CS 590-Software Architecture

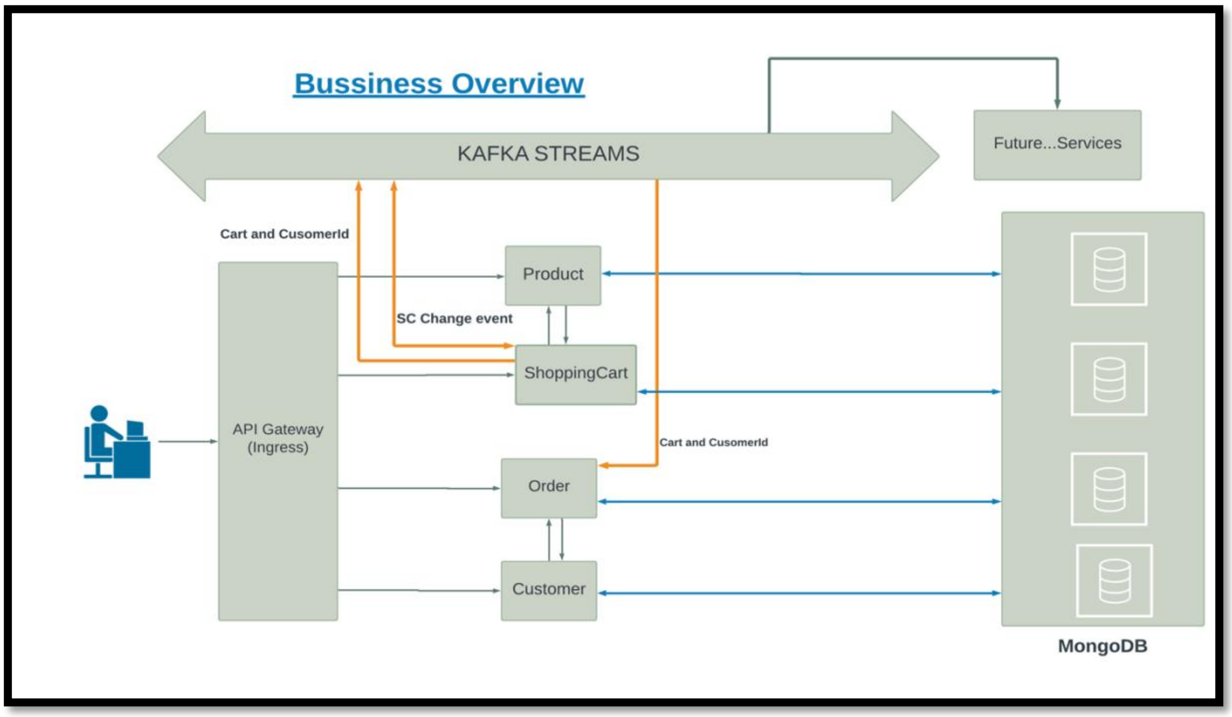
MIU University

This project Handed to:
Prof. Anthony Sander

Date Handed:
22nd October 2021

Group Members Name:
Ghidiom Nugusse, #612729
Samuael Melake, #612798
Yafiet Weldegabir, #612758
Meron Tedros, #612760

System Design:



Business Logic:

A Client (without registering to the system) can see all the products and add them to shopping cart. When the client wants to place an order, he/she needs to register with the system. In addition to that the customer can update the shopping cart, but if he/she want to add extra products there will be a communication with the product via the Feign client, so that the customer can see the actual quantity availability of a product. However, there are some sub processes the application needs to execute before confirming the final shopping cart requested by the client. For instance, the application checks if there is enough quantity of products requested by the client in the repository. Hence, if that is not enough number of products available, it will notify him/her that there is not enough supply of products available within our service and recommend on making acceptable orders. Furthermore, when a client places an order, the customer id is attached with the shopping cart details and is sent to order using KAFKA. Order gets customer derails by requesting customer service via Feign Client request and order is created and saved. Finally, the system directly notifies the client through email address.

Meeting function and NFR:

Customer Service

	Method	End Point
1. Customer-POST-Add-New	POST	35.201.79.214/customer/add
2. Customer-UPDATE	PUT	35.201.79.214/customer/update
3. Customer-GET-By-Id	GET	35.201.79.214/customer/get/{id}

Product Service

	Method	End Point
1. Product-POST-Add-New	POST	http://35.201.79.214/product/add
2. Product-GET-By-Id	GET	35.201.79.214/product/get/{id}
3. Product-UPDATE	POST	35.201.79.214/product/update
4. Product-GET-Quantity-By-Id	GET	35.201.79.214/product/getQuantity/{id}

Shopping Cart Service

	Method	End Point
1. ShoppingCart-POST-Creat Cart	POST	35.201.79.214/customer/add
2. ShoppingCart-POST-Add -Product-to-Cart	POST	35.201.79.214/shoppingCart/addProduct/{CartId}
3. ShoppingCart-POST-Change Product Quantity	POST	35.201.79.214/shoppingCart/changeQuantity/{cartId}/{prodId}/{quantity}
4. ShoppingCart-POST-Delete Product	POST	35.201.79.214/shoppingCart/removeProduct/{cartId}
5. ShoppingCart-POST-CheckOut	POST	35.201.79.214/shoppingCart/checkOut/{cartId}/{Quantiry}
6. ShoppingCart-GET-CheckOut-Cart	GET	35.201.79.214/shoppingCart/get

Order Service

	Method	End Point
1. ShoppingCart-GET-CheckOut-Cart	GET	35.201.79.214/shoppingCart/get
2. Order-getAll-Orders	GET	35.201.79.214/order/getorder
3. Order-getOrder-By-ID	GET	35.201.79.214/order/getorder/{Id}

What we will do different:

1. Redis: for shopping-cart, session and product
2. Elastic Search: for searching product using any related data of a product
3. Security: between microservices and JWT for client side
4. Add shipping, Product-Review, and payment microservices
5. Add CI-CD: Jenkins

Bonus:

- We implemented Server mesh (Isto).
- We implemented Zookeeper

Technology List:

Those are the list of technology that we have used to develop the system.

- Spring boot frameworks
- Kafka
- Docker
- Kubernetes
  - Ingress
  - Config Map
  - Secret management
  - Services, Pod, Node, and cluster
- GCP platform
- Mongo database
- FeignClient: to check product quantity if the customer wants to increase and to get customer in Order service to create an order (getCustomerById).

GitHub Source Code Link: https://github.com/Gidiom/CS590-SA-Final-Project