisioned.
- Organizations pay only for what they use.

Private cloud:

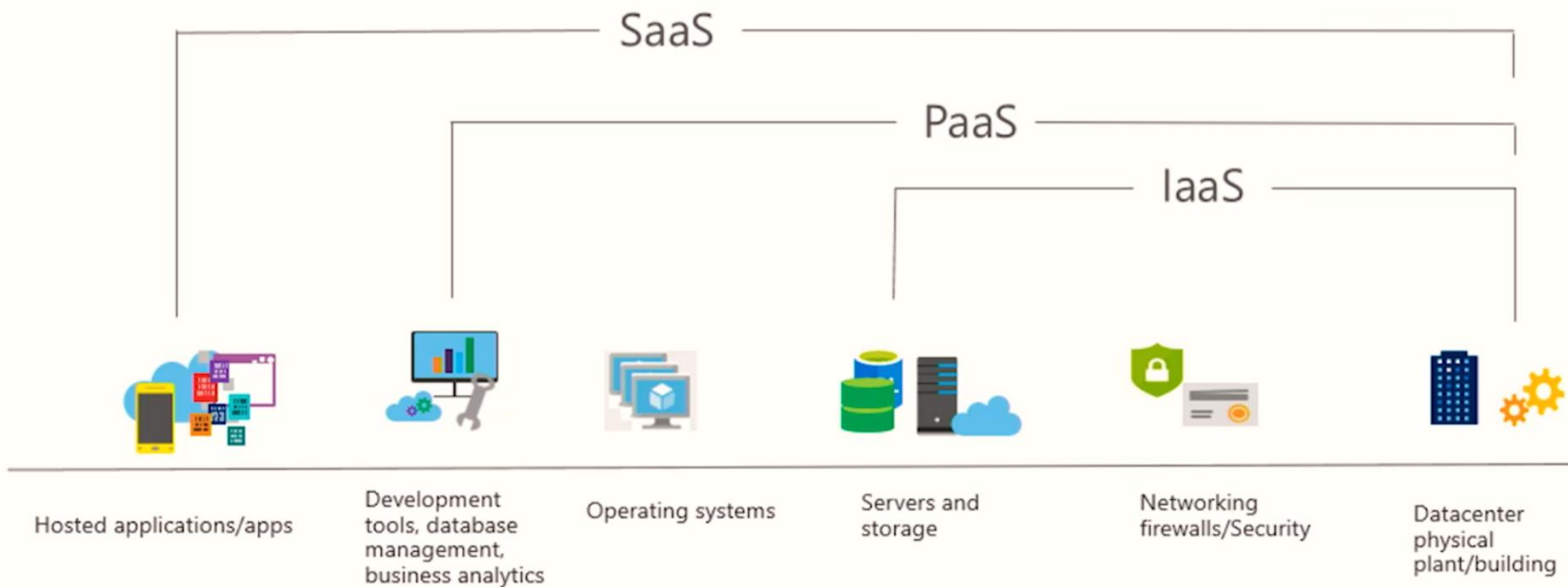
- Organizations have complete control over resources.
- Organizations have complete control over security.

Hybrid cloud:

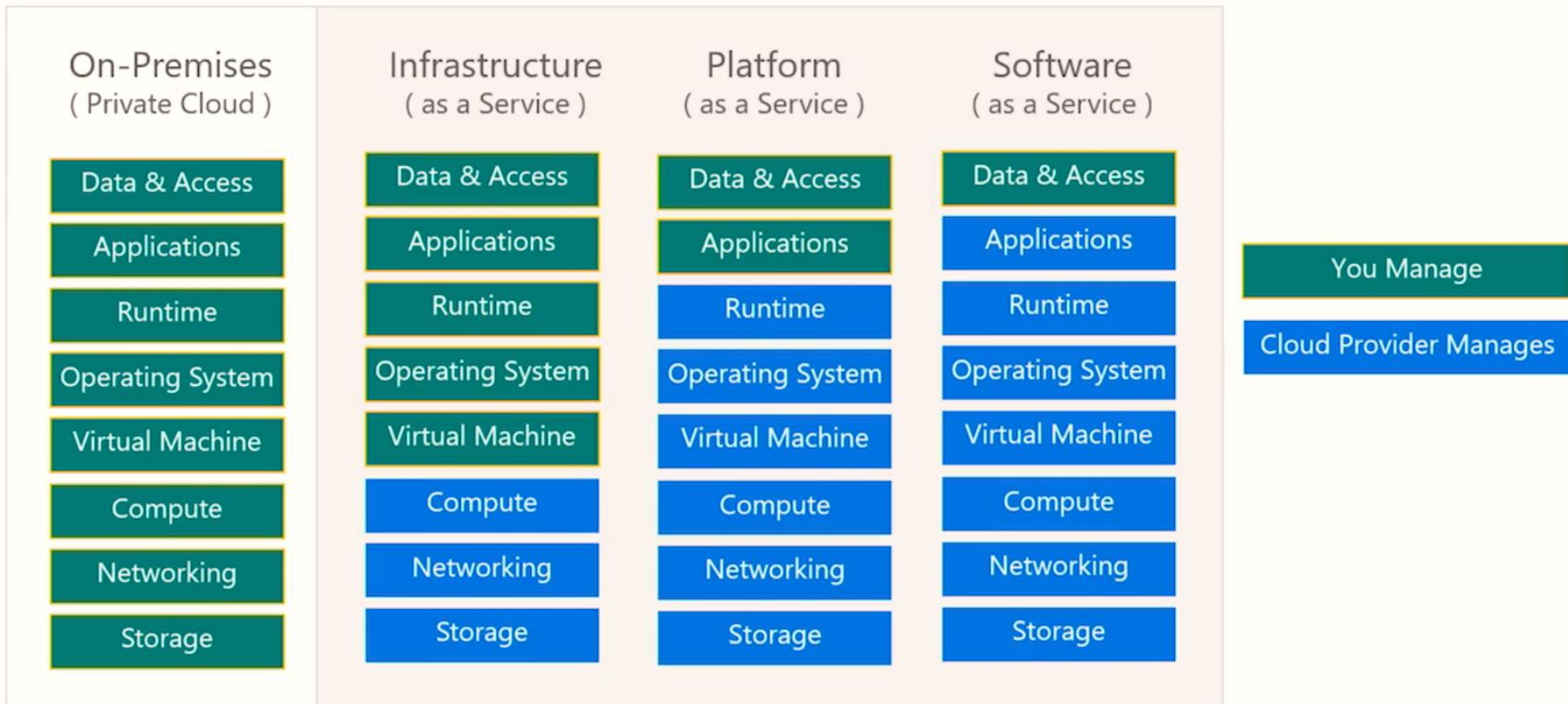
- Most flexibility.
- Organizations determine where to run their applications.
- Organizations control security, compliance, or legal requirements.

Lesson 04: Types of cloud services





Shared responsibility model



Cloud service comparison

IaaS

- The most flexible cloud service.
- You configure and manage the hardware for your application.

PaaS

- Focus on application development.
- Platform management is handled by the cloud provider.

SaaS

- Pay-as-you-go pricing model.
- Users pay for the software they use on a subscription model.

Think of it as
"Pizza as a
Service"



✈ Airplane mode on

Azure Fundamentals

Module 02:

Core Azure services



Module 2 – Learning objectives

- Understand and describe core Azure architectural components.
- Understand and describe core Azure services and products.
- Understand and describe Azure solutions.
- Understand and describe Azure management tools.

Geographies

- Discrete markets that preserve data residency and compliance boundaries.
- Typically contain two or more regions.
- Allow customers with specific data-residency and compliance needs to keep their data and applications in close proximity.
- Categorized as Americas, Europe, Asia Pacific, Middle East and Africa.



Regions

- A region represents a collection of datacenters.
- Provides flexibility and scale.
- Preserves data residency.
- Select regions close to your users.
- Be aware of region deployment availability.
- There are global services that are region independent.



Region Pairs

- Each Azure region is paired with another region.
- Azure prefers at least 300 miles of separation between datacenters in a regional pair.
- Some services provide automatic replication to the paired region.
- In an outage, recovery of one region is prioritized out of every pair.
- Azure system updates are rolled out to paired regions sequentially (not at the same time).

