Optic Mart

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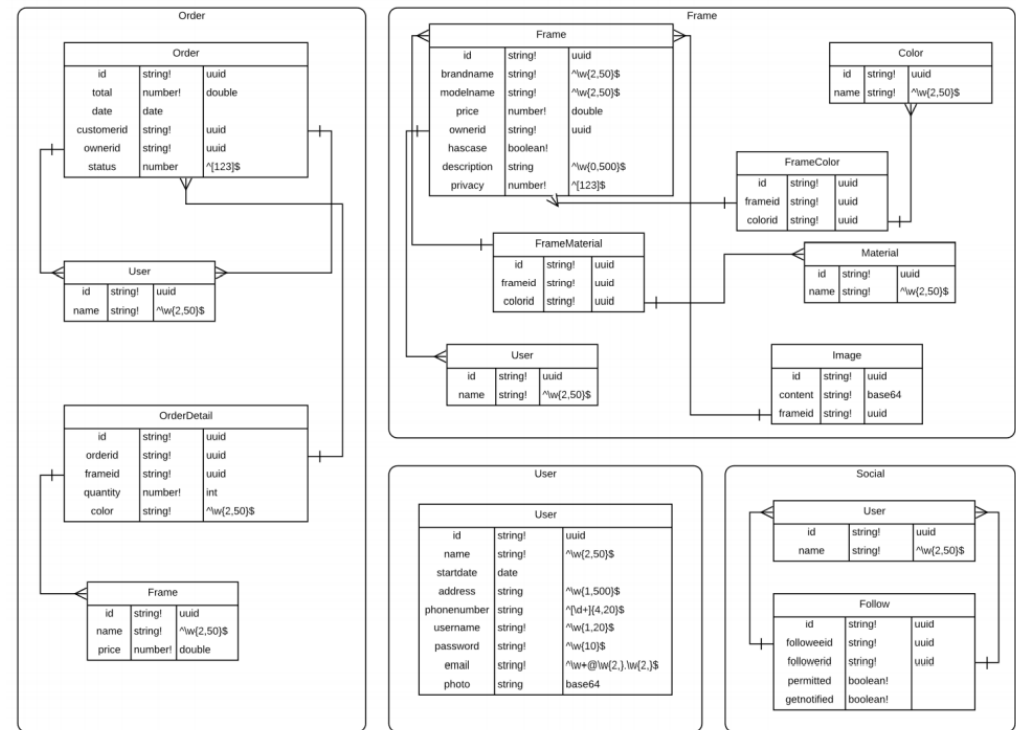Spring 2020 – BIHE

