TEAM LEAD VERSION (Week-7)

TEAMWORK

CLARUSWAY
WAY TO REINVENT YOURSELF

Meeting Agenda

▶ Icebreaking

▶ Questions

▶ Interview/Certification Questions

▶ Coding Challenge

▶ Video of the week

▶ Retro meeting

▶ Case study / project

Teamwork Schedule

Ice-breaking 10m

- Personal Questions (Stay at home & Corona, Study Environment, Kids etc.)
- Any challenges (Classes, Coding, AWS, studying, etc.)
- Ask how they're studying, give personal advice.
- Remind that practice makes perfect.

Team work 10m

- Ask what exactly each student does for the team, if they know each other, if they care for each other, if they follow and talk with each other etc.

Ask Questions 15m

1. Which command gives details of Git configuration?

A. `git config --list`
B. `git config --help`
C. `git log --pretty=oneline`
D. `git checkout`

Answer: *A*

2. What is AWS' serverless computing service?

A. AWS Serverless
B. AWS CloudFront
C. AWS Lambda
D. AWS API Gateway

Answer: *C*

3. Which of the following are NOT valid origins for Amazon CloudFront?

A. Amazon S3 buckets
B. EC2 instance
C. AWS Lambda function
D. Elastic Load Balancer (ELB)

Answer: *C*

4. Using API Gateway, you can create SOAP APIs.

A. True
B. False

Answer: *B*

5. What will be the output of the following Python code?

```
def writer():
    title = 'Sir'
    name = (lambda x:title + ' ' + x)
    return name

who = writer()
who('Arthur')
```

A. Arthur Sir
B. Sir Arthur
C. Arthur
D. None of the mentioned

Answer: *B*

Interview/Certification Questions 20m

1. You are planning on deploying a video based application onto the AWS Cloud. These videos will be accessed by users across the world. Which of the below services can help stream the content in an efficient manner to the users across the globe?

A. Amazon Route 53
B. Amazon Cloudtrail
C. Amazon CloudFront
D. Amazon S3

Answer: *C*

Amazon CloudFront is a web service that gives businesses and web application developers an easy and cost effective way to distribute content with low latency and high data transfer speeds. Like other AWS services, Amazon CloudFront is a self-service, pay-per-use offering, requiring no long term commitments or minimum fees. With CloudFront, your files are delivered to end-users using a global network of edge locations.

For more information on Amazon Cloudfront, please refer to the Link

2. Which of the following components of the Cloudfront service can be used to distribute contents to users across the globe?

A. Amazon VPC
B. Amazon Regions
C. Amazon Availability Zones
D. Amazon Edge locations

Answer: *D*

Amazon CloudFront is a web service that speeds up distribution of your static and dynamic web content, such as .html, .css, .js, and image files, to your users. CloudFront delivers your content through a worldwide network of data centers called edge locations.

For more information on Amazon Cloudfront, please refer to the Link

3. A professional educational institution maintains a dedicated web server and database cluster that hosts an exam results portal for modules undertaken by its students. The resource is idle for most of the learning cycle and becomes excessively busy when exam results are released. How can this architecture be improved to be cost-efficient?

A. Configure AWS elastic load-balancing between the webserver and database cluster
B. Configure RDS multi-availability zone for performance optimisation
C. Configure serverless architecture leveraging AWS Lambda functions
D. Migrate the web servers onto Amazon EC2 Spot Instances

Answer: *C*

Option C is correct. Leveraging AWS Lambda functions will remove the need to run a dedicated web server for the organisation. During periods of high requests to the database cluster, AWS lambda backend infrastructure will automatically scale out resources to adequately meet the demand. AWS Lambda provides a platform to run code without provisioning or managing any servers. The organisation pays only for the compute time they consume - there is no charge when your code is not running.

Option A. INCORRECT because the premise of the scenario is about cost-efficiency more than load and server responsiveness. Load-balancing would manage the traffic amongst the database clusters but would not relieve the organisation of maintaining a dedicated web server which only works occasionally.

Option B. INCORRECT because RDS multi-availability zone does not optimise the setup, rather it allows for disaster recovery, enhanced availability and durability. The scenarios requires a solution that reduces the cost of maintaining the organization's infrastructure and run it efficiently.

Option D. INCORRECT because migrating to Amazon EC2 Spot Instances will negatively affect the operation of the portal during periods of high traffic. Instances could be terminated mid-transaction which would have adverse effects on the overall user experience. This would not be a cost-effective solution. Spot Instances let you take advantage of unused EC2 capacity in the AWS cloud. Spot Instances are available at up to a 90% discount compared to On-Demand prices. Spot Instances can reclaim the capacity back with two-minutes of notice.

4. Which of the following is the customer's responsibility with respect to the AWS Lambda service? (choose 2 options)

A. Lambda function code.
B. Monitoring and logging lambda functions.
C. Security patches.
D. Installing required libraries in underlying compute instances for Lambda execution.
E. Providing access to AWS resources that triggers a Lambda function.

Answer: *A and E*

Option A is correct. Options B, C are not correct statements.

Option D is not correct. You cannot login to underlying compute instances of lambda execution. So, we cannot install any required libraries. However, you can package all the required dependent libraries along with your code.

Option E is correct. AWS Lambda assumes the role assigned during setup to access any AWS resources it performs any action on. Policy on the role must grant access on any such resources in order for Lambda to perform operations, for example S3 getobject, Dynamodb GetItem etc.

5. You have built a REST API using API gateway and distributed to your customers. However, your API is receiving large number of requests and overloading your backend system causing performance bottlenecks and eventually causing delays and failures in serving the requests for your important customers. How would you improve the API performance? (Choose 2 options)

A. Enable throttling and control the number of requests per second.

B. Create a resource policy to allow access for specic customers during specic time period.

C. Enable API caching to serve frequently requested data from API cache.

D. Enable load balancer on your backend systems.

Answer: *A and C*

Option A is correct. To prevent your API from being overwhelmed by too many requests, Amazon API Gateway throttles requests to your API. Specifically, API Gateway sets a limit on a steady-state rate and a burst of request submissions against all APIs in your account.

Option B is not correct. This is not a viable solution. Resource policies cannot have a time range based condition.

Option C is correct. You can enable API caching in Amazon API Gateway to cache your endpoint's responses. With caching, you can reduce the number of calls made to your endpoint and also improve the latency of requests to your API. When you enable caching for a stage, API Gateway caches responses from your endpoint for a specified time-to-live (TTL) period, in seconds. API Gateway then responds to the request by looking up the endpoint response from the cache instead of making a request to your endpoint. The default TTL value for API caching is 300 seconds. The maximum TTL value is 3600 seconds. TTL=0 means caching is disabled.

Option D is not correct. We can improve performance by increasing the capacity of backend systems if above settings does not help. Simply adding a load balancer does not improve any performance.

Video of the Week 5m

- Working with Amazon CloudFront

Retro Meeting on a personal and team level 10m

Ask the questions below:

- What went well?
- What could be improved?
- What will we commit to do better in the next week?

Coding Challenge 5m

- Coding Challenge: Check Consecutive Vowels

We assume that each group has two sub teams. Each week, one of the sub-teams will present their solution.

Case study/Project 10m

Case study should be explained to the students during the weekly meeting and has to be completed in one week by the students. Students should work in small teams to complete the case study.

- Project-004 : Phonebook Application (Python Flask) deployed on AWS Application Load Balancer with Auto Scaling and Relational Database Service using AWS Cloudformation

Closing 5m

-Next week's plan

-QA Session
