Day 11

DIY

Q1. Introduction to Amazon Web Services (AWS)

Objective: Given a practical example of the Cloud, be able to understand the

types of services provided by AWS getting familiar with AWS cloud.

AWS Description: Amazon Web Services is considered as a market leader in

Cloud Services. It is a dominant player in Public Cloud Computing worldwide. The

services provided by AWS can be divided into some categories like Database,

Storage and CDN, Compute and Networking, Development and Management, App

services, Analytics and Cross-Services. The following diagram describes the

complete list of servies under different categoriesThe most-used and popular of these services are Amazon Elastic Compute

Cloud (also known as Amazon EC2) under the category Compute and Networking

and Amazon Simple Storage Service (also known as Amazon S3) under the

category Storage and CDN.

A brief description of these services can be given as-

· DATABASE

o DynamoDB – A NoSQL database provided by Amazon.

o ElastiCache – to manage in-memory cache environments in the cloud.

o RDS – Relational Database Service provided by Amazon.

o Redshift – A cloud data warehousing server to deliver fast query and I/O

performance.

· STORAGE & CDN

o S3 – Simple Storage Service to store the object data with high durability.

o EBS – Elastic Block Store provides block-level storage volume.

o CloudFront – A web service for data delivery.

o Glacier – Supports data archiving and backup to store the data.

o Storage Gateway – for secure integration of data between customer’s

premises and amazon infrastructure.

o Import Export – to transfer large amount of data using storage devices.

· CROSS - SERVICE

o Support – A fast-response support channel by Amazon

o Marketplace – an online store to buy the softwares and services.

o Management Console – to manage AWS through a simple web-based

interface.

o SDKs, IDE Kits, and CLIs – some utilities to develop the applications.

· ANALYTICS

o Elastic MapReduce – an open-source framework to process the data.

o Kinesis – real-time processing of large amounts of data.

o Data Pipeline – to transfer data between Compute and Storage services.

· COMPUTE & NETWORKING

o EC2 – Elastic Compute Cloud to provide compute capacity in the cloud.

o VPC – Virtual Private Cloud service.

o ELB – Elastic Load Balancing service to balance the load on instances.

o Workspaces – Desktop as a Service (DaaS) by Amazon.

o Auto Scaling – to manage the EC2 capacity automatically as per need.

o DirectConnect – a private network connection between customer’s premises

and AWS.

o Route 53 – A Domain Name System (DNS) service by Amazon.

· DEPLOYMENT & MANAGEMENT

o CloudFormation – to manage the related resources by helper scripts.

o CloudWatch – a cloud monitoring service.

o Elastic Beanstalk – to manage and deploy the applications

o IAM – To provide the access to the same resource to multiple users.

o CloudTrail – to log Application Programming Interface (API) calls.

o OpsWorks – to deploy applications of all shapes and sizes.

o CloudHSM – Hardware security modules (HSM) to provide cryptographic

operations.

· APP SERVICES

o CloudSearch – a service that makes client data searchable.

o Elastic Transcoder – to convert the media files into a differenformatsat.

o SES – Simple Email Services (SES) by Amazon.

o SNS – Simple Notification Service for push messaging.

o SQS – Simple Queue Service offers hosted queues to store messages.

o SWF – Simple Workflow Service is a management application for the cloud.

o App Stream – to stream the windows applications from the cloud.

Analyze the above AWS Description and answer the following questions:

1. A company wants to adopt an email system to send its transactional and

marketing emails to its customers. As an IT consultant, which AWS service you will

suggest them to hire, and what will be the category of that service?

2. A developer is hosting an application using AWS. Now he wants to monitor

his AWS resources and the performance of the application along with collecting

log files and setting alarms. Which cloud service he should use and what is the

category of this service?

3. While using AWS, a company wants to set up, operate and scale a relational

database in the cloud. Which AWS service is the best solution for this

requirement? Also, specify the category of this service.

4. A banking firm is moving out from Ireland and now it wants to re-establish

its entire business in Singapore. In Singapore, they want to take cloud services

from AWS and their requirement is to move their large amount of banking data

from Ireland to their new business location. Which AWS service is the best

solution for the firm?

Note: Some more categories/services are added by AWS recently and these are

updated/changed frequently but all the major things are covered in the above

description.

Estimated time: 10 minutes

Summary of this assignment: In this assignment, you have understood the

categories of services provided by AWS and the different types of services under

these categories.

Q2: Introduction to AWS – Hands-on Practice

Objective: Given a real-world problem, be able to identify the use of all the

AWS services and the selection of exact one according to the requirement.

Problem Description: For the previous assignment, identify the use of all

the services provided by AWS under each category.

Estimated time: 15 minutes

Summary of this assignment: In this assignment, you have learned to

identify the exact use of all AWS services based on real-world problems.

