Kubernetes Extender to API Gateway (KEA)

Task 3

Project statement

Product provides extension of the existing ingress implementation in Kubernetes using Custom Resource Definitions (CRDs) and automatic generation of the OpenAPI scheme from source code.
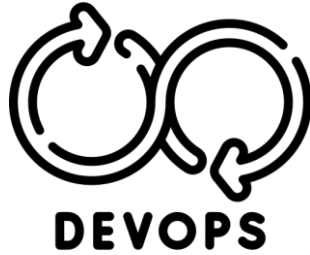The main features are:

- Single Sign-On
- Automatic OpenAPI scheme generation
- Request validation
- Response caching

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Project repo: https://github.com/fanglores/Advanced-Software-Design

This report: here

Roles

DevOps

Described products will benefit mostly for DevOps role. That role assume handling and managing Kubernetes cluster. They will have to configure particular .
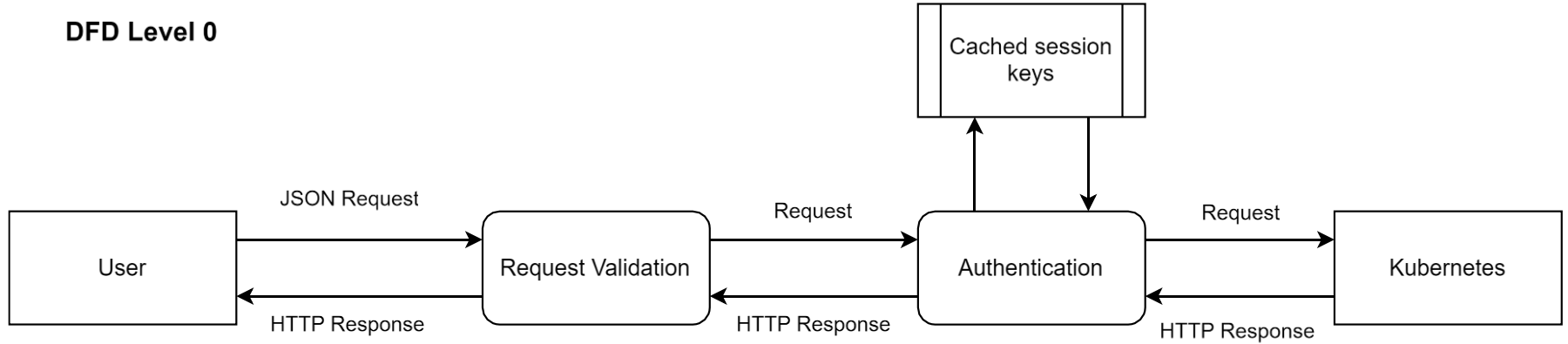
Developer

Developer will access API Gateway and OpenAPI scheme to develop and integrate new features into existing.

DFD (Level 0)

DFD Level 0

Story map

Developer
Implement new service that will work with existing ingress proxy

Learn requirements and interfaces	Implement suitable solution

Research documentation	Create API scheme	Develop a service	Integrate into existing ingress point

Automatic OpenAPI scheme generation	Easy to define CRDs	API Gateway, extending ingress proxy

DevOps
Configure new clusters easily

Configure system params and access	Implement monitoring

Create Role-Based Access Model	Integrate authentification mechnisms	Implement traffic monitoring	Add request validation

RBAC based on CRDs	Single Sing-On	Monitoring based on CRDs	Request Validation based on CRDs

Response Caching