



Cloud Basics

Azure



Agenda



Microsoft Azure is a set of cloud services to build,manage and deploy applications on a network with help of tools and frameworks.



Available in
more than 54
regions
around the
world



PAAS & IAAS
industry
leader



Supports
various
programming
language

Geographies



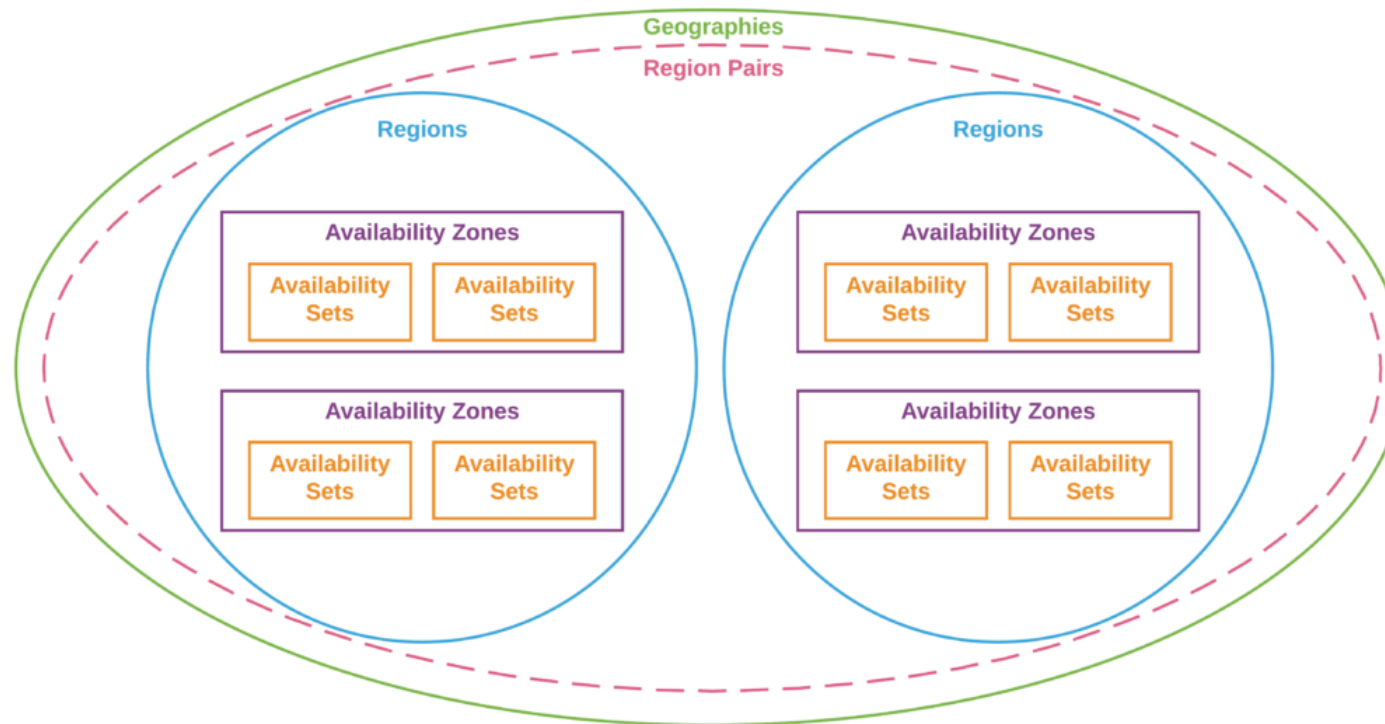
- Geographies are Microsoft 's global locations for Azure
- America, Europe ,Asia Pacific ,Middle East & Africa
- Contains one or more regions
- Meets specific data residency and compliance requirements.



Regions



- A region is a set datacenter deployed within a latency defined perimeter and connected through dedicated low latency cable



Datacenter



- A datacenter are centralized locations where computing and networking equipment is concentrated for storing , processing and distributing large volume of data



How to handle failures?





