**MONITORING AND ANALYTICS**

**Amazon CloudWatch**

Amazon CloudWatch is a web service that enables you to monitor and manage various metrics and configure alarm actions based on data from those metrics.

CloudWatch uses **metrics** to represent the data points for your resources. AWS services send metrics to CloudWatch. CloudWatch then uses these metrics to create graphs automatically that show how performance has changed over time.

* Access all your metrics from a central location.
* Gain visibility into your applications, infrastructure and services.
* you can reduce mean time to resolution, or MTTR, and improve total cost of ownership, or TCO.
* Drive insights to optimise applications and operational resources.

**CloudWatch Alarms**

create alarms that automatically perform actions if the value of your metric has gone above or below a predefined threshold.

CloudWatch alarm that automatically stops an Amazon EC2 instance when the CPU utilisation percentage has remained below a certain threshold for a specified period. When configuring the alarm, you can specify to receive a notification whenever this alarm is triggered

**CloudWatch Dashboard**

The CloudWatch dashboard feature enables you to access all the metrics for your resources from a single location. For example, you can use a CloudWatch dashboard to monitor the CPU utilisation of an Amazon EC2 instance, the total number of requests made to an Amazon S3 bucket, and more. You can even customise separate dashboards for different business purposes, applications, or resources.

**AWS CloudTrail**

AWS CloudTrail records API calls for your account. The recorded information includes the identity of the API caller, the time of the API call, the source IP address of the API caller, and more. You can think of CloudTrail as a “trail” of breadcrumbs (or a log of actions) that someone has left behind them.

Recall that you can use API calls to provision, manage, and configure your AWS resources. With CloudTrail, you can view a complete history of user activity and API calls for your applications and resources.

Events are typically updated in CloudTrail within 15 minutes after an API call. You can filter events by specifying the time and date that an API call occurred, the user who requested the action, the type of resource that was involved in the API call, and more.

**CloudTrail Insights**

Within CloudTrail, you can also enable CloudTrail Insights. This optional feature allows CloudTrail to automatically detect unusual API activities in your AWS account.

**AWS Trusted Advisor**

Five pillars

* Cost optimisation
* Performance
* Security
* Fault tolerance
* Service limits

AWS Trusted Advisor is a web service that inspects your AWS environment and provides real-time recommendations in accordance with AWS best practices.

Trusted Advisor compares its findings to AWS best practices in five categories: cost optimization, performance, security, fault tolerance, and service limits. For the checks in each category, Trusted Advisor offers a list of recommended actions and additional resources to learn more about AWS best practices.

**AWS Trusted Advisor dashboard**

* **The green check indicates the number of items for which it detected no problems.**
* **The orange triangle represents the number of recommended investigations.**
* **The red circle represents the number of recommended actions.**