

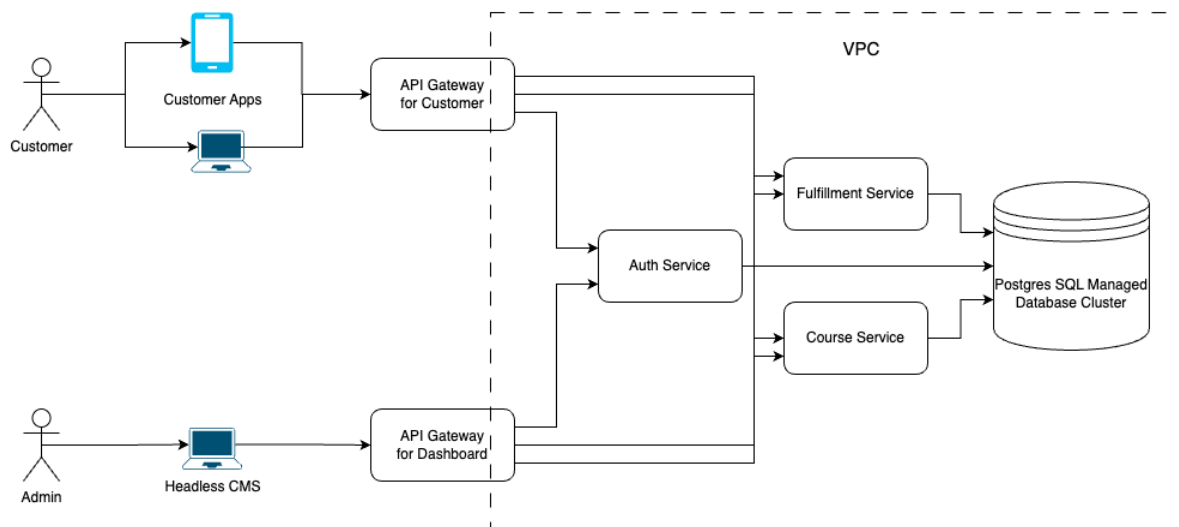
Tech Test - Erzha

Context

Perusahaan edutech membutuhkan fitur e-commerce sederhana untuk enrollment user.

1. User dapat membeli / enroll sebuah course dan list courses akan tampil di dashboard mereka
2. Scallable (dapat menangani ribuan transaksi dalam satu waktu)
3. Cost effective (ketika traffic / transaksi rendah tidak membutuhkan biaya server yang tinggi)
4. Saat traffic / transaksi tinggi, tidak mengganggu aktifitas administratif (publish course / report .dll)
5. Headless, frontend akan mengakses data melalui rest api

System Design



Details (Microservices Approach)

Services:

1. API Gateway is the only service that have expose their endpoint to public (every request from Customer/Admin will start from there and then processed through VPC)
- **Security**
2. API Gateway service is nodejs apps, can use either HTTP Rest API or GraphQL to add more benefit on client - **Flexibility**
3. All services is containerized apps, can deploy on (options):

- a. AWS App Runner or AWS Fargate
The difference is AWS App Runner have capability to build container. The other is mostly have same feature (have capability for Auto Deployment, Load Balancing, Auto Scaling) - **Scalability and Cost Effective**
 - b. GCP App Engine or GCP Cloud Run
The difference ism GCP App Engine have capability to build container. The other is mostly have same feature (have capability for Auto Deployment, Load Balancing, Auto Scaling) - **Scalability and Cost Effective**
4. All services except API Gateway is preferred to use gRPC for speeding up the request process - **Performance**

Managed Database Cluster

Products available: AWS Amazon Aurora, AWS Amazon RDS, GCP Cloud SQL

Managed database can bring many benefit to scalable system:

- 1. Auto scale the read-only replica DB
- 2. Auto deploy replica to various zone in same region to achieve High Availability
- 3. Auto backup with retention

Service Description

- 1. API Gateway
Public Endpoint, contain the API that can use for accessing apps or dashboard feature.
- 2. Auth Service
Handle Auth and User Domain like Login, Verification, and Profile
- 3. Course Service
Handle Course Domain like Course Catalog, User Course Enrollment, User Course Result
- 4. Fulfillment Service
Handle Course Enrollment Transaction Domain like Order, Invoicing, Payment Gateway Integration