Availability Set

- An **Availability Set** is a logical grouping capability for isolating VM resources from each other when they are deployed.
- **Azure** makes sure that the VMs you place within an **Availability Set** run across multiple physical servers, compute racks, storage units, and network switches

Availability Zone

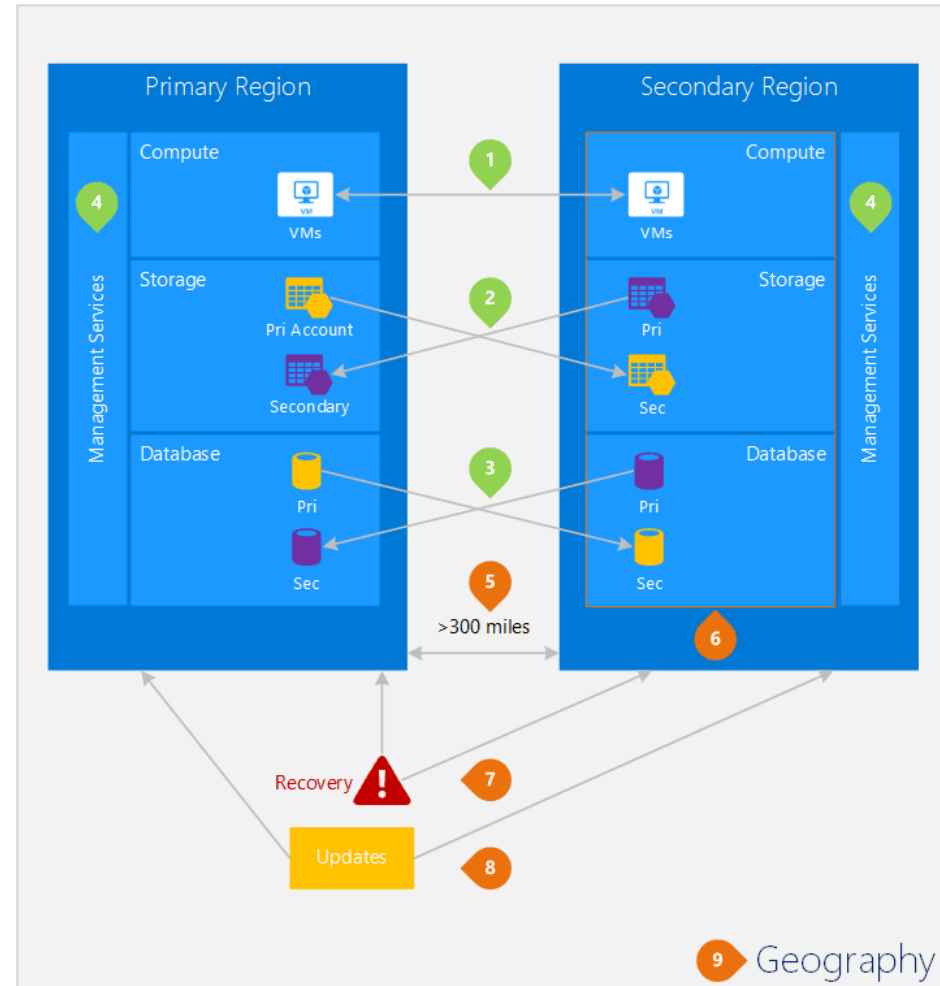
- **Availability zones (AZs)** are isolated locations within data center regions from which public cloud services originate and operate.
- **Unique physical locations within a region. Each zone is made up of one or more datacenters equipped with independent power, cooling, and networking.**
- **Fault domain, update domain**

Region Pair

- **A regional pair consists of two regions within the same geography.**
- **Azure serializes platform updates (planned maintenance) across regional pairs, ensuring that only one region in each pair updates at a time.**
- **If an outage affects multiple regions, at least one region in each pair will be prioritized for recovery.**

Contd.

