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**

Source: [http://blog.sqlauthority.com](http://blog.sqlauthority.com)
Solution

- A **Big Data** layer

- Tools that process large data sets, with different structures, at a good speed
InterSCity Platform

BigData Layer

Spark Cluster

MongoDB

REST

Data Collector

Resource Catalog

Resource Adaptor

Actuator Controller

Resource Viewer

Resource Discovery

IoT Data

Applications

Big Data Microservice
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
  - 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
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