

**MICHIGAN STATE**  

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**UNIVERSITY**

# Project Plan Presentation

## Evo Observability Platform

### The Capstone Experience

#### Team Evolution

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*From Students...  
...to Professionals*

# Project Sponsor Overview

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- Mission: Bring visibility, simplicity, and usability to a client's complex platform
- Four specialized practices:
  - Observability, Security, Data Science & Analytics, and Automation
- Utilizes industry-leading technologies to address business challenges

ēVOLUTIŌ



# Project Functional Specifications

“Evolutio plans on developing a holistic solution that utilizes contemporary Observability tools and leverages them with APM practices to create a complete tool for their clients”

- Tracing backend
- Trace metric derivation
- Dependency mapping
- Error Tracking and Exception Handling
- Alerts and Notifications
- User-friendly Web Based Interface

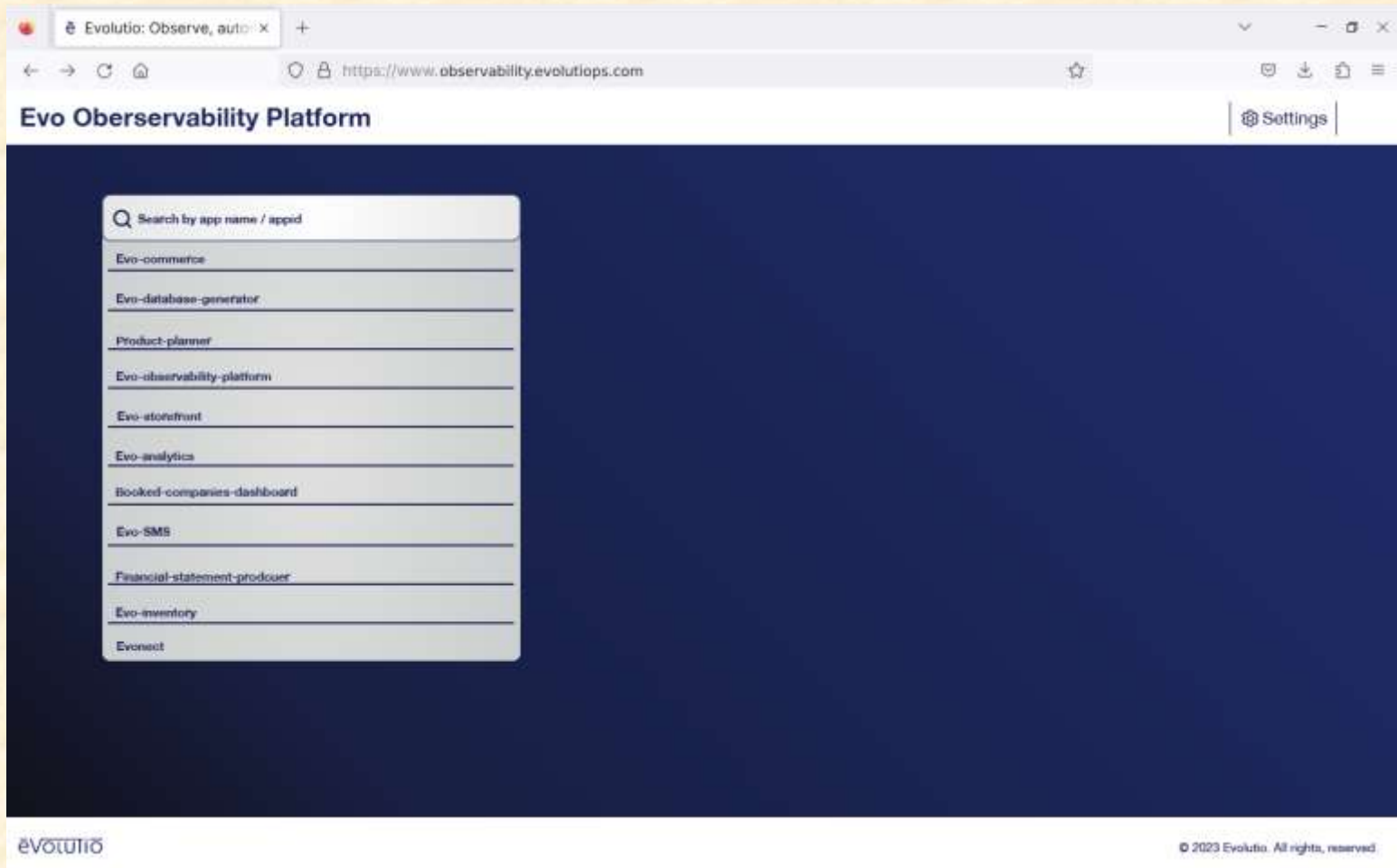


# Project Design Specifications

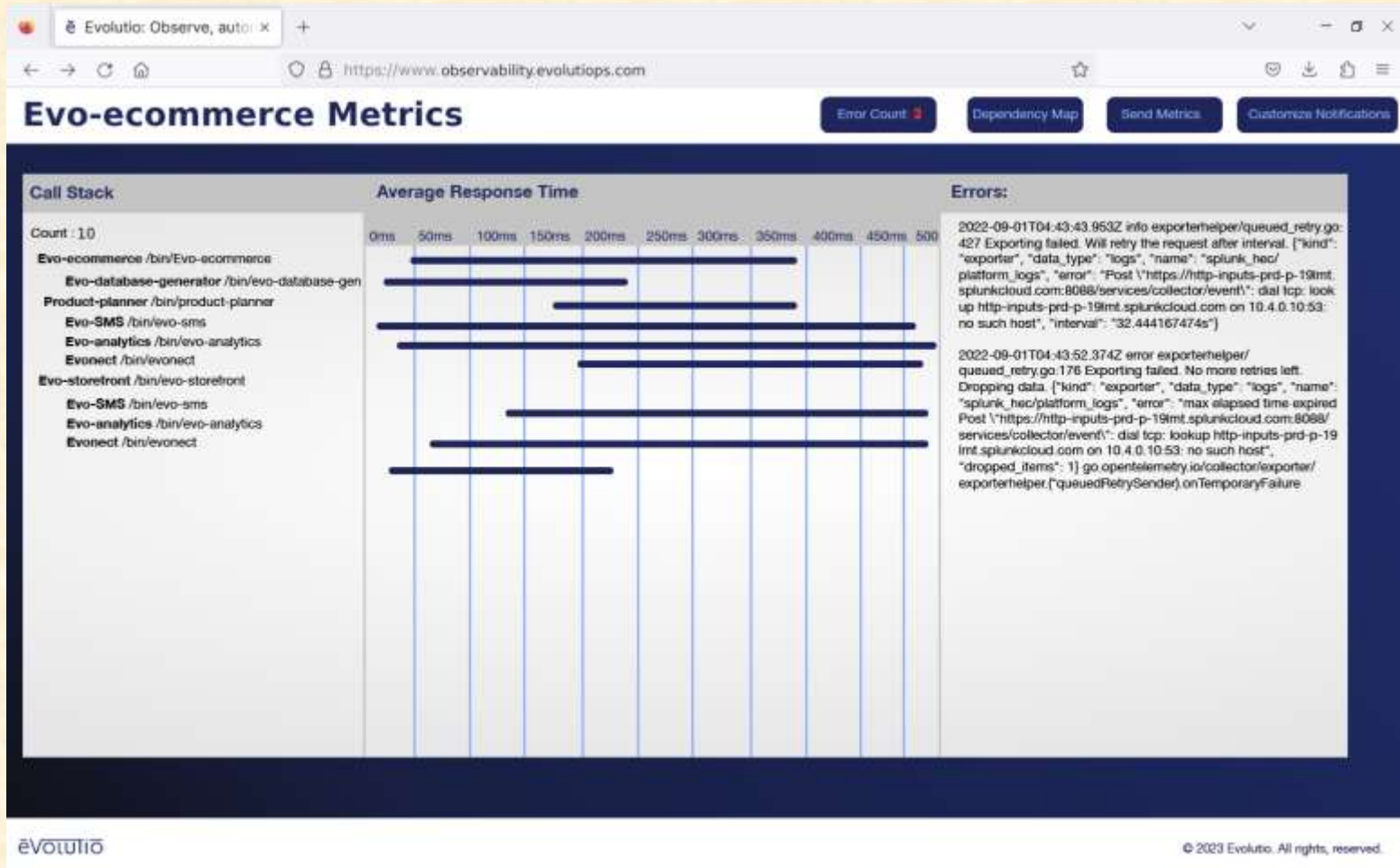
- Main page of dashboard allows for:
  - The ability to observe error events
  - Visual organization of the call stack
  - Application process timeline tracking
- A dependency map visualizing the current state of the application
- Application specific settings allowing for the customization of notifications to the user