■





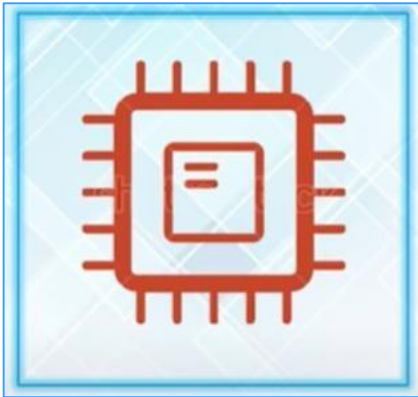
**Azure
Services**



Service s

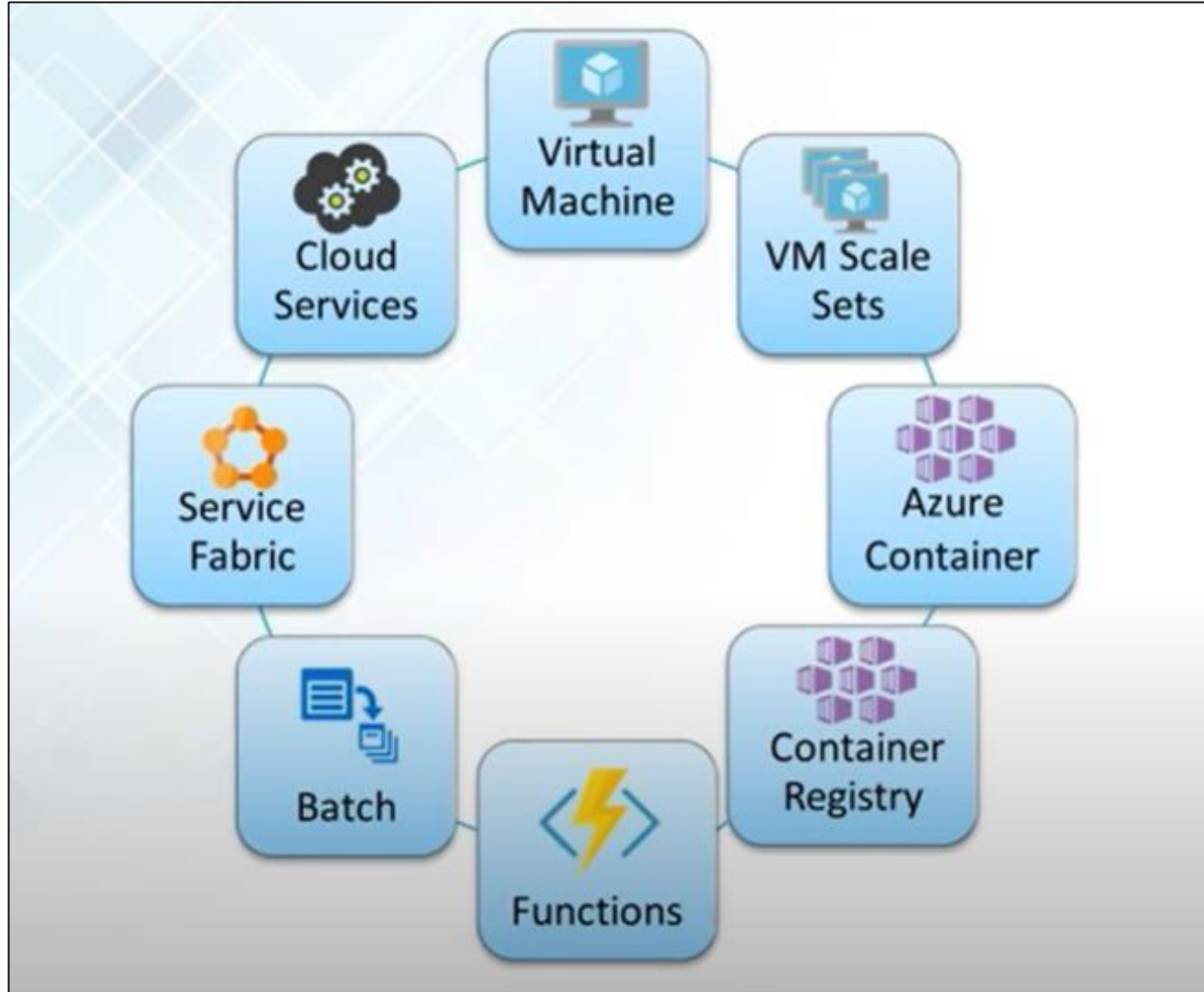


Azure Compute Services



Compute services provides the building level products, which dictates and determines the execution of an application in Azure platform

Azure Compute Services

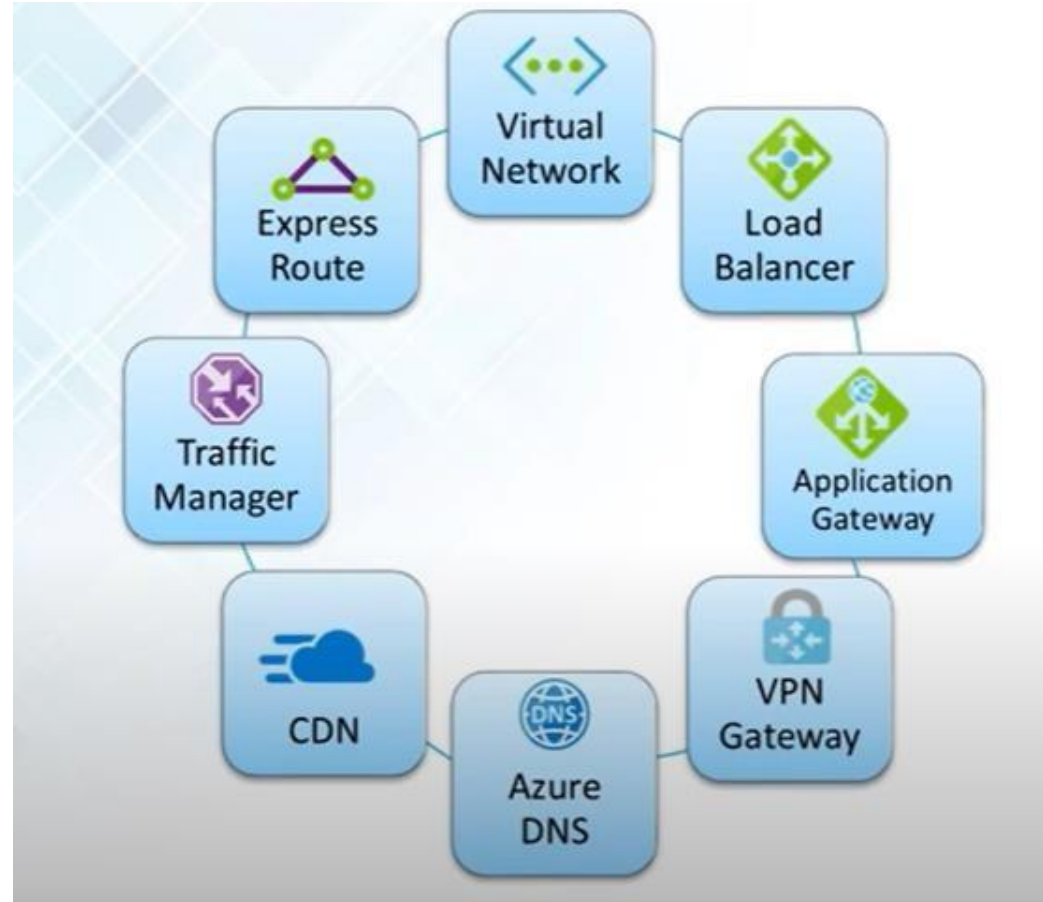


Azure Networking Services



- Impart scalability and security to enterprise apps using Networking solutions
- Connect privately and securely to cloud with Azure ExpressRoute
- Distribute user traffic to specific endpoints with Azure Traffic Manager
- Obtain unmatched availability and performance with Azure Load Balancer
- Tie on premises infrastructure to the Cloud with VPN Gateway

Azure Networking Services



Azure Storage Services



- It is the cloud Storage solution for modern applications that rely on durability, availability and scalability to meet needs of their customers.
- Massively scalable , so you can store and process hundreds of terabytes of data to support the big data scenarios required by Financial , Scientific communities.
- Elastic, so you can design applications for a large global audience.
- Has an auto partitioning system that automatically load balances your data based on traffic.

