Building a smart public lighting system

03 June 2021

SPIE Nederland B.V.

SPIE, sharing a vision for the future

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- Elements of the smart lighting system
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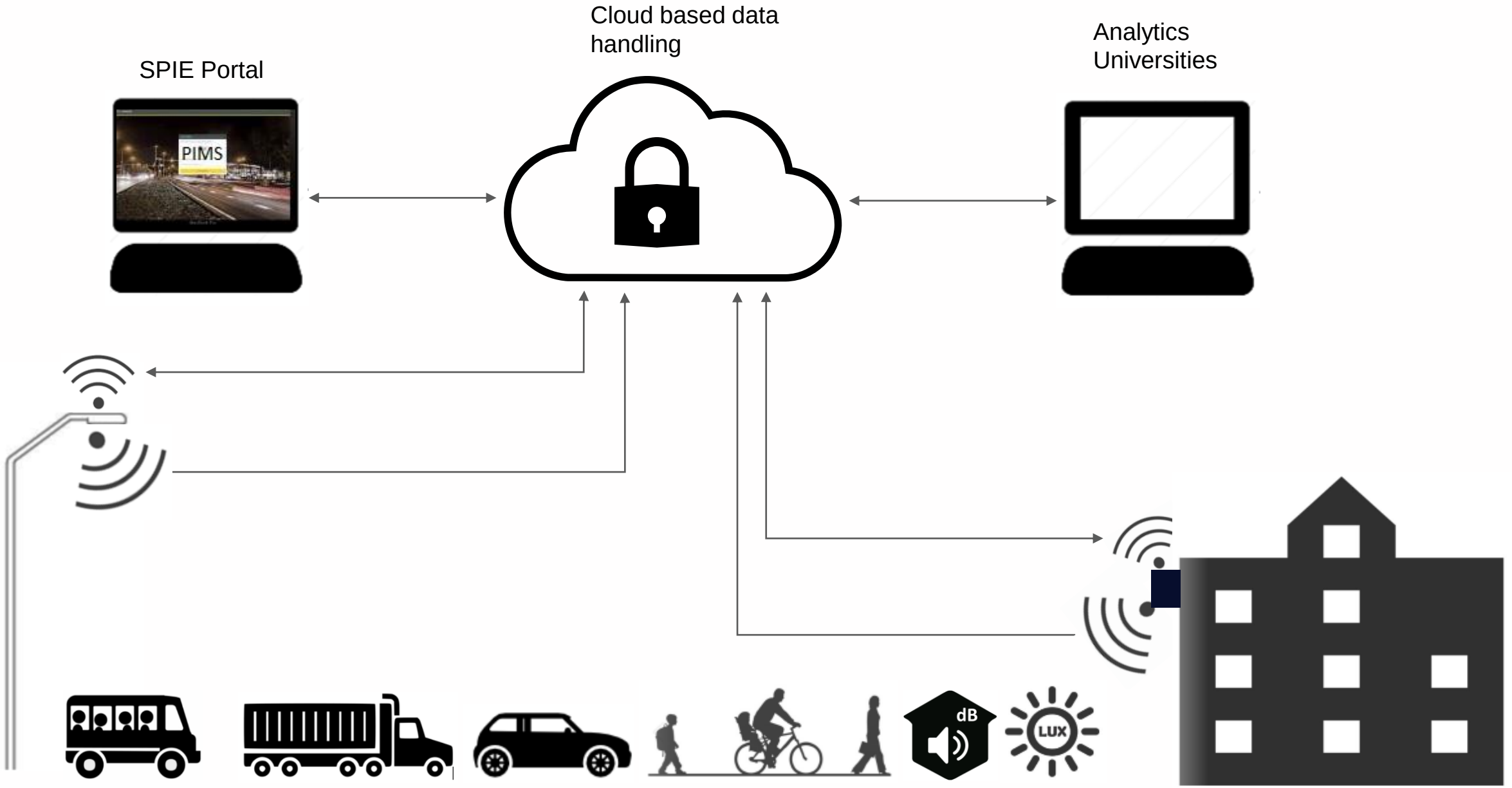
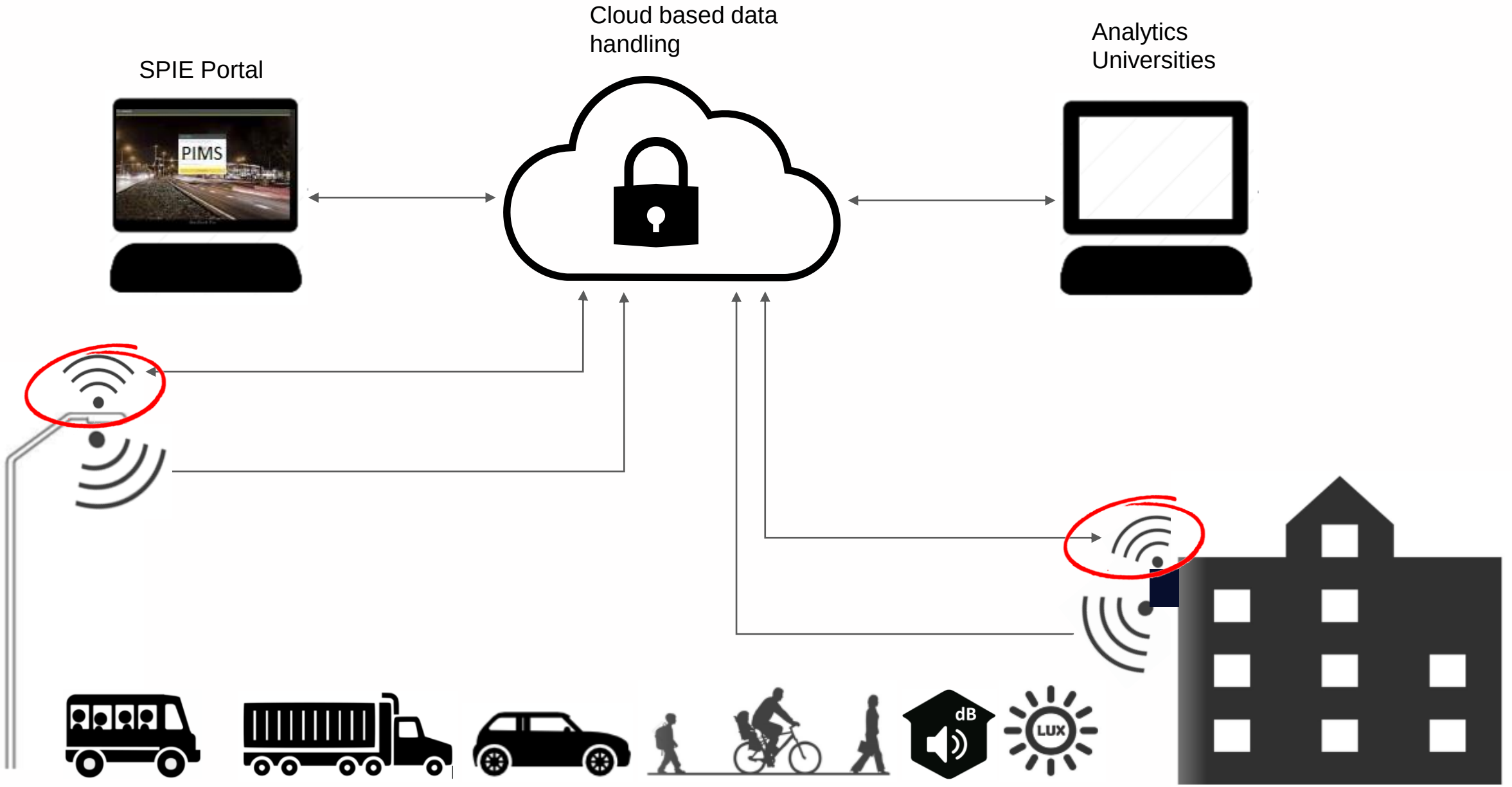
System Architecture