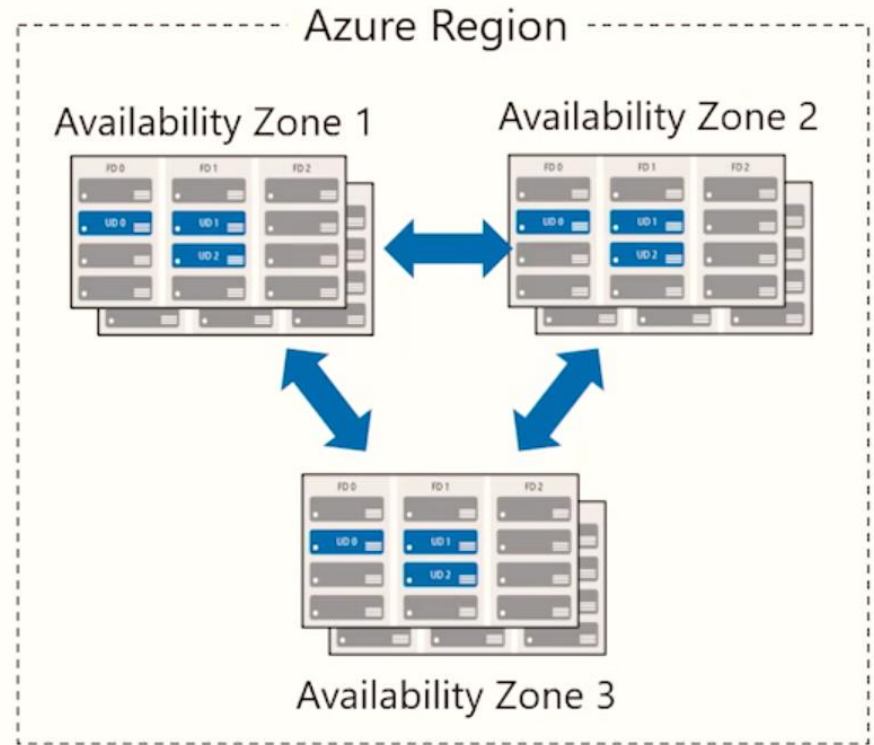
Region	Region
North Central US	South Central US
East US	West US
West US 2	West Central US
US East 2	Central US
Canada Central	Canada East
North Europe	West Europe
UK West	UK South
Germany Central	Germany Northeast
South East Asia	East Asia
East China	North China
Japan East	Japan West
Australia Southeast	Australia East
India South	India Central
Brazil South (Primary)	South Central US

Dublin, Ireland



Availability zones

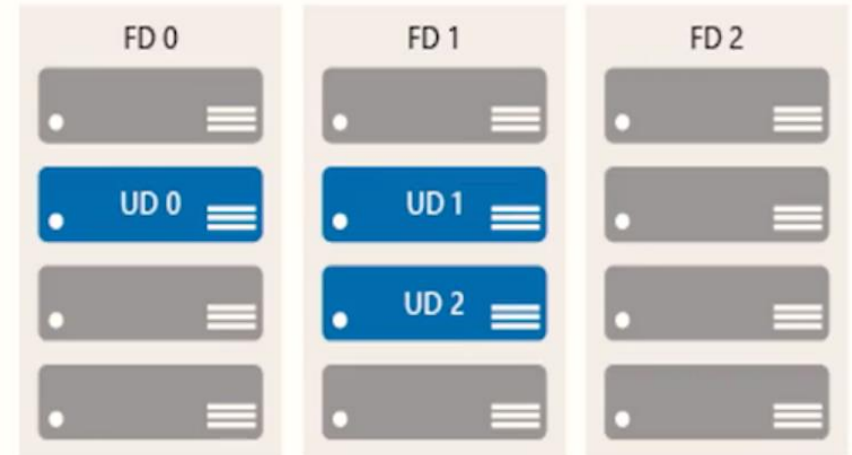
- Physically separate locations within an Azure region.
- Independent
 - Power
 - Cooling
 - Networking
- Isolation Boundary



Availability sets

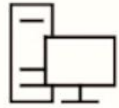
Keep applications online during maintenance or hardware failure.

- **Update domains (UD):** Scheduled maintenance, performance or security updates are sequenced through update domains.
- **Fault domains (FD):** Provide a physical separation of workloads across different hardware in a datacenter.



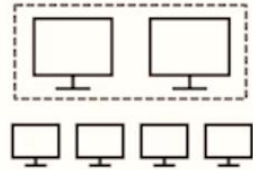
Availability Options

VM SLA
99.9% with Premium Storage



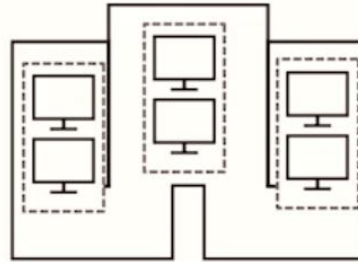
SINGLE VM
Easier lift and shift

VM SLA
99.95%



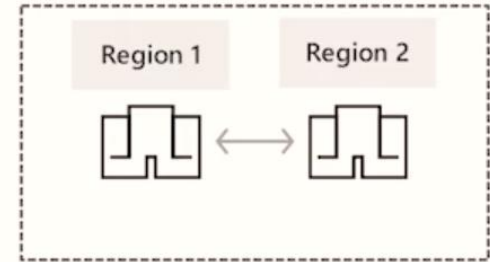
AVAILABILITY SETS
Protecting against failures within datacenters

VM SLA
99.99%



AVAILABILITY ZONES
Protection from entire datacenter failures

MULTI-REGION DISASTER RECOVERY

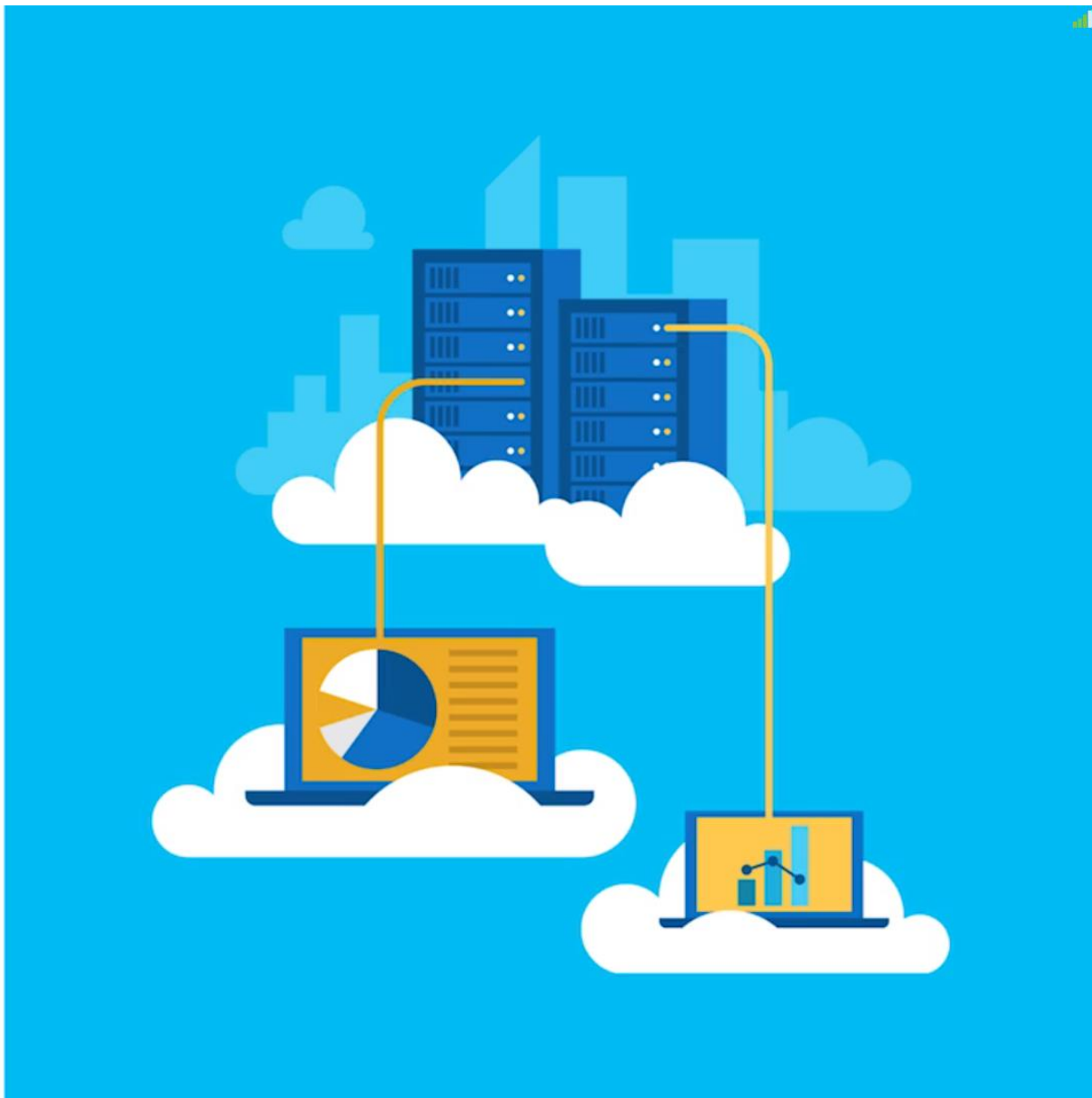


REGION PAIRS
Regional protection within Data Residency Boundaries



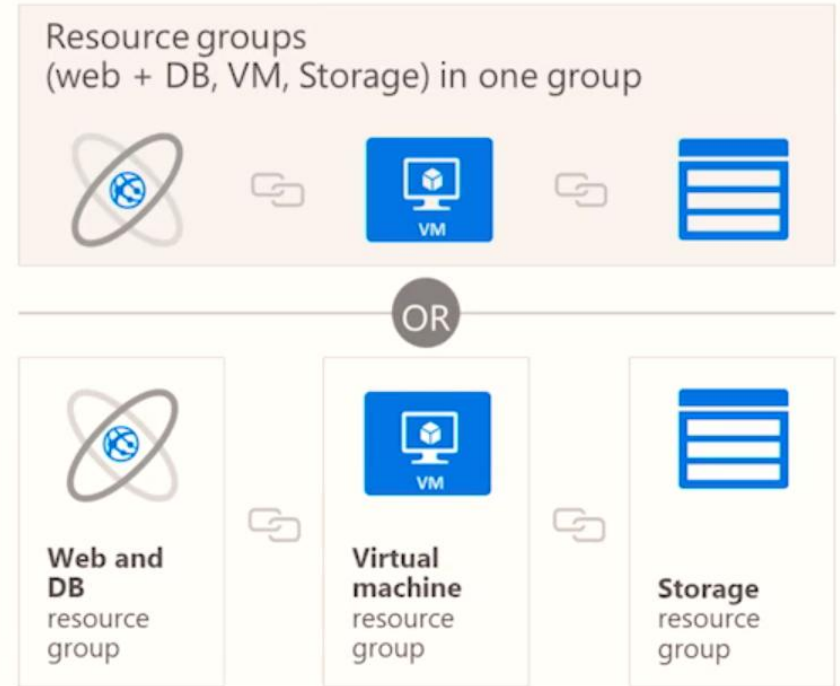
Microsoft Azure Fundamentals

We will be back in 10
minutes!



