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PARULINSTITUTEOF ENGINEERING &TECHNOLOGY
FACULTY OF ENGINEERING & TECHNOLOGY
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Subject: Azure Fundamentals

Unit 2 : Familiarity with the various Azure services

Computer Science & Engineering

Mr. Mukesh Birla (Assistant Prof. PIET-CSE)

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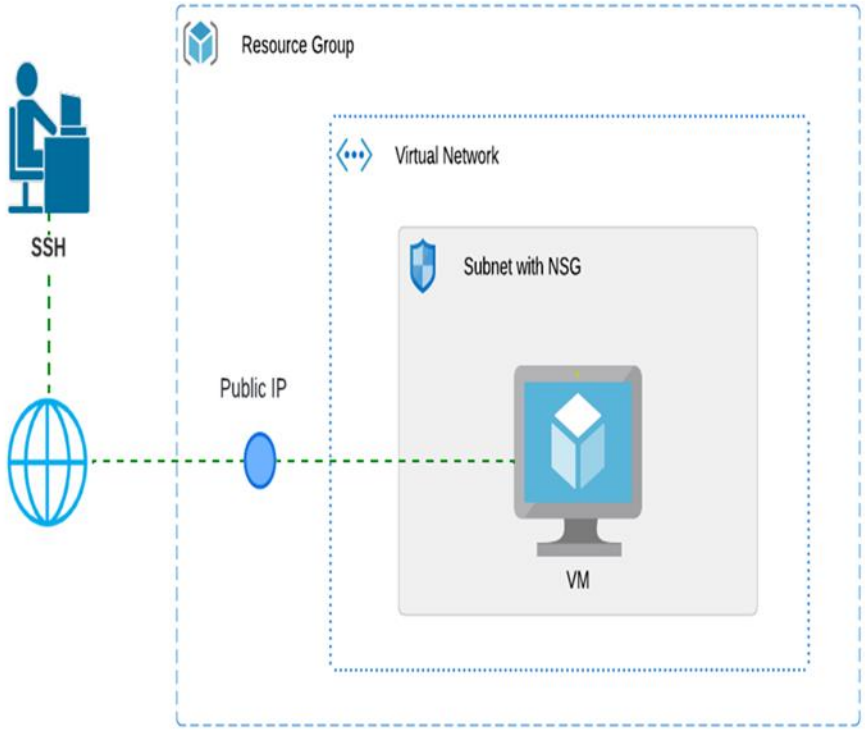
Outline

- **Familiarity with the various Azure services and their common use cases**
- **Azure Virtual Machines**
- **Azure App Services**
- **Azure Storage**
- **Azure Functions**
- **Azure SQL Database**

Azure Virtual Machines

- **Azure Virtual Machines**
  - With Azure Virtual Machines (VMs), you can create and use VMs in the cloud.
  - VMs provide infrastructure as a service (IaaS) in the form of a virtualized server and can be used in many ways. Just like a physical computer, you can customize all of the software running on your VM
  - An Azure VM gives you the flexibility of virtualization without having to buy and maintain the physical hardware that runs the VM
  - However, as an IaaS offering, you still need to configure, update, and maintain the software that runs on the VM



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DIGITAL LEARNING CONTENT

Azure Virtual Machines

Demo: Create a Windows/Linux VM in Azure and confirm access to the VM,

Deploy sample website:

Step by step instructions:
Create a Windows VM in Azure Portal : https://learn.microsoft.com/en-us/azure/virtual-machines/windows/quick-create-portal

Create a Linux VM in Azure Portal : https://learn.microsoft.com/en-us/azure/virtual-machines/linux/quick-create-portal?tabs=ubuntu

https://www.youtube.com/watch?v=OCiN37sjXuw
https://learn.microsoft.com/en-us/azure/virtual-machines/windows/tutorial-manage-vm#create-a-vm

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How to Create a Virtual Machine in Azure

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How to Create a Virtual Machine in Azure

Creating a virtual machine (VM) in Microsoft Azure is a straightforward process. Here is a step-by-step guide to help you set up a VM using the Azure portal:

Step 1: Sign in to Azure Portal

1.Go to the Azure Portal.
2.Sign in with your Azure account credentials.