System Architecture



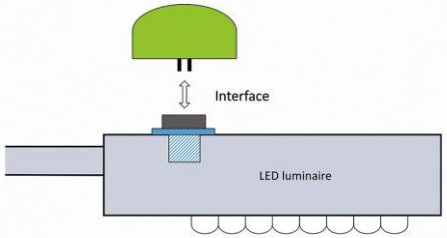
Elements of the smart lighting system

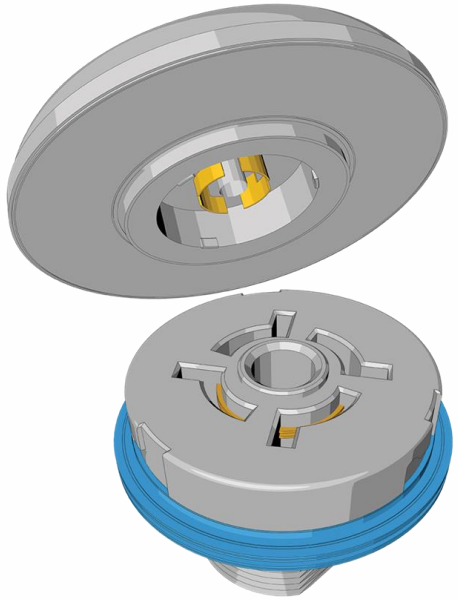
System Architecture



Telecontrollers

Standard connection on luminaire:
Zhaga connector





An interoperable system requires the use of standards.

SMART-SPACE: combination of Zhaga connector and D4i driver.

Telecontrollers

Four types of Telecontrollers that can control:

1. Light intensity – **Standard Telecontroller 2.0**
2. Light intensity & color temperature – **Tunable White Telecontroller 2.0**
3. Light intensity & color – **RGBW Telecontroller 2.0**

