Report of a System based on Microservices for a Web Market

Products and Suppliers

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1 - Application Requirements

* Enable suppliers to register their information in the system including contact information, brand details and price.
* Allow suppliers to add products to the list of products available in the marketplace.
* Offer customers (users) the ability to order products, specifying the desired quantity, brand and price range.
* Ensure secure authentication of suppliers and generation of authentication tokens.
* Maintain a record of products, their prices, brands and avaibility.

2 - System Operations

System operation can be divided into two main categories: product-related operations (Products) and supplier-related operations (Suppliers).

Operations related to Products:

* OrderProduct: Allows customers to place pdoduct orders, specifying the desired product, quantity, brand and price range. The sustem iterates over the suppliers (SupplierGallery) until it finds a supplier that offers the desired product and returns the quantity, brand and price. If no supplier is found, returns 0.
* AddProduct: Allows suppliers to add products to the list of products available on the market, specifying the product, quantity, brand and price. Vendor authentication is required.
* RemoveProduct: Allows vendors to remove products from the list of available products. Vendor authentication is required.

Operations related to Suppliers:

* RegisterSupplier: Alloes suppliers to register with the system, providing contact information and brand details. The system creates a new supplier and generates a authentication token for it.

3 - Services

* Supplier/Product API: it is the main service that provides operations related to products and suppliers, such as OrderProcduct, AddProduct, RemoveProduct and RegisterSupplier.
* Authentication Service: it is used to authenticate vendors and generate authentication tokens. Required interfaces include GenerateSupplierToken to generate tokens for suppliers and AuthenticateSupplier to authenticate suppliers in sensitive operations.

4 - Service API and Colaborations

* The Supplier/Product API is the main communication interface between suppliers, customers and the system. It allows customers to order products, suppliers to register, add products and remove products from the market.
* Integration with the authentication service is crucial for system security. Through the GenerateSupplierToken and AuthenticateSupplier interfaces, the system ensures that only authorized suppliers can perform sensitive operations and that authentication tokens are generated securely.