Data Collection and Management from multiple data sources for PMS feeding

SESSION 3: Predictive maintenance

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Final Event

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1. Introduction

Objectives

- Manage data efficiently

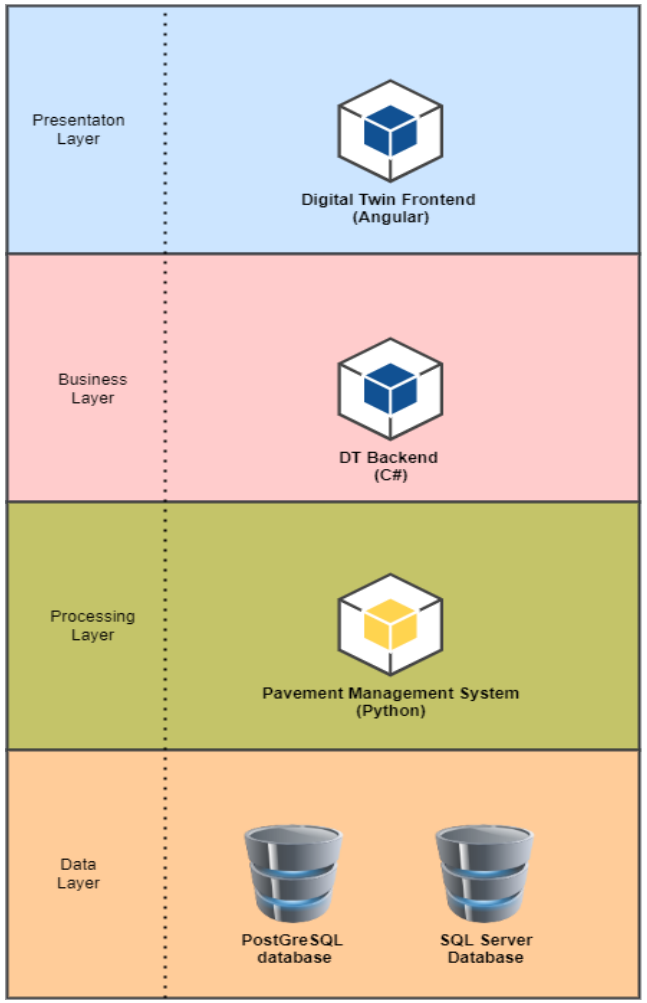
How?

- Identifying data sources and understanding data characteristics
- Implementing an efficient database infrastructure
- Integrating solutions from InfraROB partners
- Communicating components and data

2. InfraROB ICT platform overview

InfraROB PMS components:

- Pavement Management System
- Digital Twin
  - Backend
  - Frontend
- Databases
  - InfraROB geospatial database
  - SQL Server



