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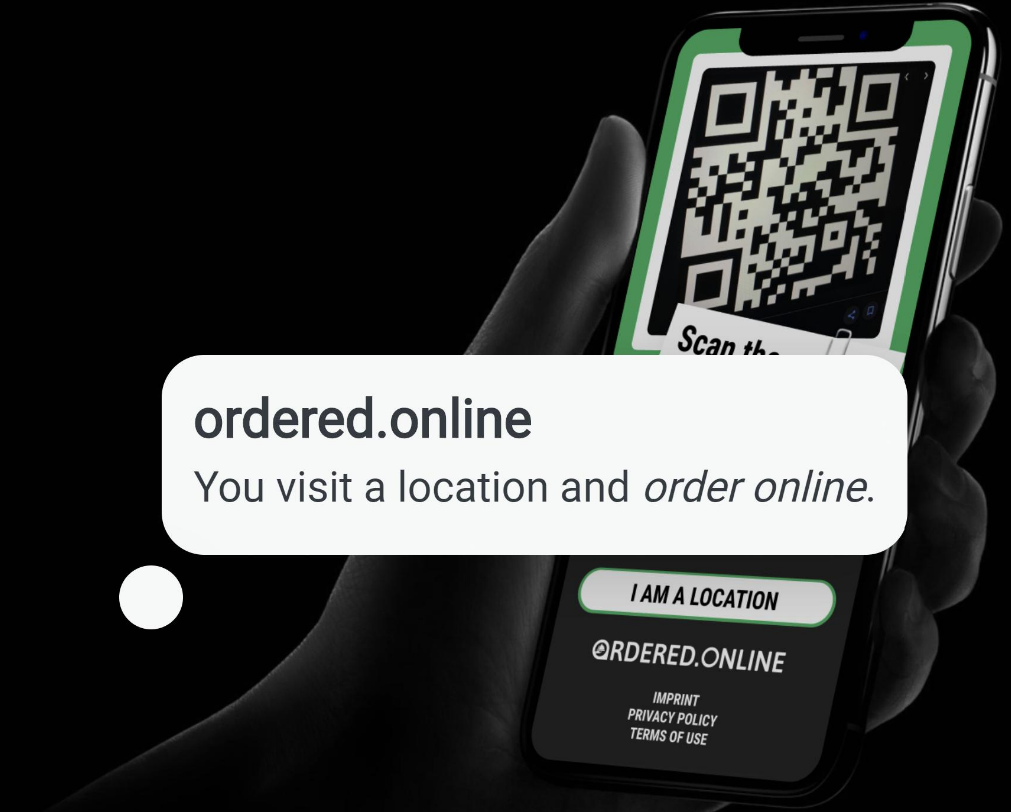
Today's Presentation Outline

- Recap
- Context in our Scenario
- Adaption Concepts
- Architectural Decisions and Technology Stack



ordered.online

You visit a location and *order online*.

Context in our Scenario (1/2)

Contextual Dimension	Contextual Aspects	Implementation
Personal Context	Users should only give their personal information, if necessary.	Request login only if the user is a location representative.
Social Context	Multiple clients should be able to order in the same session, e.g. if they come together.	Join clients together in a WebSocket order session.

Context in our Scenario (2/2)

Contextual Dimension	Contextual Aspects	Implementation
Operational Context	There are two roles: the location representative and the customer. Both have different use cases but are interleaved operationally.	Implement a separation between client and manager, which interleaves both where necessary, for example order placement.
Technical Context	Devices: browser (manager) and app (client), potentially low bandwidth. Devices can run multiple operating systems (preferably Android or iOS).	Sense available network bandwidth and adapt application data accordingly. Notify the user when a network outage occurs.

Adaption of Application Data - Reduction

- We should not transmit all server side data (i.e., locations and products) to the client.

  `Adaption Concept: reduce the amount of data with attribute based server side query filtering.`

  `Adaption Concept: Use lazy loading to reduce number of items send to client apps at once.`

Adaption of Application Data - Coding

- We want to expose as few information about the backend's functionality as possible.
  `Adaption Concept: transform data from a server side internal representation to the compact JSON format. JSON gives use smaller message size than other representations.`

Adaption of Communication - Error handling

- After creating an order, the respective data has to be stored persistently.

  `Adaption Concept: Store data persistent in database on server side where we can ensure a stable environment.`

- Requests can fail, for example, when a login token expires and the user accesses a login restricted endpoint.

  `Adaption Concept: use HTTP response codes and reason identifiers and handle failed actions respectively.`

Adaption of Communication - Message Delivery

- During a network outage, certain actions will not be forwarded to the server.

