



Ruter Dialogue Conference

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André Philipp, System Developer
Oslo, 14th January 2016

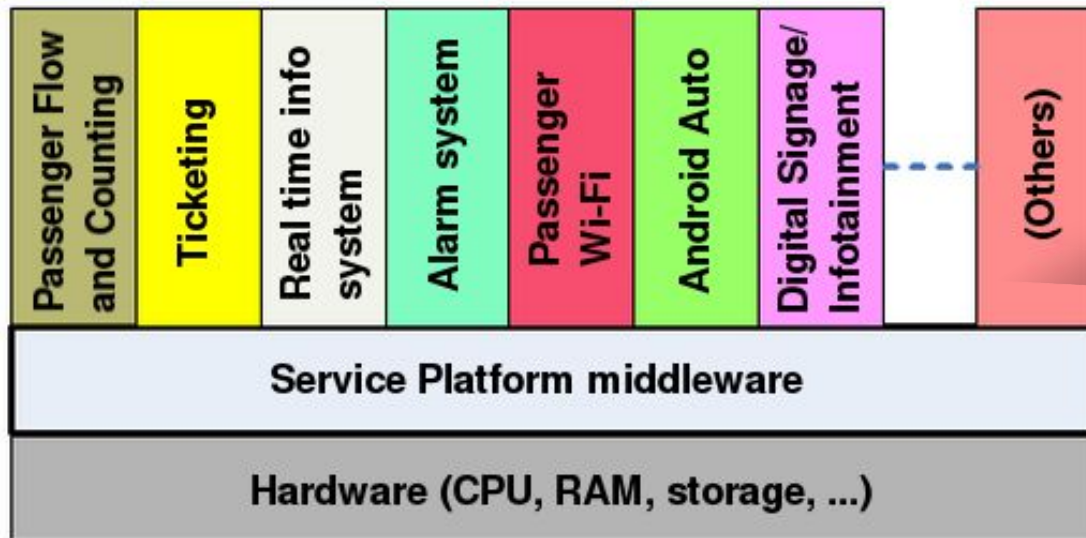
FourC Fact Sheet

- Start-up - founded autumn 2013
- 10 employees, ~7.5 FTE
- Offices in Trondheim, Norway and UK
- +30 FTE experience in ICT solutions for PT

- Large R&D project (~€4M) with e.g.
 - Sintef and the Research Council of Norway
 - AtB (S-Tr county), Kolumbus (Rogaland county), Troms Fylkestrafikk (Troms county), Nord-Trøndelag county
- Project OpenSP: Open Service Platform for PT, including:
 - Passenger Flow Analysis service

Open Service Platform - OpenSP

~~“one computer for each and every function...”~~



- Many suppliers with a range of “services”
- Break the “lock-in” to particular suppliers
- PTA regains control and can easily change service supplier

Cities in Motion Service Platform principles

Principles and Technologies:

- Use internationally acknowledged standards
- In line with EBSF, 3IBS and ITxPT etc.
- Transmodel-based (inc. NeTEx and SIRI)
- GTFS/GTFS-R import/export
- RegTopp import/export
- REST API
- All customer data available on API
- Web GUI
- It must be extremely easy for **all** suppliers to offer their services on the platform!

Server-side connected services:

- Open Source-based travel planner (OpenTripPlanner)
- Open Source-based real time/prediction service



Cities in Motion Service Directory

A service platform has no value without great services...

In-vehicle SaaS solutions:

- Infotainment / Digital Signage (3rd party / available)
- Driver Safety (3rd party / 2017)
- V821-compliant ticketing (2016)
- ID- and account based ticketing (project / 2018)
- Beacons (3rd party / 2016 or 2017)
- Passenger WiFi (2016)
- Open Source-based real time (2016/2017)
- FMS/Fleet management (3rd party / 2016)
- Single Sign-On (2016)
- What more !???
 - INNOVATE! TEST! PLAY!



Cities in Motion Passenger Flow Analysis

- Detects passengers' electronic devices
- Uses standard and reusable hardware
- Estimates travelers from X to Y, including change of vehicle on the way
- Completely autonomous, no mobile app needed
- Completely anonymous and in compliance with EU privacy regulations
- Maps, graphs and table presentations
- All data on API for "big data" analysis and connection with other data sources (e.g. by Affecto)
- GIRO Hastus NetPlan

