MONITORING COST IN AWS

Contents

Monitoring Cost and Usage:

To perform Monitoring of Cost and Usage, there are several services that handle this. I will provide a quick explanation along with an illustrative example for each service, followed by a comparison between them, and I will share my opinion on which I believe we should use.

1) AWS Budgets:

AWS Budgets allows users to set custom budgets for monitoring costs or usage over specific time periods (monthly, yearly, etc.). It provides proactive alerts when spending reaches set thresholds (e.g., 80% and 100%) and offers future cost forecasts. Budgets can be created for specific services, and daily updates are provided to track expenses against the budget.

Use Case:

A company sets a monthly budget of $5,000 for its AWS services. Using AWS Budgets, they configure alerts to notify the finance team when their spending reaches 80% ($4,000) and 100% of the budget. This helps the team take action to avoid exceeding the allocated budget and better plan future usage or optimize costs. Additionally, the company uses the service to monitor specific costs, such as EC2 instances or EKS, ensuring they stay within budget for each service.

2) CloudWatch (Billing Metrics & Alarms):

CloudWatch (Billing Metrics & Alarms) is used for real-time monitoring of AWS spending by tracking billing metrics. It allows users to set alarms that trigger instant alerts when costs exceed a certain threshold. This service is designed for immediate cost monitoring, providing real-time updates without advanced forecasting. It helps users keep track of current spending and take immediate action when necessary to avoid unexpected charges.

Use Case:

A company experiences a DDoS attack, causing an unexpected spike in AWS resource usage (e.g., EC2 instances, data transfer). To avoid excessive costs, they set up CloudWatch Billing Alarms to monitor real-time spending. When the attack drives their daily expenses above a set threshold (e.g., $500), an alarm is

triggered, notifying the security team. The team can then take immediate action, such as identifying and mitigating the attack or shutting down compromised resources, helping to prevent both financial loss and further damage.

3) Cost Anomaly Detection:

helps identify unusual or unexpected spending patterns in your AWS usage by using machine learning to analyze historical billing data. It automatically detects anomalies, such as sudden cost increases or decreases, and notifies you when such irregularities occur. This tool is designed to catch unexpected spikes in spending based on past usage trends, allowing proactive measures to prevent unnecessary costs.

Use Case:

After a sudden and unexpected surge in AWS costs, which could indicate a potential security breach or attack, Cost Anomaly Detection triggers an alert. The security team is immediately notified of the anomaly, allowing them to investigate the issue, identify compromised resources, and take swift action to mitigate the impact and prevent further financial and security risks.

