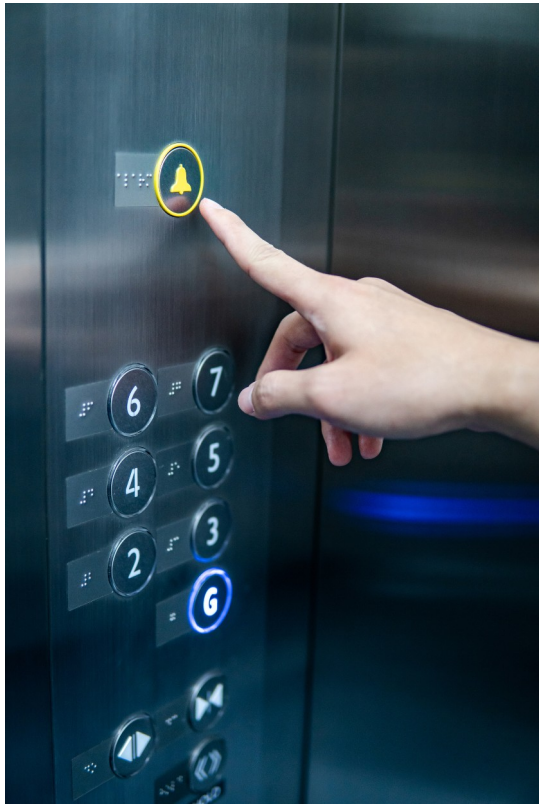
OpenACS as an integration platform for legacy and IoT devices

Patrick Heissenberger

en81-28

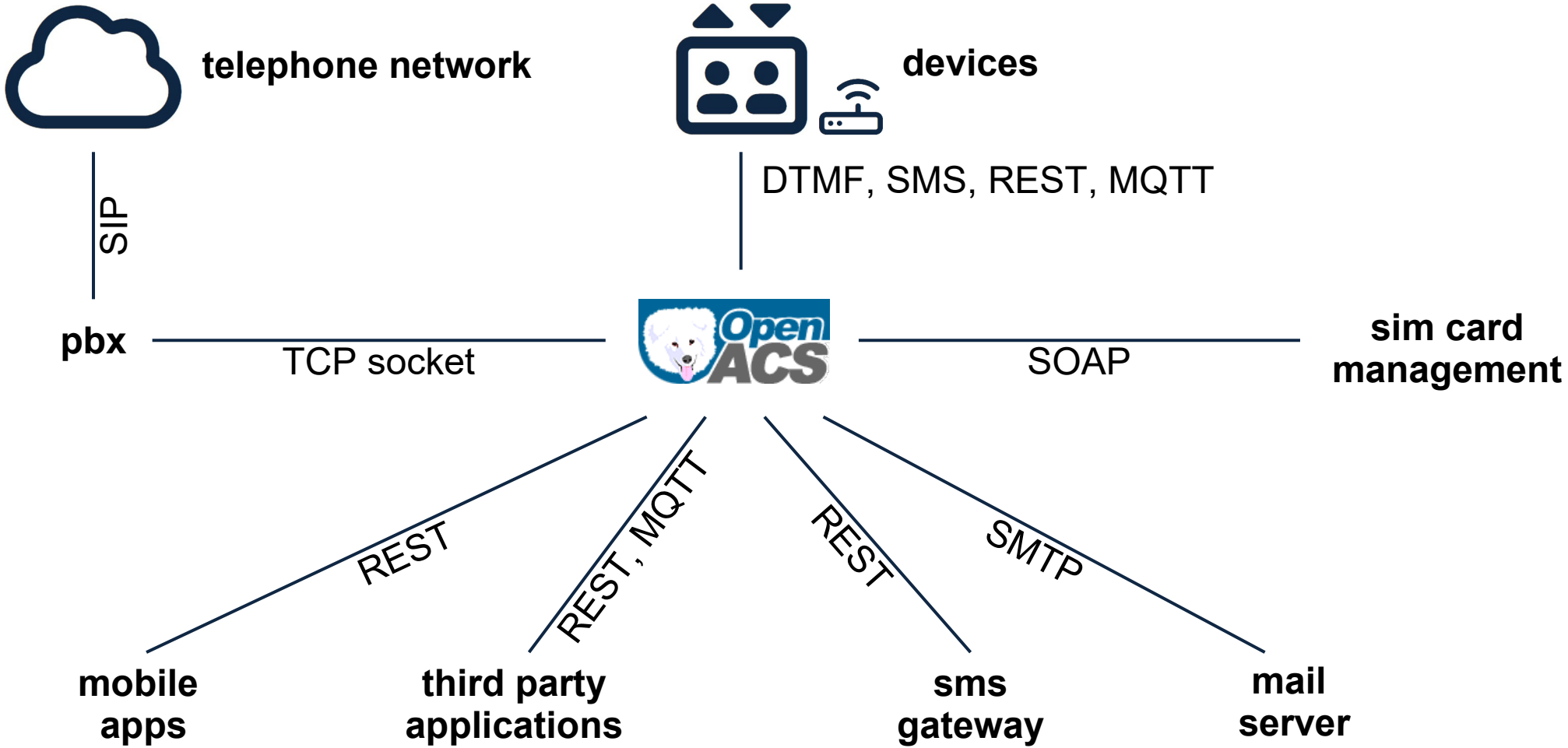
- EN 81
  - safety rules for the construction and installation of lifts
- part 28 is an extension
  - remote alarm on passenger and goods lifts (=lift emergency telephone)
- standard requires
  - identification of lift
  - automated test call (3 days)
  - automated battery check (1 hour)



