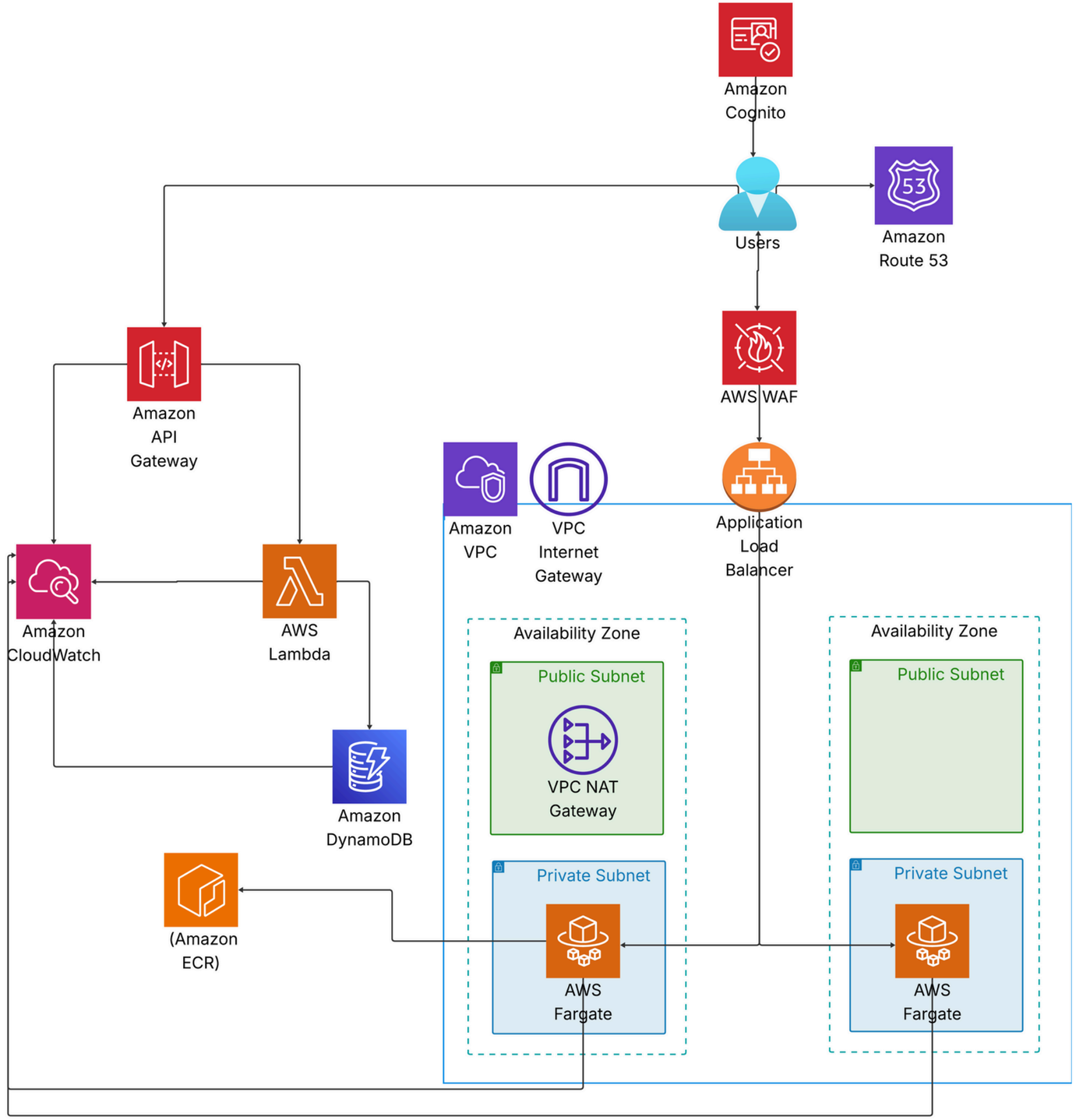
Levi9 Technology Services, Internship task 2025.

