Introduction / Lecturer

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> Bachelor of Electrical Engineering
> Executive Master of Business Administration (Marketing & Exports)

Career **Path**

> **Full-Stack Developer**

> **Lead Front-End Engineer**

> **Mobile Application Developer**

> **Data Team Lead**

> **VP of Engineering**

Introduction / Company

Business

- Delivery
- Ride-hailing

Services

- On-demand
- Dedicated
- Scheduled
- Bulk
- COD

Fleet

- Motorcycle
- Car
- Van
- Mini-Van

Tech

- Inspired by Uber
- Running in 4 countries by now
- So agile & result-oriented
- Focused on data-driven decisions more than data-driven features

Scale

- More than 8,000,000 Customers
- More than 250,000 Couriers
- More than 2,500,000 Orders/month
- More than 90,000,000,000 GEO location records for the past year

Introduction / Team

Before the Big Bang

- Huge amount of data
- Classic dashboards and pipelines
- Lots of long-running queries
- Not fast enough in developing new metrics and KPIs
- Almost no possibility of making data-driven features
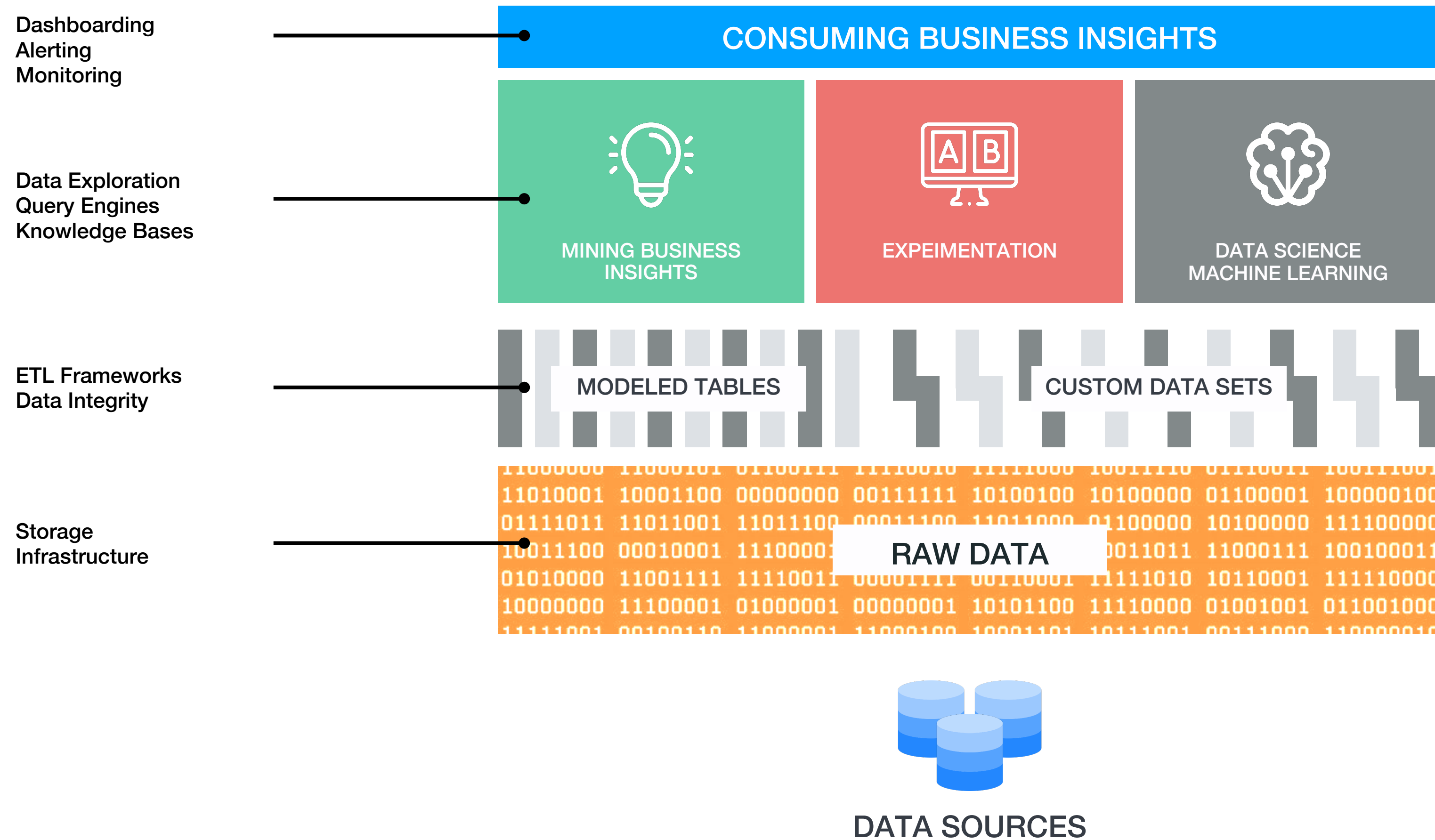- Great friends for making anything happen

