

MODULE 1: DESCRIBE CLOUD CONCEPTS

SECTION 1: DESCRIBE CLOUD COMPUTING

I. CLOUD COMPUTING

Cloud computing is the **delivery of computing services** over the internet.

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flowchart LR
  A[Computing Services] --> B[Compute services]
  A --> C[Storage services]
  A --> D[Networking services]
```

II. SHARED RESPONSIBILITY MODEL

1. When using a cloud provider, you'll always be responsible for:

- The information and data stored in the cloud
- Devices that are allowed to connect to your cloud (cell phones, computers, and so on)
- The accounts and identities of the people, services, and devices within your organization

2. The cloud provider is always responsible for:

- The physical datacenter
- The physical network
- The physical hosts

3. Your service model will determine responsibility for things like:

- Operating systems
- Network controls
- Applications
- Identity and infrastructure

III. CLOUD MODELS

BASED ON HOSTING:

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mindmap
  root((cloud models))
    (Private Cloud)
      (Definition)
        [IT infrastructure used by a single organization for greater control and customization]
      (Benefits)
        [Enhanced security, compliance, tailored resources, and dedicated management]
      (Drawbacks)
        [Higher costs, limited scalability, and reduced agility]
      (Hosting)
        [On-site or off-site by a dedicated datacenter]

    (Public Cloud)
      (Definition)
        [Delivers IT services over the internet, accessible to multiple organizations]
      (Benefits)
        [Cost-effective, scalable, flexible infrastructure with shared resources]
      (Drawbacks)
        [Security concerns, compliance challenges, and limited customization]
      (Hosting)
        [Third-party providers' datacenters globally]

    (Hybrid Cloud)
      (Definition)
        [Combines private and public clouds for seamless integration]
      (Benefits)
        [Flexibility, scalability, data control]
      (Drawbacks)
        [Complexity, integration challenges, security concerns]
      (Hosting)
        [Ideal for legacy systems alongside modern cloud applications or data sovereignty requirements]
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BASED ON PRICING:

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mindmap
  root((Cloud Pricing Models))
    (On-Demand)
      [Pay for resources as you use them, without any upfront commitments.]
      [Ideal for unpredictable workloads or short-term needs.]
      [Flexibility to scale resources up or down based on demand.]

    (Spot Pricing)
      [Bid on unused cloud resources at a lower price.]
      [Suitable for non-critical workloads or batch processing.]
      [Availability depends on resource availability and demand.]

    (Reserved Instances)
      [Commit to using specific resources for a fixed term of 1-3 years.]
      [Offers cost savings compared to on-demand pricing.]
      [Best for stable workloads with predictable usage patterns.]

    (Volume Discounts or Tier-Based Pricing)
      [Discounts based on usage volume or commitment levels.]
      [The more you use, the lower the per-unit cost.]
      [Encourages long-term usage and cost optimization.]
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