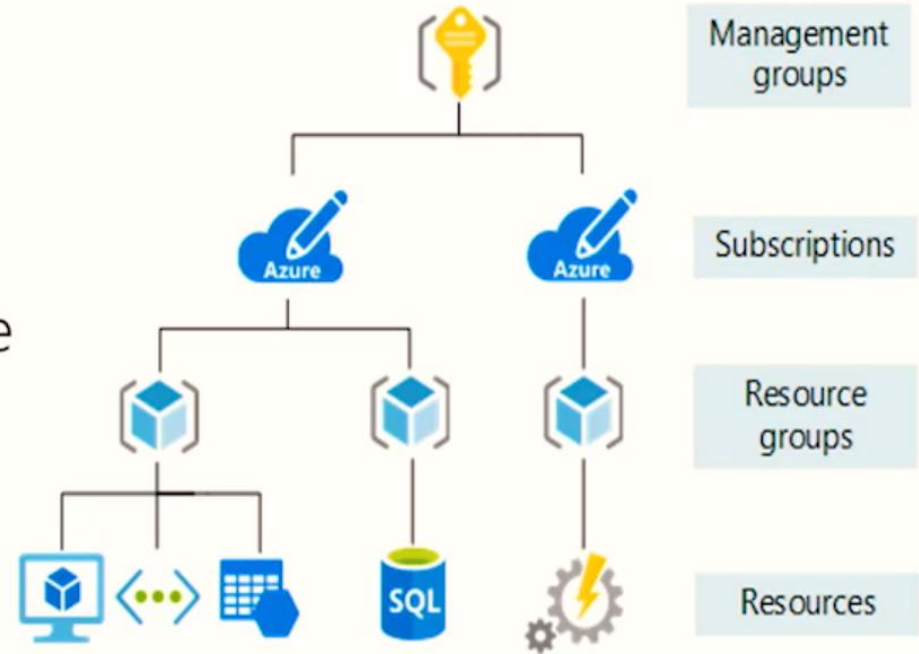
Resource groups

- A collection of Azure Resources
 - Resources that share the same life cycle.
 - A single manageable unit.
- Every Azure resource must exist in one (and only one) resource group.
- Secure at the resource group (RBAC).
- Resource Group may contain resources from multiple regions.
- A resource in a Resource Group can access resources in other Resource Groups.
- If you delete a Resource Group, all the resources in the resource group are deleted.



Azure Hierarchy

- Provide a management layer that enables you to create, update, and delete resources in your Azure subscription.
- Create, configure, manage and delete resources and resource groups.
- Organize resources.
- Control access and resources.
- Automate using different tools and SDKs.



- Microsoft Azure
- Search resources, services, and docs (G+)
- + Create a resource
- Home
- Dashboard
- All services
- ★ FAVORITES
- All resources
- Templates
- Azure Active Directory
- Resource groups
- Virtual networks
- Network security groups
- Load balancers
- Network Watcher
- Storage accounts
- Virtual machines
- Virtual machine scale sets
- Recovery Services vaults

Azure services

- Create a resource
- Virtual machines
- Resource groups
- Network Watcher
- Data Box
- All resources
- Monitor
- Advisor
- Service Health
- More services

















Recent resources

Name	Type	Last Viewed
VMFun1	Virtual machine	1 h ago
az103Ready	Resource group	2 h ago
Windows Azure MSDN - Visual Studio Ultimate	Subscription	4 d ago
RBACTestVM	Virtual machine	4 d ago
AZ103keyvaul	Key vault	4 d ago
Az103Vault	Recovery Services vault	4 wk ago
cloudshellzmet	Storage account	1 mo ago


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- Key vaults

- All services
- Overview
 - Categories
 - All
 - General
 - Compute
 - Networking
 - Storage
 - Web
 - Mobile
 - Containers
 - Databases
 - Analytics
 - Blockchain
 - AI + machine learning
 - Internet of things
 - Mixed reality

Featured

 Virtual machines	 App Services	 Storage accounts	 SQL databases	 Azure Database for	 Azure Cosmos DB	 Kubernetes services
 Function App	 Virtual networks	 Azure Active Directory	 Resource groups	 Monitor	 Advisor	 Security Center
 Cost Management	 All services					

Free training from Microsoft [See all](#)

 Core Cloud Services - Azure architecture and service guarantees	 Core Cloud Services - Manage services with the Azure portal
--	--

- Create a resource
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- FAVORITES
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- All services Search All
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Featured

- Virtual machines
- Function App
- Cost Management

Free training f

Core Cloud Se
architecture and service guarantees

App Services

+ Create View

Description
Create, build, deploy, and manage powerful web, mobile, and API apps for employees or customers using a single back-end. Build standards-based web apps and APIs using .NET, Java, Node.js, PHP, and Python.

Free training from Microsoft

- Host a web application with Azure App servi...
7 units · 1 hr 5 min
- Deploy and run a containerized web app wit...
8 units · 46 min
- Scale an App Service web app to efficiently ...
6 units · 46 min

Useful links

- Overview
- Get Started

- Azure Database for
- Azure Cosmos DB
- Kubernetes services
- Monitor
- Advisor
- Security Center

es - Manage services with the Azure portal

- Microsoft Azure
- Search resources, services, and docs (G+)
- Create a resource
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 - Virtual Machine Scale Sets
 - Recovery Services vaults
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 - Monitor
 - Security Center
 - Blueprints
 - Policy
- Service Health
- Subscriptions
- Marketplace

All services

Search All

Overview

Categories

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- Storage
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- Azure Database for
- Azure Cosmos DB
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- Function App
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- All services

<https://portal.azure.com>

training from Microsoft [See all](#)

- AI + machine learning
- Internet of things
- Mixed reality
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- Core Cloud Services - Manage services with the Azure portal

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 - Tags
- Help + support
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All services

Search All

Overview

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Free training from Microsoft

- Core Cloud Services - Azure architecture and service guarantees
- Core Cloud Services services with the Az

Portal settings

Looking to switch directories or filter subscriptions?
[Click here](#)

General **Language & region**

Configure directory level timeout
Sign me out when inactive
Never

Choose your default view
Home Dashboard

Choose your default mode for the portal menu
Flyout **Docked**

Choose a theme
[Light] [Dark] [High Contrast] [Dark High Contrast]

High contrast theme
None White Black

Enable pop-up notifications

Useful links

- Microsoft Azure
- All service
- Overview
- Categories
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- Mixed reality

Search resources, services, and docs (G+)

Search history

- data
- custom
- dns
- templat
- costy

Recent

- VMFun1 - Virtual machine
- az103Ready - Resource group
- Windows Azure MSDN - Visual Studio Ultimate - Subscription
- RBACTestVM - Virtual machine
- AZ103keyvail - Key vault

Searching all subscriptions. [Change](#)

Azure Cosmos DB

Kubernetes services

Function App

Security Center

Cost Management

[All services](#)

Core Cloud Services - Azure architecture and service guarantees

9 units • 45 min

Azure provides a global network of secure datacenters you can deploy your services into. Learn about the physical architecture of Azure, how redundancy is provided, and what sort of service guarantees

Core Cloud Services - Manage services with the Azure portal

9 units • 1 hr 13 min

Tour the Azure portal features and services, and customize the portal.

Cloud Concepts - Principles of cloud computing

10 units • 1 hr 2 min

Explore the core concepts of cloud computing and how it can help your business.

- Microsoft Azure
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Search: avail

Services

- Availability sets

Resources

No results were found.

Marketplace

- Availability Set
- Citrix ADC 12.0 (High Availability)
- Citrix ADC 12.1 (High Availability)
- Citrix ADC 13.0 (High Availability)

Documentation

- Tutorial - High availability for Windows VMs in Azure ...
- What are Azure Availability Zones? | Microsoft Docs**
- Build schedule-based automated workflows - Azure Logic ...
- Memory Available Megabytes for Windows | Microsoft Docs

Resource Groups

No results were found.