communication – as it started

- dual tone multi-frequency (DTMF)
  - 16 characters (0-9, A-D, *, #)
- in-band transmission
- examples
  - 385199271330
  - 48223520011B
  - 564565001

communication – today



devices

- more than 25,000 connected devices
  - e.g. lifts, camera systems, data connections, narrow casts, intercoms, heating systems, escalators, door installations, 4G routers, ...
- sending 150+ different message types
  - e.g. rides counter, door move counter, stuck emergency button, main power failure, battery failure, ...
- over 10,000,000 times a year

gluing things together

NGINX

APACHE HTTP SERVER PROJECT

NaviServer

mosquitto

OpenACS

Asterisk

Jasper

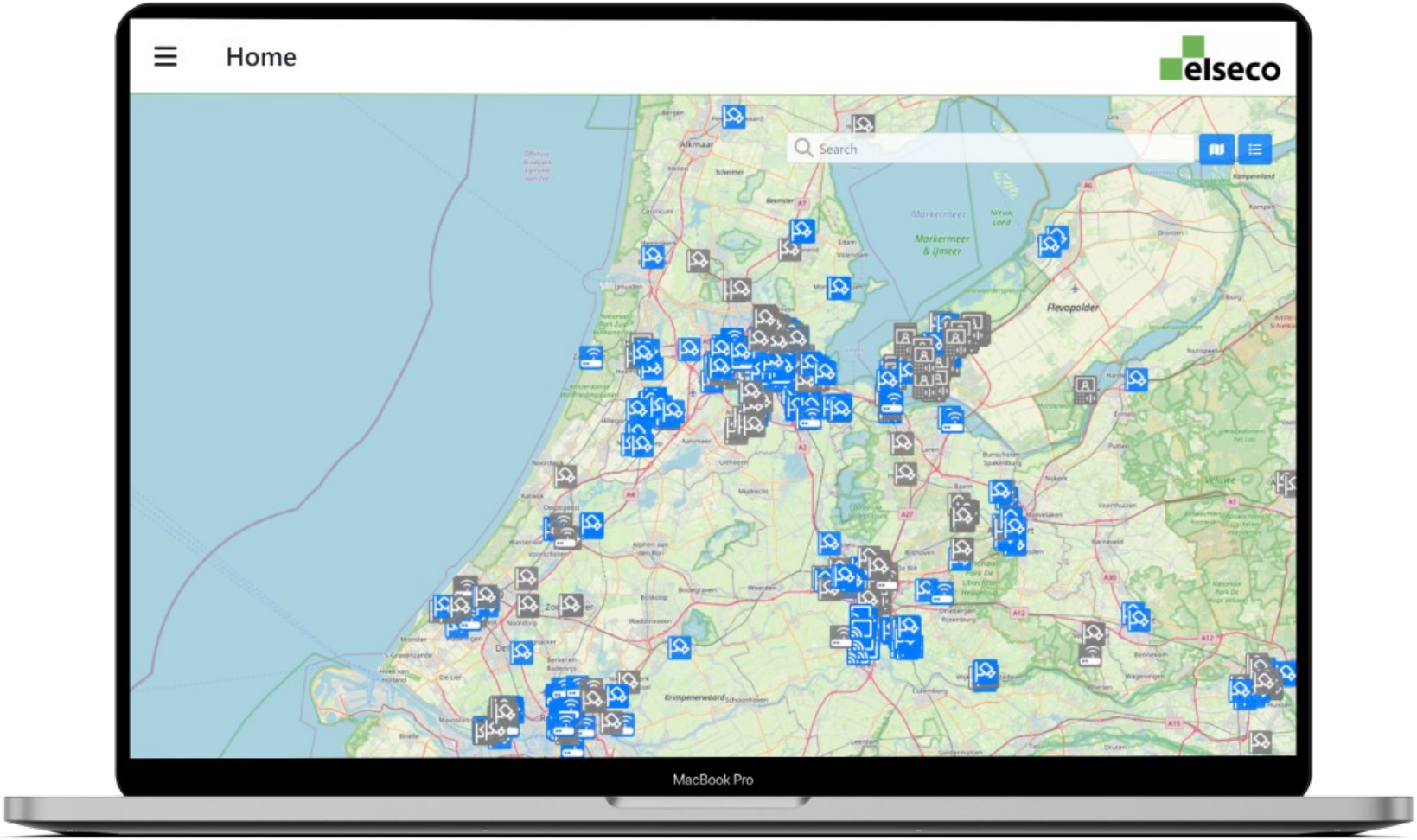
node JS

SMS Server Tools 3

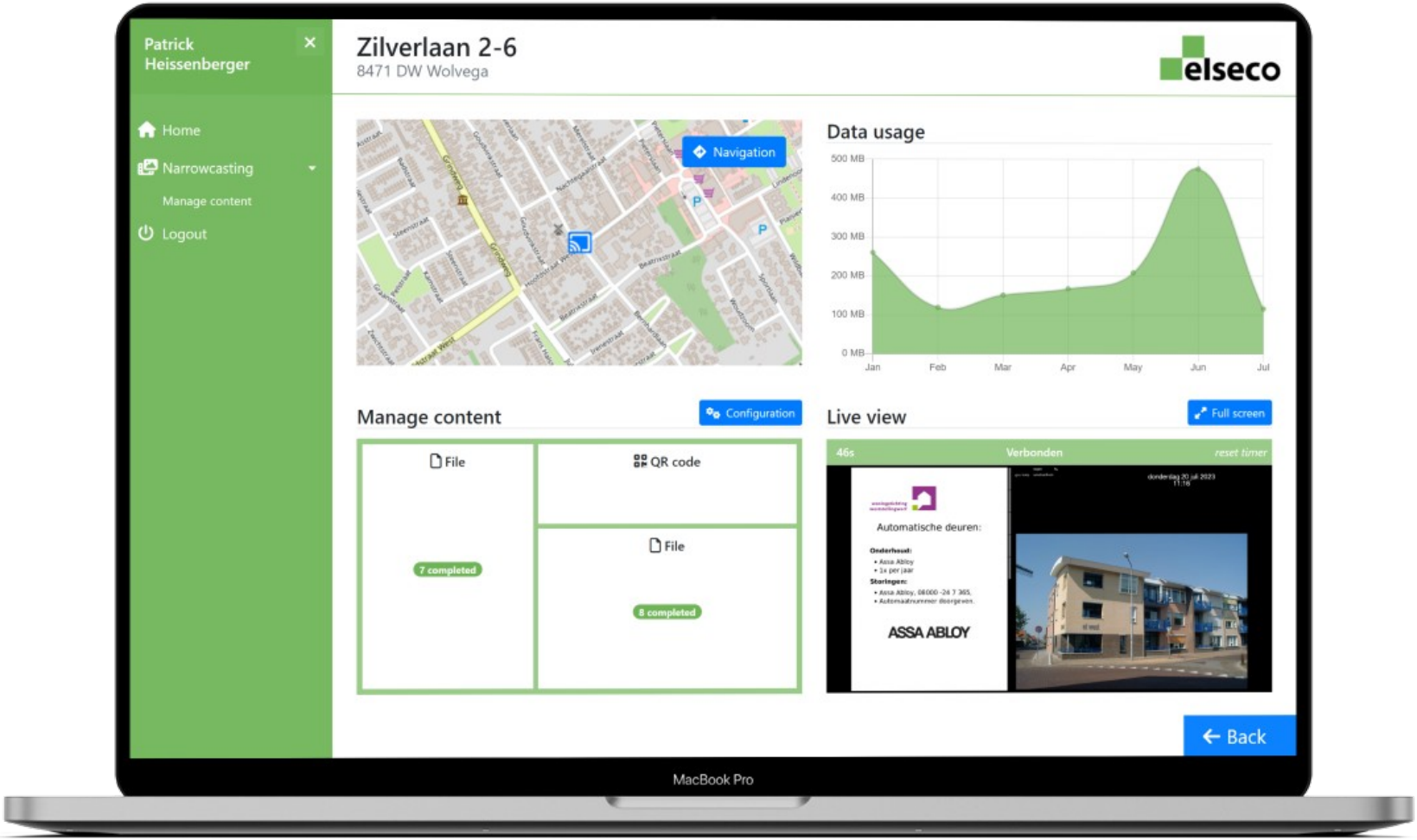
portal

- 2 OpenACS instances
  - data platform for various third party applications
- 4 websites
  - using subsites with different themes
- 3 languages
  - English, Dutch, German
- 1,500 users
  - using it as a daily working tool

