

Microservices - Case Study

Chandrasekar Jayaraj

Overview

CJCart is an e-commerce company that is planning to launch its services to sell products using its ecommerce platform in a state and then expand to other states in the country. They may wish to launch the following features:

1. **Product Catalogue service** that will keep track on all its products like inventory, price, location and features.
2. **Price service** that will map each of its products and its group to a seasonal price along with available coupons and reward points if any.
3. **Cart service** that will capture all of its added products along with its availability status. Maintains the persistent state based on user's login or users browsing state.
4. **Recommendation service** that will recommend similar products, product bundles, product upgrades and its accessories if any to all the items that are added into the cart.

Service details

1. Customer UI will make a call to the product service while searching for a product.
2. **Product Catalogue service** will do a search in its product database and then call the Product Price service using its product id/ product group id (for bundles). There will be an event management queue here as there may be multiple product ids to be passed.
3. **Product Price service** will retrieve the product id/product group id from the queue and make a search in its Product Price database to retrieve its seasonal price. This will include calculating any coupons and/or customer reward points redemption. This product price service will return all of the products and its price to Product Catalogue Service. There will be an event management queue here as well as there will be multiple products.

4. Customer UI will select the products and then make a call to Cart service.
5. **Cart service** will store the selected products along with its price in its Cart database against its logged in user id or browsers cookie. This service will also pass the productid, description content and product price to Recommendation service. There will be an event management queue here as there might be multiple items in the cart. This service will show the availability status of the product(s) by calling Product Catalogue service, each time when the cart has been clicked by customer UI.
6. **Recommendation service** will have an algorithm to search for product bundles, accessories for the product id and/or similar products in other brands based on products description content and price. This service will call the Product Catalogue service to retrieve the product details. There will be an event management queue here as well as there might be multiple product recommendations. This service has no persistent database.

Technical flow diagram