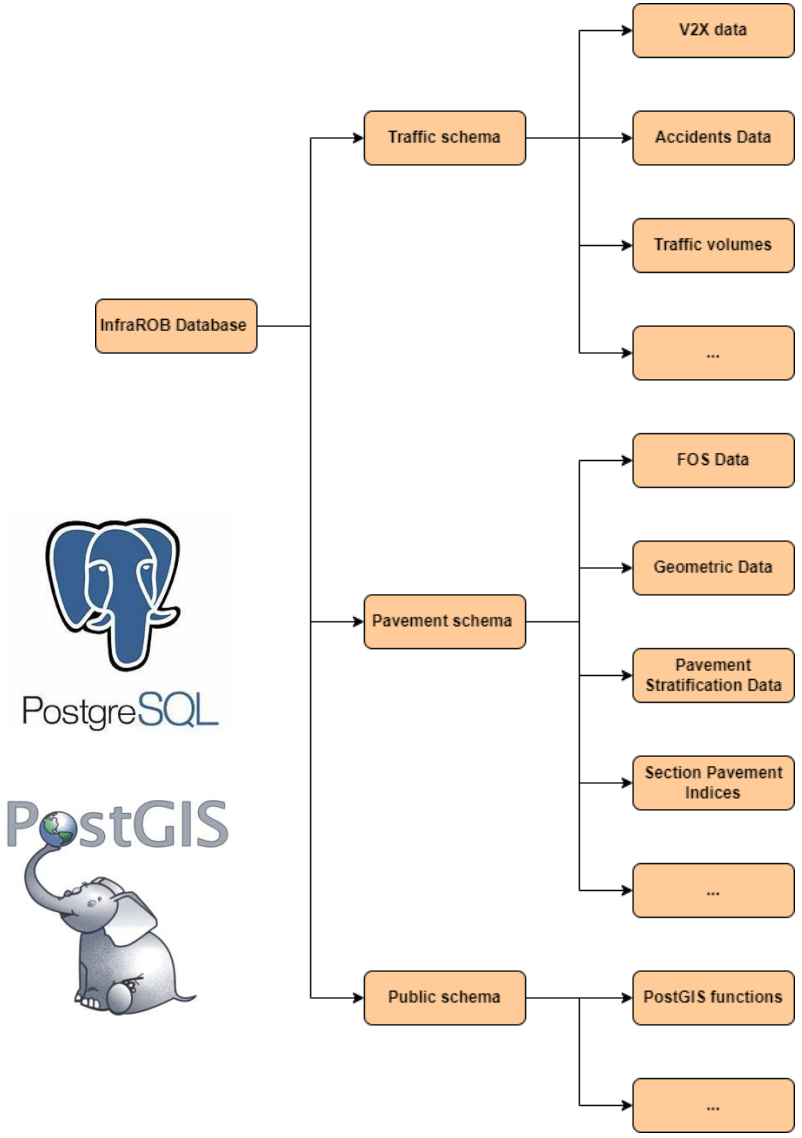
3. InfraROB database

InfraROB Data

- Multiple data sources
- Georeferenced data

Database implementation

- PostgreSQL + PostGIS extension
- Different schemas
- Postgres Functions
- Security