Searching all subscriptions. [Change](#)

- Core Cloud Services - Azure architecture and service guarantees**
9 units • 45 min
Azure provides a global network of secure datacenters you can deploy your services into. Learn about the physical architecture of Azure, how redundancy is provided, and what sort of service guarantees
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Navigation: Kubernetes services, Function App, Cost Management, All services

Microsoft Azure

Search resources, services, and docs (G+)

- Create a resource
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- Blueprints
- Policy
- Tags
- Help + support
- Service Health
- Subscriptions








All services > New

New

Search the Marketplace

Azure Marketplace [See all](#)

Popular

- Get started
 - Recently created
 - AI + Machine Learning
 - Analytics
 - Blockchain
 - Compute
 - Containers
 - Databases
 - Developer Tools
 - DevOps
 - Identity
 - Integration
 - Internet of Things
 - Media
- | | |
|---|--|
|  | Windows Server 2016 Datacenter
Quickstarts + tutorials |
|  | Ubuntu Server 18.04 LTS
Learn more |
|  | Web App
Quickstarts + tutorials |
|  | SQL Database
Quickstarts + tutorials |
|  | Function App
Quickstarts + tutorials |
|  | Azure Cosmos DB
Quickstarts + tutorials |
|  | Kubernetes Service |

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Create a virtual machine

- Basics
- Disks
- Networking
- Management
- Advanced
- Tags
- Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. Looking for classic VMs? [Create VM from Azure Marketplace](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ

Resource group * ⓘ
[Create new](#)

Instance details

Virtual machine name * ⓘ

Region * ⓘ

[Review + create](#) [< Previous](#) [Next : Disks >](#)

Microsoft Azure

Search resources, services, and docs (G+)

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Create a virtual machine

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ Windows Azure MSDN - Visual Studio Ultimate

Resource group * ⓘ AzFUN [Create new](#)

Instance details

Virtual machine name * ⓘ FunVM2 ✓

Region * ⓘ (US) West US 2

Availability options ⓘ

- No infrastructure redundancy required
- No infrastructure redundancy required
- Availability zone
- Virtual machine scale set (preview)
- Availability set

Image * ⓘ

Azure Spot instance ⓘ

Size * ⓘ 1 vcpu, 3.5 GiB memory (\$41.61/month)

[Review + create](#) [< Previous](#) [Next : Disks >](#)

+ Create a resource

Home

Dashboard

All services

FAVORITES

Virtual machine scale sets

Recovery Services vaults

Key vaults

Advisor

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Blueprints

Policy

Tags

Help + support

Service Health

Subscriptions

All services > New > Create a virtual machine

Create a virtual machine

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize your resources.

Subscription * ⓘ Windows Azure MSDN - Visual Studio Ultimate

Resource group * ⓘ AzFUN
[Create new](#)

Instance details

Virtual machine name * ⓘ FunVM2

Region * ⓘ (US) South Central US

Availability options ⓘ Availability set

Availability set * ⓘ No existing availability sets in current resource group and
[Create new](#)

Image * ⓘ Windows Server 2016 Datacenter
[Browse all public and private images](#)

Azure Spot instance ⓘ Yes No

[Review + create](#) < Previous Next : Disks >

Create new

Group two or more VMs in an availability set to ensure that at least one is available during planned or unplanned maintenance events.

[Learn more](#)

Name *

Fault domains ⓘ 2

Update domains ⓘ 5

Use managed disks ⓘ No (Classic) Yes (Aligned)

[OK](#)

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Create a virtual machine

Windows Server 2016 Datacenter

Ubuntu Server 18.04 LTS

Red Hat Enterprise Linux 7.7

SUSE Enterprise Linux 15 SP1

CentOS-based 7.7

Debian 9 "Stretch" with backports kernel

Oracle Linux 7.7

Ubuntu Server 16.04 LTS

Windows Server 2016 Datacenter

[Browse all public and private images](#)

Yes No

Standard DS1 v2
1 vcpu, 3.5 GiB memory (\$46.43/month)
[Change size](#)

Administrator account

[Review + create](#) [< Previous](#) [Next : Disks >](#)

- Create a resource
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All services > New > Create a virtual machine > Select a VM size

Select a VM size

Browse available virtual machine sizes and their features

Search by VM size... Clear all filters

Documentation

Size : **Small (0-6)** Generation : **2 selected** Family : **General purpose** Premium disk : **Supported** Add filter

Showing 11 of 234 VM sizes. Subscription: Windows Azure MSDN - Visual Studio Ultimate Region: South Central US Current size: Standard_DS1_v2 Image: Windows Server 2016 Datacenter

VM Size	Offering	Family	vCPUs	RAM (GiB)	Data disks	Max IOPS	Temporary storage	Premium disk support
B1ls	Standard	General purpose	1	0.5	2	160	4	Yes
B1ms	Standard	General purpose	1	2	2	640	4	Yes
B1s	Standard	General purpose	1	1	2	320	4	Yes
B2ms	Standard	General purpose	2	8	4	1920	16	Yes
B2s	Standard	General purpose	2	4	4	1280	8	Yes
B4ms	Standard	General purpose	4	16	8	2880	32	Yes
D2s_v3	Standard	General purpose	2	8	4	3200	16	Yes
D4s_v3	Standard	General purpose	4	16	8	6400	32	Yes

Select

Prices presented are estimates in your local currency that include only Azure infrastructure costs and any discounts for the subscription and location. The prices don't include any applicable software costs. Final charges will appear in your local currency in cost analysis and billing views. [View Azure pricing calculator.](#)

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Create a virtual machine

Azure Spot instance Yes No

Size * **Standard D2s v3**
 2 vcpus, 8 GiB memory (\$80.30/month)
[Change size](#)

Administrator account

Username *

Password *

Confirm password *

✖ Password and confirm password must match.

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * None Allow selected ports

Select inbound ports *

[Review + create](#) [< Previous](#) [Next : Disks >](#)

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- Help + support
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All services > New > Create a virtual machine

Create a virtual machine

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * None Allow selected ports

Select inbound ports *

⚠ This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

Save money

Save up to 49% with a license you already own using Azure Hybrid Benefit. [Learn more](#)

Already have a Windows Server license? * Yes No

[Review + create](#) [< Previous](#) [Next : Disks >](#)

- Microsoft Azure
- Search resources, services, and docs (G+)
- Create a resource
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- All services
- FAVORITES
- Virtual machine scale sets
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- Advisor
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Create a virtual machine

- Basics
- Disks**
- Networking
- Management
- Advanced
- Tags
- Review + create

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#)

Disk options

OS disk type * ⓘ Standard SSD

Enable Ultra Disk compatibility ⓘ Yes No

Ultra Disk compatibility is not available for this VM size and location.

Data disks

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching
Create and attach a new disk		Attach an existing disk		

[Review + create](#) [< Previous](#) [Next : Networking >](#)

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Create a virtual machine

Data disks
You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching
Create and attach a new disk		Attach an existing disk		

Advanced

- Use managed disks Yes No
- Use ephemeral OS disk No Yes

i The selected image is too large for the OS cache of the selected instance.

Create a virtual machine

- Navigation tabs: Basics, Disks, Networking (selected), Management, Advanced, Tags, Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more](#)

Network interface

When creating a virtual machine, a network interface will be created for you.

Configuration fields: Virtual network (new) AzFUNvnet913, Subnet (new) default (10.0.1.0/24), Public IP (new) FunVM2-ip, NIC network security group (Basic selected), Public inbound ports (Allow selected ports selected).

Microsoft Azure portal navigation and configuration page for creating a virtual machine.

Navigation: All services > New > Create a virtual machine

Create a virtual machine

Configure monitoring and management options for your VM.

Azure Security Center

Azure Security Center provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

✔ Your subscription is protected by Azure Security Center basic plan.

Monitoring

Boot diagnostics On Off

OS guest diagnostics On Off

Diagnostics storage account * [Create new](#)

Identity

System assigned managed identity On Off

[Review + create](#) [< Previous](#) [Next : Advanced >](#)

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Create a virtual machine

All services > New > Create a virtual machine

OS guest diagnostics On Off

Diagnostics storage account * [Create new](#)

Identity

System assigned managed identity On Off

Auto-shutdown

Enable auto-shutdown On Off

Shutdown time

Time zone

Notification before shutdown On Off

Email *

Backup

[Review + create](#) [< Previous](#) [Next : Advanced >](#)

- Microsoft Azure navigation sidebar with items like 'Create a resource', 'Home', 'Dashboard', 'All services', and 'FAVORITES'.

Create a virtual machine

- Navigation tabs: Basics, Disks, Networking, Management, Advanced, Tags, Review + create

Add additional configuration, agents, scripts or applications via virtual machine extensions or cloud-init.

Extensions

Extensions provide post-deployment configuration and automation.

Extensions ⓘ [Select an extension to install](#)

Cloud init

Cloud init is a widely used approach to customize a Linux VM as it boots for the first time. You can use cloud-init to install packages and write files or to configure users and security. [Learn more](#)

i The selected image does not support cloud init.

Host

Azure Dedicated Hosts allow you to provision and manage a physical server within our data centers that are dedicated to your Azure subscription. A dedicated host gives you assurance that only VMs from your subscription are on the host, flexibility to

Review + create | < Previous | Next : Tags >

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Navigation path: All services > New > Create a virtual machine > New resource

Advanced | Tags | Review + create

Applications via virtual machine extensions or cloud-init.

and automation.

[an extension to install](#)

a Linux VM as it boots for the first time. You can use cloud-init to install security. [Learn more](#)

manage a physical server within our data centers that are dedicated to your assurance that only VMs from your subscription are on the host, flexibility to

Next : Tags >

New resource

- Control-M Agent
BMC Software, Inc.
- Custom Script Extension**
Microsoft Corp.
- PowerShell Desired State Configuration
Microsoft Corp.
- ESET File Security
ESET
- Rapid7 Insight Agent
Rapid7 Inc.
- Kaspersky Hybrid Cloud Security Agent
Kaspersky Lab
- Network Watcher Agent for Windows
Microsoft Corp.

