Monitoring the fleet of Sasa with Free Software

By Marco Pavanelli

00/2023

ABOUT SASA

- **Sasa is the largest local public transport company in South Tyrol.**
- **80 lines**
- **16 milions km every year.**
- **570 workers from 27 countries**
- **350+ Buses**
- **10 Hydrogen buses**

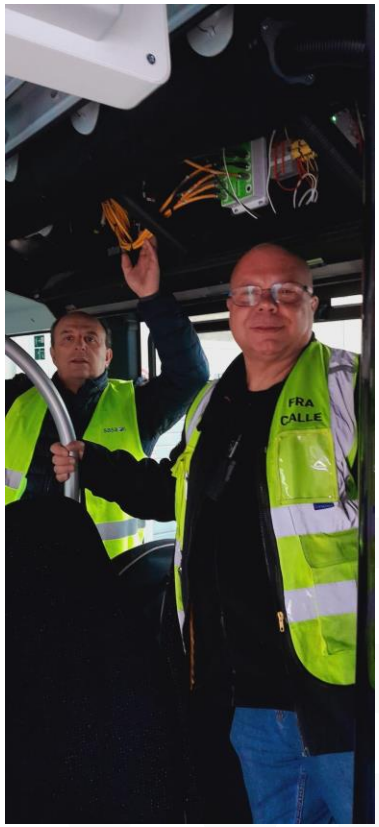
Sasa DEV TEAM

- The Sasa in-house DEV Team is an agile team of 4 senior developers.
- We develop web applications for internal use.
- We have a *strong* preference for open source development tools and frameworks.
- We use python, django, postgres, docker, git
- Good part of our applications are deployed in cloud

Sasa hardware team

This project is also hardware:

Like any IOT project you need **people on the field**, our **field engineers** installed Teltonika trackers modules on almost 400 buses



