Variation Study Notes

Andrew Brown

Cloud Services

Many AWS cloud services have similar names but completely different services.

Types of Services:

- CloudFormation: Infrastructure as code, set up services via templating script like yaml or json.
- CloudTrail: logs all api calls between AWS services
- CloudFront: Content Distribution Network. It creates a cached copy of your website and copies to servers located near people trying to download a website.
- CloudWatch: is a collection of multiple services
  - CloudWatch Logs: any custom log data, memory usage, Rails logs or Nginx logs
  - CloudWatch Metrics: metrics that are based off of logs like memory usage.
  - CloudWatch Events: trigger an event based on a condition like "Every hour take a snapshot of the server"
  - CloudWatch Alarms: triggers notifications based on metrics
  - CloudWatch Dashboard: create visualizations based on metrics
- CloudSearch: search engine used for sites like an e-commerce website that you want to add a search input too.

SNS vs SES

Both ways to send email with differing capabilities.

Simple Notification Service (SNS):

- send notifications to subscribers of topics via multiple protocol
- SNS is generally used for sending plain text emails which is triggered via other AWS services. The best example is billing alarms.
- The AWS SNS Topic resource creates a topic to which notifications can be published.
- The AWS SNS Subscription resource subscribes an endpoint to an Amazon Simple Notification Service (Amazon SNS) topic. For a subscription to be created, the owner of the endpoint must confirm the subscription.

Simple Email Service (SES):

- a cloud based service like SendGrid
- SES sends html emails which SNS cannot
- SES can receive inbound emails
- SES can create Email Templates
- You can have a custom domain email name
- You can monitor your email reputation

Amazon Inspector vs AWS Trusted Advisor

Both are security tools that perform audits.

Amazon Inspector:

- audits a single EC2 instance that your selected
- generates a report from a long list of security checks

AWS Trusted Advisor:

- Trusted advisor doesn't generate a PDF report
- It gives you a holistic view of recommendations across multiple services and best practices

Examples

- You have open ports on these security groups
- You should enable MFA on your root account when using trusted advisor

AWS Artifact vs Amazon Inspector

AWS Artifact and Amazon Inspector both compile out PDFs

AWS Artifact:

- Generates a security report that's based on global compliance frameworks such as:
  - Service Organization Control (SOC)
  - Payment Card Industry (PCI)

AWS Inspector:

- Runs a script that analyzes your EC2 instance, then generates a PDF report telling you which security checks passed.
- It is an Audit tool for security of EC2 instances

Connect Services

There are **3 AWS services** with connect in the name.

Differences:

- **Direct Connect:** Dedicated Fiber Optics from DataCenter to AWS **Examples:**

  - A large enterprise has their own datacenter and they need a fast connection directly to AWS.
  - If you need the security you can add a VPN connect on-top of Direct Connect
- **Amazon Connect:** Call Center Service

  Get a toll free number, accept inbound and outbound calls, and/or set up automated phone systems

- **Media Connect:** New Version of Elastic Transcoder, Converts videos to different video types.

  Uses: You have 1000 videos and you need to transcode them into different video formats, apply watermarks or insert introduction videos to the front of every video.

Elastic Transcoder vs MediaConvert

Both services transcode videos

Transcoding: is the conversion from one digital encoding format to another, such as for movie data files.

Elastic Transcoder: *Older way*

- Transcodes videos to streaming formats

AWS Elemental MediaConvert: *Newer way*

- Transcodes videos to streaming formats
- Overlays images
- inserts videos clips
- Extracts captions data
- Robust UI

Application Load Balancer (ALB) vs Network Load Balancer(NLB) vs Classic Load Balancer (CLB)

Application:

- Layer 7 requests
- HTTP and HTTPS traffic
- Routing Rules with more usability from on load balancer
- Can attach WAF

Network:

- Layer 4 IP protocol data
- TCP and TLS traffic where extreme performance is required
- Capable of handling millions of requests per second while maintaining ultra-low latencies
- optimized for sudden and volatile traffic patterns while using single static ip address per Availability Zone

Classic:

- Layer 4 and 7
- Intended for applications that were built within the EC2 Classic Network
- Doesn't use Target Groups

Simple Notification Service (SNS) vs Simple Queue Service (SQS)

They both connect apps via messages

Simple Notification Service (SNS):

- send notifications to subscribers of topics via multiple protocol
- SNS is generally used for sending plain text emails which is triggered via other AWS services. The best example is billing alarms.
- Can retry sending in case of failure for HTTPS
- Good for webhooks, simple internal emails, and triggering lambda functions

Simple Queue Service (SQS):

- Places messages into a queue that applications can pull from using AWS SDK
- Can retain message for up to 14 days
- Can send them in sequential order or in parallel
- Can ensure only one message is sent
- Can ensure messages are delivered at least once
- Good for delayed tasks and queueing up emails