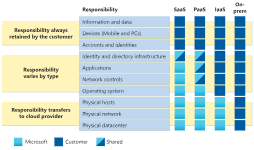
## Describe cloud computing

* Define cloud computing
  + Cloud computing is the process of using remote hardware (servers) on the internet to store, manage and process data rather than local or personal computers. It provides a scalable and flexible platform for deploying applications, storing data, and utilizing various services on-demand.
* Describe the shared responsibility model
  + In the shared responsibility model, the responsibilities for the consumer and the provider are separated. In an on-premises data center, you are responsible for everything from the network, hardware, operating systems to providing access to users.
  + With cloud computing those responsibilities shift. The shared responsibility can vary with the cloud services being used. There are 4 main levels of responsibility that are commonly used to describe that responsibility level, they are:
    - Infrastructure as a service (IaaS): places the most responsibility on the consumer, with the cloud provider being responsible for the basics of physical security, power, and connectivity.
    - Software as a service (SaaS): Places most responsibility on the cloud provider
    - Platform as a service (PaaS): being a middle ground between IaaS and SaaS. Rests somewhere in the middle and evenly distributes responsibility between the cloud provider and the consumer.
  + When using a cloud provider, you’ll always be responsible for:
    - Information or data stored on the cloud
    - Devices allowed to connect to the cloud
    - The accounts and identities of the people, services, and devices used by users
  + The cloud provider is always responsible for:
    - The physical datacenter
    - The physical network
    - The physical hosts
  + Your service model will determine whose responsibility things like:
    - Operating Systems
    - Network controls
    - Applications
    - Identity and infrastructures



Source: <https://learn.microsoft.com/en-us/training/modules/describe-cloud-compute/4-describe-shared-responsibility-model>

* Define cloud models, including public, private, and hybrid
  + Public cloud: This is the version of the cloud where you have the least control, the lowest Capital Expenditures (CapEx). As a customer, the public cloud consists of using someone else’s hardware, datacenter, networks etc. Typically this can be used by anyone willing to pay.
  + Private cloud: The private cloud is similar or the same to having your own datacenter, it may be onsite or offsite. This version of the cloud provides the greatest level of control and responsibility.
  + Hybrid cloud: A hybrid cloud uses both the public and private cloud in an interconnected environment. Using the hybrid cloud can be done to add more security, support dependency for legacy applications, meet governmental/legal requirements, or just done to supplement pre-cloud migration.
  + Multi-Cloud: a newer scenario is the multi-cloud scenario. In this scenario the customer uses multiple public cloud providers. Maybe for different features, maybe in the process of migrating from one provider to another, regardless the customer will need to deal with the configuration, management, access to both environments.
* Azure Arc
  + A set of technologies that helps you manage your cloud environment. Azure Arc can help manage your cloud environment, whether it’s a public cloud, private cloud in your data center or hybrid config.
  + Azure Arc can manage resources outside of Azure’s own infrastructure.
  + Enables centralized management, governance, and security of resources.
  + Leverage Azure’s management capabilities consistently across hybrid and multi-cloud environments.
* Azure VMware Solution
  + Azure VMware solution lets you run your VMware workloads in Azure with seamless integration and scalability
* Identify appropriate use cases for each cloud model
* Describe the consumption-based model
  + Operational expenditure (paying for a service) vs Capital expenditure (paying upfront)
    - No upfronts costs
    - No need to purchase and manage costly infrastructure that users might not use to its fullest potential
    - The ability to pay for more resources when they’re needed
    - The ability to stop paying for resources when no longer needed
* Compare cloud pricing models
  + Cloud computing is the delivery of computing services, storage, etc by using a pay-as-you-go pricing model
    - Allows you the manage operating costs, run infrastructure efficiently and scale as business changes
* Describe serverless
  + Refers to a cloud native execution model where cloud providers dynamically manage the allocation and provisioning of servers. There is no need to manage the underlying infrastructure.
  + Instead, users are able to focus solely on writing and deploying code (functions or applications) that run in a stateless compute container.
    - Key characteristics:
      * Event driven scalability: Functions or applications are triggered by events and scale automatically in response to workload demands.
      * Pay-per-use pricing: Users are billed based on actual consumed rather than paying for pre-allocated or idle resources

No server management: Cloud providers handle the hardware, server provisioning, scaling, network maintenance.