portal



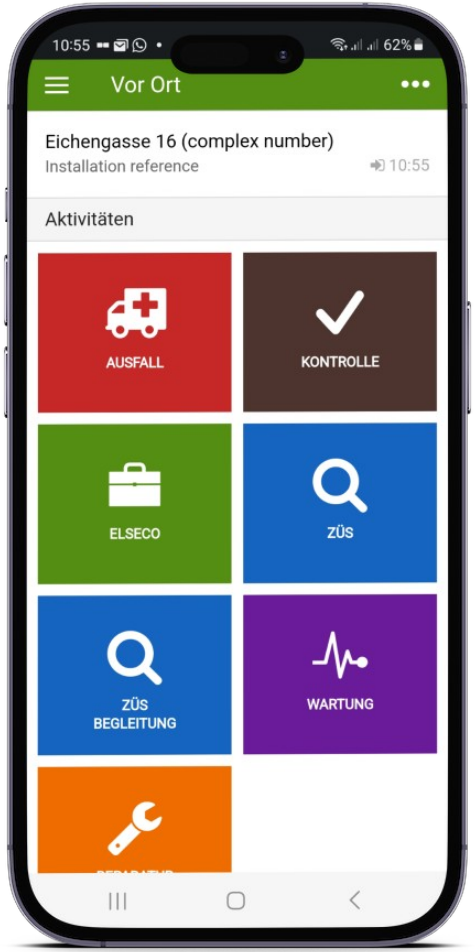
portal

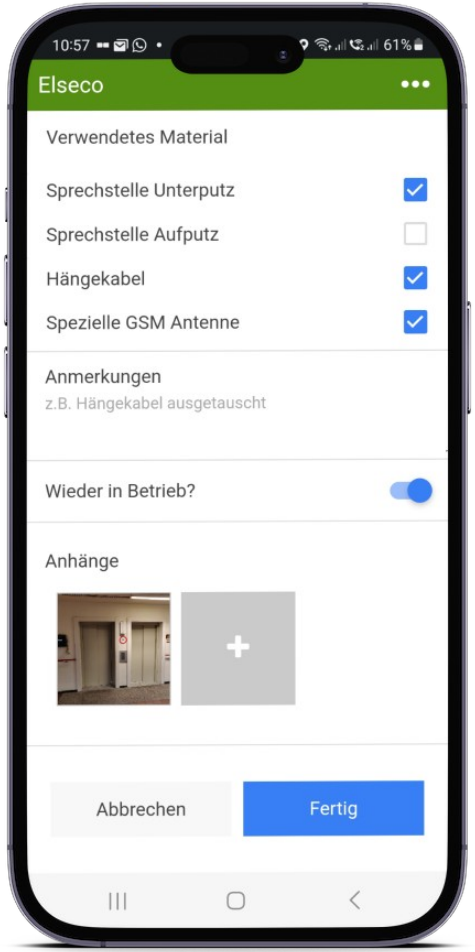

Patrick Heissenberger
Home
Narrowcasting
Manage content
Logout
Zilverlaan 2-6
8471 DW Wolvega
elseco
Navigation
Data usage
500 MB
400 MB
300 MB
200 MB
100 MB
0 MB
Jan
Feb
Mar
Apr
May
Jun
Jul
Manage content
Configuration
File
QR code
File
7 completed
8 completed
Live view
Full screen
46s
Verbonden
reset timer
Automatische deuren:
ASSA ABLOY
Back
MacBook Pro

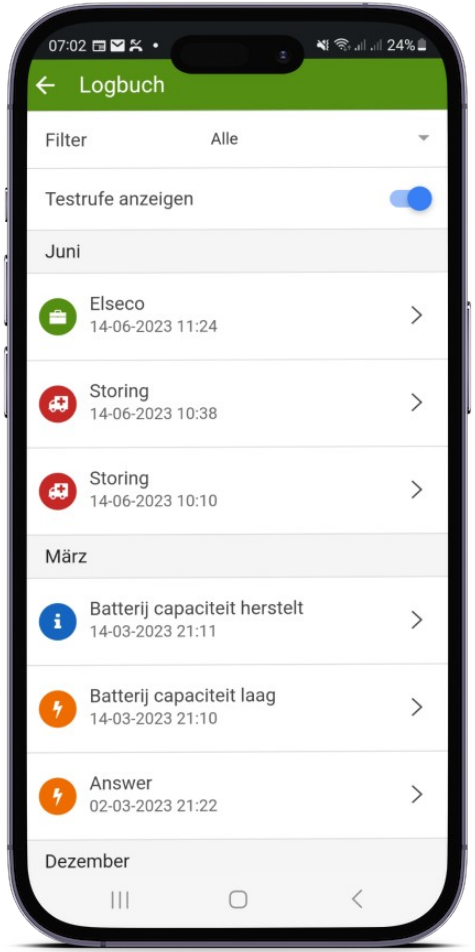
mobile app

- Android and iOS
- OpenACS as backend
  - REST API (used for third party apps too)
- report work on site (proof of work)
  - What? Who? When? Working time?
- different user roles
  - e.g. maintenance technicians, consultants, inspectors, owners
- collecting data
  - e.g. used spare parts, photos, videos

mobile app


10:55
62%
Vor Ort
Eichengasse 16 (complex number)
Installation reference
10:55
Aktivitäten
AUSFALL
KONTROLLE
ELSECO
ZÜS
ZÜS BEGLEITUNG
WARTUNG


10:57
61%
Elseco
Verwendetes Material
Sprechstelle Unterputz
Sprechstelle Aufputz
Hängekabel
Spezielle GSM Antenne
Anmerkungen
z.B. Hängekabel ausgetauscht
Wieder in Betrieb?
Anhänge
Abbrechen
Fertig


07:02
24%
Logbuch
Filter
Alle
Testrufe anzeigen
Juni
Elseco
14-06-2023 11:24
Storing
14-06-2023 10:38
Storing
14-06-2023 10:10
März
Batterij capaciteit herstelt
14-03-2023 21:11
Batterij capaciteit laag
14-03-2023 21:10
Answer
02-03-2023 21:22
Dezember

use cases

- device monitoring
- device programming
- device content management
- device firmware upgrades
- measuring quality of service
- establishing secure connections to iot devices
- sim card management
- notifications and reporting
- ...

business model

- independent third party
  - measuring service quality of maintenance companies and installations
- reducing total costs
  - maintenance companies get paid by service quality (e.g. uptime lift)
- damage prevention
  - repair damage while it is still small
- digitization
  - turn labor intensive tasks into digital solutions (e.g. bulletin board)