Q3: IAM tutorial: Delegate access to the billing console

Objective: Given a real-world problem, you will be able to delegate access to

specific IAM users who need to view or manage the AWS Billing and Cost

Management data for an AWS account.

Problem Description: To configure billing permissions without concern for

affecting your main AWS production account.

Solution :

Step 1: Activate access to billing data on your AWS test account

First, activate billing access for your test users in the AWS Billing and Cost

Management console.

• To activate IAM user and role access to the Billing and Cost Management

console

• Sign in to the AWS Management Console with your root account

credentials (specifically, the email address and password that you used to

create your AWS account).

• On the navigation bar, choose your account name, and then choose My

Account.

• Next to IAM User and Role Access to Billing Information, choose Edit.

• Select the Activate IAM Access check box to activate access to the Billing

and Cost Management console pages.

• Choose Update.

• You can now use IAM policies to control which pages a user can access.

• After you have activated IAM user access, you can attach IAM policies to

grant or deny access to specific billing features. For more information

about using policies to grant IAM users access to AWS Billing and Cost

Management Management features, see Using identity-based policies

(IAM policies) for Billing and Cost Management Management in the AWS

Billing User Guide.

Step 2: Create IAM policies that grant permissions to billing data

Next, create custom policies that grant both view and full access permissions to

the pages within the Billing and Cost Management console. For general

information about IAM permissions policies, see Managed Policies and Inline

Policies.

• To create IAM policies that grant permissions to billing data

1. Sign in to the AWS Management Console as a user with administrator

credentials. To adhere to IAM best practices, don't sign in with your root user

credentials. For more information, see Creating your first IAM admin user and

user group.

2. Open the IAM console at https://console.aws.amazon.com/iam/.

3. In the navigation pane, choose Policies, and then choose to Create policy.

4. On the Visual editor tab, choose Choose a service to get started. Then choose

Billing.

5. Follow these steps to create two policies:

Full access

a) Choose Select actions and then select the check box next to All Billing actions

(aws-portal:\*). You do not need to select a resource or condition for this policy.

b) Choose Review policy.

c) On the Review page, next to Name, type BillingFullAccess, and then choose

Create policy to save it.

Read-only access

a) Repeat steps 3 and 4.

b) Choose Select actions and then select the check box next to Read. You do not

need to select a resource or condition for this policy.

c) Choose Review policy.

d) On the Review page, for Name, type BillingViewAccess. Then choose Create

policy to save it.

To review descriptions for each of the permissions available in IAM policies that

grant users access to the Billing and Cost Management console, see Billing

Permissions Descriptions.

Step 3: Attach billing policies to your user groups

Now that you have custom billing policies available, you can attach them to the

corresponding user groups that you created earlier. Although you can attach a

policy directly to a user or role, we recommend (in accordance with IAM best

practices) that you use user groups instead.

• To attach billing policies to your user groups

1. In the navigation pane, choose Policies to display the full list of policies available

to your AWS account. To attach each policy to its appropriate user group, follow

these steps:

Full access

a. In the policy search box, type BillingFullAccess, and then select the check

box next to the policy name.

b) Choose Actions, and then choose Attach.

c) In the identity (user, user group, and role) search box, type

BillingFullAccessGroup, select the check box next to the name of the user group,

and then choose Attach policy.

Read-only access

a) In the policy search box, type BillingViewAccess, and then select the check box

next to the policy name.

b) Choose Actions, and then choose Attach.

c) In the identity (user, user group, and role) search box, type

BillingViewAccessGroup, select the check box next to the name of the user

group, and then choose Attach policy.

Sign out of the console, and then proceed to Step 4: Test access to the billing

console.

Step 4: Test access to the billing console

We recommend that you test access by signing in as each of the test users to

learn what your users might experience. Use the following steps to sign in using

both test accounts to see the difference between access rights.

• To test billing access by signing in with both test user accounts

1. Use your AWS account ID or account alias, your IAM user name, and your

password to sign in to the IAM console.

2. Sign in with each account using the steps provided below so you can compare

the different user experiences.

Full access

a) Sign in to your AWS account as the user FinanceManager.

b) On the navigation bar, choose FinanceManager@<account alias or ID number>,

and then choose My Billing Dashboard.

c) Browse through the pages and choose the various buttons to ensure that you

have full modification permissions.

Read-only access

a) Sign in to your AWS account as the user FinanceUser.

b) On the navigation bar, choose FinanceUser@<account alias or ID number>, and

then choose My Billing Dashboard.

c) Browse through the pages. Notice that you can display costs, reports, and billing

data with no problems. However, if you choose an option to modify a value, you

receive an Access Denied message. For example, on the Preferences page,

choose any of the check boxes on the page, and then choose Save preferences.

The console message informs you that you need ModifyBilling permissions to

make changes to that page.

Estimated time: 15 minutes

Summary of this assignment: In this assignment, you have learnt to

identify the exact use of all AWS services based on the real world problems.