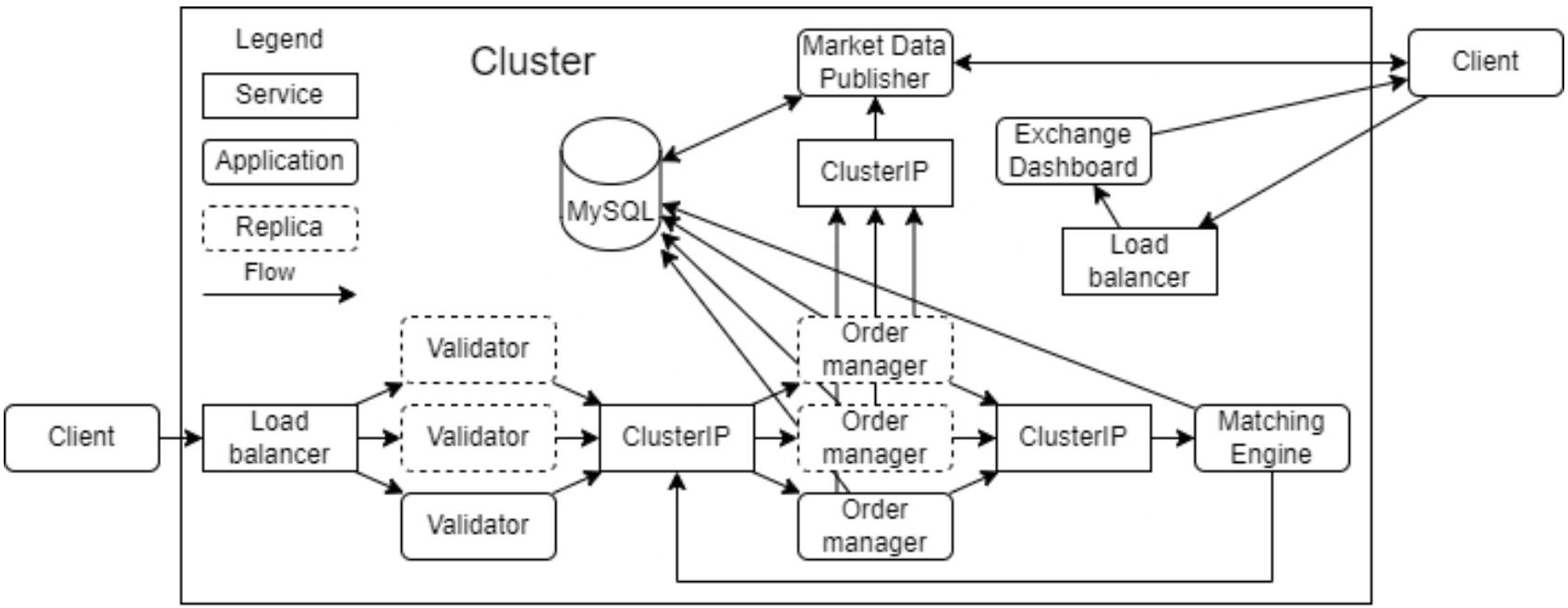
Cloud Computing

Gérard Lichtert

January 8, 2025

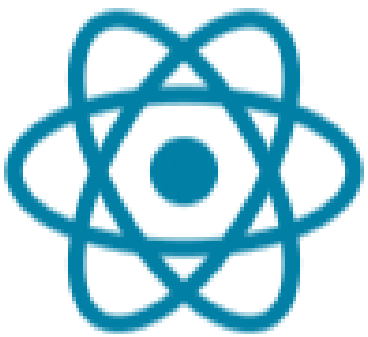
VRIJE
UNIVERSITEIT
BRUSSEL

ARCHITECTURE



TECHNOLOGIES AND LIBRARIES USED

fluent-json-schema



VALIDATOR

- Uses fluent-json-schema to pre-validate incoming requests
- Forwards validated requests to Order Manager rejects otherwise

ORDER MANAGER

- Uses mysql2/promise to store orders
- Forwards orders to Market Data Publisher and Matching Machine
- Forwards executions to Market Data Publisher

MATCHING ENGINE

- Stores open orders locally
- Processes orders using Rxjs
- Finds matches
- Updates remaining quantity in orders (MySQL)
- Sends reduced executions to Order Manager

MARKET DATA PUBLISHER

- Uses Socket.IO to connect to clients
- Uses Rxjs to process orders and executions
- Forwards orders and executions to clients subscribed to a symbol
- Can read from database to send current data to a client
- Computes average price each minute