- Microsoft Azure
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Create a virtual machine

- Basics
- Disks
- Networking
- Management
- Advanced
- Tags**
- Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name ⓘ	Value ⓘ	Resource
<input type="text"/>	: <input type="text"/>	11 selected ▾

Browser tabs: Create a virtual machine - Micro: x | What are Azure Availability Zone: x | +

Address bar: <https://portal.azure.com/#create/Microsoft.WindowsServer2016Datacenter-ARM>

Microsoft Azure | Search resources, services, and docs (G+)

raid78@msn.com
CONTOSO MOD830600

Navigation: All services > New > Create a virtual machine

Create a virtual machine

Validation passed

Basics | Disks | Networking | Management | Advanced | Tags | **Review + create**

PRODUCT DETAILS

Standard D2s v3 by Microsoft Terms of use Privacy policy	Subscription credits apply ⓘ 0.1100 USD/hr Pricing for other VM sizes
--	--

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

⚠ You have set RDP port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.

Create | < Previous | Next > | [Download a template for automation](#)

Footer: <https://portal.azure.com/#>

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Recovery Services vaults

Key vaults

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All services > New > Create a virtual machine > Template

Template

Download Add to library Deploy

Automate deploying resources with Azure Resource Manager templates in a single, coordinated operation. Define resources and configurable input parameters and deploy with script or code. [Learn more about template deployment.](#)

Include parameters ⓘ

Template Parameters Scripts

- Parameters (24)
- Variables (3)
- Resources (7)
 - [parameters('networkInterfaceN...]
 - [parameters('networkSecurityGr...]
 - [parameters('virtualNetworkNa...]
 - [parameters('publicIpAddressNa...]
 - [parameters('virtualMachineNa...]
 - [parameters('diagnosticsStorage...]
 - [parameters('availabilitySetNam...]

```

1 {
2   "$schema": "http://schema.management.azure.com/schemas/2015-01-01/
deploymentTemplate.json#",
3   "contentVersion": "1.0.0.0",
4   "parameters": {
5     "location": {
6       "type": "string"
7     },
8     "networkInterfaceName": {
9       "type": "string"
10    },
11    "networkSecurityGroupName": {
12      "type": "string"
13    },
14    "networkSecurityGroupRules": {
15      "type": "array"

```

+ Create a resource

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Template

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Automate deploying resources with Azure Resource Manager templates in a single, coordinated operation. Define resources and configurable input parameters and deploy with script or code. [Learn more about template deployment.](#)

Include parameters ⓘ

Template Parameters Scripts

```
1 {
2   "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentParameters.json#",
3   "contentVersion": "1.0.0.0",
4   "parameters": {
5     "location": {
6       "value": "southcentralus"
7     },
8     "networkInterfaceName": {
9       "value": "funvm2839"
10    },
11    "networkSecurityGroupName": {
12      "value": "FunVM2-nsg"
13    },
14    "networkSecurityGroupRules": {
15      "value": [
16        {
```

All services > New > Create a virtual machine > Template

Template

Download Add to library Deploy

Add to library

i Automate deploying resources with Azure Resource Manager templates in a single, coordinated operation. Define resources and configurable input parameters and deploy with script or code. [Learn more about template deployment.](#)

 Include parameters ⓘ

Template

Parameters

Scripts

```
67     "osDiskType": {
68       |   "value": "Premium_LRS"
69     },
70     "virtualMachineSize": {
71       |   "value": "Standard_D2s_v3"
72     },
73     "adminUsername": {
74       |   "value": "mhester"
75     },
76     "adminPassword": {
77       |   "value": null
78     },
79     "diagnosticsStorageAccountName": {
80       |   "value": "azfundiag640"
81     },
82     "diagnosticsStorageAccountType": {
```

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CreateVm-MicrosoftWindowsServer.WindowsServer Overview

Deployment

Search (Ctrl+)

- Overview
- Inputs
- Outputs
- Template

Actions: Delete, Cancel, Redeploy, Refresh

✔ Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsS...
Subscription: Windows Azure MSDN - Visual Studio Ultimate
Resource group: AzFUN
Correlation ID: 26039760-0b8b-4645-aa79-aea8206...

Deployment details (Download)

Next steps

- Setup auto-shutdown Recommended
- Monitor VM health, performance and network dependencies Recommended
- Run a script inside the virtual machine Recommended

[Go to resource](#)

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FunVM2

Virtual machine

Search (Ctrl+/)

Connect Start Restart Stop Capture Delete Refresh

Resource group (change)	AzFUN	Azure Spot	N/A
Status	Running	Public IP address	13.84.182.112
Location	South Central US	Private IP address	10.0.1.4
Subscription (change)	Windows Azure MSDN - Visual Studio Ultimate	Public IP address (IPv6)	-
Subscription ID	5abe05c6-b60d-45df-9817-2254e05ed4a7	Private IP address (IPv6)	-
Computer name (not available)		Virtual network/subnet	AzFUNvnet913/default
Operating system	Windows	DNS name	Configure
Size	Standard D2s v3 (2 vcpus, 8 GiB memory)	Scale Set	N/A
Tags (change)	Click here to add tags		

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All services > CreateVm-MicrosoftWindowsServer.WindowsServer

FunVM2

Virtual machine

Search (Ctrl+/)

Connect Start Restart Stop Capture Delete Refresh

RDP	Public IP address (IPv6)
SSH	Private IP address (IPv6)
Bastion (not available)	Virtual network/subnet
Operating system	DNS name
Size	Scale Set

Tags (change) [Click here to add tags](#)

Show data for last: 1 hour 6 hours 12 hours 1 day 7 days 30 days

CPU (average)

100%
80%

Network (total)

100B
80B

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FunVM2 - Size

Virtual machine

Search (Ctrl+/)

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- Tags
- Diagnose and solve problems
- Settings
 - Networking
 - Connect
 - Disks
 - Size**
 - Security
 - Extensions
 - Continuous delivery
 - Availability + scaling

If the virtual machine is currently running, changing its size will cause it to be restarted. Stopping the virtual machine may reveal additional sizes.

Search by VM size... Clear all filters Documentation

Size : **Small (0-6)** Generation : **2 selected** Family : **General purpose**

Premium disk : **Supported** Add filter

Showing 11 of 109 VM sizes. Subscription: Windows Azure MSDN - Visual Studio Ultimate Region: South Central US Current size: Standard_D2s_v3

VM Size	Offering	Family	vCPUs	RAM (GiB)	Data disks	Max IOPS
B1ls	Standard	General purpose	1	0.5	2	160
B1ms	Standard	General purpose	1	2	2	640
B1s	Standard	General purpose	1	1	2	320
B2ms	Standard	General purpose	2	8	4	1920
B2s	Standard	General purpose	2	4	4	1280
B4ms	Standard	General purpose	4	16	8	2880

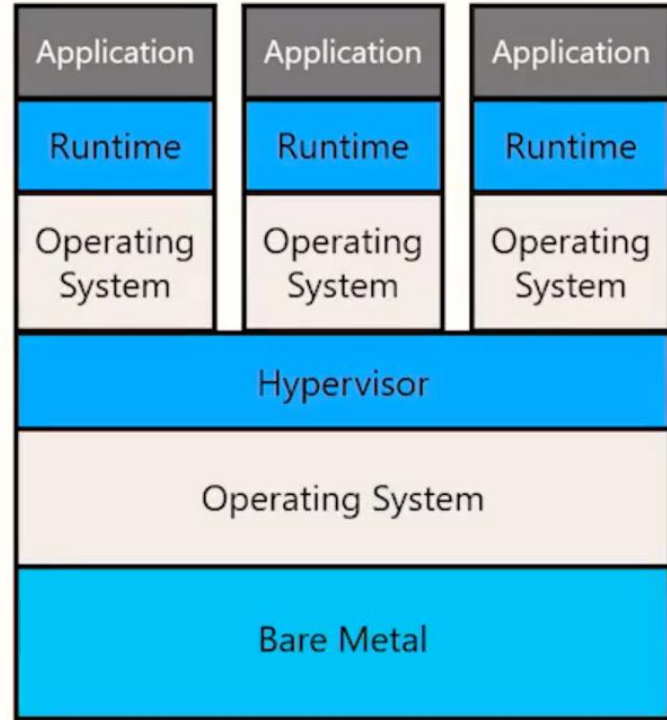
Resize Prices presented are estimates in your local currency that include only Azure infrastructure costs and any discounts for the subscription and location. The prices don't include any applicable software costs. Final charges will appear in your local currency in cost analysis and billing views. [View Azure pricing calculator.](#)

Virtual Machine Services

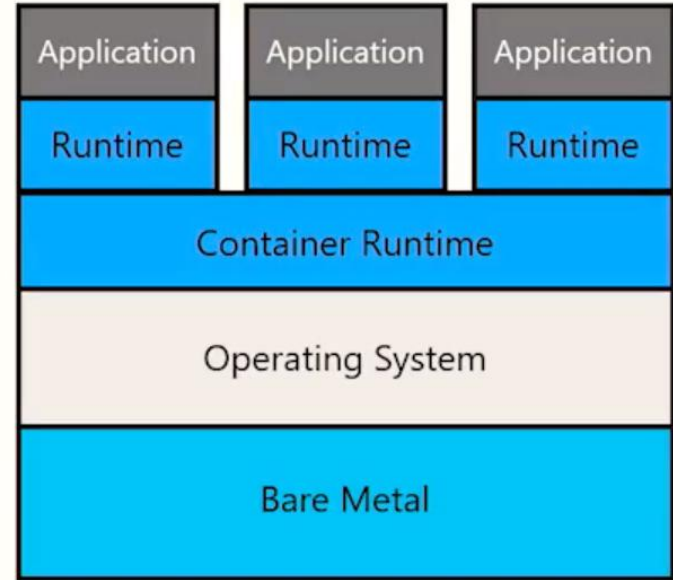
- Azure VMs
- VM scale sets
- App services
- Functions