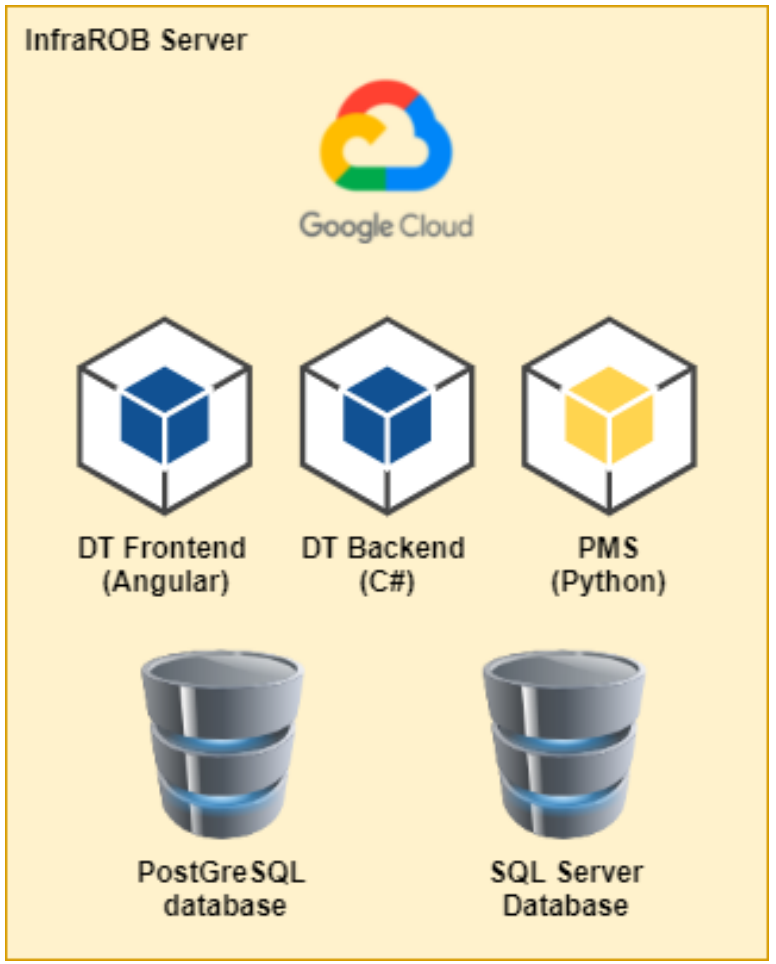
4. InfraROB server

Server requirements

- Components
- Components requirements

Server configuration

- Google Cloud
- Accessibility
- Security



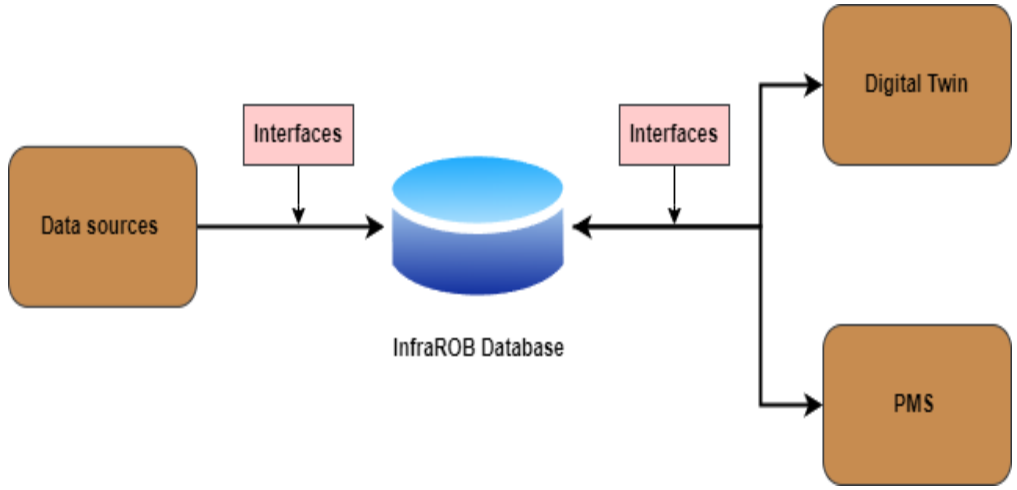
5. Communication interfaces

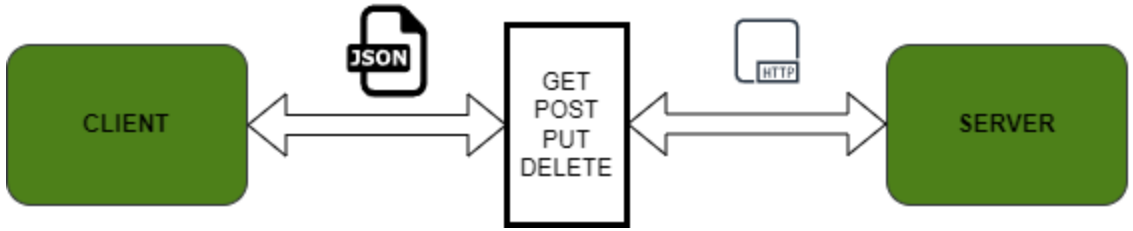
Objective

- Communicate data sources and applications

Implementation

- Python
- HTTP requests
- JSON
- REST



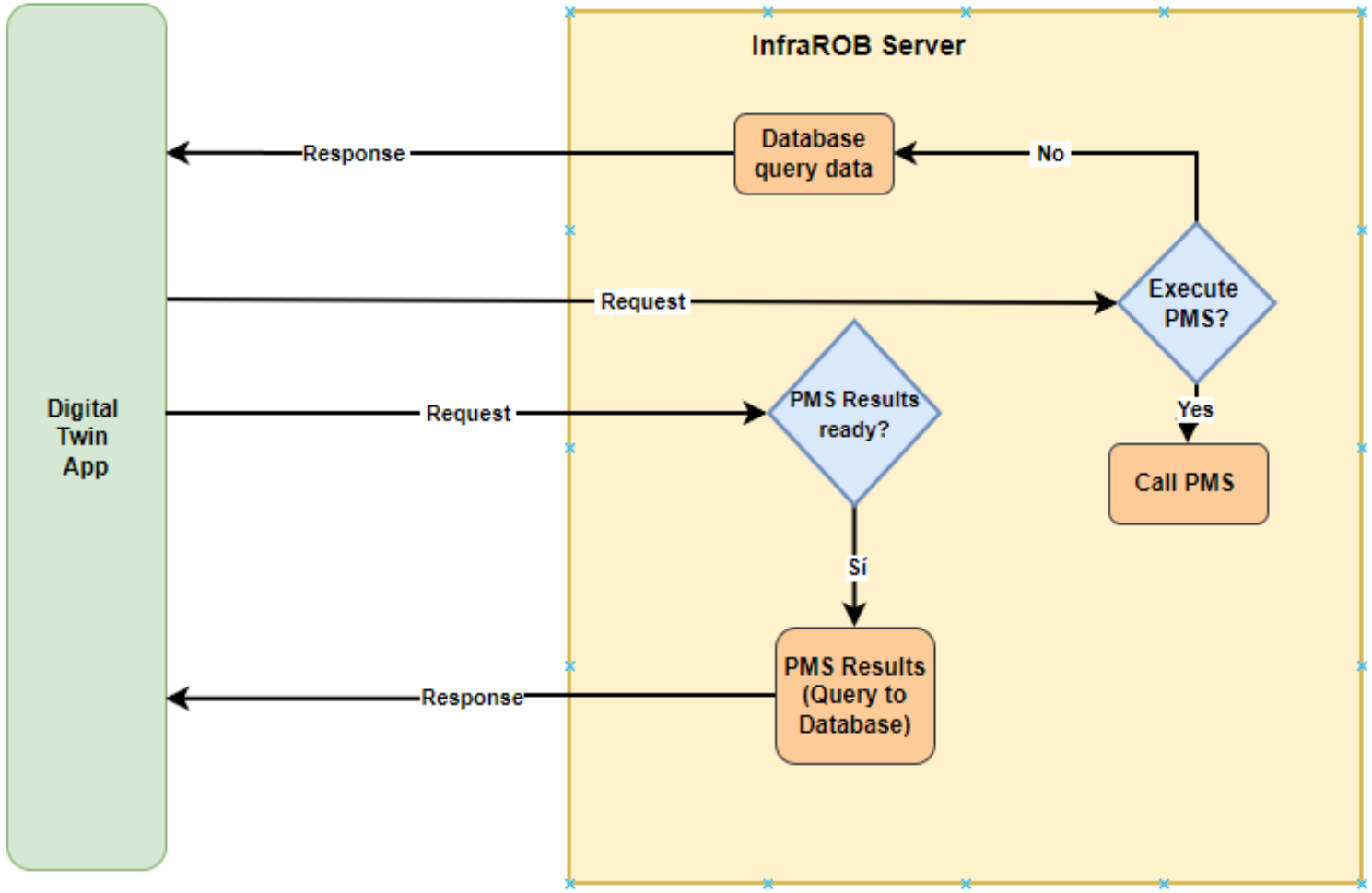


6. DT-PMS communication

