OpenACS as an integration platform for legacy and IoT devices

Patrick Heissenberger
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

- telephone network
- devices
  - DTMF, SMS, REST, MQTT
- pbx
  - TCP socket
- SOAP
- sim card management
  - SIP
  - DTMF, SMS, REST, MQTT
  - SMTP
  - REST
  - REST, MQTT
  - SMTP
- mobile apps
- third party applications
- sms gateway
- mail server

### OpenACS

**REST**
- mobile apps
- third party applications

**SOAP**
- sms gateway

**SMTP**
- mail server
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

NaviServer

mosquitto

OpenACS

Asterisk

Jasper

node

SMS Server Tools 3
- 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
mobile app

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