4. Luminaires without Zhaga – **Dali 10 Dim**

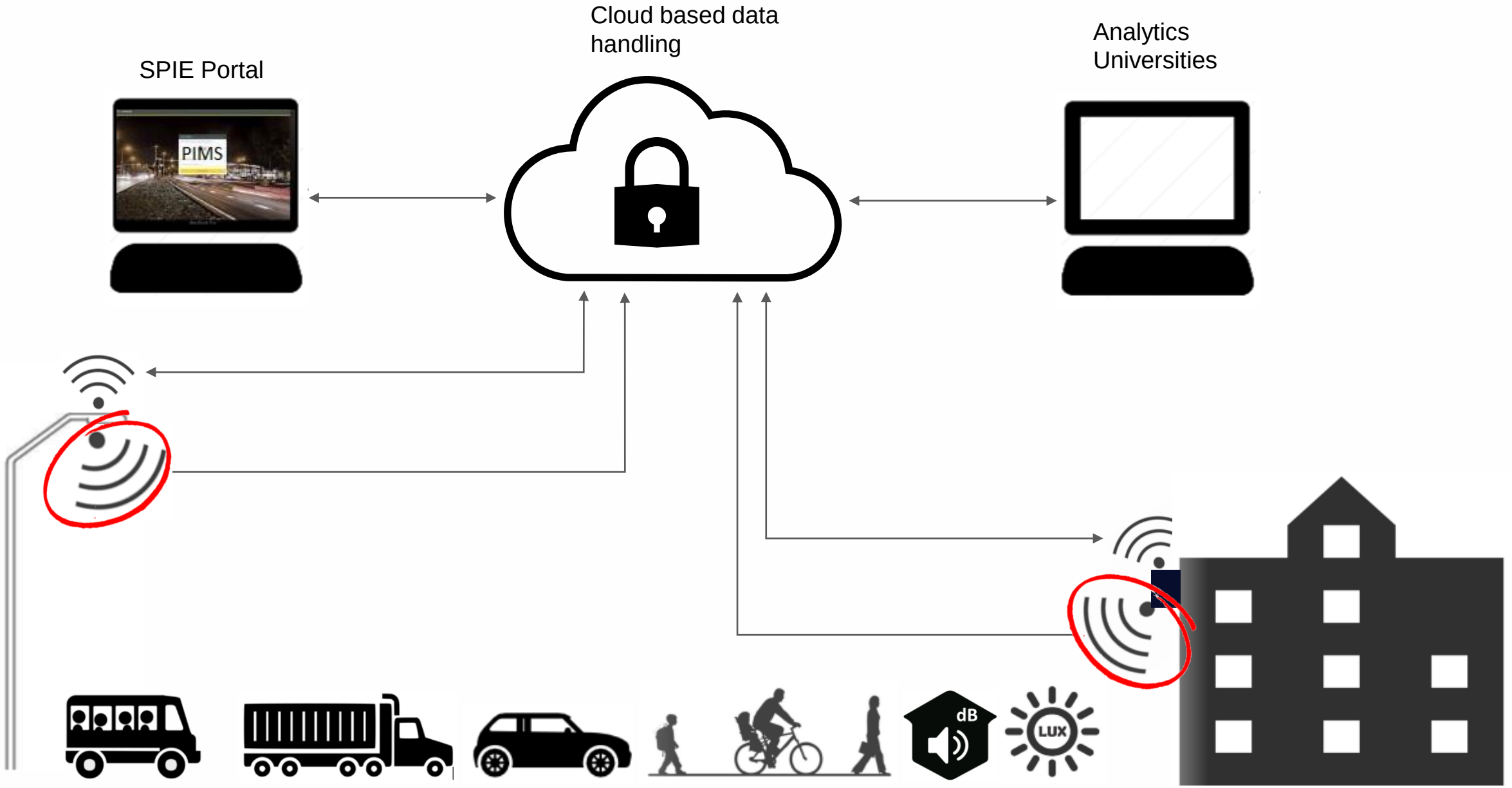
Standard, Tunable White & RGBW Telecontroller 2.0

Telecontroller 2.0 on a luminaire

Dali 10 Dim

Telecontrollers

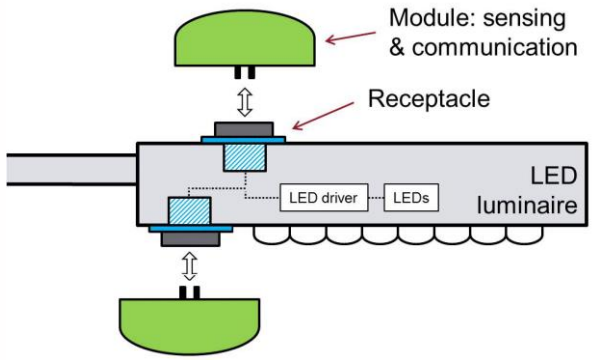
System Architecture



Sensors

Two ways to integrate sensors:

1. Zhaga connector

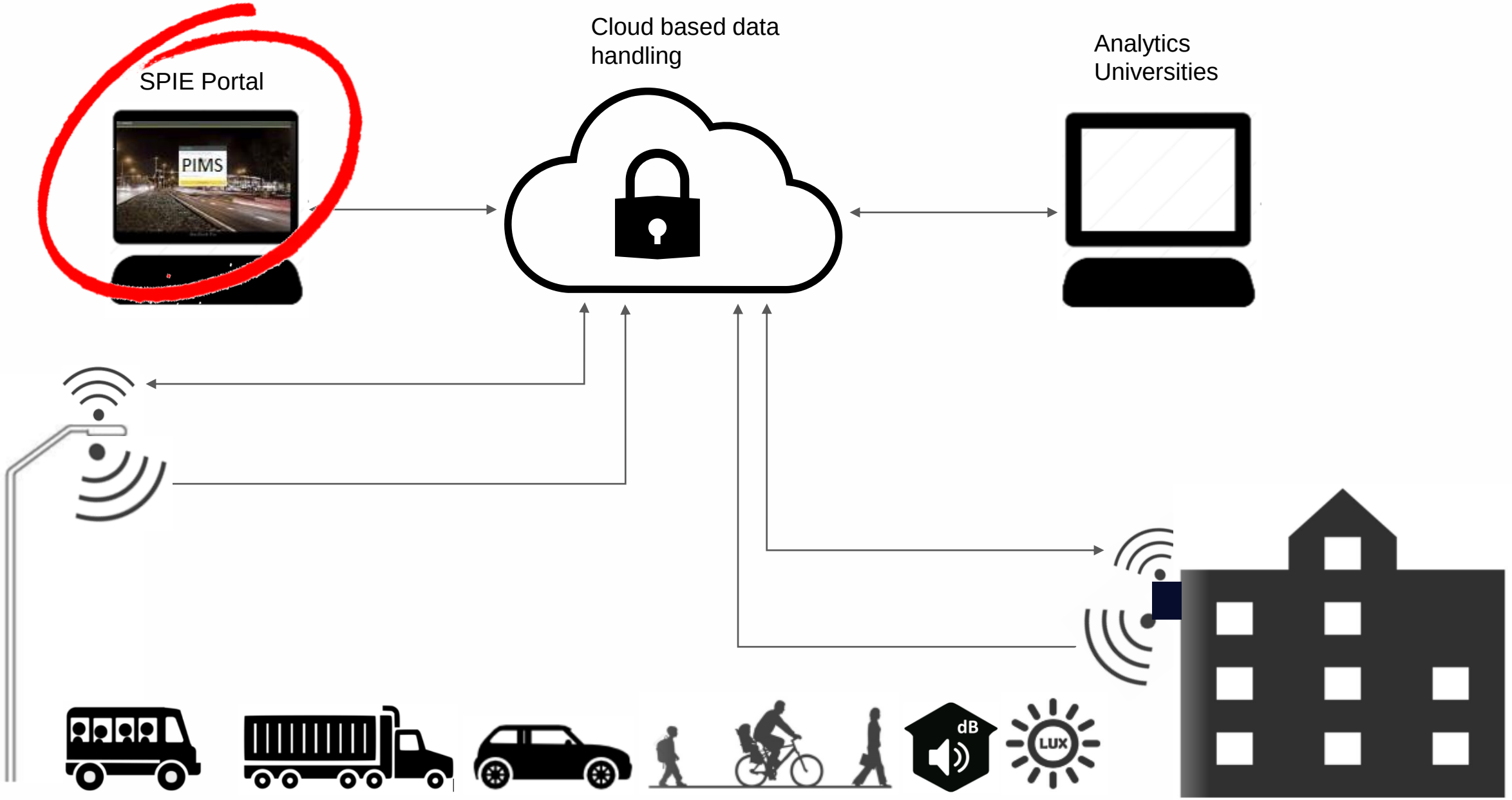


Able to intervene directly on the D4i driver.

2. Separate sensor

Able to intervene via the cloud-based data server.