Azure Storage Services





Demo





Virtual machine



Virtual Machine Creation



1. Sign in to the Azure portal at <https://portal.azure.com>.
2. Type **virtual machines** in the search
3. Under **Services**, select **Virtual machines**.
4. In the **Virtual machines** page, select **Create** and then **Virtual machine**. The **Create a virtual machine** page opens.
5. In the **Basics** tab, under **Project details**, make sure the correct subscription is selected and then choose to **Create new** resource group. Type *myResourceGroup* for the name.

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

Subscription * ⓘ

Pay-As-You-Go

Resource group * ⓘ

(New) myResourceGroup

Create new

Virtual Machine Creation



6. Under **Instance details**, type *myVM* for the **Virtual machine name** and choose *Windows Server 2019 Datacenter - Gen2* for the **Image**. Leave the other defaults.

Instance details	
Virtual machine name * ⓘ	<input type="text" value="myVM"/> ✓
Region * ⓘ	<input type="text" value="(US) East US"/> ▼
Availability options ⓘ	<input type="text" value="No infrastructure redundancy required"/> ▼
Security type ⓘ	<input type="text" value="Standard"/> ▼
Image * ⓘ	<input type="text" value="Windows Server 2019 Datacenter - Gen2"/> ▼ See all images Configure VM generation
Size * ⓘ	<input type="text" value="Standard_E2s_v3 - 2 vcpus, 16 GiB memory (\$27.67/month)"/> ▼ See all sizes

7. Under **Administrator account**, provide a username, such as *azureuser* and a password. The password must be at least 12 characters long and meet the defined complexity requirements.

Virtual Machine Creation



Administrator account

Username * ⓘ ✓

Password * ⓘ ✓

Confirm password * ⓘ ✓

8. Under **Inbound port rules**, choose **Allow selected ports** and then select **RDP (3389)** and **HTTP (80)** from the drop-down.

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.


Virtual Machine Creation



9. Leave the remaining defaults and then select the **Review + create** button at the bottom of the page

Licensing

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

Would you like to use an existing ☐
Windows Server license? * 

[Review Azure hybrid benefit compliance](#)

Review + create

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Next : Disks >

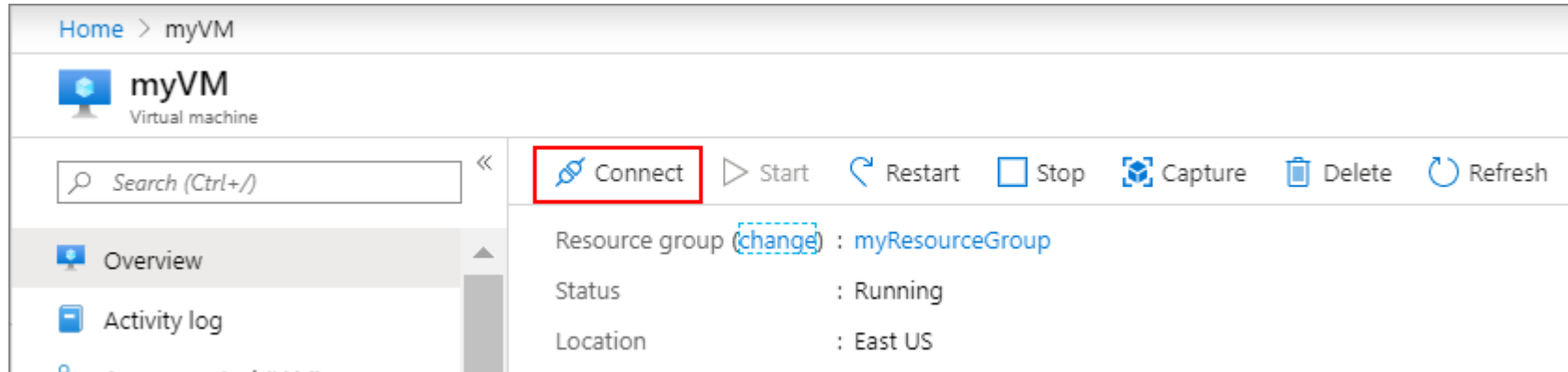
10. After validation runs, select the **Create** button at the bottom of the page.