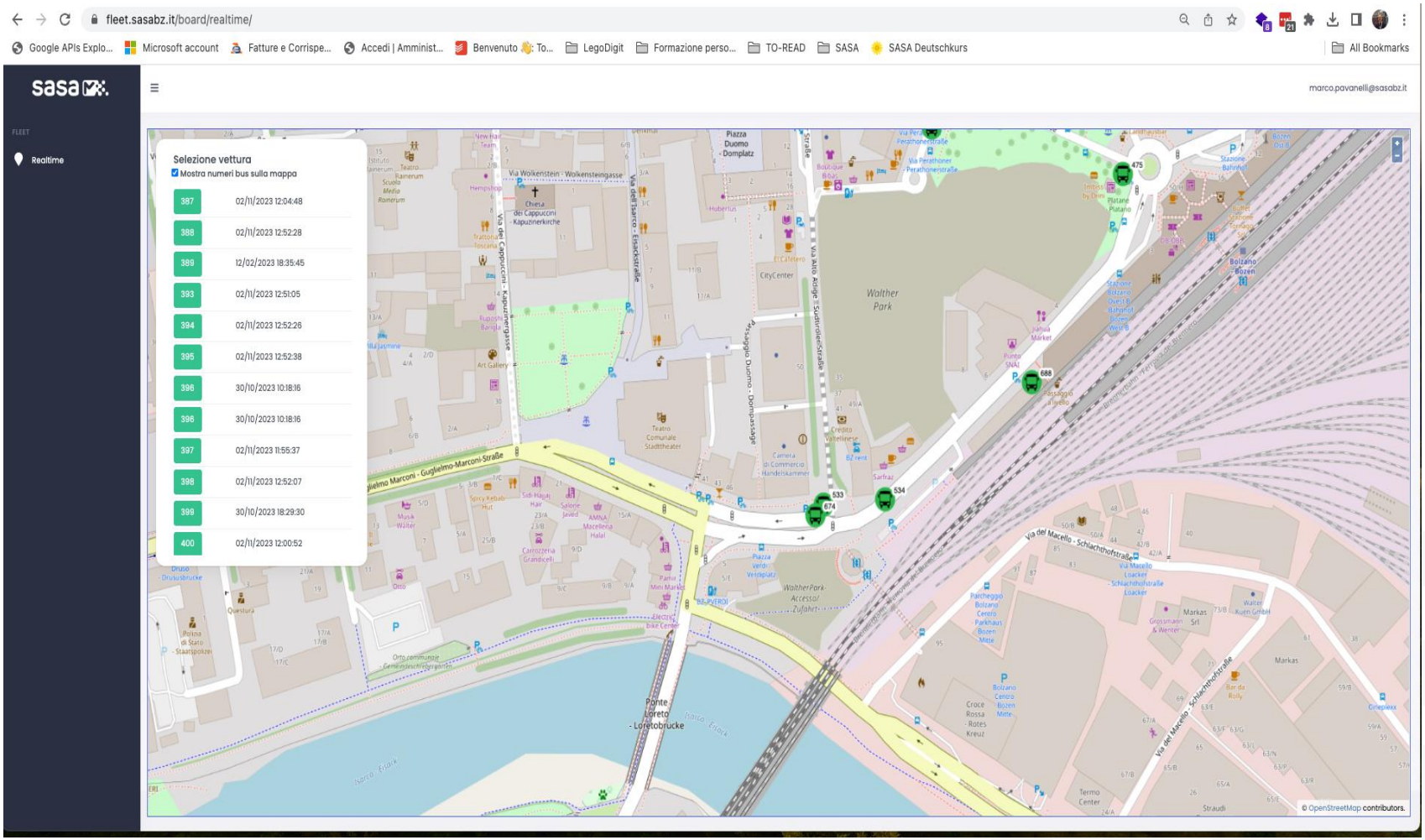
The Speaker

- I am Marco Pavanelli
- Team leader of the Sasa DEV Team
- Software developer for a loooong time
- Working for the public transport of South Tyrol for the last 10 years
- Speaker at few pycon events
- First time Speaker at SFSCON

The question ?

Is it possible to monitor our fleet of 400+ buses using free software ?

The answer is...



and MOBILE

sasa
marco.pavanelli@sasabz.it
Via Piave - Pavestraße
Via Dodiciville - Zwölfmalgreiner Straße
Via Renon - Rittner Straße
Raiffeisenhaus
Landhaus 3b Palazzo provinciale 3b Landtag - Consiglio provinciale
Infopoint
Bolzano
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Selezione vettura
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Why monitoring?

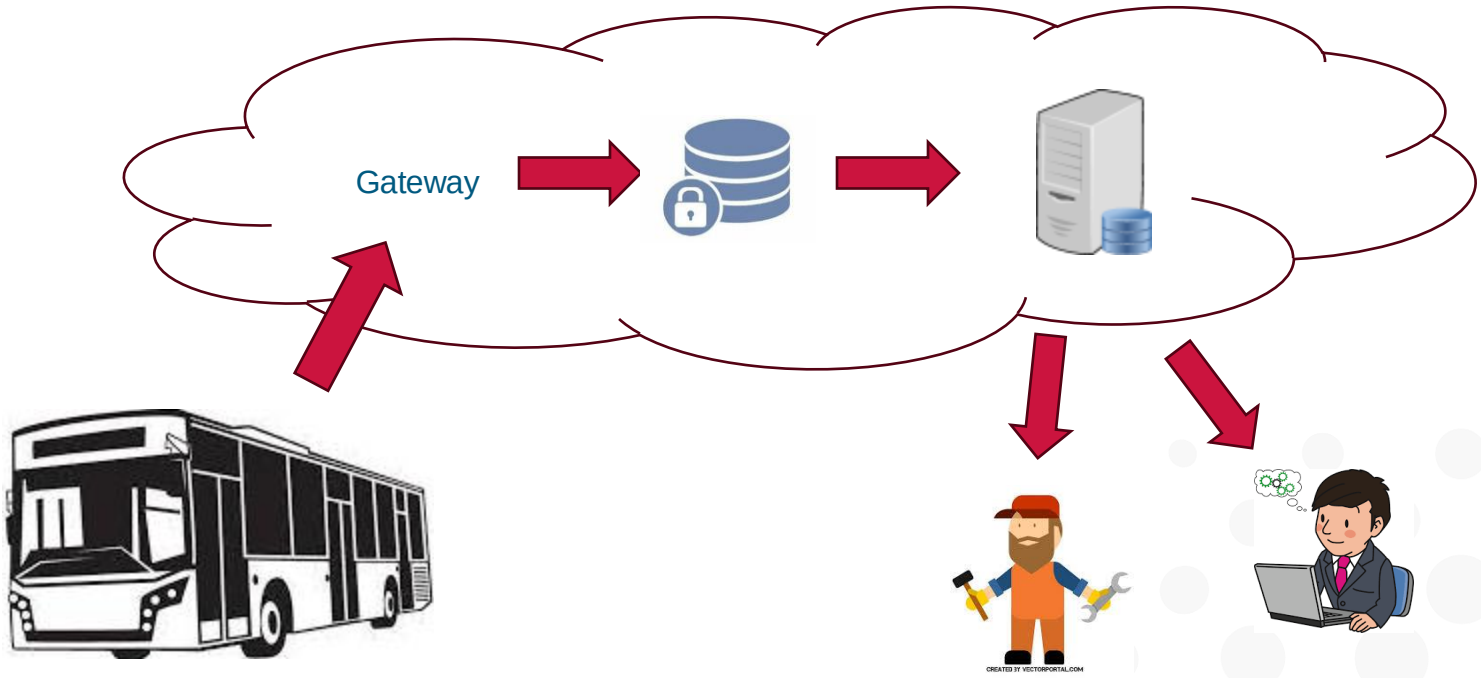
- There is (of course) plenty of reasons why a company might want to know where are its assets

- Safety
- Quality of service
- Statistics

Why developing internally?