AUTOMATED DEPLOYMENT OF A FULL-STACK SERVERLESS APPLICATION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Lambda
Availability Zone
Public Subnet
VPC NAT
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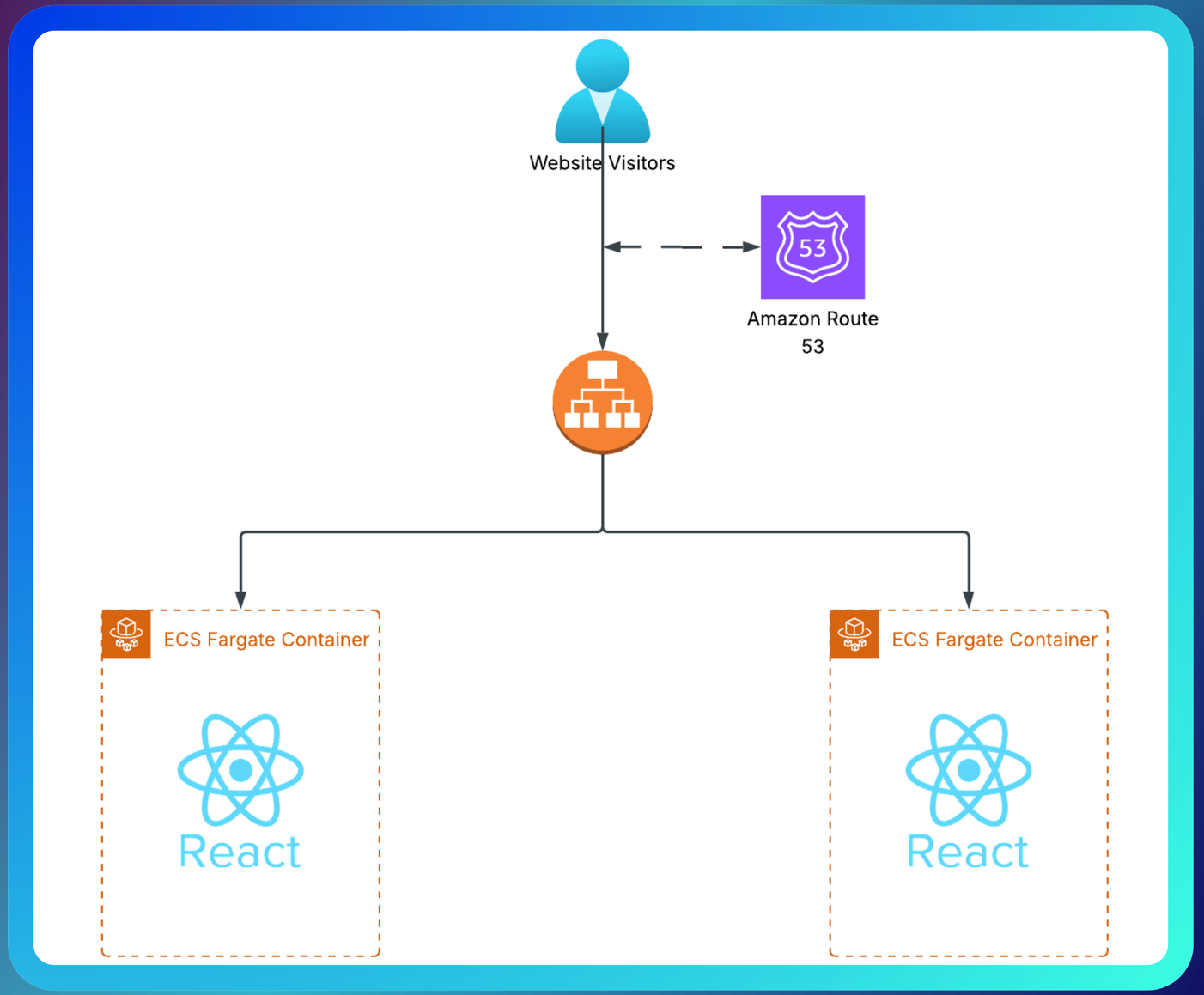
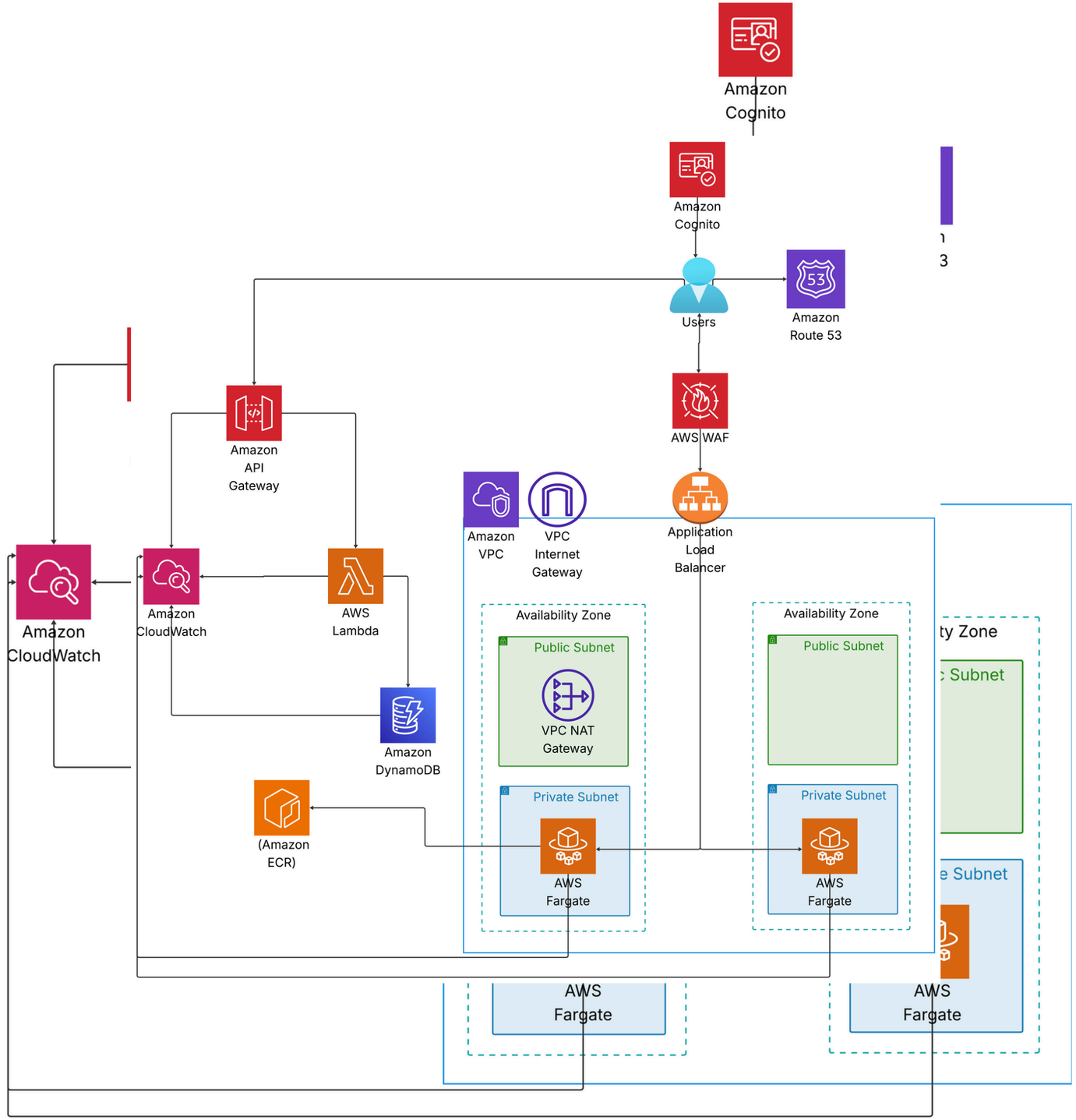
DynamoDB
Private Subnet
Private Subnet
(Amazon
ECR)
AWS
Fargate
AWS
Fargate