Step 2: Create a Resource Group

1.In the Azure portal, select "Resource groups" from the left-hand menu.
2.Click "Create".
3.Fill in the details:

1. **Subscription**: Choose your subscription.
2. **Resource group**: Enter a name for your resource group.
3. **Region**: Select the region where you want to deploy your resources.
4. Click "Review + create" and then "Create".

How to Create a Virtual Machine in Azure

Step 3: Create a Virtual Machine

1.In the Azure portal, select "Virtual machines" from the left-hand menu.
2.Click "Create" and then "Azure virtual machine".
3.Fill in the details in the "Basics" tab:

1. **Subscription**: Choose your subscription.
2. **Resource group**: Select the resource group you created.
3. **Virtual machine name**: Enter a name for your VM.
4. **Region**: Select the region.
5. **Availability options**: Choose an availability set or zone if needed.
6. **Image**: Select the OS image (e.g., Windows Server, Ubuntu).
7. **Size**: Choose the VM size based on your requirements.
8. **Administrator account**: Enter a username and password or use SSH public key for Linux VMs.

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How to Create a Virtual Machine in Azure

- Click "Next: Disks" to configure disk options:
- **OS disk type**: Choose the type of disk (Standard SSD, Premium SSD, etc.).
- **Data disks**: Add additional disks if needed.
- Click "Next: Networking" to configure network settings:
- **Virtual network**: Select an existing virtual network or create a new one.
- **Subnet**: Choose a subnet within the virtual network.
- **Public IP**: Select "Create new" to assign a public IP address.
- **NIC network security group**: Choose basic or advanced security options.
- Click "Next: Management" to configure management options:
- **Boot diagnostics**: Enable or disable.
- **OS guest diagnostics**: Enable if required.
- **Auto-shutdown**: Configure if needed.

How to Create a Virtual Machine in Azure

1.Click "Next: Monitoring" to configure monitoring options:

1. **Enable Azure Monitor**: Choose to enable monitoring.
2. **Enable backup**: Choose to enable backup if required.

2.Click "Next: Advanced" to configure advanced options if needed.
3.Click "Next: Tags" to add tags for resource management.
4.Click "Review + create" to review your configuration.
5.Click "Create" to start the deployment of your VM.

Step 4: Connect to Your Virtual Machine

1.Once the deployment is complete, go to the "Virtual machines" section in the Azure portal.
2.Select your VM from the list.
3.Click "Connect" at the top of the VM's overview page.
4.Choose your preferred connection method (RDP for Windows, SSH for Linux).
5.Follow the instructions to connect to your VM using the credentials you provided during setup.

Azure Virtual Machines

Scale VMs in Azure

You can run single VMs for testing, development, or minor tasks. Or you can group VMs together to provide high availability, scalability, and redundancy. Azure can also manage the grouping of VMs for you with features such as scale sets and availability sets.

Virtual machine scale sets

- Virtual machine scale sets let you create and manage a group of identical, load-balanced VMs
- Scale sets allow you to centrally manage, configure, and update a large number of VMs in minutes
- The number of VM instances can automatically increase or decrease in response to demand, or you can set it to scale based on a defined schedule
- Virtual machine scale sets also automatically deploy a load balancer to make sure that your resources are being used efficiently. With virtual machine scale sets, you can build large-scale services for areas such as compute, big data, and container workloads.

Azure Virtual Machines

- **Virtual machine availability** sets Availability sets are designed to ensure that VMs stagger updates and have varied power and network connectivity, preventing you from losing all your VMs with a single network or power failure. Availability sets groups VMs in two ways: update domain and fault domain.

- **Update domain**: The update domain groups VMs that can be rebooted at the same time. This allows you to apply updates while knowing that only one update domain grouping will be offline at a time. All of the machines in one update domain will be updated.

- **Fault domain**: The fault domain can be considered as a rack which has common power source and network switch. By default, an availability set will split your VMs across up to three fault domains. This helps protect against a physical power or networking failure by having VMs in different fault domains (thus being connected to different power and networking resources).

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Cloud Concepts

Thank You!!!

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