The Big Bang

- Preparing a detailed roadmap
- Hiring a mentor to finalize the architecture
- Hiring a data engineer to make things ready for the next steps
- Refine previous active services
- Hiring new motivated specialists for newly needed positions
- Following the roadmap step by step

Roles

- Data Engineer
- Data Scientist
- Machine Learning Engineer
- Data QA/QC
- Data Product/Project Manager
- Data Business Analyst
- Data Analyst
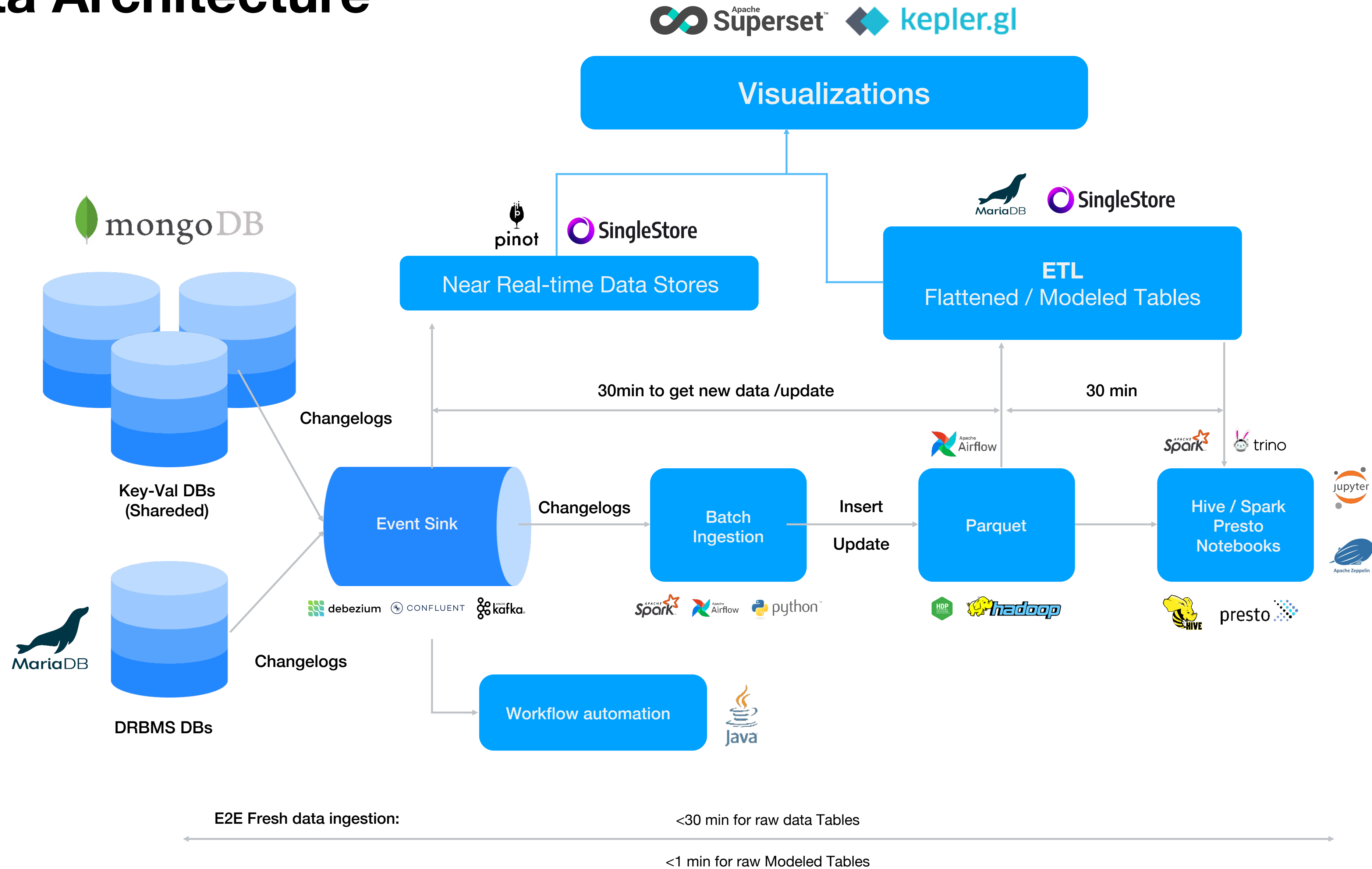- BI Developer
- Data Developer