ECS

- AWS ECS (Elastic Container Service) is a fully managed container orchestration service
- ECS supports two launch types: **EC2** and **Fargate**
- Our application runs on Fargate containers
- Docker image is pulled from private **ECR** repository

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DOCKERFILE ENTRYPOINT SCRIPT

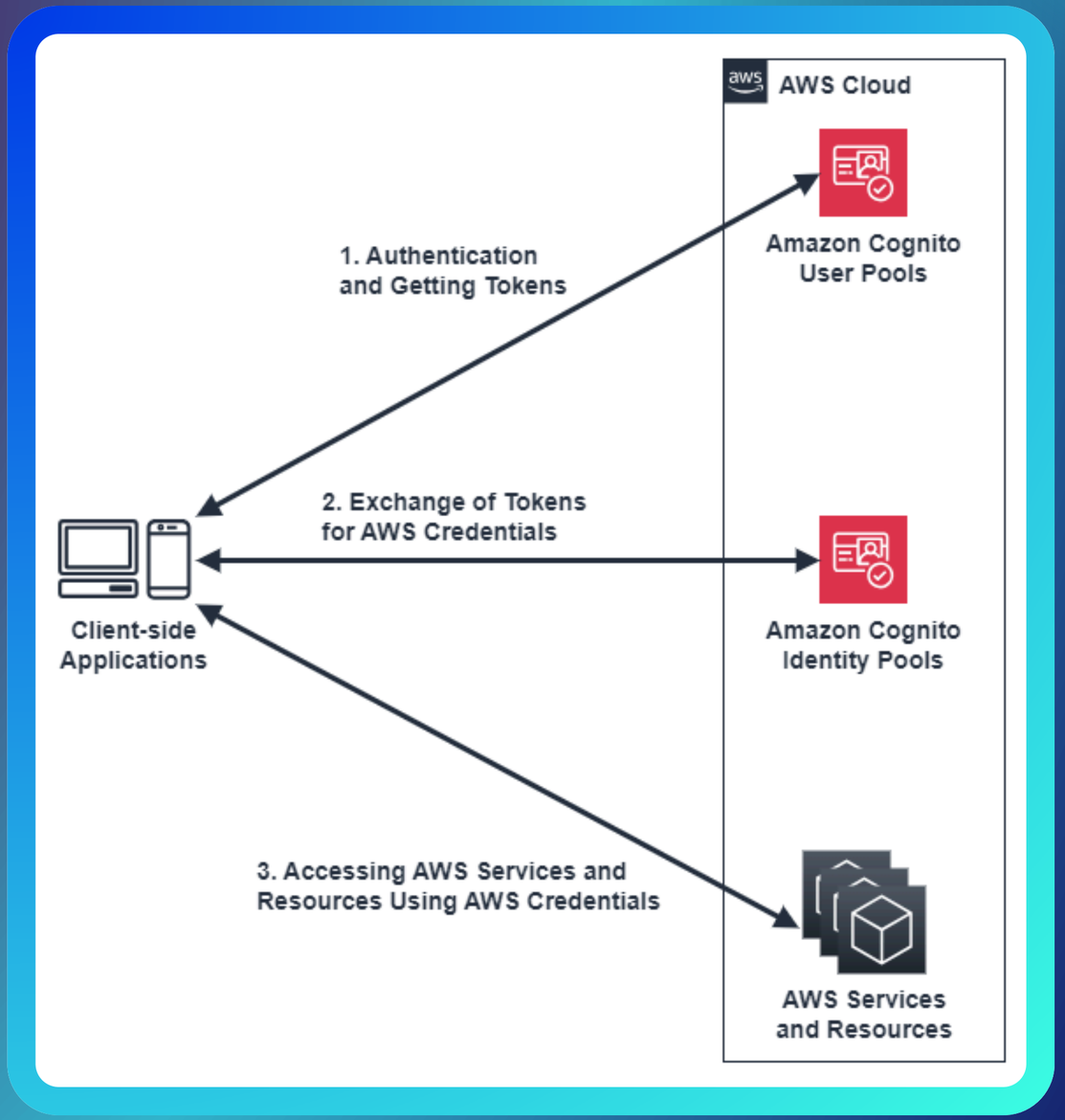
```
#!/bin/sh

JS_DIR="/usr/share/nginx/html/static/js"

API_URL_STRING="https://fjngnfrqig.execute-api.us-east-1.amazonaws.com/prod"
USER_POOL_ID_STRING="eu-west-1_oCmXg40Hj"
APP_CLIENT_ID_STRING="1lbtdpak5v3mloh3143tes7ivd"

API_URL_REPLACEMENT=${API_URL_REPLACEMENT:-$API_URL_STRING}
USER_POOL_ID_REPLACEMENT=${USER_POOL_ID_REPLACEMENT:-$USER_POOL_ID_STRING}
APP_CLIENT_ID_REPLACEMENT=${APP_CLIENT_ID_REPLACEMENT:-$APP_CLIENT_ID_STRING}

for file in $JS_DIR/*.js; do
    echo "Replacing URL in $file..."

    sed -i "s|$API_URL_STRING|$API_URL_REPLACEMENT|g" "$file"
    sed -i "s|$USER_POOL_ID_STRING|$USER_POOL_ID_REPLACEMENT|g" "$file"
    sed -i "s|$APP_CLIENT_ID_STRING|$APP_CLIENT_ID_REPLACEMENT|g" "$file"
done

echo "Starting Nginx..."
exec "$@"
```