11. After deployment is complete, select **Go to resource**.

Virtual Machine Creation



12. On the overview page for your virtual machine, select the **Connect > RDP**.



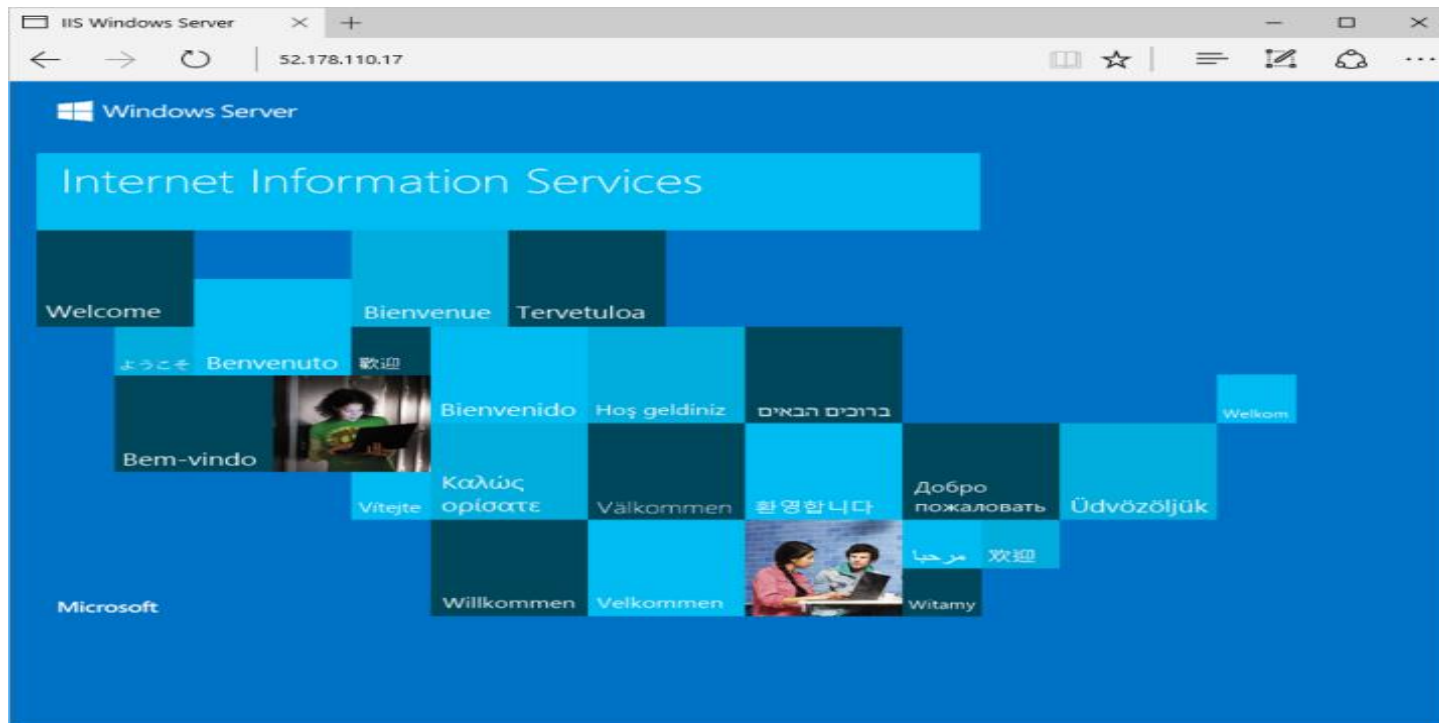
13. In the **Connect with RDP** page, keep the default options to connect by IP address, over port 3389, and click **Download RDP file**.