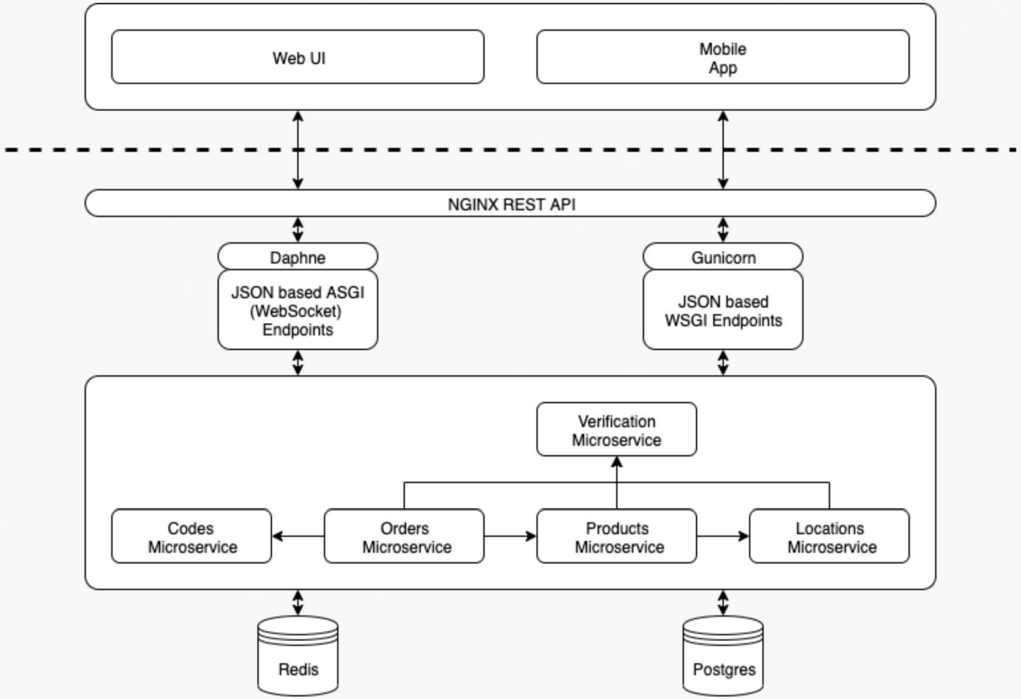
  `Adaption Concept: use queuing and forward the actions when possible. Regarding the UX, the user should get an indicator of the network outage, though.`

Adaption of Data Transmission - Prioritizing of Data

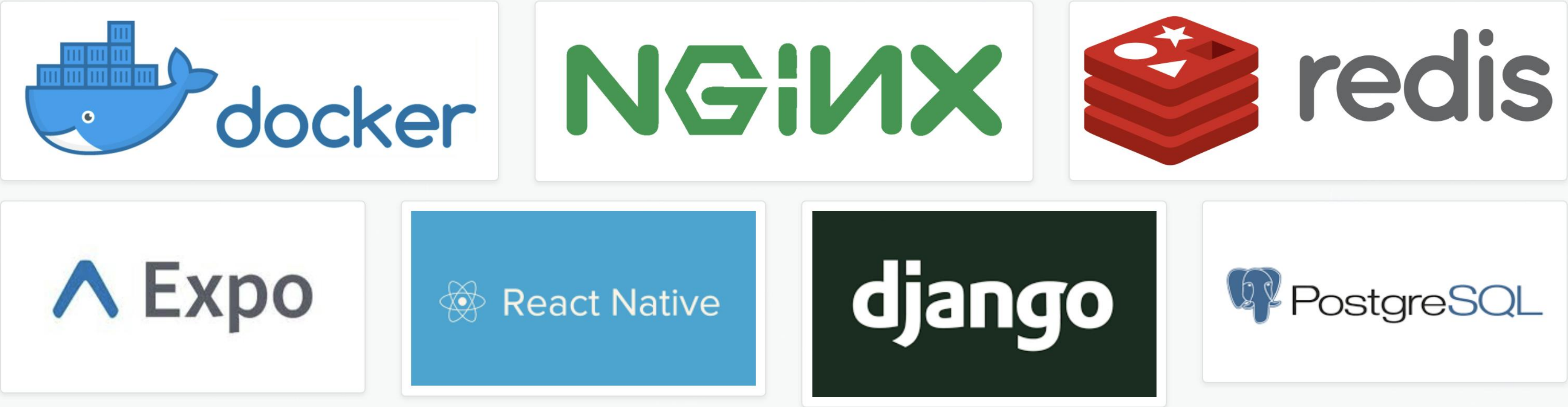
- Different services (codes, products, orders, ...) will have different workloads.

  `Adaption Concept: prioritize frequently used services. Use a load balancer and dynamically scalable microservices.`

Project Structure



Technology stack


docker
NGINX
redis
Expo
React Native
django
PostgreSQL