Outline

- **Introduction**

- **Backend Stack**

- **Frontend Stack**

- **Architecture**

- **Demo**
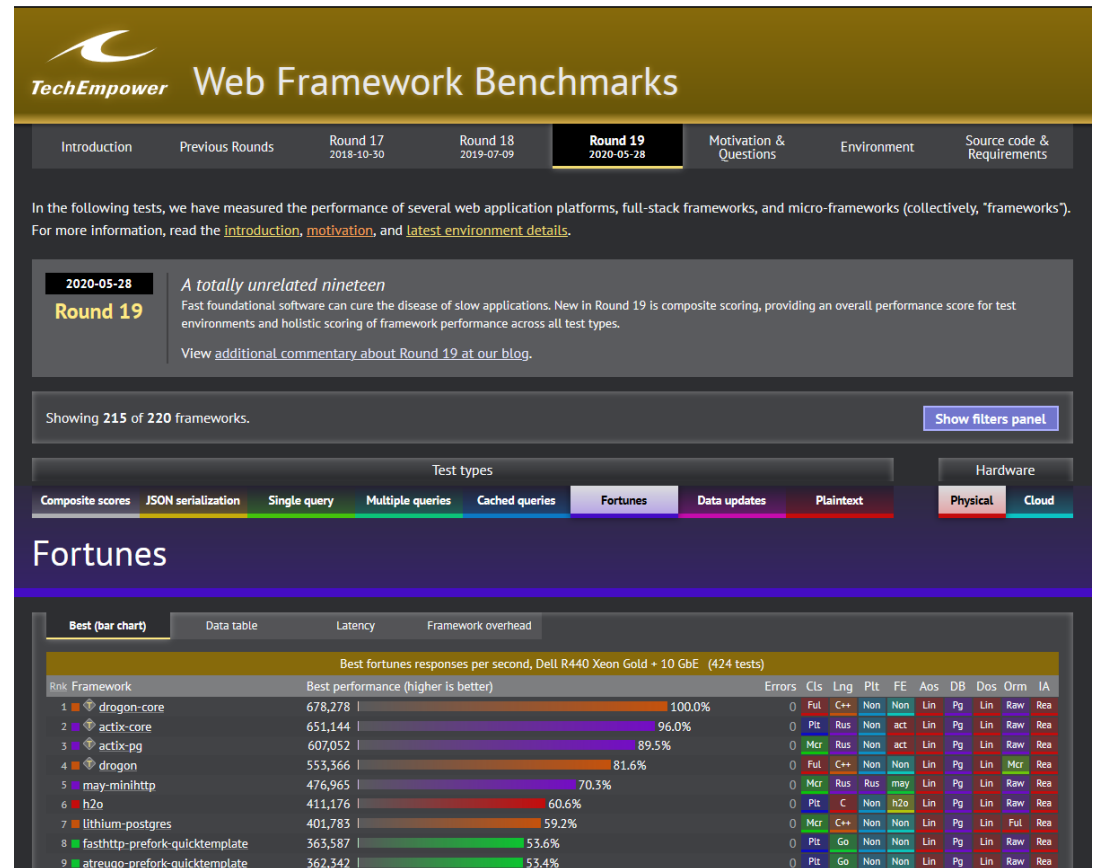
Introduction

- **A B2B Online Store**
  - Available Solutions
- **Made Specifically for the Optic Market**
  - Entities
    - User
    - Frame
    - Order
  - Use Cases

Database Design

Backend Stack

- ## Actix Web
  - Written in Rust
  - Fast

- ## PostgreSQL
  - Relational
  - Open Source

Actix Web is the Second Fast Framework in the TechEmpower's 2020 Benchmark
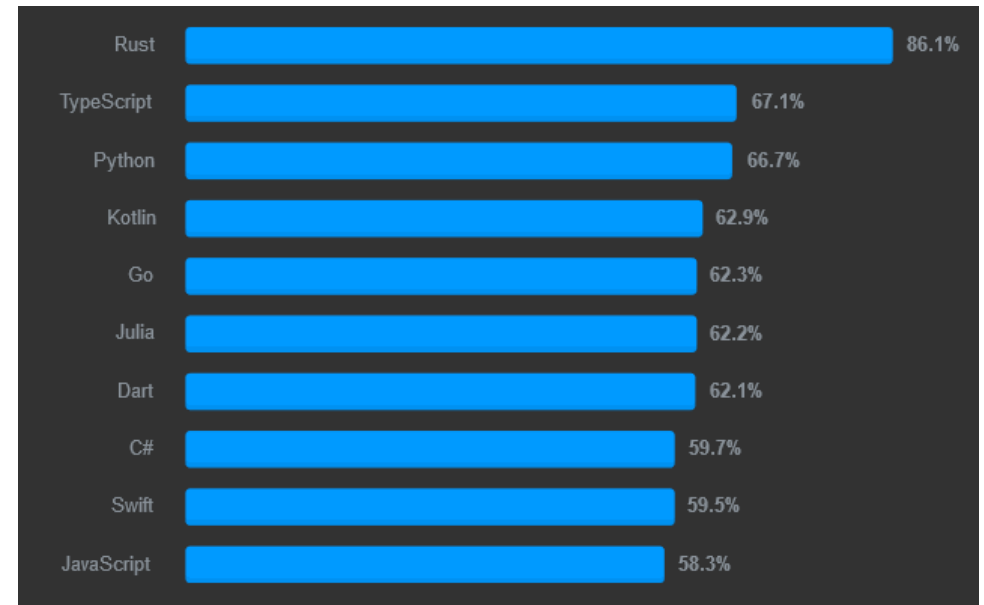
Rust

- **Pros**
  - Fast
    - No Garbage Collector
  - Correct
    - Robust Type System
- **Cons**
  - Steep Learning Curve
  - Somewhat Immature

Rust Was the Most Beloved Programming Language in Stack Overflow's 2020 Developer Survey
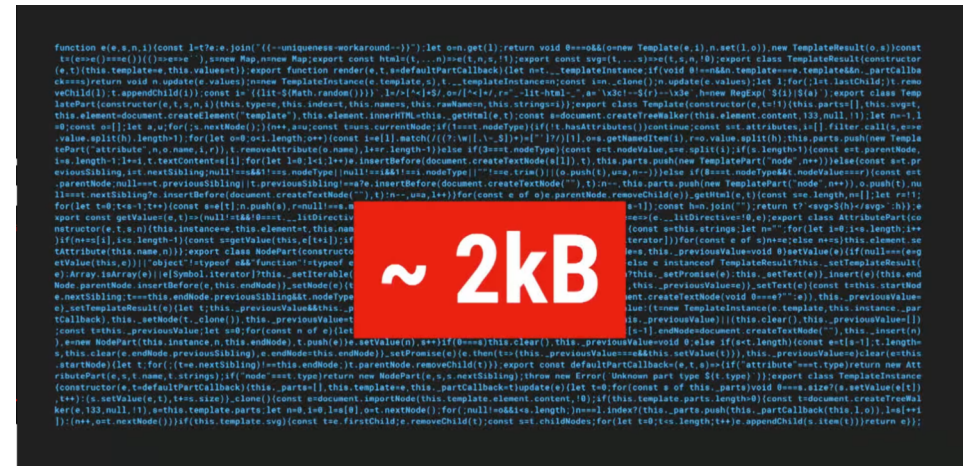
Frontend Stack

- **Lit-Element**
  - Written in TypeScript
  - Tiny wrapper around Web Components
  - Lightweight

- **Dependency Management**
  - NPM
  - Rollup

Lit-HTML, the Templating Engine Powering Lit-Element, is Tiny.