COGNITO

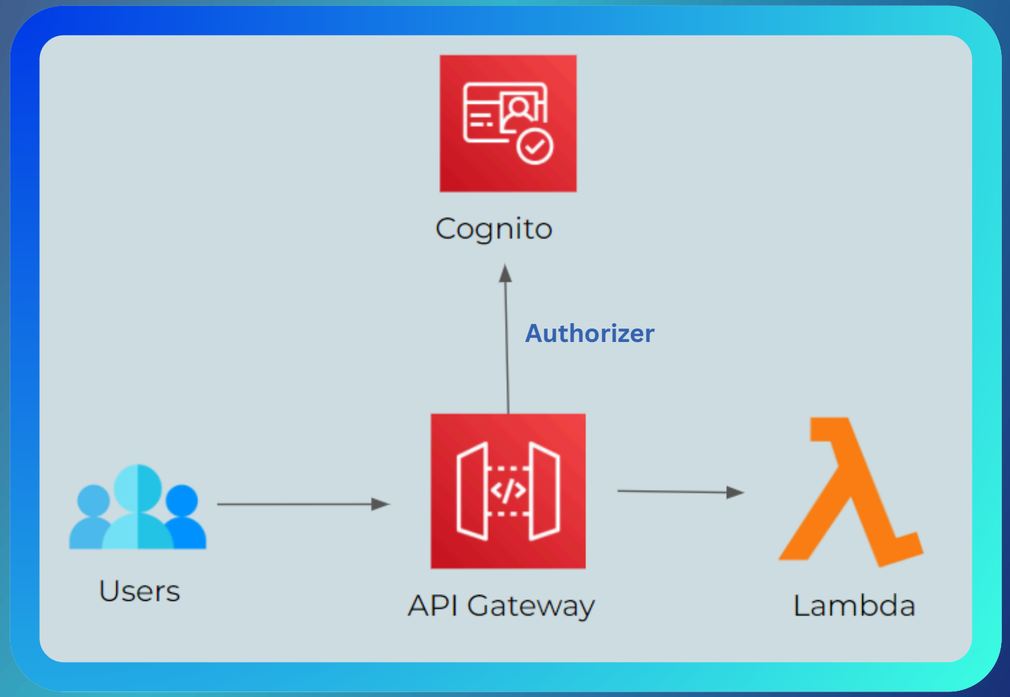
- Fully managed identity service for web and mobile applications

- User pool - User directory to manage user registration and authentication
- Supports customizable sign-up/sign-in workflows

- Applications must connect through App Clients (trusted application in Cognito)



COGNITO AUTHORIZER



API GATEWAY

API Gateway routes client HTTP requests to AWS services like Lambda, acting as a secure, scalable front door for applications.

Lambda Integration allows API Gateway to forward authenticated requests to serverless backend functions for processing.

