Assignment: Billing

Task:1

Imagine you're working with a client who's concerned about managing their AWS costs efficiently. What strategies or recommendations would you propose to help them reduce their AWS costs?

Here are some simple strategies and recommendations to help manage AWS costs efficiently:

Right-Sizing Resources:

Evaluate your EC2 instances, databases, and other AWS resources to ensure they are appropriately sized for your workload. Consider using AWS tools like AWS Compute Optimizer or third-party solutions to analyze resource utilization and recommend optimal instance types.

Example: If you're running a development environment that experiences low traffic during non-working hours, consider using smaller instance sizes or scheduling instance shutdowns during off-peak times to reduce costs.

Price Calculation:

EC2 Instance Savings Plans rate for c5.9xlarge in the Asia Pacific (Mumbai) for 3 Year term and No Upfront is 0.661 USD

- Hours in the commitment: 365 days * 24 hours * 3 year = 26280.0000 hours
- Total Commitment: 0.661 USD * 26280 hours = 17371.0800 USD

EC2 Instance Savings Plans rate for c5.large in the Asia Pacific (Mumbai) for 3 Year term and No Upfront is 0.037 USD

- Hours in the commitment: 365 days * 24 hours * 3 year = 26280.0000 hours
- Total Commitment: 0.037 USD * 26280 hours = 972.3600 USD

If We change the Ec2 Instance type c5.9xlarge to c5large then we save:

Total save= 17371.0800 USD - 972.3600 USD= 16 398.72 U.S. D

Monitoring Usage:

Regularly monitor your AWS usage and spending patterns using AWS Cost Explorer, AWS Budgets, or third-party cost management tools. Set up cost allocation tags to track spending by project, team, or environment.

Example: Set up a daily or weekly email alert to notify your team when spending exceeds predefined thresholds, allowing for timely cost management actions.

Utilize Reserved Instances (RIs):

Purchase Reserved Instances for predictable workloads with steady usage patterns. RIs offer significant discounts compared to On-Demand instances and can result in substantial cost savings over time.

Example: Analyze historical usage data to identify instances that have consistent usage patterns and commit to purchasing RIs for those instances to maximize savings.

Price Calculation:

Total cost for c5large instance for a month is

- On-Demand instance hours: 730
- 730 On-Demand instance hours x 0.085 USD = 62.5 USD*6 instances =375 U.S.D
- On-Demand instances (monthly): 375 USD

If we use reserved instance of c5large

- 6 instances x 730 hours in a month = 4380 EC2 Instance Savings Plans instance hours per month
- 4380 EC2 Instance Savings Plans instance hours per month x 0.037000 USD = 162.060000 USD
- Normalized EC2 Instance Savings Plans instances (monthly): 162.060000 USD

- 1877.1429 On-Demand instance hours per month x 0.085000 USD = 159.557147 USD
- On-Demand (monthly): 159.557147 USD
- 159.557147 USD On-Demand (monthly) + 162.060000 USD Normalized EC2 Instance Savings Plans instances (monthly) = 321.617147 USD
- Total cost (monthly): 321.617147 USD

Save will be: 375 USD- 321.617147 USD=53.38 U.S.D

Utilize Spot Instances:

Leverage Spot Instances for fault-tolerant and flexible workloads at significantly lower costs compared to On-Demand instances. Use Spot Fleet or AWS Batch to manage Spot Instances effectively.

Example: Use Spot Instances for batch processing, data analysis, or rendering tasks that can tolerate interruptions and have flexible start times.

If we use m5.2xlarge on demand monthly cost would be:

- On-Demand instance hours: 706.1012
- 706.1012 On-Demand instance hours x 0.404 USD = 285.264885 USD
- On-Demand instances (monthly): 285.264885 USD

If we use spot instance the monthly would be:

- On-Demand instance hours: 706.1012
- 706.1012 On-Demand instances hours x 0.404 USD = 285.264885 USD
- 285.264885 USD - (285.264885 USD x 0.6) = 114.105954 USD
- Spot instances (monthly): 114.105954 USD

Total save = 285.264885 USD- 114.105954 USD= 171.15 U.S.D

Implement Auto Scaling:

Set up Auto Scaling to automatically adjust the number of instances based on demand. This ensures optimal resource utilization and eliminates the need to manually provision or de-provision instances.

Example: Configure Auto Scaling policies to scale out during peak hours and scale in during periods of low demand, dynamically adjusting capacity to match workload requirements.

Optimize Cloud Storage:

Review your S3 storage usage and implement lifecycle policies to transition infrequently accessed data to cheaper storage tiers like S3 Glacier or S3 Intelligent-Tiering.

Example: Configure lifecycle policies to automatically move objects to Glacier storage after 30 days of inactivity, reducing storage costs while maintaining data accessibility.

Leverage AWS Free Tier:

Take advantage of the AWS Free Tier to explore and experiment with AWS services without incurring costs. This includes free usage of many AWS services for the first 12 months.

Example: Use the AWS Free Tier to launch a test environment for a new application or to learn about AWS services like Amazon EC2, Amazon RDS, and Amazon S3 at no cost.

Continuous Monitoring and Analysis:

Continuously monitor and analyze your AWS costs using AWS Cost Explorer, AWS Trusted Advisor, or third-party cost management solutions. Regularly review cost optimization recommendations and take action to implement them.

Example: Schedule monthly cost optimization meetings to review spending trends, identify cost-saving opportunities, and implement optimization strategies based on the latest recommendations