Big Data Processing in the InterSCity Platform

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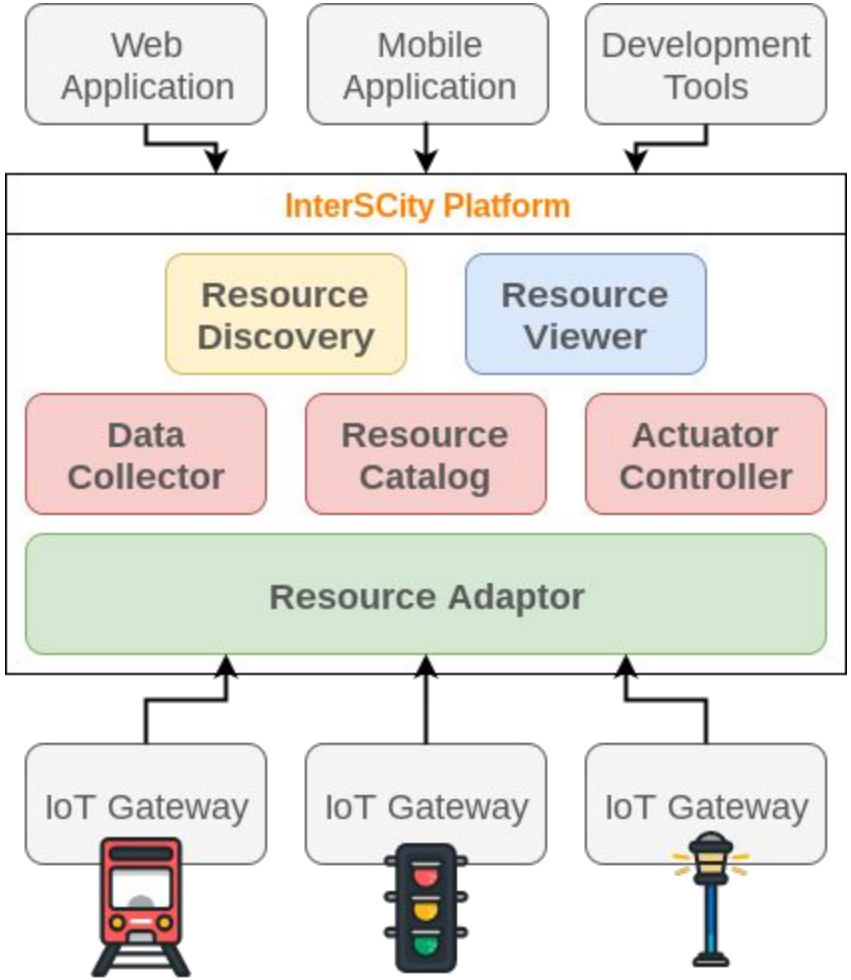
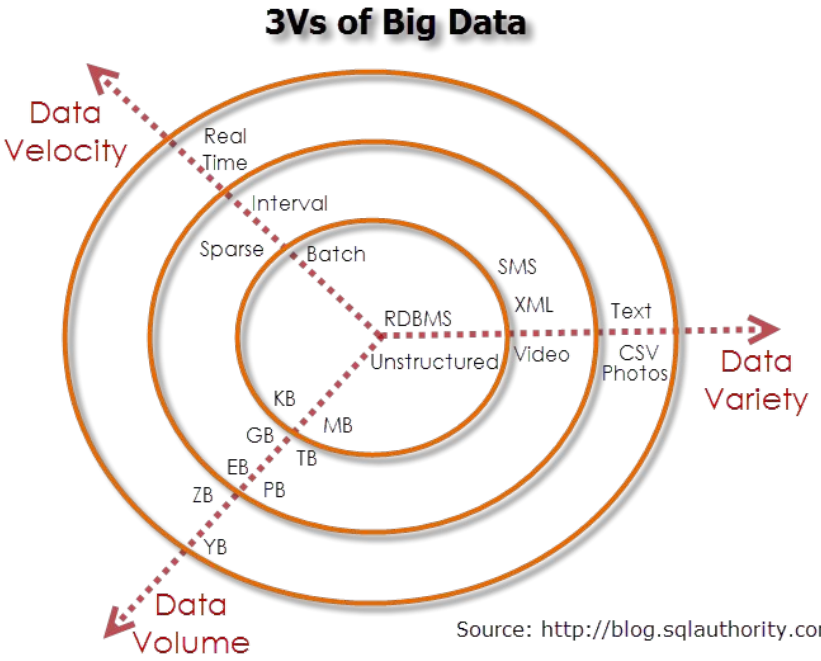
InterSCity Platform