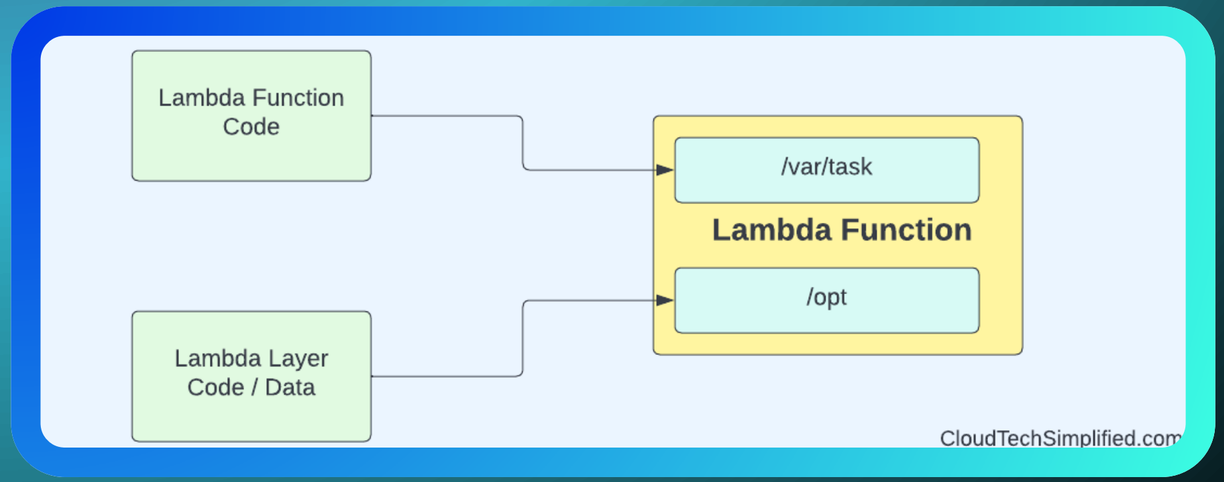
IAM ROLES

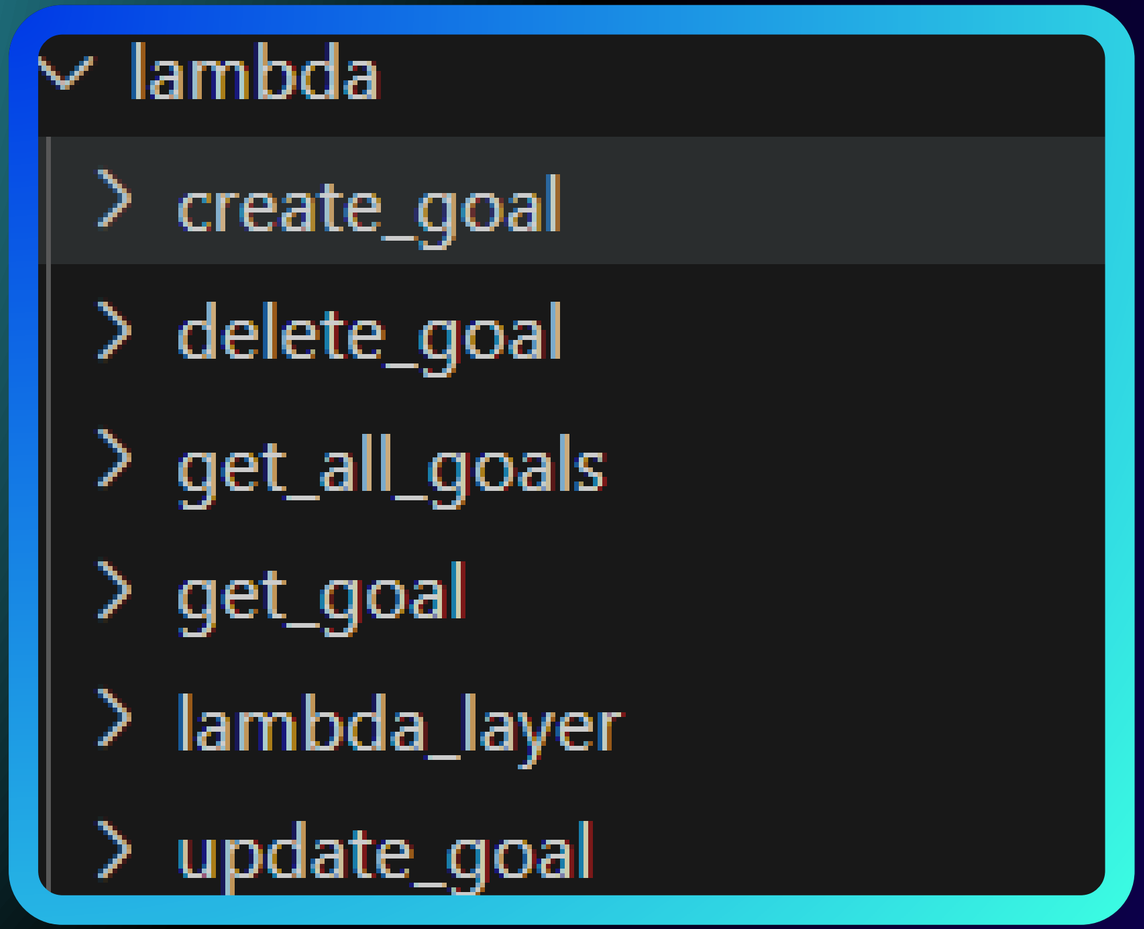
IAM roles securely grant AWS services the exact access they need without hardcoding credentials.