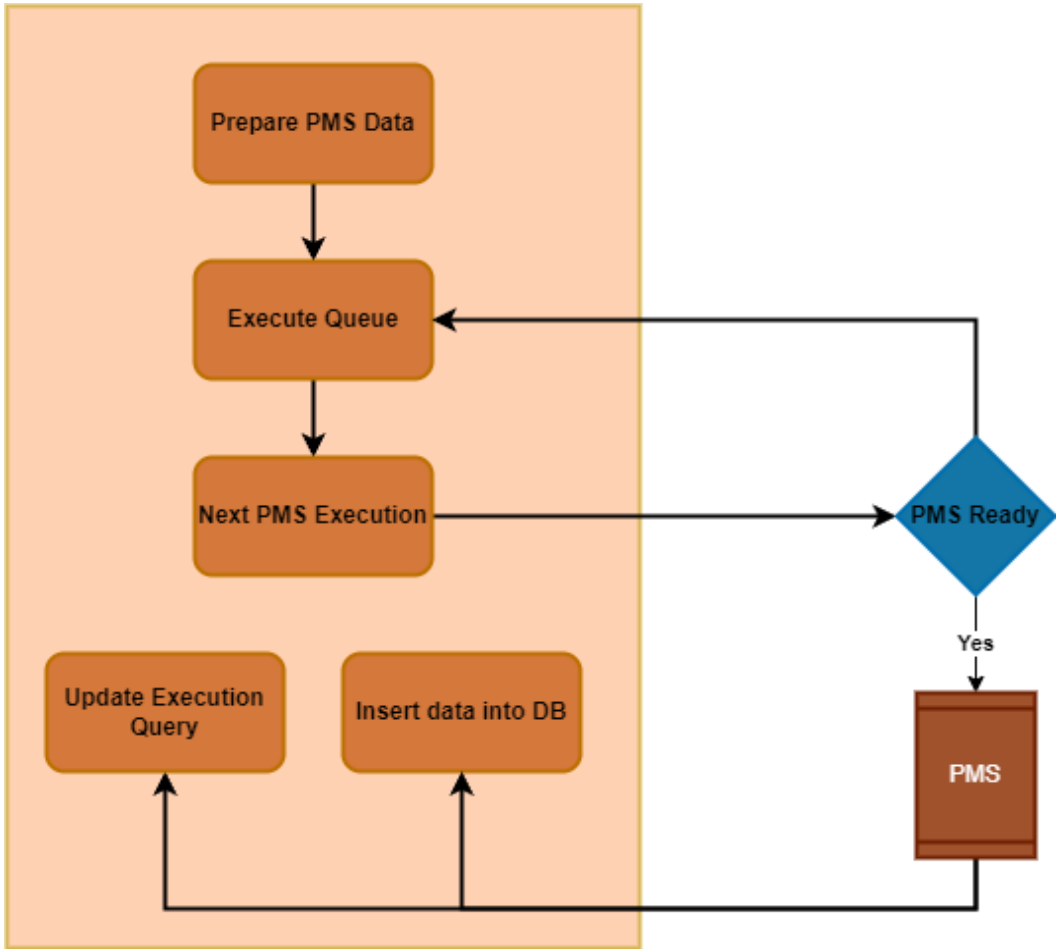
Synchronization DT-PMS

- PMS Execution time
  - From seconds to minutes
- Requirement
  - Not freeze DT – user interaction
- Solution
  - Unsynchronized PMS from DT
  - PMS requests queue

6. DT-PMS communication



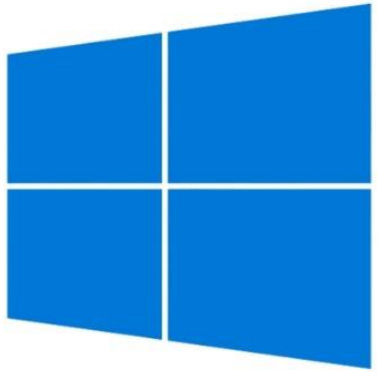
6. DT-PMS communication

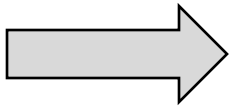


7. Components integration

Integration

- Digital Twin → Windows development
- PMS → Python
- Solution: *Docker containers*





8. Results

Validation

- Geospatial database
- Data collection
- Digital Twin and PMS integration
- Communications between database, DT and PMS
- Errors situation

Thank you for your attention

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Infra ROB

Maintaining integrity, performance and safety of the road infrastructure through autonomous robotized solutions and modularization

Project Partners

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