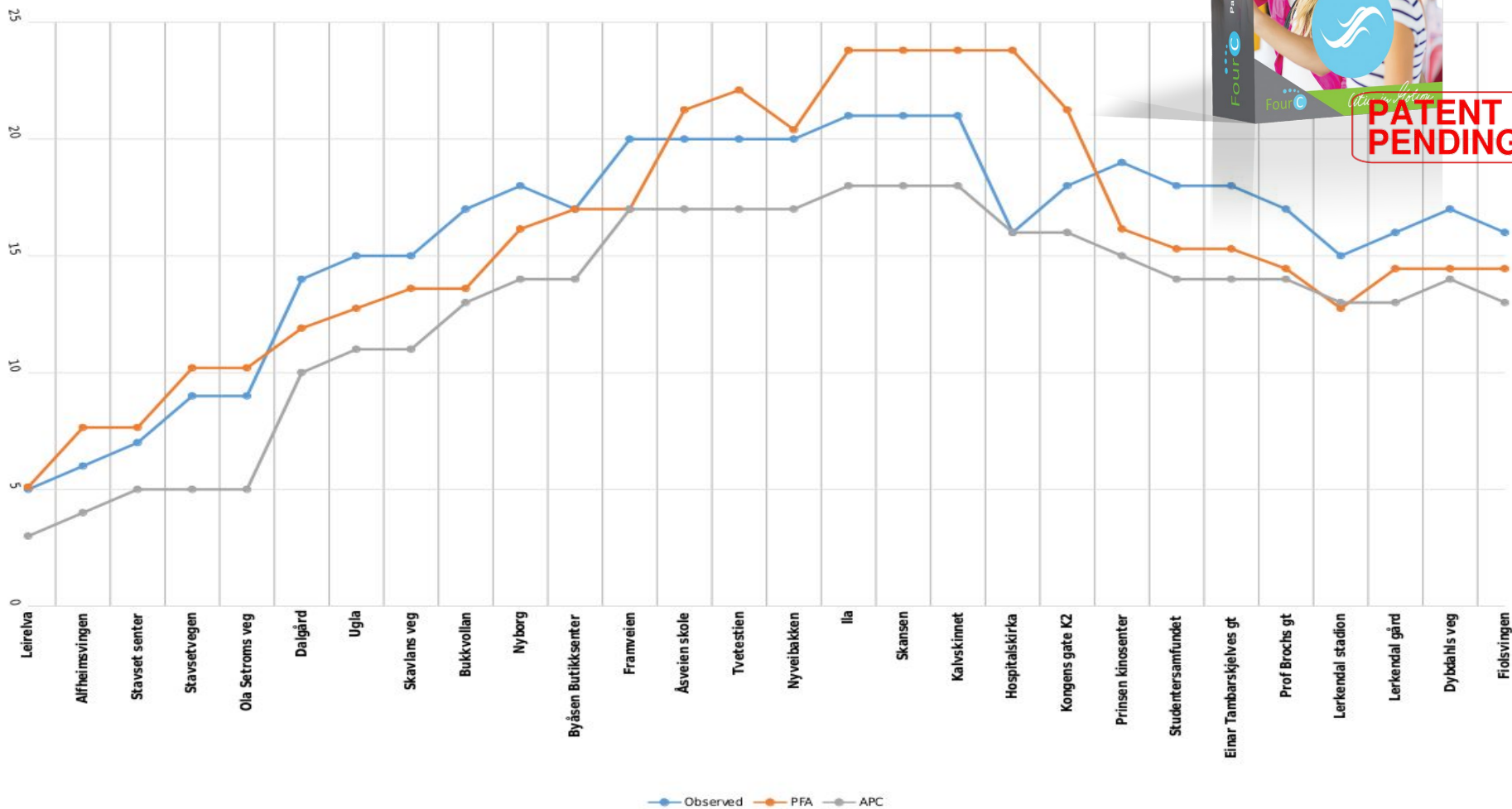


Passenger Flow Analysis, field test 13th January 2016

Rute 8 - Stavset - til Fiolsvingen



PATENT PENDING



Ruter question #1.a

How should Ruter move forward to achieve a future model where potential on-board systems and equipment (passenger counting included) are based on an open, service-oriented architecture, open interfaces and shared functionality, in accordance with common European standards?

- Require non-proprietary equipment
- Exclude offers that are obviously not compliant to open standards

Ruter question #1.b

What considerations are important to make regarding the acquisition of a future-oriented solution for passenger counting?

- Cost model
 - Huge investments in non-standard equipment is not future-oriented...
- Ask: Do you use standard hardware?
 - Why not?
- Ask: Can we use “your” hardware with other suppliers software, optionally concurrently?
 - Does that include in the vehicle too ?

Ruter question #1.c

What different solutions and delivery models for passenger counting should be considered, and which are preferred?

- Stop automatically thinking “system purchases” with long contracts (and more or less hidden “lock-in”)
 - ~~Long contracts~~ => Shortest possible contracts !
 - Think “SaaS”! Make foundation to be able to change service provider instantly if desired
- Technically WiFi/BT works well. Other sensors might be needed in the future - make sure they can be easily added

Ruter question #2

How can Ruter utilize counting data as customer information element?

- Show full rate in travel planner
- Show alternative routes if vehicle too full
- Offer passenger counting data to developers
- +++

Ruter question #3

What do you consider important that Ruter do, and how, in order to make it possible/interesting for you to participate in a tender?

- Specify industry standard equipment, open data and standard APIs
- Make the tender process more **innovation- and start-up** friendly:
 - References
 - ISO requirements
 - Accounting requirements
- Give input to need through 1-1 meetings so that standard solutions also will fit for Ruter
- Do not “overspecify” technical solution

Thank you !

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