CC Assignment-1

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Q1) Decide between a private or public cloud for hosting a mobile app with high traffic, sensitive user data and limited budget. The choice must balance scalability, security and cost effectiveness.

Soln Public cloud - It is a cloud computing service offered by 3rd party providers where resources are shared among multiple customers.

Advantages
- ↳ scalable and ability to manage high traffic volumes.
- ↳ autoscaling
- ↳ cost effective
- ↳ global availability
- ↳ managed security & compliance

Disadvantage
- ↳ limited customization
- ↳ security and data risks
- ↳ long-term operational costs

Private cloud - A dedicated cloud infrastructure owned and leased by a single organisation, providing complete control over security, customisation and resource allocation.

Advantages
- ↳ enhanced security
- ↳ no resource competition leading to consistent performance.
- ↳ customization and control
- ↳ long-term cost savings

Disadvantage
- ↳ limited scalability
- ↳ complexity and management
- ↳ high upfront costs & maintenance

final recommendation: HYBRID APPROACH
combining both public and private
↳ host the application on a public cloud
↳ store the sensitive data on a private cloud
↳ leverage secure connection to integrate both

This approach balances performance, cost and security, best of both the worlds.

Q2) As the CTO, you must resolve cloud connectivity issues affecting a rapidly growing mobile app. ensuring high availability and performance. Also compare major cloud providers and recommend the best fit based on scalability, reliability and cost-effectiveness.

Issues:

1) Intermittent connectivity — network congestion or cloud provider outrages.

Soln - implement multi-region redundancy

2) Slow performance - insufficient server resources

Soln - optimise database queries.

3) High latency - servers located far from users

Soln - deploy edge servers or use a CDN

4) Overloaded servers - traffic spikes

Soln - implement auto scaling

Cloud provider comparision

	AWS	Azure	Google Cloud
strength	strong security wide service offering	strong enterprise integration	Best for AI, Big data and kubernetes
weakness	can be expensive, complex pricing	slightly lower global coverage	fewer enterprise partnerships
pricing model	pay-as-you-go reserved instances spot instances	similar to AWS, with enterprise discounts	competitive pricing, best for AI workloads
best for	scalability, reliability, global coverage	enterprise soln, hybrid cloud	AI/ML applications and kubernetes hosting

Recommendation

AWS

- ↳ global infrastructure for high availability
- ↳ advanced auto-scaling, load balancing, multi-region support
- ↳ strong security, compliance, robust monitoring tools

Questions

1) Scenario

Soln The company should implement a multi-region, cloud based recovery disaster solution with automated backups, failover and strong security policies to prevent

future attacks and ensure business continuity

Q2) The company should virtualise its infrastructure using hypervisors and cloud integration to reduce costs, improve efficiency and enhance scalability while minimising physical server dependencies.

Q3) The online store should implement a cloud-based load balancing solution with auto-scaling to handle traffic surges, ensure high availability, and provide a seamless shopping experience

Q4) The banking application should use a multi-region, redundant load balancing setup with automatic failover, disaster recovery and 24/7 monitoring to meet strict availability requirements

Q5) For a small bakery, shared hosting is the best choice. This option is highly cost effective, requires minimal technical expertise hence it will be ideal for showcasing a menu, location and contact details without incurring high costs.