**MICROSOFT AZURE CLOUD CONCEPTS**

History:

Dedicated machines -> Virtualization -> Cloud

Flow:

Cloud provider -> Client

Promotes *On demand self service*

Cloud cost goes into Operating Expenses (OpEx) instead of Captial Expenditures (CapEx)

|  |  |
| --- | --- |
| **Capital Expenditure (CapEx)** | **Operating Expenses (OpEx)** |
| Expenditure on major physical goods | Can be deducted in first fiscal year |
| Depreciated over the useful life of the asset |  |
| Cannot deduct from taxes for first fiscal year |  |
| Server and other big stuff | When we get servers on the cloud |

Advantages:

High Availability (HA), Disaster Recovery (DR), Reliable, Fault tolerant (Aiming to zero error)

Azure has over 60 datacenters in various regions of the world.

Types:

* Iaas (Infrastructure As A Service)
* PaaS (Platform As A Service)
* SaaS (Software As A Service)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Application | Data | Runtime | Middleware | OS | Virtualization | Server | Storage | N/W |
| IaaS |  |  |  |  |  | Y | Y | Y | Y |
| PaaS |  |  | Y | Y | Y | Y | Y | Y | Y |
| SaaS | Y | Y | Y | Y | Y | Y | Y | Y | Y |

Y- Given by the cloud provider

Popular for a type of service:

Iaas:

* Azure
* AWS
* Google Compute Engine

PaaS:

* Azure Logic Apps
* Heroku
* Amazon Elastic Beanstalk

Saas:

* Office 365
* Google G Suite
* Salesforce
* Dropbox

Microsoft Ones for each type of service:

IaaS:

* Azure Compute (For VMs)
* Azure Storage

PaaS:

* Azure Logic Apps
* Azure Functions
* Azure Webjobs
* Azure Automation

SaaS:

* Sharepoint
* One Drive
* Teams
* Power Platform

Why each type?

IaaS:

* Test and Development
* Storage and backup
* High performance computing
* Big Data Analysis

PaaS:

* Analytics
* BI
* Development framework

SaaS:

* Sophisticated Apps
* Mobilize for workforce quickly

Deployment Models:

* Public cloud: Hardware shared
* Private cloud: Hardware fully used by one company
* Hybrid cloud: Mix of both. Has automation and orchestration.
* Community cloud: Agreement and sharing between similar companies

Azure Offerings

Most azure offerings are for public cloud

For private/hybrid cloud:

* Azure stack allows to run cloud services on prem
* Azure stack can be used for connected and disconnected scenarios
* Consistent tool, experience, app models

Community cloud:

* Azure government for govt entities
* Handle data subject to govt regulations and requirements (req like FedRAMP, DOD, CJIS )
* Other: Azure Germany, Azure China