Day 21/100 Cloud Monitoring

Amazon CloudWatch Metrics:
- CloudWatch Provides metrics for every services in AWS.
- Metric is a variable to monitor (CPU Utilization, Network th...)
- Metrics have timestamps.
- Can Create CloudWatch dashboards of metrics

⇒ Important Metrics:
- EC2 instances: CPU Utilization, Status Checks, Network (not RAM)

  - Default metrics every 5 minutes
  - option for Detailed Monitoring ($$$): metrics every one (1) min.
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- EBS volumes: Disk Read/Writes
- S3 buckets: BucketSizeBytes, NumberOfObjects, AllRequests
- Billing: Total Estimated Charge (only in US-east-1)
- Service Limit: how much you've been using a service API
- Custom Metrics: Push Your own metrics.

Amazon CloudWatch Alarms
- Alarms are used to trigger notification for any metric

- Alarms actions...
  - Auto Scaling: increase or decrease EC2 instances "desired" Count.
  - EC2 Actions: Stop, terminate, reboot or recover on EC2 instance
  - SNS notification: send a notification into on SNS topic.

- Various options (sampling!, max, min etc.)
- Can choose the period on which to evaluate an alarm
- Example: create a billing alarm on the CloudWatch Billing metric.
- Alarm States: OK, INSUFFICIENT_DATA, ALARM

Amazon CloudWatch Logs

- CloudWatch Log can collect Log from:
  - Elastic Beanstalk: Collection of logs from application
  - ECS: Collection from Containers
  - AWS Lambda: Collection from function logs
  - CloudTrail based on filter.
  - CloudWatch log agent: on EC2 machines or on-premises servers
  - Route53: Log DNS queries.

- Enables real-time monitoring of logs.
- Adjustable Cloudwatch log retention.

Cloudwatch Logs for EC2.

- By default no logs from your EC2 instance will go to Cloudwatch.
- You need to run a Cloudwatch agent on EC2 to push the log files you want.
- Make sure IAM permissions are correct
- The cloudwatch log agent can be setup on-premises too.

Amazon Cloudwatch Events ⟹

- Schedule: Cron Jobs (Scheduled scripts)

  Schedule Every hour ⟹ (a) Trigger script on Lambda function

- Event Pattern Event rules to react to a service doing something

IAM Root User Sign in Event ⟹ [Email] SNS topic with Gmail Notif.

- Trigger Lambda function, send SQS/SNS messages

- EventBridge is the next evolution of cloudwatch Event
- Default event bus: generated by AWS services (cloudwatch Events)

- Partner Event bus: receive events from Saas service or applications [Zendesk, DataDog, Segment, AuthO....]

- Custom Event Buses : for your own applicm

- Schema Registry: Model Event Schema

- EventBridge has a different name to mark the new Capabilities.

- The cloudWatch Events name will be replace with EventBridge