- Provide services to support applications
- Intermediates all communication between smart city applications and IoT devices
- Based on a scalable, distributed microservices architecture



Data characteristics

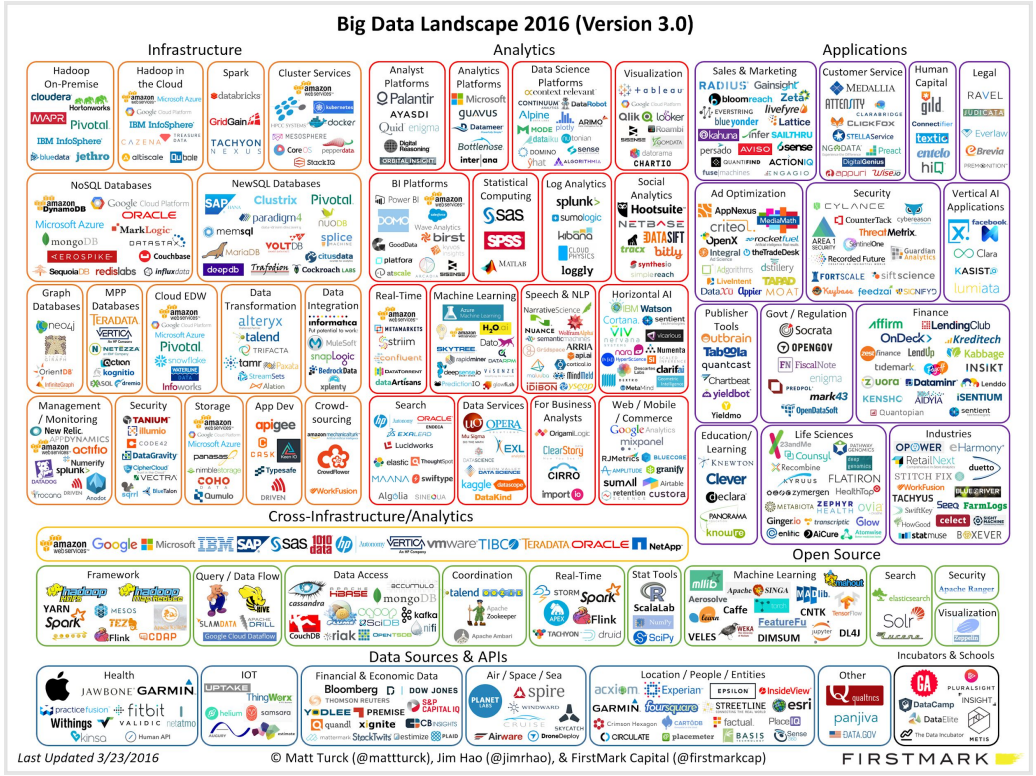
- How to handle **large** data sets?
- How to handle the **variety** from different data sources?
- How to process data with enough **performance**?