EXCHANGE DASHBOARD

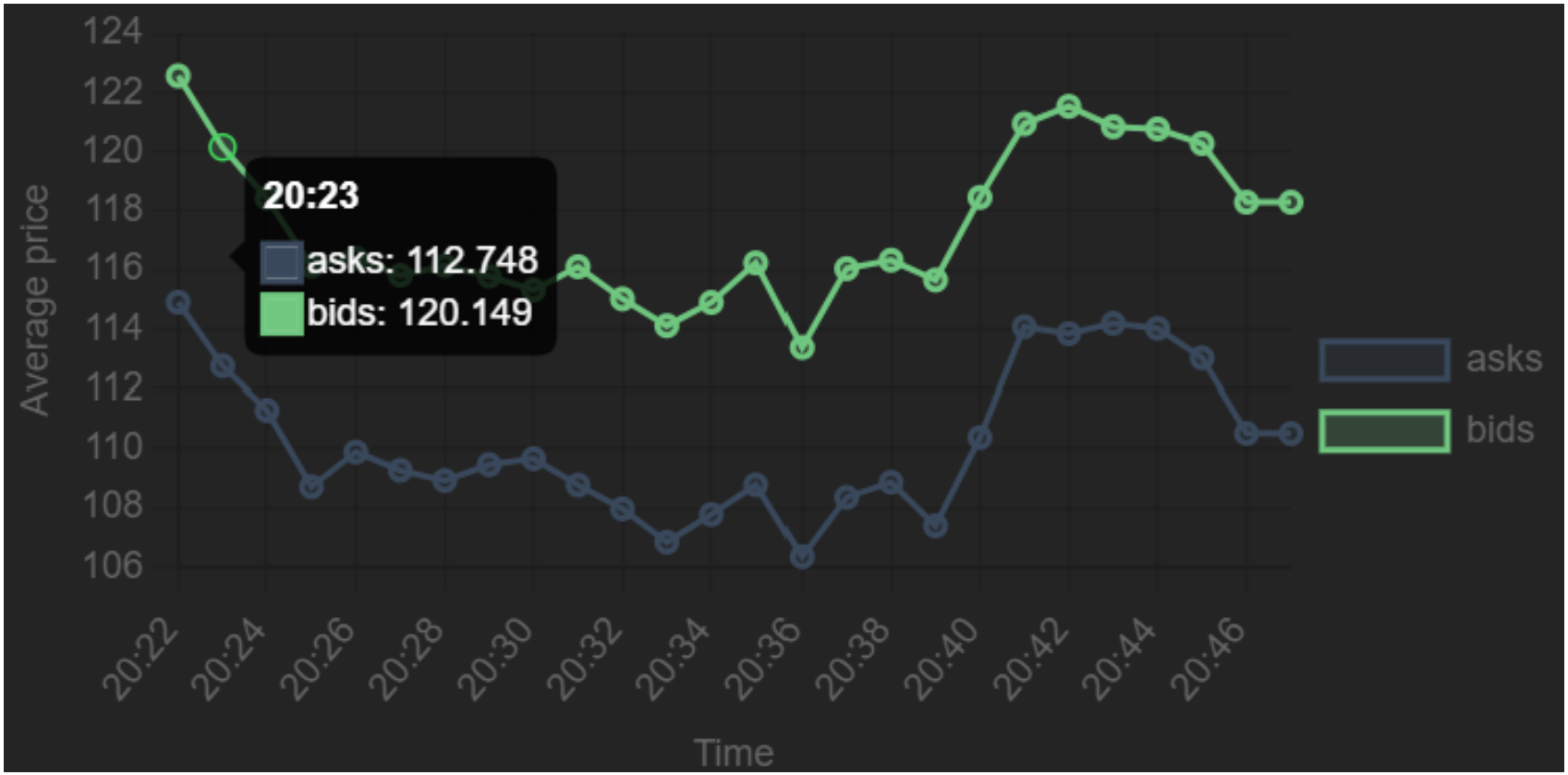
- React application
- Uses React's virtual DOM to update UI
- Uses a react port of chart.js to display graphs
- Uses Socket.IO to subscribe to a symbol and handle events
- Can correct local data if it becomes inconsistent

EXCHANGE DASHBOARD

ORDER BOOK

EXCHANGE DASHBOARD

AVERAGE PRICE



DEMO

Timestamps:

- Start descaling 6:40
- Actual descaling: 11:10