



3.0 Deployment

3.1 Given a scenario, integrate components into a cloud solution.

- **Subscription services**
 - File subscriptions
 - Communications
 - Email
 - Voice over IP (VoIP)
 - Messaging
 - Collaboration
 - Virtual desktop infrastructure (VDI)
 - Directory and identity services
 - Cloud resources
 - IaaS
 - PaaS
 - SaaS
- **Provisioning resources**
 - Compute
 - Storage
 - Network
- **Application**
 - Serverless
- **Deploying virtual machines (VMs) and custom images**
- **Templates**
 - OS templates
 - Solution templates
- **Identity management**
- **Containers**
 - Configure variables
 - Configure secrets
 - Persistent storage
- **Auto-scaling**
- **Post-deployment validation**

3.2 Given a scenario, provision storage in cloud environments.

- **Types**
 - Block
 - Storage area network (SAN)
 - Zoning
 - File
 - Network attached storage (NAS)
 - Object
 - Tenants
 - Buckets
- **Tiers**
 - Flash
 - Hybrid
 - Spinning disks
 - Long-term
- **Input/output operations per second (IOPS) and read/write**
- **Protocols**
 - Network file system (NFS)
 - Common Internet file system (CIFS)
 - Internet small computer system interface (iSCSI)
 - Fibre Channel (FC)
 - Non-volatile memory express over fabrics (NVMe-oF)
- **Redundant array of inexpensive disks (RAID)**
 - 0
 - 1
 - 5
 - 6
 - 10
- **Storage system features**
 - Compression
 - Deduplication
 - Thin provisioning
 - Thick provisioning
 - Replication
- **User quotas**
- **Hyperconverged**
- **Software-defined storage (SDS)**

3.3 Given a scenario, deploy cloud networking solutions.

- **Services**
 - Dynamic host configuration protocol (DHCP)
 - NTP
 - DNS
 - Content delivery network (CDN)
 - IP address management (IPAM)
 - **Virtual private networks (VPNs)**
 - Site-to-site
 - Point-to-point
 - Point-to-site
 - IPSec
 - Multiprotocol label switching (MPLS)
 - **Virtual routing**
 - Dynamic and static routing
 - Virtual network interface controller (vNIC)
 - Subnetting
 - **Network appliances**
 - Load balancers
 - Firewalls
 - **Virtual private cloud (VPC)**
 - Hub and spoke
 - Peering
 - **VLAN/VXLAN/GENEVE**
 - **Single root input/output virtualization (SR-IOV)**
 - **Software-defined network (SDN)**
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3.4 Given a scenario, configure the appropriate compute sizing for a deployment.

- **Virtualization**
 - Hypervisors
 - Type 1
 - Type 2
 - Simultaneous multi-threading (SMT)
 - Dynamic allocations
 - Oversubscription
 - **Central processing unit (CPU)/virtual CPU (vCPU)**
 - **Graphics processing unit (GPU)**
 - Virtual
 - Shared
 - Pass-through
 - **Clock speed/Instructions per cycle (IPC)**
 - **Hyperconverged**
 - **Memory**
 - Dynamic allocation
 - Ballooning
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3.5 Given a scenario, perform cloud migrations.

- **Physical to virtual (P2V)**
- **Virtual to virtual (V2V)**
- **Cloud-to-cloud migrations**
 - Vendor lock-in
 - PaaS or SaaS migrations
 - Access control lists (ACLs)
 - Firewalls
- **Storage migrations**
 - Block
 - File
 - Object
- **Database migrations**
 - Cross-service migrations
 - Relational
 - Non-relational