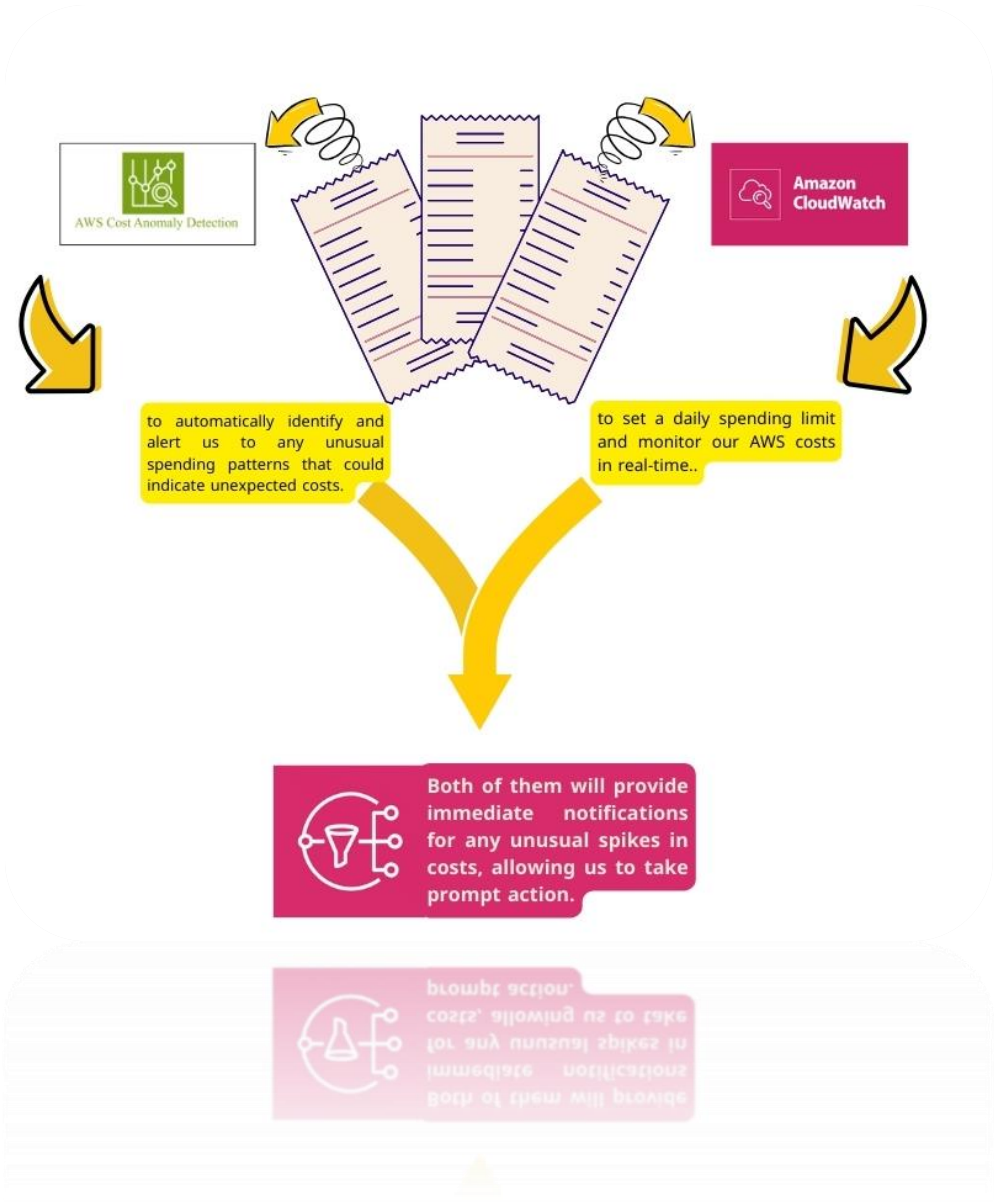
Summary Table: Monitoring Cost and Usage Services:

	AWS Budgets	CloudWatch (Billing Metrics & Alarms)	Cost Anomaly Detection
Purpose	allows you to create custom budgets to monitor costs or usage over specific time periods (monthly, yearly, etc.) and receive alerts when spending exceeds the set budget.	used to monitor real-time AWS spending by tracking billing metrics and creating alarms based on those metrics.	helps identify unusual or unexpected spending patterns in your AWS usage.
Monitoring Type	Designed for long-term budget monitoring with proactive alerts and future cost forecasts.	Designed for real-time cost monitoring with immediate alerts when costs surpass a certain threshold.	uses machine learning to automatically detect anomalies in your spending by analyzing historical billing data.
Alerts	Custom alerts based on percentage of the budget (e.g., when reaching 80% or 100% of the budget).	Instant alerts based on real-time metrics (e.g., if spending exceeds a set amount).	Notifies you when there's a sudden cost increase or decrease.
Analysis	Provides customized alerts and analysis for future usage.	Focuses on real-time monitoring without advanced forecasting features.	Detects anomalies based on past usage trends.
Features	Budgets can be created for specific services. Once a budget is set, AWS Budgets will monitor it and provide daily updates, tracking how close we are to exceeding the budget.	real-time updates on your AWS spending	machine learning to catch unexpected spikes in spending automatically.

What do I suggest to use?

In our situation, we need a daily security alert if we exceed the set spending threshold to monitor unusual activities, such as potential hacking attempts or other issues that could result in significant costs. Additionally, we require continuous budget monitoring and notifications for any irregularities, including sudden increases or decreases in spending. Based on the analysis of previous billing history's, I recommend using

for real-time cost monitoring and **Cost Anomaly Detection** for identifying unexpected spending patterns.



REFERENCES:

1- How To Enable Billing Alerts to Monitor our Estimated AWS Charges Using **CloudWatch**:

- https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/gs_monitor_estimated_charges_with_cloudwatch.html#gs_turning_on_billing_metrics
- https://youtu.be/bxtl20CvEjo?si=vjTkdDkeARWLXOs1

2- How to detect unusual spend or runaway costs with **AWS Cost Anomaly Detection**:

- https://youtu.be/fUDXDRY1_14?si=jvcXz-wZjV6glSEm
- https://docs.aws.amazon.com/cost-management/latest/userguide/getting-started-ad.html#create-ad-alerts