14. Open the downloaded RDP file and click **Connect** when prompted.

Virtual Machine Creation



15. Enter the credentials and connect





Azure storage : blob



Storage account creation



An Azure storage account contains all of your Azure Storage data objects: blobs, files, queues, and tables

1. From the left portal menu, select **Storage accounts** to display a list of your storage accounts. On the **Storage accounts** page, select **Create**.

Storage account creation



[Dashboard](#) > [Storage accounts](#) >

Create a storage account ...

[Basics](#) [Advanced](#) [Networking](#) [Data protection](#) [Encryption](#) [Tags](#) [Review + create](#)

Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription *

Azure Storage content development and testing

Resource group *

storagesamples-rg

[Create new](#)

Instance details

If you need to create a legacy storage account type, please click [here](#).

Storage account name ⓘ *

storagesamplescreate

Region ⓘ *

(US) East US

Performance ⓘ *

☒ Standard: Recommended for most scenarios (general-purpose v2 account)

☐ Premium: Recommended for scenarios that require low latency.

Redundancy ⓘ *

Geo-redundant storage (GRS)

☒ Make read access to data available in the event of regional unavailability.

[Review + create](#)

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Container creation



2. Navigate to your new storage account in the Azure portal.
3. In the left menu for the storage account, scroll to the **Data storage** section, then select **Containers**.
4. Select the **+ Container** button.
5. Type a name for your new container
6. Set the level of public access to the container. The default level is **Private (no anonymous access)**.
7. Select **Create** to create the container.

Container creation



The screenshot displays the Microsoft Azure portal interface. On the left, the navigation pane shows the 'Containers' option under the 'Data storage' section, which is highlighted with a red box. The main content area shows the 'exampleaccountnametest | Containers' page. A '+ Container' button is highlighted with a red box. On the right, the 'New container' dialog box is open, also with a red border. It contains the following fields:

- Name:** A text input field containing 'container-example' with a green checkmark.
- Public access level:** A dropdown menu set to 'Private (no anonymous access)'.
- Advanced:** A collapsed section.

At the bottom of the dialog are 'Create' and 'Discard' buttons, with 'Create' highlighted by a red box. The background shows a table of existing containers with columns for Name, Last modified, Public access level, and Lease state.

Name	Last modified	Public access level	Lease state
Blog	8/3/2023, 11:17:28 AM	Private	Available

Blob creation



8. In the Azure portal, navigate to the container you created in the previous section.
9. Select the container to show a list of blobs it contains. This container is new, so it won't yet contain any blobs.
10. Select the **Upload** button to open the upload blade and browse your local file system to find a file to upload as a block blob. You can optionally expand the **Advanced** section to configure other settings for the upload operation.
11. Select the **Upload** button to upload the blob.
12. Upload as many blobs as you like in this way. You'll see that the new blobs are now listed within the container.

View a blob



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

Authentication method: Access key ([Switch to Azure AD User Account](#))
Location: sample-container

Search blobs by prefix (case-sensitive)

+ Add filter

Name	Modified	Access tier	Blob type	Size
<input checked="" type="checkbox"/> blobs.png	8/10/2020, 3:02:16 PM	Hot (Inferred)	Block blob	25.81 KiB

View/edit

Download

Properties

Edit metadata

Generate SAS

View previous versions

View snapshots

Create snapshot

Change tier

Acquire lease

Break lease

Delete



Thank you

Innovative Services

Passionate