Containers vs Virtual Machines



Virtual Machines



Containers



Container Services

- **Azure Container Instances:** A PaaS offering that allows you to upload your containers, which it then will run for you.
- **Azure Kubernetes Service:** A container orchestrator service for managing large numbers of containers

Azure Network Services

- Azure Virtual Network
- Azure Load Balancer
- VPN Gateway
- Azure Application Gateway
- Content Delivery Network
- VNet Peering



Connectivity Options to Azure

Compute



Storage



Networking



Management



	Secure point-to-site connectivity		<ul style="list-style-type: none">• POC Efforts• Small scale deployments• Connect from anywhere
	Secure site-to-site VPN connectivity		<ul style="list-style-type: none">• Connect to Azure compute from on-premises or another Azure region
	ExpressRoute private connectivity		<ul style="list-style-type: none">• Private connectivity from your on-premises data center to Azure virtual networks and PaaS Services
	VNet Peering within region		<ul style="list-style-type: none">• In-region VNet-to-VNet connectivity• Direct VM-to-VM connectivity• Peer VNets for routing and transit



Azure data categories

	Schema	Data relationships	Examples
Structured data	Adheres to a schema, with the same data fields or properties.	Storable in relational database tables, with rows and columns.	Sensor data and financial data.
Semi-structured data	Has an ad hoc schema with less organized fields and properties.	Non-relational or NoSQL data, not storable in tables, rows and column.	Books, blogs, JSON, HTML documents.
Unstructured data	Has no designated schema or data structure.	Non-relational or blob data, with no restrictions on the kinds of data blobs contain.	PDFs, JPGs, videos.

Azure storage services

IaaS

Disks

- Persistent disks for Azure IaaS VMs.
- Premium Storage.
- Disks option: SSD based, high IOPS, low latency.
- Lift and shift operations.

Files

- SMB and REST access.
- Access from anywhere.
- Secure access.

PaaS

Containers

- Unstructured data – text or binary.
- Block Blobs.
- Page Blobs.
- Append Blobs.

Tables

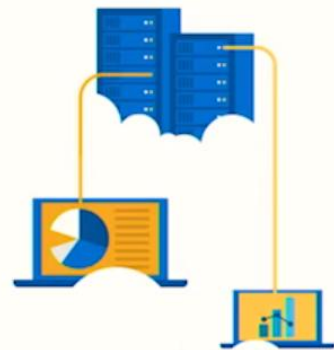
- NoSQL data store - structured data.
- Dynamic scaling based on load.
- Scales to petabytes of data.
- Fast key/value lookups.

Queues

- Store and retrieve messages.
- Highly scalable.
- Messages can be processed asynchronously.

Let's Take A Look:

Create a storage account



Microsoft Azure

Search resources, services, and docs (G+/)

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- FAVORITES
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- Templates
- Azure Active Directory
- Resource groups
- Virtual networks
- Network security groups
- Load balancers
- Network Watcher
- Storage accounts**
- Virtual machines
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- Recovery Services vaults

All services > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20200228132132 - Overview > FunVM2 - Size

FunVM2 - Size

Virtual machine

Search (Ctrl+/)

Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems

Settings

- Networking
- Connect
- Disks
- Size**
- Security
- Extensions
- Continuous delivery
- Availability + scaling

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Search by VM size... Clear all filters Documentation

Size: **Small (0-6)** Generation: **2 selected** Family: **General purpose**
Premium disk: **Supported** Add filter

Showing 11 of 109 VM sizes. Subscription: Windows Azure MSDN - Visual Studio Ultimate Region: South Central US Current size: Standard_D2s_v3

VM Size	Offering	Family	vCPUs	RAM (GiB)	Data disks	Max IOPS
B1ms	Standard	General purpose	1	2	2	640
B1s	Standard	General purpose	1	1	2	320
B2ms	Standard	General purpose	2	8	4	1920
B2s	Standard	General purpose	2	4	4	1280
B4ms	Standard	General purpose	4	16	8	2880

[Resize](#)

Prices presented are estimates in your local currency that include only Azure infrastructure costs and any discounts for the subscription and location. The prices don't include any applicable software costs. Final charges will appear in your local currency in cost analysis and billing views. [View Azure pricing calculator.](#)

+ Create a resource

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All services > Storage accounts > Create storage account

Create storage account

Basics Networking Advanced Tags Review + create

Azure Storage is a Microsoft-managed service providing cloud storage that is highly available, secure, durable, scalable, and redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below.
[Learn more about Azure storage accounts](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *

Resource group *

[Create new](#)

Instance details

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

Review + create

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Create storage account

Resource group * [Create new](#)

Instance details

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

Storage account name *

Location *

Performance Standard Premium

Account kind

Replication

Supports page blobs, block blobs, append blobs, file shares, tables, and queues. Will not be available.

+ Create a resource

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All services > Storage accounts > Create storage account

Create storage account

Resource group *

AzFUN

[Create new](#)

Instance details

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

Storage account name *

funstorage1

Location *

(US) Central US

Performance ⓘ

Standard Premium

Account kind ⓘ

StorageV2 (general purpose v2)

Replication ⓘ

Locally-redundant storage (LRS)

Access tier (default) ⓘ

Cool Hot

[Review + create](#)

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Resource group *

AzFUN

[Create new](#)

Instance details

The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. [Choose classic deployment model](#)

Storage account name * ⓘ

Location *

Performance ⓘ

Account kind ⓘ

Replication ⓘ

Access tier (default) ⓘ

Locally-redundant storage (LRS)

Zone-redundant storage (ZRS)

Geo-redundant storage (GRS)

Read-access geo-redundant storage (RA-GRS)

Geo-zone-redundant storage (GZRS) (preview)

Read-access geo-zone-redundant storage (RA-GZRS) (preview)

Locally-redundant storage (LRS)

Cool Hot

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All services > Storage accounts > Create storage account

Create storage account

Basics Networking **Advanced** Tags Review + create

Security

Secure transfer required Disabled Enabled

Azure Files

Large file shares Disabled Enabled

Data protection

Blob soft delete Disabled Enabled

Data Lake Storage Gen2

Hierarchical namespace Disabled Enabled

NFS v3 Disabled Enabled

i Sign up is currently required to utilize the the NFS v3 feature on a per-subscription basis. [Sign up for NFS v3.](#)

Review + create

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Create storage account

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- Tags
- Review + create

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Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
<input type="text"/>	: <input type="text"/>	Storage account

+ Create a resource

🏠 Home

📊 Dashboard

☰ All services

★ FAVORITES

📌 All resources

📄 Templates

🔗 Azure Active Directory

📁 Resource groups

🔗 Virtual networks

🛡️ Network security groups

⚙️ Load balancers

🌐 Network Watcher

📄 Storage accounts

🖥️ Virtual machines

🖥️ Virtual machine scale sets

🔗 Recovery Services vaults

🔑 Key vaults

<< All services > Storage accounts > Create storage account

Create storage account

✓ Validation passed

Basics Networking Advanced Tags Review + create

Basics

Subscription	Windows Azure MSDN - Visual Studio Ultimate
Resource group	AzFUN
Location	Central US
Storage account name	funstorage1
Deployment model	Resource manager
Account kind	StorageV2 (general purpose v2)
Replication	Locally-redundant storage (LRS)
Performance	Standard
Access tier (default)	Hot
Networking	
Connectivity method	Public endpoint (all networks)

Create

< Previous

Next >

[Download a template for automation](#)

- Microsoft Azure
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All services > Microsoft.StorageAccount

- Microsoft.StorageAccount Deployment
- Search (Ctrl+)
- Overview
- Inputs
- Outputs
- Template

Delete Cancel Redeploy Refresh

✔ Your deployment is complete

Deployment name: Microsoft.StorageAccount
Subscription: Windows Azure MSDN - Visual Studio Ultimate Correlation ID: 3e927a44-2f00-4073-8c48-c1b3f0c0c4c5
Resource group: AzFUN

∨ Deployment details (Download)

∧ Next steps

Go to resource

Microsoft Azure

Search resources, services, and docs (G+)

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funstorage1

Storage account

Search (Ctrl+/)

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Data transfer
- Events
- Storage Explorer (preview)

Settings

- Access keys
- Geo-replication
- CORS
- Configuration
- Encryption

Open in Explorer | Move | Refresh | Delete | Feedback

Resource group (change) AzFUN	Performance/Access tier Standard/Hot
Status Primary: Available	Replication Locally-redundant storage (LRS)
Location Central US	Account kind StorageV2 (general purpose v2)
Subscription (change) Windows Azure MSDN - Visual Studio Ultimate	
Subscription ID 5abe05c6-b60d-45df-9817-2254e05ed4a7	
Tags (change) Click here to add tags	

Containers

Scalable, cost-effective storage for unstructured data

[Learn more](#)

File shares

Serverless SMB file shares

[Learn more](#)

Tables

Queues

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- ### funstorage1
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- Access keys
 - Geo-replication
 - CORS
 - Configuration
 - Encryption

Open in Explorer | Move | Refresh | Delete | Feedback

Tags (change)
[Click here to add tags](#)

Containers

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File shares

Serverless SMB file shares

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Tables

Tabular data storage

[Learn more](#)

Queues

Effectively scale apps according to traffic

[Learn more](#)

Tools and SDKs

- Storage Explorer (preview)
- PowerShell
- Azure CLI
- .NET
- Java
- Python
- Node.js

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funstorage1 - Properties

Storage account

Search (Ctrl+/)

- Shared access signature
- Firewalls and virtual networks
- Private endpoint connection...
- Advanced security
- Static website
- Properties
- Locks
- Export template

Blob service

- Containers
- Custom domain
- Data Protection
- Azure CDN
- Add Azure Search

Refresh

Primary: Available	Locally-redundant storage (LRS)
Location	Account kind
Central US	StorageV2 (general purpose v2)
Subscription (change)	
Windows Azure MSDN - Visual Studio Ultimate	
Subscription ID	
5abe05c6-b60d-45df-9817-2254e05ed4a7	
Tags (change)	
Click here to add tags	
Provisioning state	Succeeded
Created	2/28/2020, 2:07:20 PM
Storage account resource ID	/subscriptions/5abe05c6-b60d-45df-9817-2254e05ed4a7/resourceGroups...
Blob service	
Blob service resource ID	/subscriptions/5abe05c6-b60d-45df-9817-2254e05ed4a7/resourceGroups...
Primary Blob Service Endpoint	https://funstorage1.blob.core.windows.net/
File service	
File service resource ID	/subscriptions/5abe05c6-b60d-45df-9817-2254e05ed4a7/resourceGroups...

