Describe Cloud Concepts (20-25%)

SLA-related Concepts

✔ *High Availability (HA):* Service Availability=99.999% of the time (or as close to it as possible).

✔ *Fault Tolerance (FT):* Service with Zero downtime

✔ *Disaster Recovery (DR):* Plan to recover critical business systems and normal operations in the event of a catastrophic disaster like a major weather event (hurricane, flood, tornado, etc), a cyberattack, or any other cause of significant downtime.

Resources Allocation-related Concepts

✔ *Scalability:* Ability to increase or decrease resources for any given workload. *Vertical Scaling (Scaling Up)* = Add resources to increase power of an existing server. *Horizontal Scaling (Scaling Out)* = Add more servers that function together as one unit.

✔ *Agility:* Ability to react quickly (allocate and deallocate resources quickly) without manual intervention in provisioning o deprovisioning services.

✔ *Elasticity:* Ability to automatically or dynamically increase or decrease resources as needed.

Note: *Scalability* is the system's ability to scale (allocate/deallocate) resources. *Agility* is the ability to scale quickly. If that scaling is happening automatically, then we are talking about *Elasticity*.

Describe Cloud Concepts (20-25%)

Describe the Principles of Economies of Scale

The *principle of economies of scale* explains how the cost of services can decrease as a company grows and operates at a larger scale.	*Economies of Scale* is the ability to **reduce costs** and **gain efficiency** when operating at a larger scale in comparison to operating at a smaller scale.
Cloud providers (*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.	As a company grows in size and scale, it can benefit from economies of scale, allowing it to charge lower prices for its products or services while still remaining profitable.
The principle of economies of scale perfectly describes what is happening with the cloud as it grows and has more customers.	Shared services can help companies reduce costs by hiring additional staff to maintain the company, leveraging the benefits of economies of scale.

References:
https://download.microsoft.com/download/6/e/4/6e4cb3d1-5004-4024-8d90-6c66c83c17aa/the_economics_of_the_cloud_white_paper.pdf

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