Gave Lambda permissions to access DynamoDB, and Fargate permissions to pull images from ECR.

LAMBDA FUNCTIONS

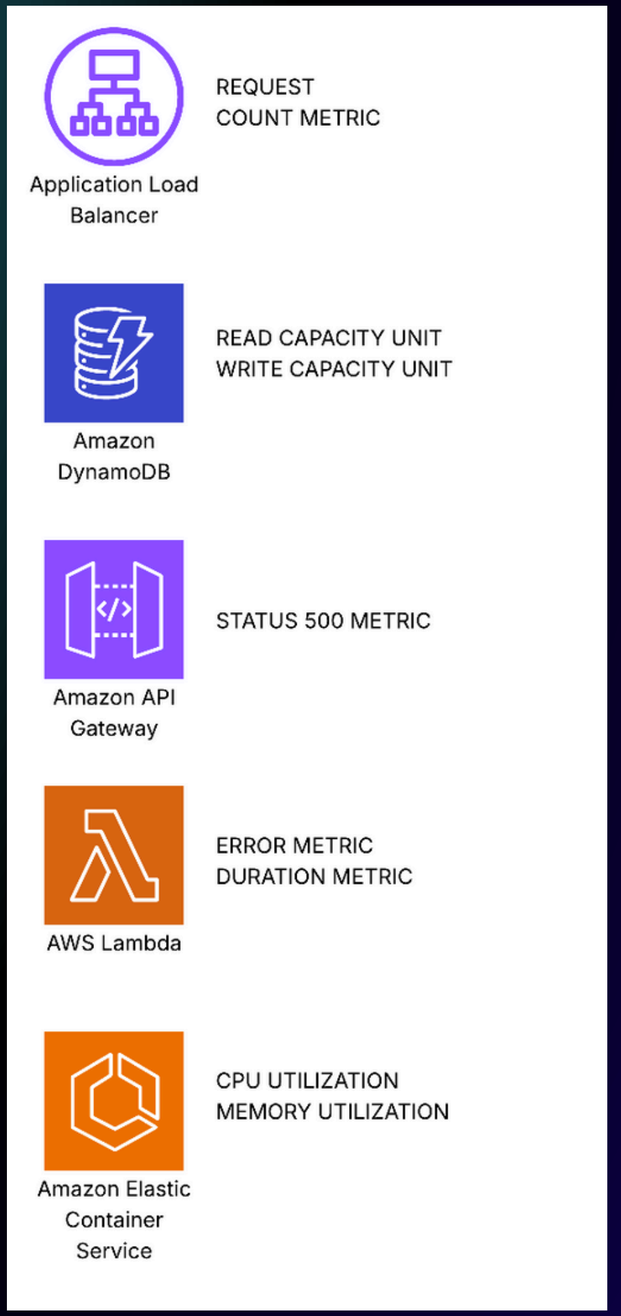
AWS Lambda: Serverless service to run code on demand, automatically scaling with no server management.





MONITORING CLOUDWATCH

Monitoring is important because it enables the tracking of progress, identification of issues, and ensures that goals are being met effectively and efficiently.



AWS CODEPIPELINE