- Temporary solution (there is a new solution been deployed)
- Needed to be out rapidly and not too expensive
- Flexible (may need to change on the way)
- We had know-how internally
- It's super-fun (but please do not tell my boss)

Project Overview



Architecture 1

Binary GPS Data

010010101010101
010011101001011

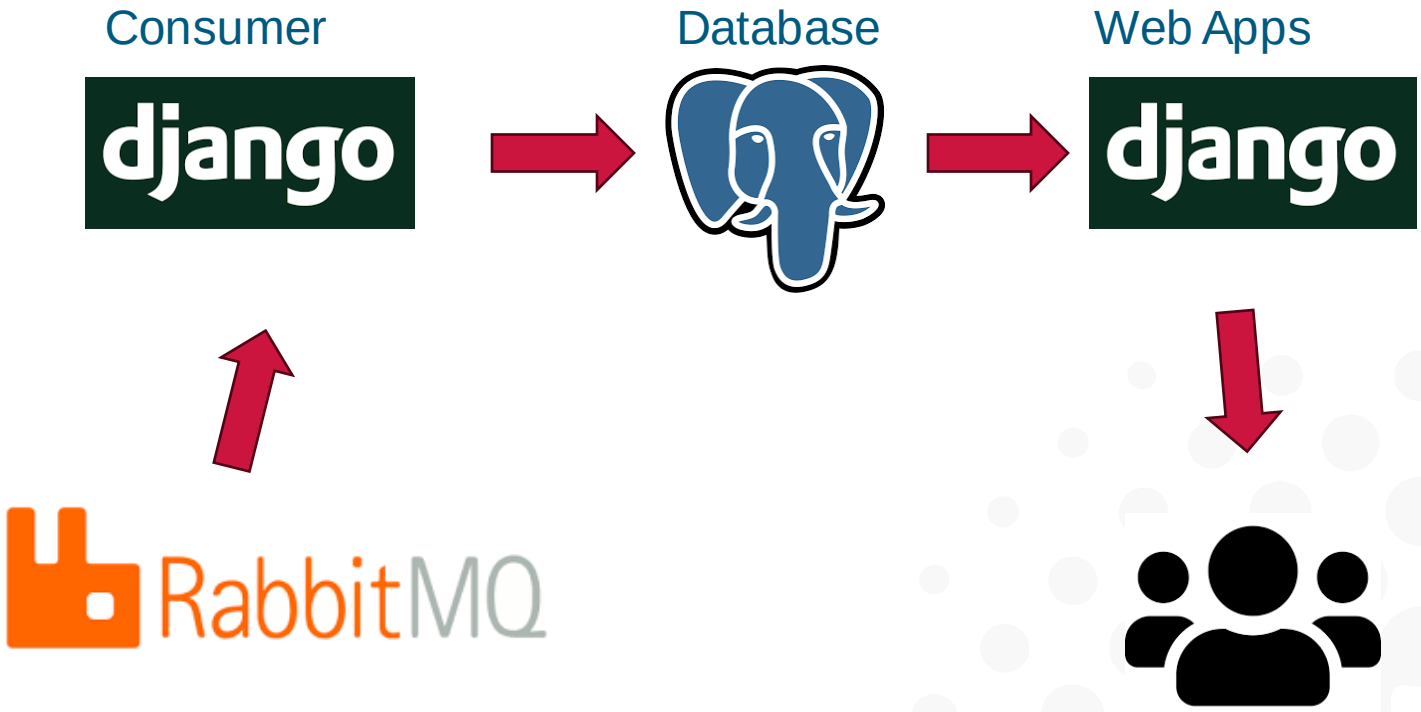
Teltonika

Pure Python gateway

{json}

RabbitMQ

Architecture 2



Conclusions

- Code is only a part of this project, there is harware, a long deployment process, setup, constant monitoring; many FS tools are fundamentals to achieve production level stability and resilience

- Writing software "in-house" is possible and FS tools help (a lot) making it stable and resilient

Contacts

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