Data Generation to Consumption Flow

Dashboarding
Alerting
Monitoring

Data Exploration
Query Engines
Knowledge Bases

ETL Frameworks
Data Integrity

Storage
Infrastructure

CONSUMING BUSINESS INSIGHTS

MINING BUSINESS INSIGHTS

EXPEIMENTATION

DATA SCIENCE MACHINE LEARNING

MODELED TABLES

CUSTOM DATA SETS

11000000 11000101 01100111 11110010 11111000 10011110 01110011 10011101
11010001 10001100 00000000 00111111 10100100 10100000 01100001 100000100
01111011 11011001 11011100 00011100 11011000 01100000 10100000 111100000
10011100 00010001 11100001 0011011 11000111 100100011
01010000 11001111 11110010 11111010 10110001 111110000
10000000 11100001 01000001 00000001 10101100 11110000 01001001 011001000
11111001 00110110 11000001 11000001 00011101 10111001 01110100 00000010

RAW DATA

DATA SOURCES

Data Architecture

Visualizations

Near Real-time Data Stores

ETL
Flattened / Modeled Tables

30min to get new data /update

30 min

Changelogs

Key-Val DBs
(Shareded)

DRBMS DBs

Changelogs

Event Sink

Changelogs

Batch
Ingestion

Insert

Update

Parquet

Hive / Spark
Presto
Notebooks

Workflow automation

E2E Fresh data ingestion:

<30 min for raw data Tables

<1 min for raw Modeled Tables

Data Services

Surge/Dynamic/Smart Pricing

Dynamic/Smart Dispatcher
- Radius
- Behavioral attributes
- Broadcasts (experimental)

Fraud Detection
- Order Cancellers
- Price Crawlers
- Bonus Hunters

Anomaly Detection
- Order attributes
- Large changes in metrics and KPIs

Forecasting
- Finance
- Demand/Supply
- Hardware Resource

User Segmentation
- Behavioral Patterns
- Business Share (Tiers)
- RFMTC
- Activation, Reactivation, & Retention

Area Suggestion
- Demand/Supply Balance
- Revenue

Automated Dashboards, Reports, and Alerts
- Across the team
- Across the company
- For partners