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All services > Microsoft.StorageAccount > funstorage1 - Properties

funstorage1 - Properties

Storage account

Search (Ctrl+/) Refresh

Storage account resource ID	/subscriptions/5abe05c6-b60d-45df-9817-2254e05ed4a7/resourceGroups...
Blob service	
Blob service resource ID	/subscriptions/5abe05c6-b60d-45df-9817-2254e05ed4a7/resourceGroups...
Primary Blob Service Endpoint	https://funstorage1.blob.core.windows.net/
File service	
File service resource ID	/subscriptions/5abe05c6-b60d-45df-9817-2254e05ed4a7/resourceGroups...
Primary File Service Endpoint	https://funstorage1.file.core.windows.net/
Queue service	
Queue service resource ID	/subscriptions/5abe05c6-b60d-45df-9817-2254e05ed4a7/resourceGroups...
Primary Queue Service Endpoint	https://funstorage1.queue.core.windows.net/
Table service	
Table service resource ID	/subscriptions/5abe05c6-b60d-45df-9817-2254e05ed4a7/resourceGroups...
Primary Table Service Endpoint	https://funstorage1.table.core.windows.net/
Data Lake Storage	

- Shared access signature
- Firewalls and virtual networks
- Private endpoint connection...
- Advanced security
- Static website
- Properties
- Locks
- Export template
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All services > Microsoft.StorageAccount > funstorage1 - Containers

funstorage1 - Containers

Storage account

Search (Ctrl+/)

- Container
- Change access level
- Refresh
- Delete

New container

Name *

hongkong ✓

Public access level ⓘ

Private (anonymous access) ▾

OK Cancel

Containers

- Custom domain
- Data Protection
- Azure CDN
- Add Azure Search

- Create a resource
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funstorage1 - Containers

Storage account

Search (Ctrl+/)

- Container
- Change access level
- Refresh
- Delete

New container

Name *

hongkong ✓

Public access level ⓘ

- Private (no anonymous access) ✓
- Private (no anonymous access)
- Blob (anonymous read access for blobs only)
- Container (anonymous read access for containers and blobs)

Blob service

- Containers
- Custom domain
- Data Protection
- Azure CDN
- Add Azure Search

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hongkong

Container

Search (Ctrl+/) <<

Overview

Access Control (IAM)

Settings

- Access policy
- Properties
- Metadata

Upload | Change access level | Refresh | Delete | Change tier | Acquire lease

Authentication method: Access key (Switch to Azure AD User Account)
Location: hongkong

Search blobs by prefix (case-sensitive) Show deleted blobs

Name	Modified	Access tier	Blob type	Si
No blobs found.				

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hongkong

Container

Search (Ctrl+)

- Overview
- Access Control (IAM)
- Settings
 - Access policy
 - Properties
 - Metadata

Authentication method: Access key (Switch to Azure AD User)

Location: hongkong

Search blobs by prefix (case-sensitive)

Name	Modified
No blobs found.	

Upload blob

hongkong/

Files

Select a file

Overwrite if files already exist

Advanced

Upload

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Navigation: All services > Microsoft.StorageAccount > funstorage1 - Containers > hongkong

hongkong

Container

Search (Ctrl+/) <<

- Overview
- Access Control (IAM)

Settings

- Access policy
- Properties
- Metadata

Authentication method: Access key (Switch to Azure AD Us...)
Location: hongkong

Search blobs by prefix (case-sensitive)

Name	Modified
No blobs found.	

Upload blob

hongkong/

Files ⓘ

Overwrite if files already exist

Advanced

Upload

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Navigation: All services > Microsoft.StorageAccount > funstorage1 - Containers > hongkong

hongkong

Container

Search (Ctrl+/)

- Overview
- Access Control (IAM)
- Settings
 - Access policy
 - Properties
 - Metadata

Authentication method: Access key (Switch to Azure AD User Delegation)

Location: hongkong

Search blobs by prefix (case-sensitive)

Name	Modified
pano.jpg	

Upload

Upload Completed for pano.jpg

5.15 MiB | funstorage1

Select a file

Overwrite if files already exist

Advanced

Upload

Current uploads

Dismiss: Completed All

pano.jpg	5 MiB / 5 MiB	...
----------	---------------	-----

- Microsoft Azure sidebar navigation menu including 'Create a resource', 'Home', 'Dashboard', 'All services', 'FAVORITES', 'All resources', 'Templates', 'Azure Active Directory', 'Resource groups', 'Virtual networks', 'Network security groups', 'Load balancers', 'Network Watcher', 'Storage accounts', 'Virtual machines', 'Virtual machine scale sets', 'Recovery Services vaults', and 'Key vaults'.

Breadcrumb navigation: All services > Microsoft.StorageAccount > funstorage1 - Containers > hongkong > pano.jpg

File header for 'pano.jpg' (Blob) with action buttons: Save, Discard, Download, Refresh, Delete, Change tier, Acquire lease, Break lease. Sub-tabs: Overview, Snapshots, Edit, Generate SAS.

Properties table for 'pano.jpg' blob:

URL	https://funstorage1.blob.core.win...
LAST MODIFIED	
CREATION TIME	
TYPE	Block blob
SIZE	5.15 MiB
ACCESS TIER	Hot (Inferred)
ACCESS TIER LAST MODIFIED	N/A
SERVER ENCRYPTED	true
ETAG	0x8D7BC8A58F1D2B6
CONTENT-TYPE	image/jpeg
CONTENT-MD5	-
LEASE STATUS	Unlocked
LEASE STATE	Available
LEASE DURATION	-
COPY STATUS	-
COPY COMPLETION TIME	-



<https://funstorage1.blob.core.windows.net/hongkong/pano.jpg>



<https://funstorage1.blob.core.windows.net/hongkong/pano.jpg>

<https://funstorage1.blob.core.windows.net/hongkong/pano.jpg> - Bing Search



Search Microsoft and the web



Mentimeter



Facebook



American Airli...



Microsoft Dyn...



Hotels & Res...



ESPN



Home



Azure database services



- Azure Cosmos DB is a globally-distributed database service that enables you to elastically and independently scale throughput and storage.



- Azure SQL Database is a relational database as a service (DaaS) based on the latest stable version of the Microsoft SQL Server database engine.



- Azure Database Migration is a fully-managed service designed to enable seamless migrations from multiple database sources to Azure data platforms with minimal downtime.

These are just a few of our database offerings.

Azure Marketplace

Service on Azure connects end users with solutions:

- Microsoft partners
- Independent software vendors (ISVs)
- Start-ups

Over 10,000 listings



Internet of Things



Microsoft IoT Central

- IoT SaaS
- Connect, monitor, and manage IoT assets



Azure IoT Hub

- Managed service
- Central message hub
- Bidirectional communication

Big data and analytics



Azure Synapse Analytics (Formerly Azure SQL Data Warehouse)

- Cloud-based Enterprise Data Warehouse
- Massively parallel processing (mpp)



Azure HDInsight

- Fully-managed, open-source analytics service
- Easier, faster, cost-effective



Azure Data Lake Analytics

- On-demand analytics job service

Artificial Intelligence



Azure Machine Learning service

- Develop, train, test, deploy, manage, and track machine learning models



Azure Machine Learning Studio

- Drag-and-drop visual workspace
- Build, Test and deploy machine learning solutions
- No need to write code

Serverless computing



- Azure Functions: Creates infrastructure based on an event.
- Azure Logic Apps is a cloud service that creates workflows when you need to integrate apps, data, systems, and services.
- Azure Event Grid is a fully-managed, intelligent event routing service