Rollup Performed the Best Among Bundlers in a Recent Report Conducted by a Team of Google Web Engineers

Architecture

- **Microservices**

- **CQRS**

- **Event Sourcing**

- **Microfrontends**

- **Authentication**
  - JSON Web Tokens (JWT)

Git is One of the Most Widely Used Event Sourced Software Around the World
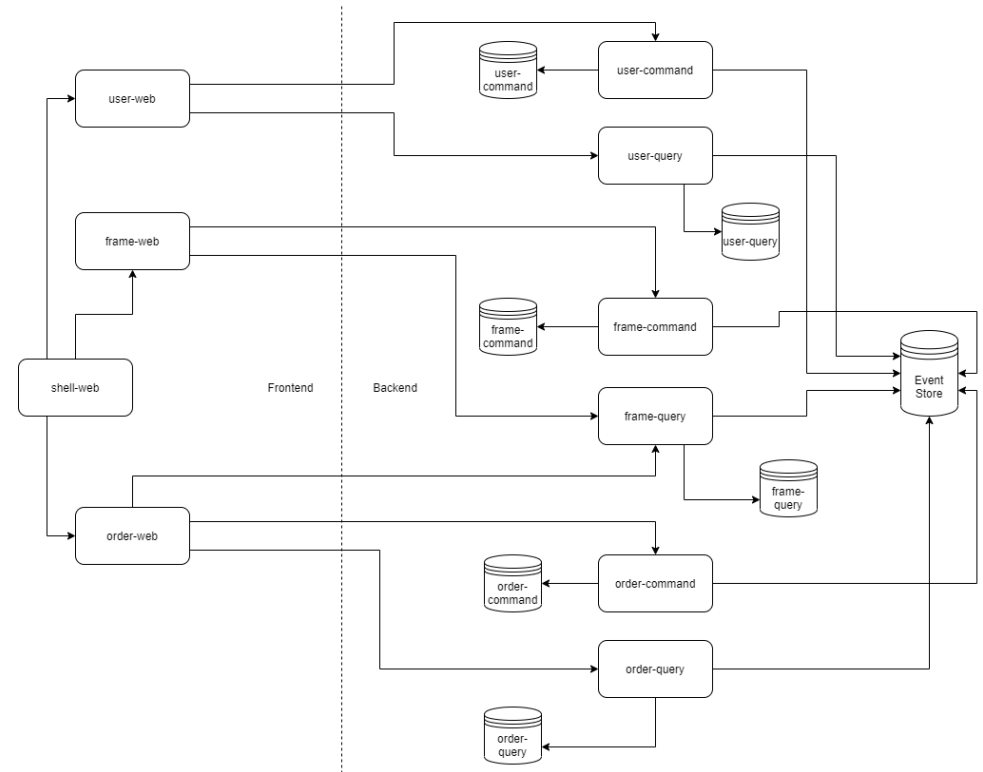
Microservices and CQRS

- **Pros**
  - Clear Bounded Contexts
  - Autonomy
    - Different Stacks
    - Independent Deployment
- **Cons**
  - Added Complexity
    - Integration

Optic Mart Microfrontends and Microservices Relationship

Event Sourcing

- **Pros**
  - Keeping Services Independent
  - Rewinding
  - An Honest and Complete Log

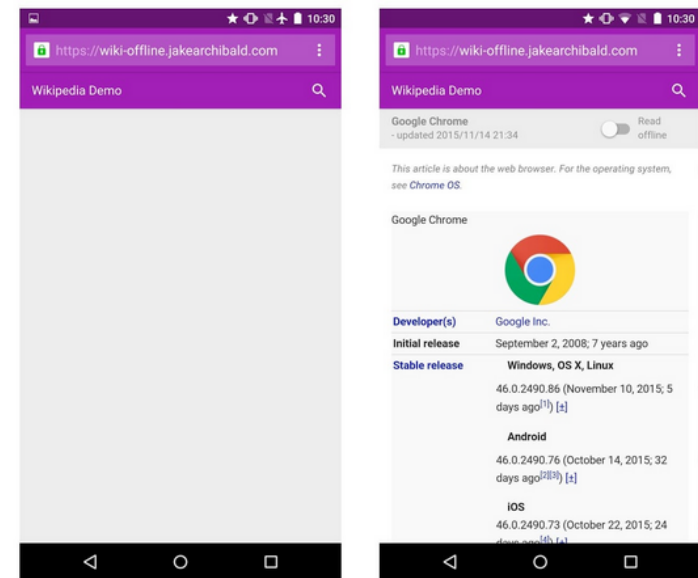- **Cons**
  - Current vs Performant
    - Snapshots

Event Tables' Designs are Simple

Microfrontends

- **Microservices Ideas Applied to the Frontend**

- **A Unique Challenge**
  - UI Has to Be Seamless and Coherent
    - SPAs and the App Shell Model
    - One Design System
      - Web Components Are Interoperable

An Example of App Shell Model

Demo

Thank You!