



I-Greenhouse

Final presentation

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Introduction

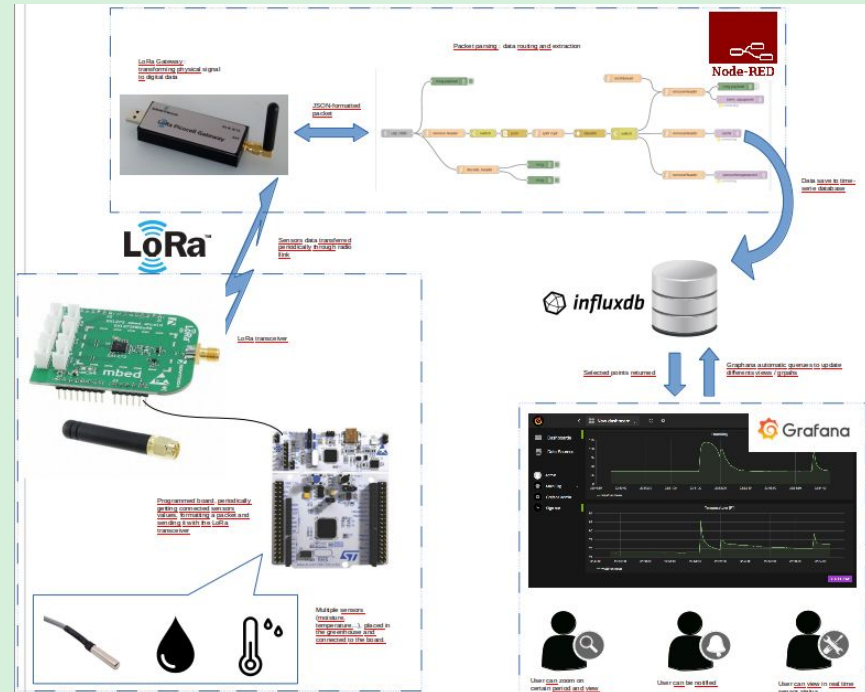
- Collecting measurements and display them for a farmer
- IoT : will take an important place in agriculture
- LoRa technology : the future of communications
- A collaborative project involving several MAT, IESE and RICM teams



What was done at mid-term presentation ?

Mockup we have presented during the JPO and the Anniversary

project ID	measure_value
1 byte	5 bytes (5 chars)



The objectives

Backend things

- Optimizing protocol with IESE
- Finishing and releasing Gateway
- Install LoRa**WAN** server

User-side : views, interactions

- Centralizing Graphana views (creating nice UI)
- Implementing alerts
- Test Jyze (proprietary but powerful!)
- OpenHAB integration



The objectives

Backend things

- ✓ Optimizing protocol with IESE
- ✓ Finishing and releasing Gateway
- ✓ Install LoRa**WAN** server
- ✗ Docker

User-side : views, interactions

- ✓ Centralizing ~~Grafana~~ **web page** views (creating nice UI)
- ✓ Implementing alerts
- ✗ Test Jyze (proprietary but powerful!)
- ✓ OpenHAB integration



The protocol

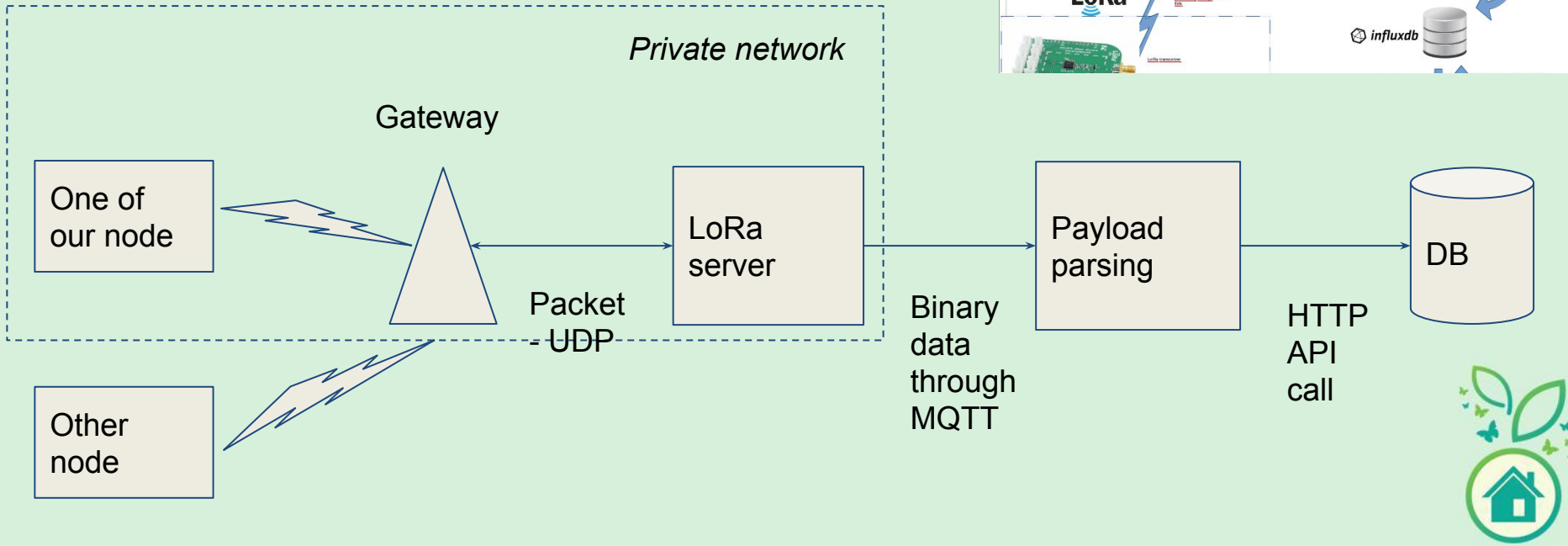
- Objective : Packet as short as possible
- Values concatenated without separators
- ID measurement : omit measurement if same value

sensor1_id	measure_value	sensor2_id	measure2_value	...
1 byte	4 bytes (1 float)	1 byte	4 bytes (1 float)	



LoRaWAN

- create our private network
- authentication and security only



WebPage with alerts

- Why a webpage ?
- Written with Express framework, npm package body-parser and plotlyjs as graphic library
- Alert with HTML5 notifications
- SMS notifications



Difficulty met

- LoRa technology and LoRaWAN
- Organisation
- Docker



Project management

- Team collaboration
- Regular meetings with definition of objectives and distribution of work
- Continuously having a running project
- Communicate with IESE who have a different schedule



Conclusion

- Management knowledge : organisation of working with another team
- Technical knowledge : node-red, mosquito, influxDB, grafana
- Handle LoRa technology