DevOps



Azure DevOps services

- Pipelines
- Git repositories
- Kanban boards
- Load testing



Azure DevTest Labs

- Quickly create environments
- Controlling costs

Azure App Service

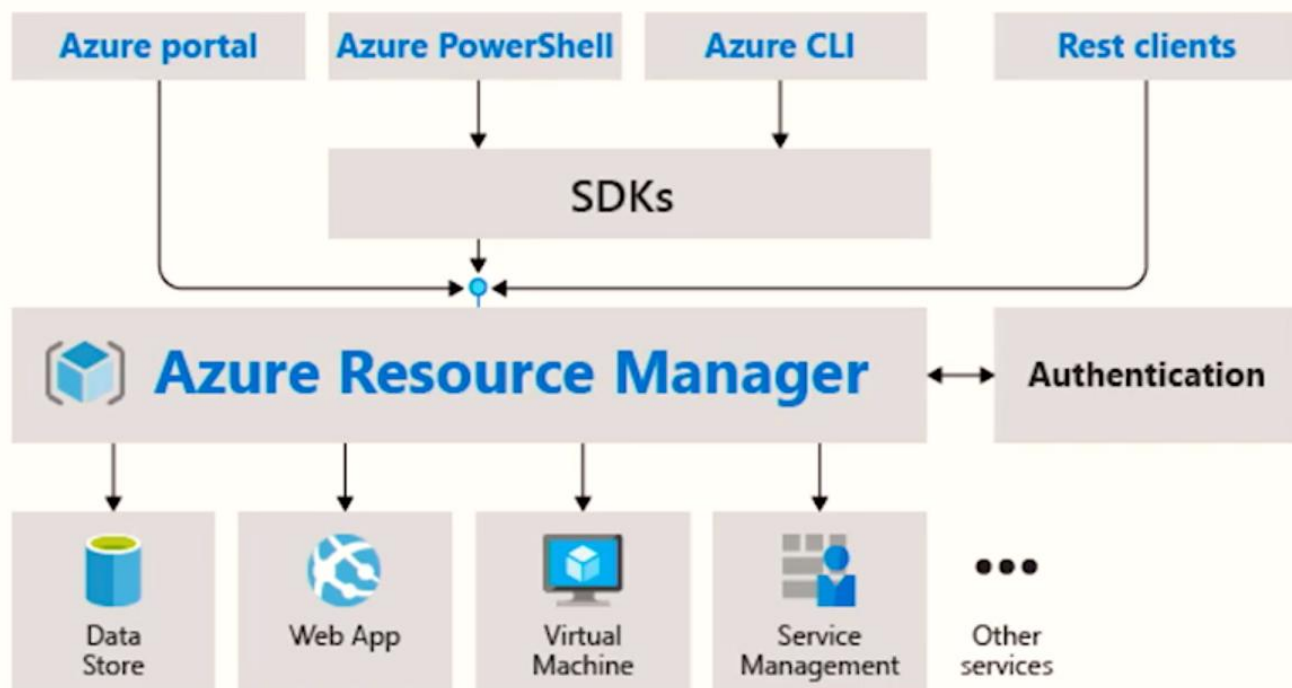
Quickly and easily build web and mobile apps for any platform or device.

- Multiple languages and frameworks.
- DevOps optimization.
- Global scale with high availability.
- Connections to SaaS platforms and on-premises data.
- Security and compliance.
- Application templates.
- Visual Studio integration.
- API and mobile features.
- Serverless code.

Lesson 05: Azure management tools



Azure management tools



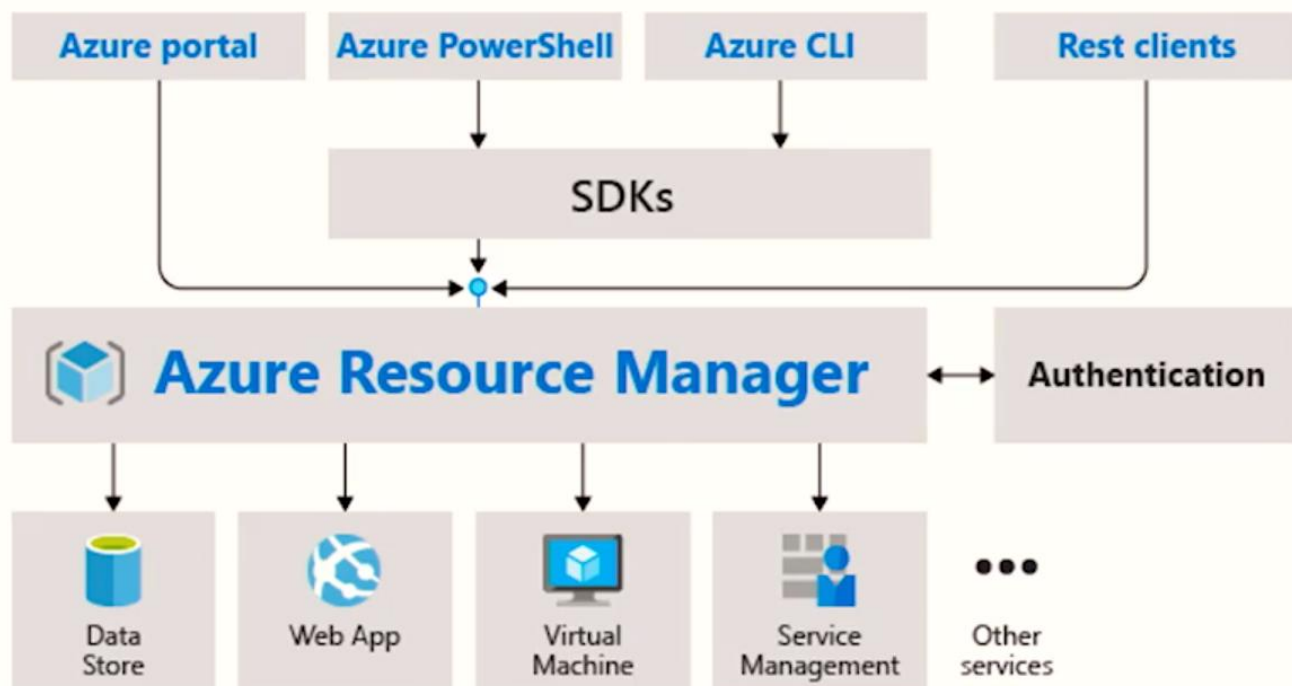
Azure Portal

- Web portal

Azure PowerShell

- Client-based shell based on Windows (.NET), Linux, or MacOS (.NET Core)

Azure management tools



Azure CLI

- CLI for Windows, Linux, and MacOS
- Bash on Windows
Subsystem for Linux

Azure Cloud Shell

- Browser-based environment for PowerShell & Bash CLI

Azure App

- Mobile Application

- Microsoft Azure
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Azure services

- Create a resource
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- Monitor
- Advisor
- More services

Recent resources

Name	Type	Last Viewed
funstorage1	Storage account	17 min ago
FunVM2	Virtual machine	45 min ago
VMFun1	Virtual machine	3 h ago
az103Ready	Resource group	4 h ago
Windows Azure MSDN - Visual Studio Ultimate	Subscription	4 d ago
RBACTestVM	Virtual machine	4 d ago
AZ103keyvaul	Key vault	4 d ago

Home - Microsoft Azure x What are Azure Availability Zone x +

← → ↻ https://portal.azure.com/#home ☆ ☆ 🏠 🗨️ 👤 ...









Microsoft Azure 🔍 Search resources, services, and docs (G+)

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raid78@msn.com
CONTOSO MOD830600

⏪

Azure services

-  [Create a resource](#)
-  Storage accounts
-  Virtual machines
-  Resource groups
-  Network Watcher
-  Data Box
-  All resources
-  Monitor

Bash | ⏪ | 🔌 | ? | ⚙️ | 📄 | 📄 | {} | 📄

```
Requesting a Cloud Shell.Succeeded.  
Connecting terminal...  
  
raid78@Azure:~$ █
```










Home - Microsoft Azure x What are Azure Availability Zone x +

← → ↻ 🔒 https://portal.azure.com/#home ☆ ☆ 🏠 🗨️ 👤 ...

Microsoft Azure 🔍 Search resources, services, and docs (G+)

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Azure services

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Bash | ⌵ | 🔌 | ? | ⚙️ | 📄 | 📁 | {} | 📄

```
raid78@Azure:~$ az group --help
```

I

Microsoft Azure Search resources, services, and docs (G+/)

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Azure services

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- Create a resource
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```
Bash
```

```
Subgroups:  
  deployment : Manage Azure Resource Manager deployments.  
  lock       : Manage Azure resource group locks.  
  
Commands:  
  create     : Create a new resource group.  
  delete     : Delete a resource group.  
  exists     : Check if a resource group exists.  
  export     : Captures a resource group as a template.  
  list       : List resource groups.  
  show       : Gets a resource group.  
  update     : Update a resource group.  
  wait       : Place the CLI in a waiting state until a condition of the resource group is met.  
  
Please let us know how we are doing: https://aka.ms/cli hats  
raid78@Azure:~$ az group create --help
```

Microsoft Azure Search resources, services, and docs (G+)

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Azure services

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PowerShell | ? | Settings | Copy | Paste | Refresh | Close

```
Requesting a Cloud Shell.Succeeded.  
Connecting terminal...  
  
MOTD: Modules installed with 'Install-Module' are persisted across sessions  
  
VERBOSE: Authenticating to Azure ...  
VERBOSE: Building your Azure drive ...  
Azure:/  
PS Azure:\>
```

Microsoft Azure Search resources, services, and docs (G+)

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Azure services

- Create a resource
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PowerShell | ? | [Icons]

```
Azure:/  
PS Azure:\> az group create --help
```









Home - Microsoft Azure x What are Azure Availability Zones x +

← → ↻ 🔒 https://portal.azure.com/#home ☆ ☆ 🏠 🗨️ 👤 ...

Microsoft Azure 🔍 Search resources, services, and docs (G+)

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Azure services

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PowerShell ▾ 🔌 ? ⚙️ 📄 🗂️ {} 📄

```
Azure:/  
PS Azure:\> get-command
```


- Create a resource
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Azure services

- Create a resource
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```
Azure:/  
PS Azure:\> get-help update-azvm
```



Microsoft Azure Fundamentals

Thanks for watching! We will continue tomorrow with our second session. Please join us by using the unique session link provided in your registration email.

