PART 1

> All of the infrastructure necessary running in AWS. Our tech stack is
> ● Several "macroservices" running load balanced/auto scaled with Elastic Beanstalk
> ● Several smaller services using API Gateway/Lambda
> ● Several smaller services using ECS Fargate containers
> ● RDS, ElasticSearch, DynamoDB and S3 for data stores
> ● IAM roles used for each service being utilized
> Given this macro footprint, what AWS tooling and configuration would you use to protect and monitor our AWS services? Please provide specific implementation details regarding any services or software you could recommend (how it would be configured, rolled out, etc.)

Below Tools can be implemented to protect and monitor the AWS Services:

1) AWS CloudWatch Service can be used to collect logs and data from each macro and small services and those logs can be used by any third party tool to analyze the application

2) AppOptics tool can be integrated with All our Services which takes care of pulling real-time data from AWS. We can create a dashboard to monitor the scaling and performance of our services and analyze the performance of the application with the metrics collected from AWS.

3) We can also use AppDynamics to monitor the infrastructures provisioned for our applications and optimize them wherever it is necessary.

4) Other tool which helps us in getting insights of application performance would be Nagios which lets us monitor S3 data, EC2 Volumes, Latency in the network, etc.

5) In order to monitor the performance of DB we have such as RDS, DynamoDB we can roll out Database Performance Analyzer to monitor the performance of each and every db query and optimize them based on the results provided by the tool.

6) Regarding IAM role we can use AWS provided **IAM Access Analyzer** which analyzes the IAM roles and lets us to identify unintended access to any entities. Along with IAM roles we can use IAM Access Analyzer to analyze S3 bucket access policy.

Using AppOptics to monitor AWS Services:

Install AppOptics Snap in a Separate AWS Ec2 Instance (Linux preferred)

Install Required AppOptics Agent

Install AppOptics Collectors on the server or container where our application is installed to collect metrics from the application

Using AppOptics APM select and monitor the metrics collected by each application in the AppOptics APM Dashboard.