

LIKE A BOSS

CLOUD CONCEPTS NOTES

AZ 900 TEST PREP



Use these notes to help review testable material for the AZ-900 certification exam.

Define these cloud computing terms, which describe advantages vs. on-prem solutions:

High availability - The ability to keep services up and running for long periods of time, with very little downtime, depending on the service in question.

Fault tolerance - The ability to remain up and running even in the event of a component or service no longer functioning. Typically, redundancy is built into cloud services architecture so if one component fails, a backup component takes its place.

Disaster recovery - The ability to recover from an event which has taken down a cloud service. Cloud services disaster recovery can happen very quickly with automation and services being readily available to use.

Scalability - The ability to increase or decrease resources for any given workload. You can add additional resources to service a workload (known as scaling out), or add additional capabilities to manage an increase in demand to the existing resource (known as scaling up). *Scalability can be done manually.*

Elasticity - The ability to automatically or dynamically increase or decrease resources as needed. Elastic resources match the current needs, and resources are added or removed automatically to meet future needs. A distinction between scalability and elasticity is that *elasticity is done automatically.*

Agility - The ability to react quickly. Cloud services can allocate and deallocate resources quickly. They are provided on-demand via self-service, so vast amounts of computing resources can be provisioned in minutes.

Two economic terms that apply to cloud:

- **CapEx** - physical infrastructure costs up front, such as the purchase of computing hardware.
- **OpEx** - no up front costs; pay as you go. Cloud services are usually OpEx for accounting purposes.

Economies of scale is the ability to reduce costs and gain efficiency when operating at a larger scale. Cloud providers such as Microsoft, Google, and Amazon are large businesses, and are able to leverage the benefits of economies of scale, and then pass those benefits on to their customers.

Three cloud models, ranked in order of control/administration, from most to the least:

- **IaaS** - Infrastructure as a Service. With IaaS, you rent IT infrastructure servers and virtual machines (VMs), storage, networks, and operating systems from a cloud provider on a pay-as-you-go basis.
- **PaaS** - Platform as a Service provides an environment for building, testing, and deploying software applications. The goal of PaaS is to help create an application as quickly as possible without having to manage the underlying infrastructure. Examples include Azure SQL or WebApps.
- **SaaS** - Software as a Service is software that is centrally hosted and managed for the end customer. It allows users to connect to and use cloud-based apps over the internet. Common examples are email, calendars, and office tools such as Office 365, Workday, or Salesforce.

Three cloud architecture approaches:

- **Public** - A public cloud is owned by the cloud services provider. It provides resources and services to multiple organizations and users who connect to the cloud service via a secure network connection, typically over the internet.
- **Private** - A private cloud is owned and operated by the organization that uses the resources from that cloud. They create a cloud environment in their own datacenter and provide self-service access to compute resources to users within their organization. The organization remains the owner, entirely responsible for the operation of the services they provide.
- **Hybrid** - A hybrid cloud combines both public and private clouds, allowing you to run your applications in the most appropriate location. An example of a hybrid cloud usage scenario would be hosting a website in the public cloud and linking it to a highly secure database hosted in a private cloud.