User Behavior Analysis
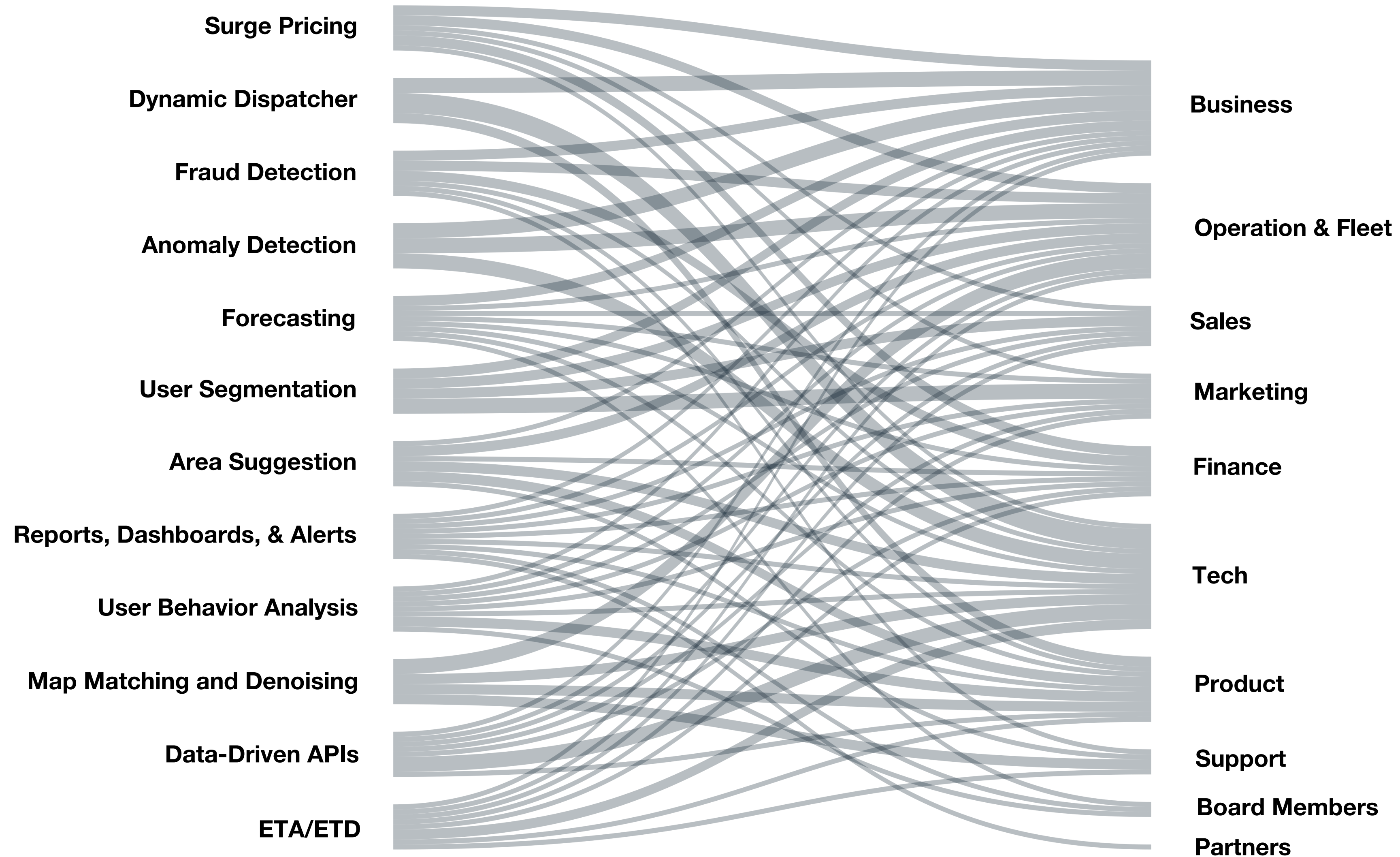- User Experience
- Segmentation
- Forecasting

Map Matching and De-noising geo-location data

Low latency data-driven APIs

ETA/ETD *(Deprecated)*

Case Study / Dynamic Pricing

Features to Consider

- Demand/Supply
- Expiration Ratio (at origin and destination)
- Broadcast per Order Ratio or Searching Time
- Request for Price Calculation
- Customer and Courier Preferred Price
- ETA
- Distance
- Historical Data
- Round Tolerance
- Competitors Pricing Tolerance
- Upcoming environmental effects

To-do List

- **Define the goal**
- Extract key features
- Choose methodology (RL)
- Define the agents
- Define the model
- Feed the model with real-world data• Deploy the model
- A/B test
- Think about the missing features
- Monitor the goal
- Re-think about the model

JOIN US! 🙌

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