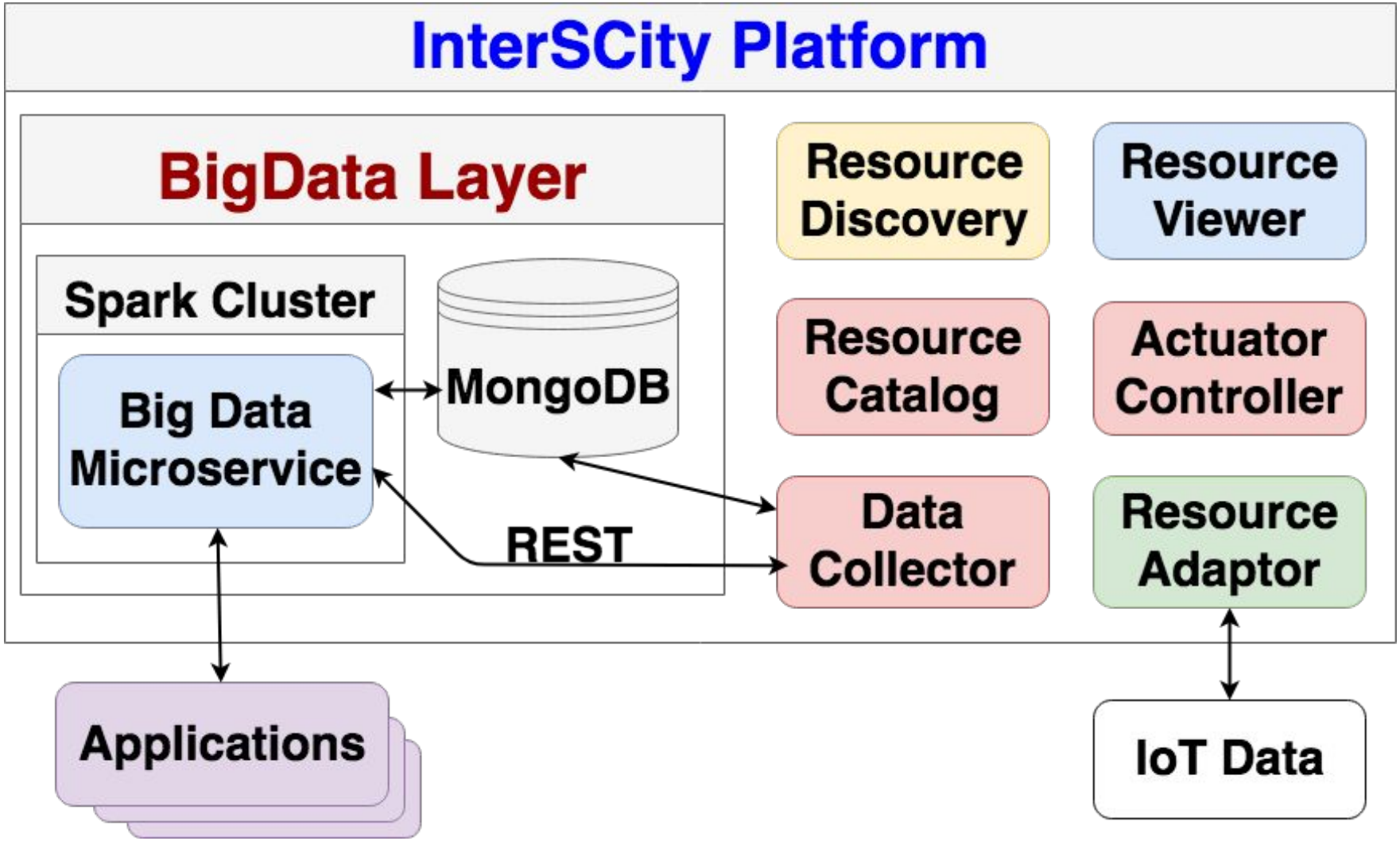


3 Vs of Big Data - Velocity, Volume, Variety

Solution

- A **Big Data** layer
- Tools that process large data sets, with different structures, at a good speed




InterSCity Platform
BigData Layer
Spark Cluster
Big Data Microservice
MongoDB
REST
Resource Discovery
Resource Viewer
Resource Catalog
Actuator Controller
Data Collector
Resource Adaptor
Applications
IoT Data

Datasets

- Weather data
  - Collected from **Wunderground**
  - Historical data by SP districts
  - Information:
    - Location: Latitude and Longitude
    - Rain, Temperature, Pressure

Datasets

- Dynamic buses data
  - **Scipopulis** data
  - Interval: 22 Oct, 2017 to 28 Oct, 2017
  - Information:
    - Location: Latitude and Longitude
    - Road Average Speed

