

CSE 4267: Cloud Computing (Class Test 3)

22. AWS Security: KMS, WAF, and Shield

1. What is AWS Key Management Service (KMS) and how does it help with encryption?
2. Differentiate between customer-managed keys and AWS-managed keys.
3. How does AWS WAF protect applications from common web threats?
4. What is AWS Shield and how does it differ from AWS WAF?
5. Your organization is launching a public-facing web application. How would you design a security strategy using KMS, WAF, and Shield?

23. Capacity Planning & Cloud Brokers

1. What is capacity planning in cloud computing, and why is it critical for cost management?
2. What tools or strategies can help forecast cloud resource demand?
3. Explain the role of cloud brokers in multi-cloud environments.
4. How do cloud brokers help with service selection and pricing optimization?
5. A company is migrating to the cloud but is unsure of its future workload requirements. How can capacity planning and a cloud broker assist in this migration?

24. Service-Level Agreements (SLAs) in Cloud Computing

1. What is a Service Level Agreement (SLA) in cloud computing?
2. What are the key components of a typical SLA? (Availability, Response Time, etc.)
3. How does AWS define and enforce SLAs for services like EC2, S3, and RDS?
4. Explain the difference between standard SLA and custom SLA.
5. How are penalties and service credits handled if a cloud provider fails to meet its SLA?
6. Kloud 360 uses a cloud provider with a 99.95% uptime SLA. Last year, the service was down for 4 hours due to a server failure and 1 hour during scheduled maintenance. Did the provider breach the SLA?

25. CI/CD - Streamlining Software Delivery

1. What is CI/CD, and how does it improve software development processes?
2. Explain the differences between Continuous Integration, Continuous Delivery, and Continuous Deployment.
3. Which AWS services can be used to build CI/CD pipelines?
4. What are some common challenges when implementing CI/CD in cloud environments?
5. A development team wants to automate the deployment of their web application on AWS. Design a CI/CD pipeline using AWS services.

26. Serverless Computing with AWS Lambda

1. What is serverless computing, and how does it differ from traditional infrastructure?
2. Explain how AWS Lambda works and its typical use cases.
3. What are the advantages and limitations of serverless architectures?
4. How can serverless computing contribute to cost optimization?
5. A startup wants to build a data processing application that scales automatically and only incurs costs when used. Design a serverless architecture for this requirement.
6. A serverless function is invoked 2 million times a month. Each invocation runs for 400 milliseconds (0.4 seconds), with 512 MB of memory.
 - AWS charges \$0.20 per 1 million invocations.
 - AWS charges \$0.00001667 per GB-second.

What is the total monthly cost?

27. Infrastructure as Code (IaC), Monitoring & Logging

1. What is Infrastructure as Code (IaC), and how does AWS CloudFormation enable it?
2. How does IaC improve infrastructure management and compliance?
3. What are some key AWS monitoring and logging tools?
4. How does Amazon CloudWatch support performance monitoring and alerting?
5. Your organization needs to automate infrastructure deployment and continuously monitor application performance. Design a solution using IaC and AWS monitoring tools.