

# AWS Cloud Practitioner - Full Reference Guide

## Compute

**EC2:** Scalable virtual servers in the cloud.

Use Case: Web hosting, backend servers

Features: Custom AMIs, Auto Scaling, Spot/Reserved/On-Demand pricing.

**Lambda:** Run code without managing servers.

Use Case: Event-driven apps, automation

Features: Serverless, auto-scale, pay-per-use.

**Elastic Beanstalk:** Platform-as-a-Service (PaaS) for app deployment.

Use Case: Web applications

Features: Auto-provisioning, scaling, monitoring.

**ECS/EKS:** Container orchestration services.

Use Case: Microservices, container apps

Features: Docker (ECS), Kubernetes (EKS).

## Storage

**S3:** Scalable object storage for any file type.

Use Case: Backups, static websites

Features: 11 9s durability, lifecycle rules, encryption.

**EBS:** Block storage for EC2 instances.

Use Case: Databases, file systems

Features: Persistent, performance-optimized volumes.

**EFS:** Shared file storage.

Use Case: Multi-server workloads

Features: Elastic, NFS-compatible.

**Glacier:** Low-cost archival storage.

Use Case: Long-term backups

Features: Slow retrieval, very cheap.

## Database

**RDS:** Managed relational database.

Use Case: Web apps, ERP systems

Features: Backups, scaling, multi-AZ.

**DynamoDB:** Fully managed NoSQL database.

Use Case: Gaming, IoT, real-time apps

Features: Single-digit ms latency, serverless.

**Aurora:** High-performance managed database.

Use Case: Enterprise DB needs

Features: 5x MySQL speed, 3x PostgreSQL.

**Redshift:** Data warehousing solution.

Use Case: Analytics, reporting

Features: Columnar storage, fast queries.

## Networking & CDN

**VPC:** Virtual network in AWS.

Use Case: Secure app hosting

Features: Subnets, NAT, routing.

**CloudFront:** Global content delivery network.

Use Case: Static and dynamic content

Features: Edge caching, DDoS protection.

**Route 53:** Scalable DNS and domain service.

Use Case: Domain resolution

Features: Health checks, latency routing.

**API Gateway:** Create and manage APIs.

Use Case: RESTful services

Features: Throttling, authorization, monitoring.

## Security & Identity

**IAM:** Manage access to AWS services.

Use Case: User/group permissions

Features: MFA, roles, policies.

**KMS:** Encryption key management.

Use Case: Data protection

Features: Integrated with most AWS services.

**Cognito:** User sign-up and authentication.

Use Case: Mobile/web login

Features: OAuth, SAML, social login.

**WAF & Shield:** Protect apps from threats.

Use Case: Web security

Features: SQL injection, DDoS mitigation.

## Monitoring & Management

**CloudWatch:** Monitoring and alerting.

Use Case: Metrics/logs dashboard

Features: Custom metrics, alarms.

**CloudTrail:** Record AWS API calls.

Use Case: Audit and compliance

Features: Event history, monitoring.

**Trusted Advisor:** Best practices recommendations.

Use Case: Optimization

Features: Cost, security, performance checks.

**Config:** Track resource configurations.

Use Case: Compliance monitoring

Features: History, rules, remediation.

## Migration & Transfer

**DMS:** Database migration.

Use Case: Move DB to cloud

Features: Minimal downtime.

**Snowball:** Large-scale data transfer.

Use Case: Data center migration

Features: Petabyte-scale, secure.

**Transfer Acceleration:** Faster S3 upload using CloudFront.

Use Case: Global file uploads

Features: Uses edge locations.

## Developer Tools

**CodeCommit:** Managed Git repo.

Use Case: Source control

Features: Fully private.

**CodeBuild:** Build and test code.

Use Case: CI/CD pipelines

Features: Serverless build service.

**CodeDeploy:** Automated deployments.

Use Case: App release process

Features: Blue/green support.

**CodePipeline:** Orchestrates CI/CD workflow.

Use Case: DevOps automation

Features: Integrates with other tools.

## Billing & Support

**Cost Explorer:** Visualize cost usage.

Use Case: Budgeting

Features: Forecasts, trends.

**Budgets:** Set cost and usage alerts.

Use Case: Cost control

Features: Alerts by email/SNS.

**TCO Calculator:** Compare AWS vs on-prem costs.

Use Case: Cost estimation

Features: Comprehensive analysis.

**Support Plans:** Different support levels.

Use Case: Help and guidance

Features: Basic, Dev, Biz, Enterprise.

## AWS Global Infra & Models

**Regions:** Geographic areas with AZs.

Use Case: Deploy apps closer to users

Features: High availability.

**AZs:** Data centers within regions.

Use Case: Fault isolation

Features: Resilient architecture.

**Edge Locations:** Used by CloudFront/CDN.

Use Case: Low latency

Features: Global reach.

**Shared Responsibility Model:** vs customer responsibilities.

Use Case: Security clarity

Features: Infra vs data responsibility.

## **Disaster Recovery Models**

**Backup & Restore:** Cheapest, longest RTO/RPO.

Use Case: Non-critical data

Features: Simple but slow.

**Pilot Light:** Core services always running.

Use Case: Critical app components

Features: Fast recovery.

**Warm Standby:** Partially running setup.

Use Case: Balanced approach

Features: Faster than pilot.

**Multi-site:** Full infra duplicated.

Use Case: Mission-critical apps

Features: Instant failover.