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Professional

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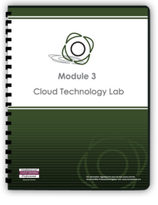
Module 3
Cloud Technology Lab

- **Terminology & Concepts**
  - IT resource
  - service
  - service agent
  - scaling
    - horizontal
      - scale out
      - scale In
    - vertical
      - scale up
      - scale down
  - virtualization
  - cloud
  - cloud service
- **Cloud Characteristics**
  - on-demand usage
  - ubiquitous access
  - multitenancy
  - elasticity
  - measured usage
  - resilient computing
- **Roles & Boundaries**
  - software
    - service consumer
    - cloud service consumer
  - organization
    - cloud consumer
    - cloud provider
    - cloud service owner
    - cloud resource administrator
  - boundaries
    - organizational boundary
    - trust boundary
- **Delivery Models**
  - Infrastructure-as-a-Service (IaaS)
  - Platform-as-a-Service (PaaS)
  - Software-as-a-Service (SaaS)
- **Deployment Models**
  - public cloud
  - community cloud
  - private cloud
  - hybrid cloud
- **Business Cost Metrics**
  - up-front costs
  - on-going costs
  - cost of capital
  - sunk costs
  - integration costs
  - locked-in costs
- **Benefits**
  - reduced investment and proportional costs
  - increased scalability
  - increased availability and reliability
- **Challenges**
  - increased security vulnerabilities
  - reduced operational governance control
  - limited portability between cloud providers
  - multi-regional compliance and legal issues
- **SLA Characteristics**
  - availability
  - reliability
  - performance
- **Cloud Testing**
  - approaches
    - black box
    - white box
  - types
    - availability
    - reliability
    - performance
    - stress
    - integration
- **Cloud Storage**
  - level
    - dataset
    - file
    - block
  - structure type
    - non-relational cloud storage
    - relational cloud storage
- **Cloud Service Implementation Mediums**
  - Web services
  - REST services
  - components
- **Cloud Security Mechanisms**
  - encryption — can counter
    - malicious Intermediary
    - insufficient authorization
    - overlapping trust Boundaries
  - digital signatures — can counter
    - malicious intermediary
    - insufficient authorization
    - overlapping trust boundaries
  - identity and access management — can counter
    - denial of service
    - insufficient authorization
    - overlapping trust boundaries
  - single sign-on
  - cloud-based security groups — can counter
    - denial of service
    - insufficient authorization
    - overlapping trust boundaries
  - hardened virtual server images — can counter
    - denial of service
    - insufficient authorization
    - overlapping trust boundaries
- **Cloud Security Threats**
  - malicious intermediary — can affect
    - confidentiality
    - integrity
  - denial of service — can affect
    - availability
    - response
  - insufficient authorization — can affect
    - authorization
    - authentication
  - virtualization attack — can affect
    - authorization
    - authentication
  - overlapping trust Boundary — can affect
    - authorization
- **Cloud Computing Mechanism Combinations**
  - cloud balancing — is comprised of
    - automated scaling listener
    - failover system
  - cloud bursting — is comprised of
    - automated scaling listener
    - resource replication
- **Cloud Computing Mechanisms**
  - virtual server
    - multitenancy
    - elasticity
  - ready-made environment
  - automated scaling listener
    - on-demand usage
    - elasticity
  - failover system
    - resiliency
  - multi-device broker
    - ubiquitous access
  - pay-for-use monitor
    - on-demand usage
    - measured usage
    - elasticity
  - state management database
    - elasticity
    - resiliency
  - resource replication
    - multitenacy
    - elasticity



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