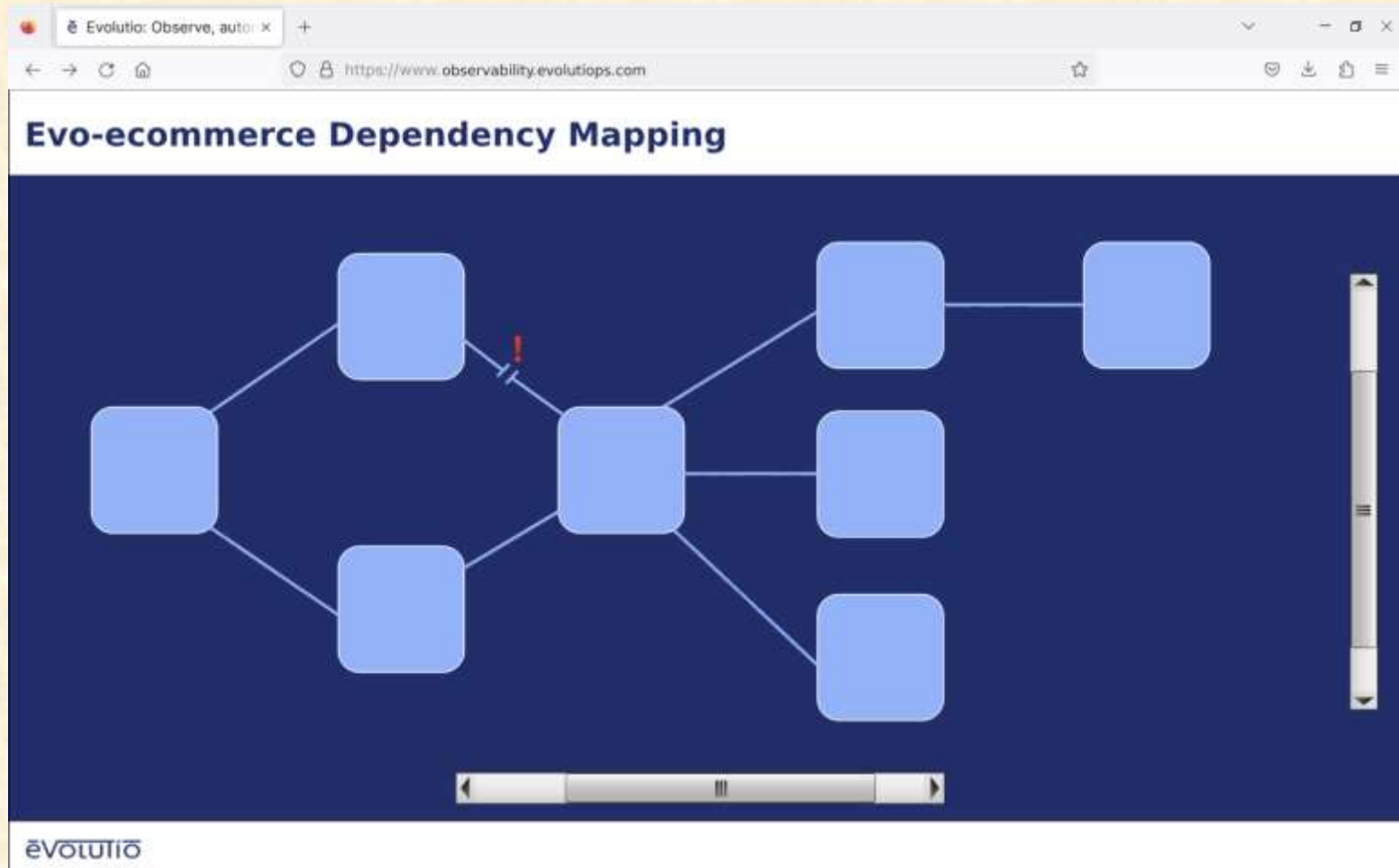
# Screen Mockup: Application Search



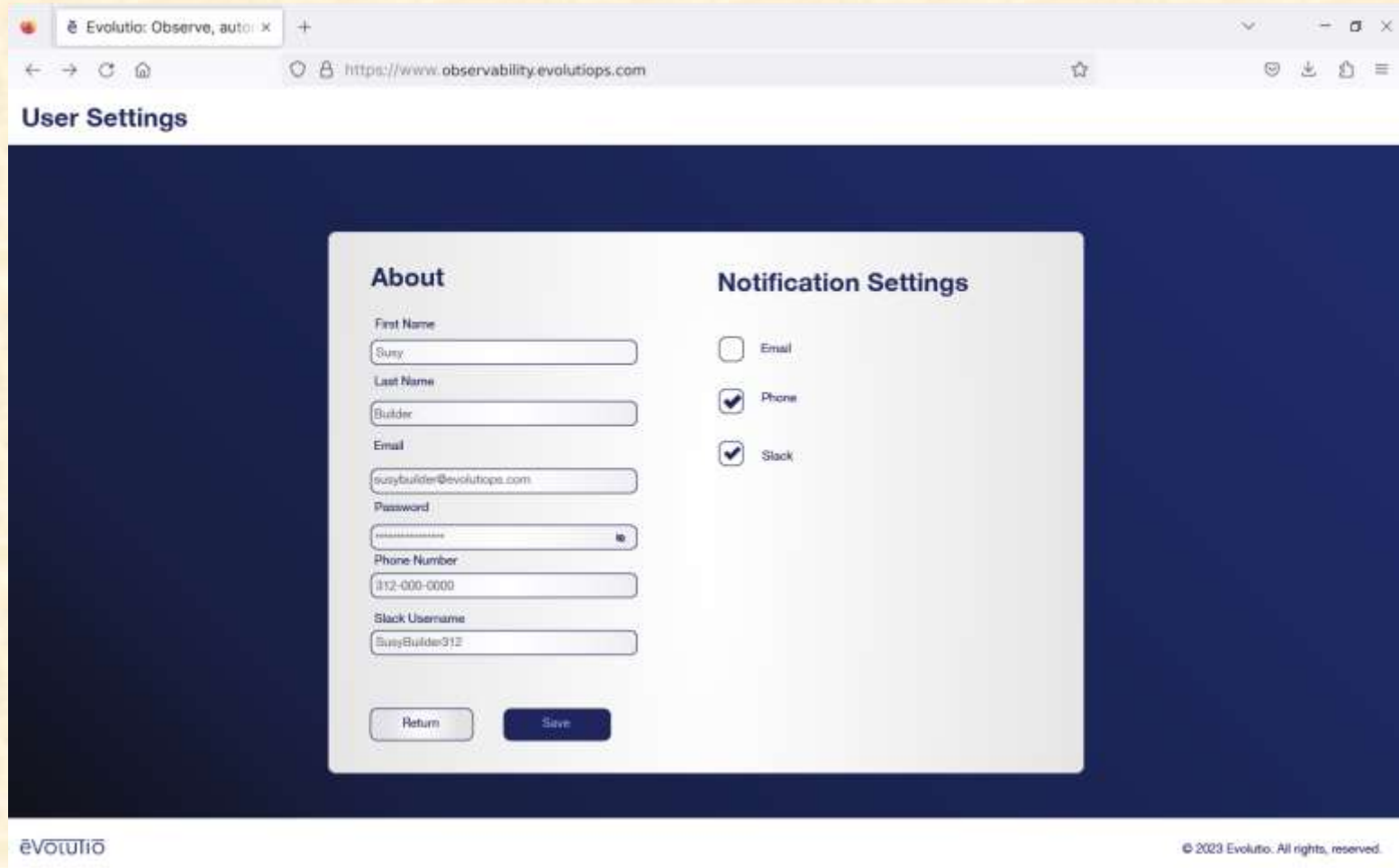
# Screen Mockup: Home Page Dashboard



# Screen Mockup: Dependency Mapping



# Screen Mockup: Application-Specific Settings



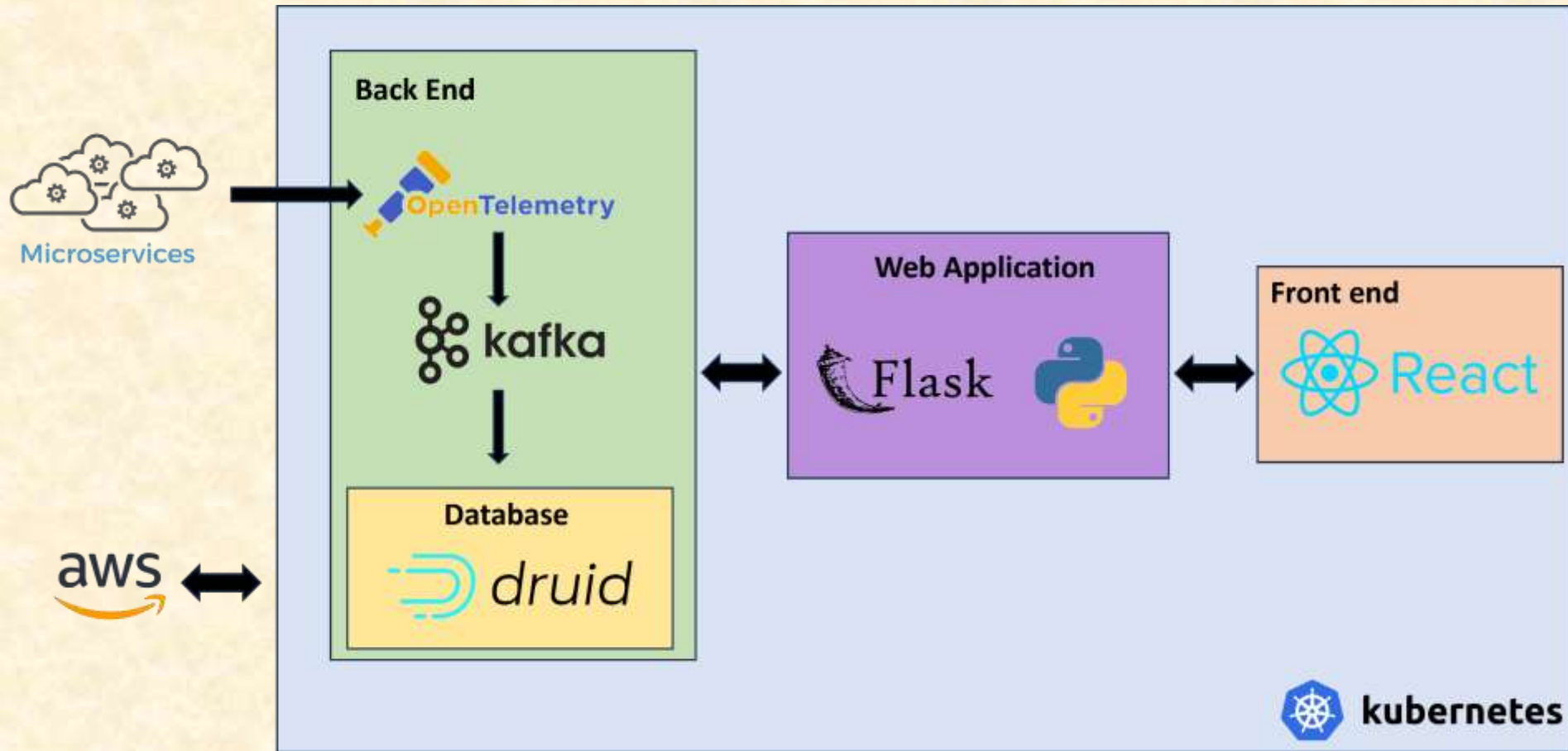


# Project Technical Specifications

- Cloud-based infrastructure provided by AWS
- Kubernetes cluster used for container management
- OpenTelemetry (OTel) central to the data collection process for microservices
- OTel uses an in-built exporter to Apache Kafka
  - Exports to our database, Apache Druid
- Python Flask utilized for backend framework
- Web interface developed through React framework



# Project System Architecture



# Project System Components

- Hardware Platforms
  - None
- Software Platforms / Technologies
  - AWS – A cloud computing platform that allows easy deployment of enterprise software on remote servers
  - Kubernetes – Used to orchestrate deployment, scaling, and management of our application
  - OTel – Telemetry tool utilized for collecting traces/metrics/logs data
  - Kafka – Used to write and read streams of events, store, and process them
  - Druid – An Online Analytical Processing Database
  - React & Flask – Frameworks for web application



# Project Risks

- Risk 1
  - Establishing data pipelines from collector to storage backends
  - Close contact with client's infrastructure team
- Risk 2
  - OTEL is a continuously developed open-source tool
  - Navigating versions of the tool to seek accurate processes
- Risk 3
  - Automating thresholds for sending alerts
  - Find the patterns that system should deem sufficient to send notifications
- Risk 4
  - Processing continuous streams of high volumes of data
  - Flatten and compress the data to the best of our abilities for Druid and seek alternatives (Neo4J)



# Questions?

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