ANALYSIS OF CASE STUDIES
[When Deciding To Adopt Cloud Computing Architecture & Decision on the Cloud Requirements]

- **Case Study Analysis for Adopting Cloud Computing Architecture**, focusing on decision-making processes, requirements analysis, and real-world examples.
- And model for understanding how organizations evaluate and adopt cloud solutions.

- **Introduction**
  - Adopting cloud computing is a strategic decision for any organization.
  - It involves assessing business goals, IT infrastructure, budget, scalability needs, and regulatory requirements.
  - Organizations often analyse case studies of
    - Real or hypothetical examples
      - To guide their **cloud adoption strategy** and **architecture design**.

- **Key Objectives of Analysing Case Studies**
  1. **Understand Business Needs**
     a. What problem does the organization aim to solve?
     b. Is the goal to reduce costs, improve scalability, enhance security, or speed up development?
  2. **Assess Current Infrastructure**
     a. What legacy systems exist?
     b. Is the organization cloud-ready, or does it require modernization?
  3. **Define Cloud Requirements**
     a. Which type of cloud: Public, Private, Hybrid, or Multi-cloud?
     b. Which service model: IaaS, PaaS, or SaaS?
     c. What technical and security specifications are needed?
  4. **Evaluate Cloud Providers**
     a. Compare AWS, Azure, GCP, or niche players.
     b. Evaluate based on cost, reliability, global availability, and service offerings.

- **Steps to Decide on Cloud Requirements**

Step	Description
1. Business Analysis	Define goals: cost-saving, faster time-to-market, scalability, etc.
2. Workload Assessment	Identify which workloads to move to the cloud (apps, databases, storage).
3. Security & Compliance Needs	Evaluate data sensitivity, industry regulations (HIPAA, GDPR).
4. Cloud Service Model Selection	IaaS for control, PaaS for development, SaaS for ready-to-use apps.
5. Deployment Model Decision	Choose between Public, Private, Hybrid, or Multi-cloud.
6. Cost Estimation & ROI	Compare cloud pricing models vs. on-premises infrastructure.
7. Vendor Comparison	Review features, SLAs, support, and regional availability.
8. Risk Assessment	Identify migration risks and prepare fall back strategies.

Detailed Case Study Examples

- **Case Study 1: Netflix – Global Scalability & Availability**

  Problem:
  - Netflix's data centers couldn't scale to meet growing global demand, especially during peak times.

  Decision:
  - Moved to **AWS** for global reach, elasticity, and high availability.
  - Adopted **microservices architecture** on the cloud.

  Cloud Requirements:
  - **Public Cloud (AWS)**
  - **IaaS + PaaS**: EC2, Lambda, RDS, S3
  - Auto-scaling, failover zones, global CDN (CloudFront)

  Outcome:
  - Improved uptime and user experience
  - Real-time recommendation engines powered by scalable cloud analytics

- **Case Study 2: Capital One – Security & Digital Transformation**

  Problem:
  - Needed to modernize infrastructure and enhance digital banking experience while ensuring compliance.

  Decision:
  - Adopted **AWS** after a thorough risk and security assessment.
  - Migrated workloads, including mobile and web apps.

Cloud Requirements:

- **Hybrid Cloud initially**, then full **Public Cloud**
- Emphasis on **security**, **IAM**, **data protection**
- Tools for DevOps and CI/CD (CodePipeline, Docker, Jenkins)

Outcome:

- Improved developer productivity
- Reduced data center costs
- Strengthened security posture with AWS-native tools

- **Case Study 3: Adobe – SaaS Delivery for Creative Cloud**

Problem:

- Wanted to deliver Adobe Creative Cloud software as a **subscription-based SaaS**.

Decision:

- Moved to **Microsoft Azure** and **AWS** for global SaaS delivery.
- Built highly scalable APIs and storage backends.

Cloud Requirements:

- **PaaS + SaaS Delivery Model**
- Integration with global identity services
- Elastic storage and compute for high-performance apps

Outcome:

- Transformed into a SaaS provider
- Scaled to millions of users globally
- Reduced pirated via cloud authentication

- **Case Study 4: Government Agency – Data Sovereignty and Compliance**

Problem:

- Needed to digitize services while maintaining **data sovereignty** due to national laws.

Decision:

- Adopted a **Private or Hybrid Cloud** with local data centres.
- Used **OpenStack** or national cloud providers.

Cloud Requirements:

- **Private Cloud** or **Hybrid Cloud**
- Strict **compliance and audit trails**
- **Encryption, VPNs, Firewalls**

Outcome:

- Improved citizen services
- Met compliance regulations (ISO, national data laws)
- Controlled infrastructure costs

Common Factors Driving Cloud Adoption (from Case Studies)

Factor	Role in Decision
Scalability	Support for dynamic workloads and traffic surges
Cost Optimization	Shift from CapEx (hardware) to OpEx (pay-as-you-go)
Security & Compliance	Ensuring data privacy, regulatory compliance
Innovation	Enabling AI, ML, and modern architectures
Time to Market	Faster app deployment and updates
Global Reach	Serving users across multiple regions with low latency

- **Challenges Identified in Case Studies**
  - **Vendor lock-in**
  - **Complex migrations of legacy systems**
  - **Training requirements for staff**
  - **Data transfer costs**
  - **Initial costs for setup and integration**

- **Conclusion**
  - Analysing real-world case studies allows organizations to:
    - Learn from the successes and failures of others
    - Make informed decisions about cloud service models and vendors
    - Tailor cloud architecture to fit unique business, technical, and regulatory needs
  - **Successful cloud adoption** requires careful planning, risk assessment, and alignment between IT strategy and business goals.