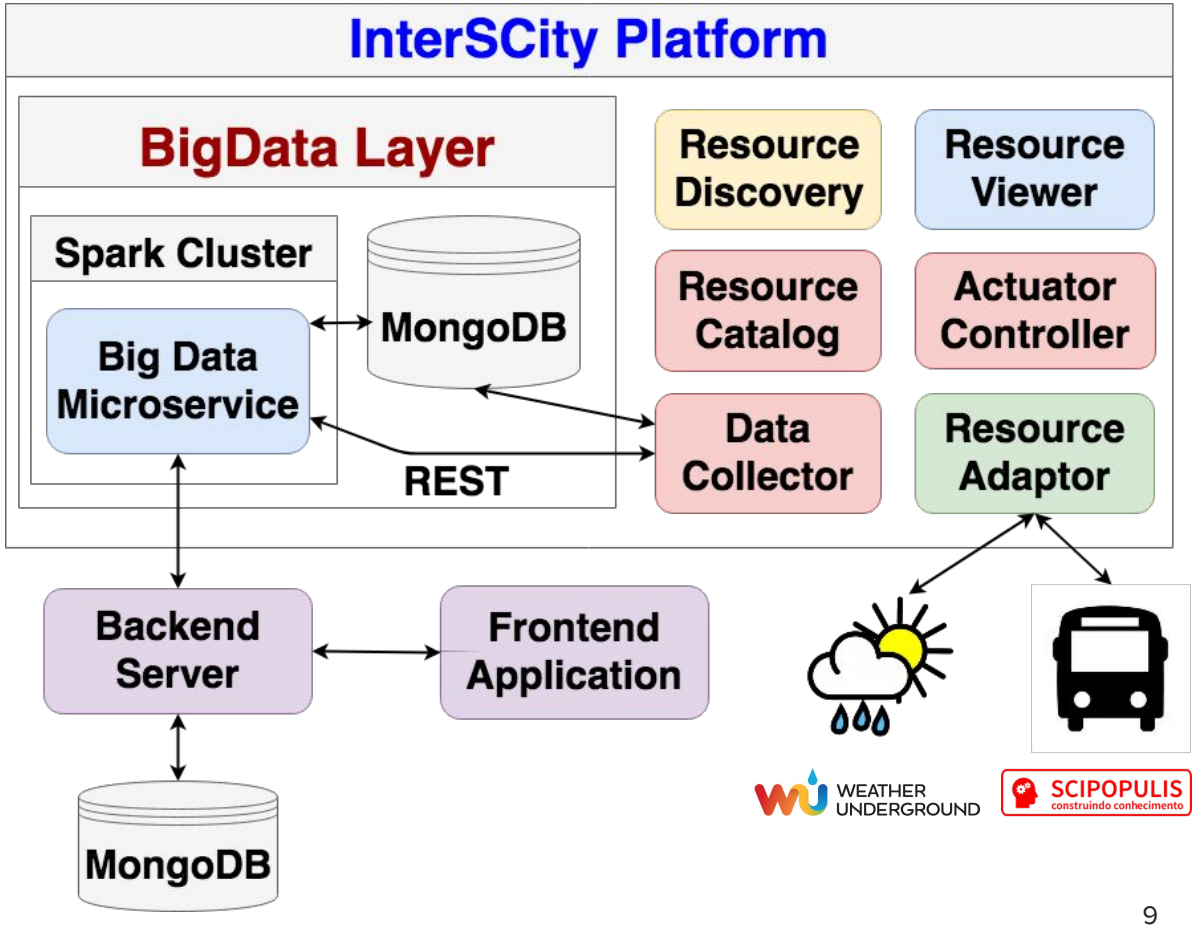
Use Case

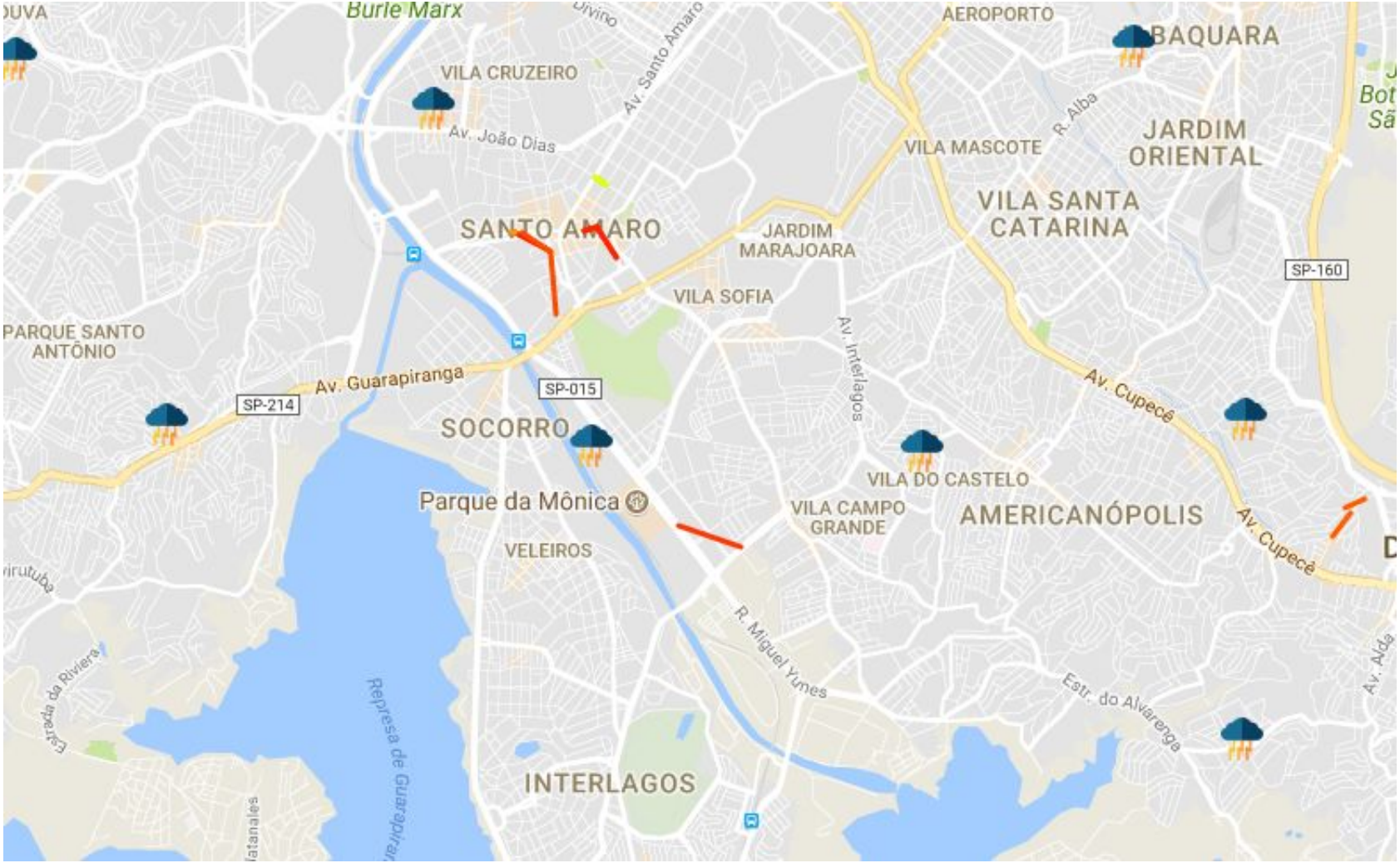
- Based on the available datasets, we proposed a solution that **justify** and **tests our layer**

- Application that indicates reasons for occurrences of **anomalies** in certain roads

Application

- Processed data is saved in a **backend** server
- **Frontend** application uses processed data from backend

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INTERLAGOS

Future Works

- Experiments with **more** data
- Include datasets from other **contexts**
- More statistical **analysis** algorithms
- Addition of **visualization** tools to the Big Data Layer

Application Demo