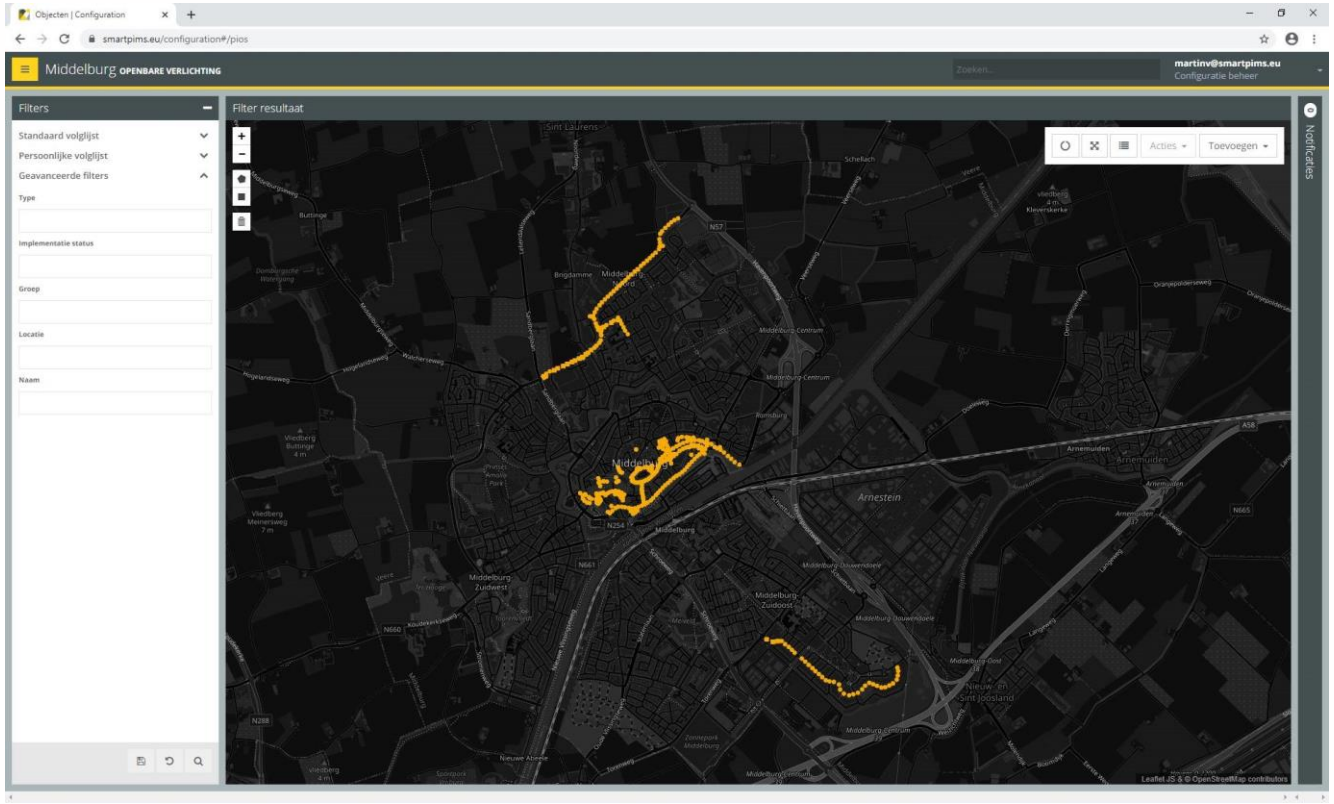
System Architecture



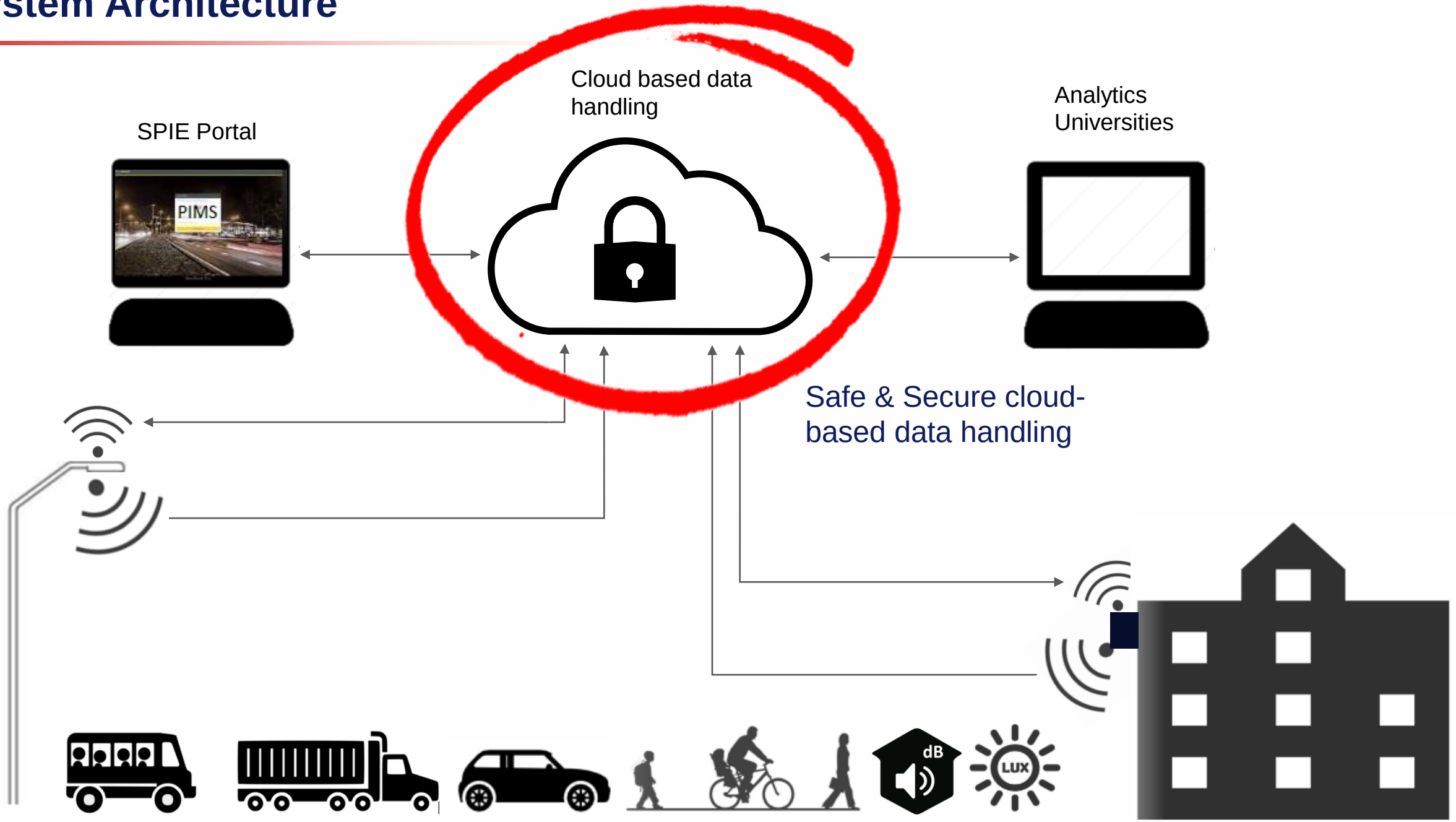
PIMS

PIMS – **P**ublic **I**nfrastructure **M**anagement **S**ystem

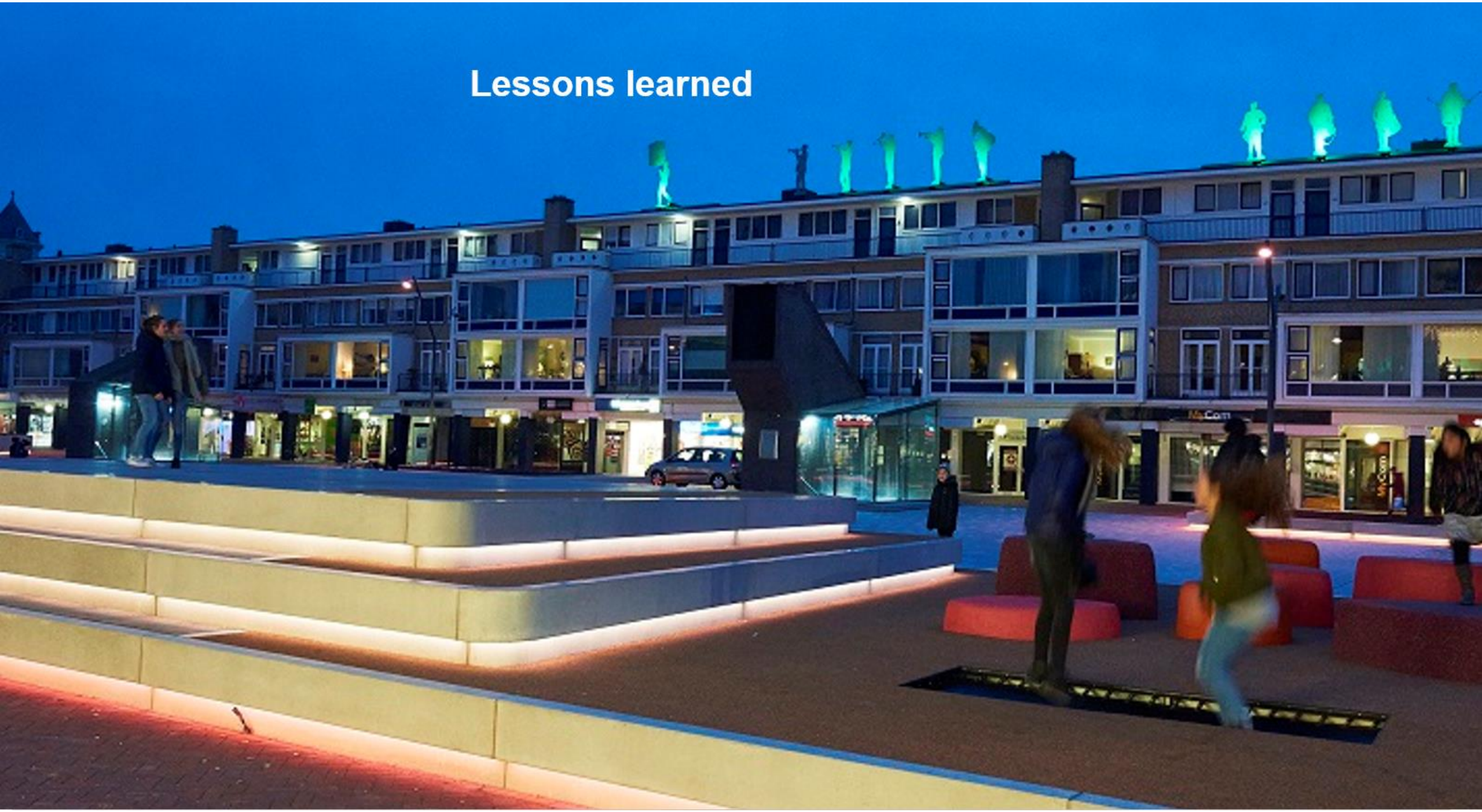
- **Operating system** as a standard for telemanagement of public lighting developed by SPIE
- Now: **expanding with more functions** to meet the needs of the project
- Aiming for a **modular structure** with multiple interfaces for PIMS



System Architecture



Lessons learned



Lessons learned

- **Interoperability** requires standards – If no standards have been set yet, try to implement them as soon as possible.

- Use an **integral design** in the beginning of the process – coordinate the decisions on hardware, light design and functionalities. Decisions taken too early can lead to system design limitations.

- The translation from needs and wishes of stakeholders to technical design specifications requires a **lighting designer**. For example: how do you describe pleasant light? What should be the color temperature and intensity of the light for a cozy street? What do you mean by safe lighting?

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