

## AWS Global Infrastructure

Saturday, February 10, 2024 4:04 PM

### Global Application:

- \* An application deployed in multiple regions
- \* Gives decreased latency.
- \* Disaster Recovery (DR)
- \* Attack protection: harder to attack.

### Amazon Route 53:

- \* A Managed DNS (Domain Name System)
- \* DNS is a collection of rules and records which helps clients understand how to reach a server through URLs.

### Routing Policies:

- \* Simple Routing Policy:
  - No health checks
  - Simple & basic routing
- \* Weighted Routing Policy:
  - Traffic is distributed to multiple EC2 instances and weights are assigned to them.
  - We can use health checks
- \* Latency Routing Policy:
  - Route 53 is used to minimize the latency for clients by connecting them to the closest server - Can do health checks.
- \* Failover Routing Policies:
  - Route 53 checks the health of the primary instance and if any issue, it routes to the failover.
  - Helps in disaster recovery.

### CloudFront:

- \* Content Delivery Network (CDN)
- \* Improves read performance, content is cached at edge locations.
- \* Minimizes the latency and improves user experience.
- \* 216 Point of presence globally - edge locations.
- \* DDoS protection, integration with shield, AWS Web Application Firewall.

### CloudFront Origins:

- \* S3 Bucket:
  - \* For distributing files & caching them at edge.
  - \* Enhanced security with OAC - Origin Access Control.
- \* Custom Origin (HTTP)
  - \* Application Load Balancer
  - \* EC2 instance
  - \* S3 Website

### S3 Transfer Acceleration:

- \* Increases transfer speed by transferring file to an AWS edge location which will forward the data to S3 bucket in the target region.

### AWS Global Accelerator:

- \* Improves global application availability and performance using AWS global network
- \* Similar to Cloudfront but it does not cache/store at edge.

### AWS Outposts:

- \* For those who need On-premises infrastructure alongside a cloud, AWS Outposts are "Server Racks" that offer same infrastructure as cloud.
- \* AWS will setup & manage the Outpost Racks, but security is ours.
- \* Basically, it extends the cloud by setting up On-premises.

### AWS Wavelength:

- \* Wavelength zones are infrastructure deployments - embedded with telecom providers at the edge of 5G networks.
- \* Basically, brings AWS services to the edge of 5G networks.
- \* Ultra low latency & No additional charges or service agreements.

### AWS Local Zones:

- \* It places AWS services closer to end users to run low latency.
- \* Extends the VPC to more regions - extension of an AWS region.

Example: AWS Region → N. Virginia  
AWS Local Zones → Boston, Chicago, Houston, Miami, Dallas.

### Cloud Integrations:

Communication between two/more apps.

### SQS:

- \* SQS → Simple Queue Service
- \* Used to decouple applications - fully managed service & servers
- \* No limit of queue and scales from 1 message/sec to 1000's per second.
- \* Messages are deleted after consumer reads them from queue.
- \* Low latency.
- \* Follows FIFO - First In First Out

### Kinesis:

- \* Real-time Big data streaming
- \* Managed Service.

### Amazon SNS:

- \* Pub/Sub type integration.
- \* Simple Notification Service - SNS
- \* From one sender to many receivers.

Ex: Receiving messages/notifications from YouTube for their subscribers.

### Amazon MQ:

- \* SNS & SQS are "cloud native" services
- \* Those migrating from on-premises to cloud. it is best to use Amazon MQ as it is so similar to MQ services in On-premises.

### Cloud Monitoring:

#### Amazon Cloudwatch:

- \* It provides metrics for every service
- \* Metric is a variable to monitor.
- \* Metrics have timestamps.
- \* Can create Cloudwatch dashboard for metrics.

#### Amazon Cloudwatch Alarms:

- \* Alarms are used to trigger notification for any metric based on the provided conditions.

#### CloudWatch Logs:

- \* Collects logs from services
- \* Enables real time monitoring of logs
- \* Logs Agents are used to collect logs.

#### Amazon EventBridge:

- \* Scheduling jobs/events along with the condition.

e.g: Whenever tries to sign in / signs in, we get a notification.

- \* It can be used in many services, like scheduling CRON jobs.

#### AWS CloudTrail:

- \* Provides Governance, compliance & audit for your AWS account.

- \* It is enabled by default.

- \* Gets an history of events / API calls made within your AWS account.

- \* If a resource is deleted from AWS, investigate CloudTrail first.

#### AWS XRAY:

- \* During debugging process, it is always a challenge to figure where is it failing.

- \* If the AWS Xray is enabled, it gives a visual representation of all the functions/services along with their performance and failures.

\* Helps in finding errors & exceptions.

#### CodeGuru Reviewer:

- \* ML powered service for automated code reviews and application performance recommendations.

#### Two functionalities:

- \* Identifies critical issues, security vulnerabilities and hard to find bugs.

- \* Uses ML & automated reasoning.

#### CodeGuru Profiler:

- \* Helps to understand the runtime behaviors of your application.

- \* Code inefficiencies, Decrease compute costs. Anomaly detection etc.

#### AWS Health Dashboard:

#### Service History:

- \* Health of all regions - all services are shown.

- \* Shows historical information for each day.

#### Account:

- \* Provides alerts and remedy guidance

- \* Personalized view for your services.