Virtual Servers in Cloud

All the Cloud Service Providers (CSPs) offer virtualized CPU, RAM, disk, and network resources that enable the creation of virtual machines. These virtual servers are essential for running various workloads in the cloud.

OS Images in Cloud

Operating System (OS) images are available in every cloud to ensure that the disk in a virtual machine has a pre-defined OS with necessary software.

- **AWS** refers to these as **Amazon Machine Images (AMI)**.

- **Azure** refers to them as **Virtual Machine Images**.

Additionally, users can create custom images with pre-installed software required to run enterprise applications.

Categories of Images in the Cloud

Images in the cloud are generally classified into three categories:

1. **Images offered by CSP** – Provided by the cloud service provider.

2. **Images created by users** – Custom images built to meet specific business needs.

3. **Marketplace Images** – Third-party images available for deployment.

Categories of Virtual Machines

General Purpose

- Balanced CPU to memory ratio.

Memory Optimized

- High memory-to-CPU ratio, suitable for memory-intensive applications.

Compute Optimized

- High CPU-to-memory ratio, ideal for compute-heavy workloads.

Storage Optimized

- Designed for efficient disk read/write operations, suitable for high storage demand applications.

High-Performance Compute (HPC)

- Optimized for workloads requiring high computing power, such as scientific simulations and machine learning.

Virtual Machine Families

Each VM family represents a specific hardware configuration and is generally denoted by an alphabet:

- **AWS Example**: t2.micro where t represents the family.

- **Azure Example**: B1ms where B represents the family.

Each hardware family may have different generations:

- AWS: t2.micro, t3.micro

- Azure: D2as, D4as

Both AWS and Azure publish detailed naming conventions for their virtual machines:

- **AWS Naming Conventions:** Refer [here](#)

- **Azure Naming Conventions:** Refer [here](#)

Factors Affecting Pricing

Pricing of virtual machines depends on:

- **Category/Purpose** of the VM

- **Size of the VM** (CPU, memory, storage)

Estimating Costs

- **Azure Pricing Calculator:** Refer [here](#)

- **AWS Pricing Calculator:** Refer [here](#)

Activity

Your organization is running 10 virtual machines requiring 16 vCPUs. Choose an instance type with matching size and create a cost estimate for both Azure and AWS.

- **Azure Estimate:** [Create estimate](#)

- **AWS Estimate:** [Create estimate](#)

Note: Pricing may vary slightly across different regions.