NordicWay3 Interchange workshop

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28/01/2021

Agenda

1. Opening and participants (Ilkka Kotilainen, Finland), 12-12.10 CET
2. Basics: what is Interchange Node and Interchange network, what does it aim to do and how does it function? (non-technical) (Johan Scholliers, VTT, Finland) 12.10-12.20
3. NordicWay2 and C-Roads architecture and specifications (semi-technical) (Kjell, Sweden), 12.20-12.35
4. NordicWay2 Interchange Node lessons in Norway / Finland / Sweden **/** Denmark, 12.35-13.35
5. Discussion on lessons learned, 13.35-13.50
6. Next steps and collaboration between activities from the workshop, 13.50-14.00

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Background: why Interchange Node?

- Problem: vehicle manufacturers and service providers proprietary data sharing – data is not exchanged between data providers.
- Exchange of Safety Related Traffic Information (EU/886/2013) and Cooperative ITS

>> enhanced service and data quality for the end-users

>> enhanced traffic safety and flow

- Distributed and federated network >> scalability and resilience

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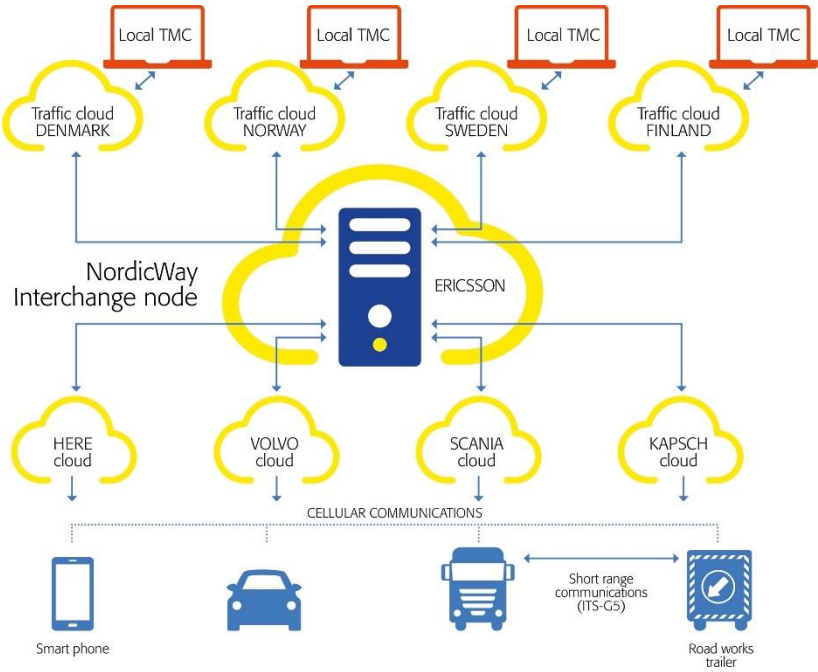
NordicWay 1 Interchange network

- Main purpose: transmission of C-ITS messages between the users connected to the different service providers/OEMs/road operators
- Solution: traffic directed through NordicWay Interchange Node, which distributes messages to subscribed backends.



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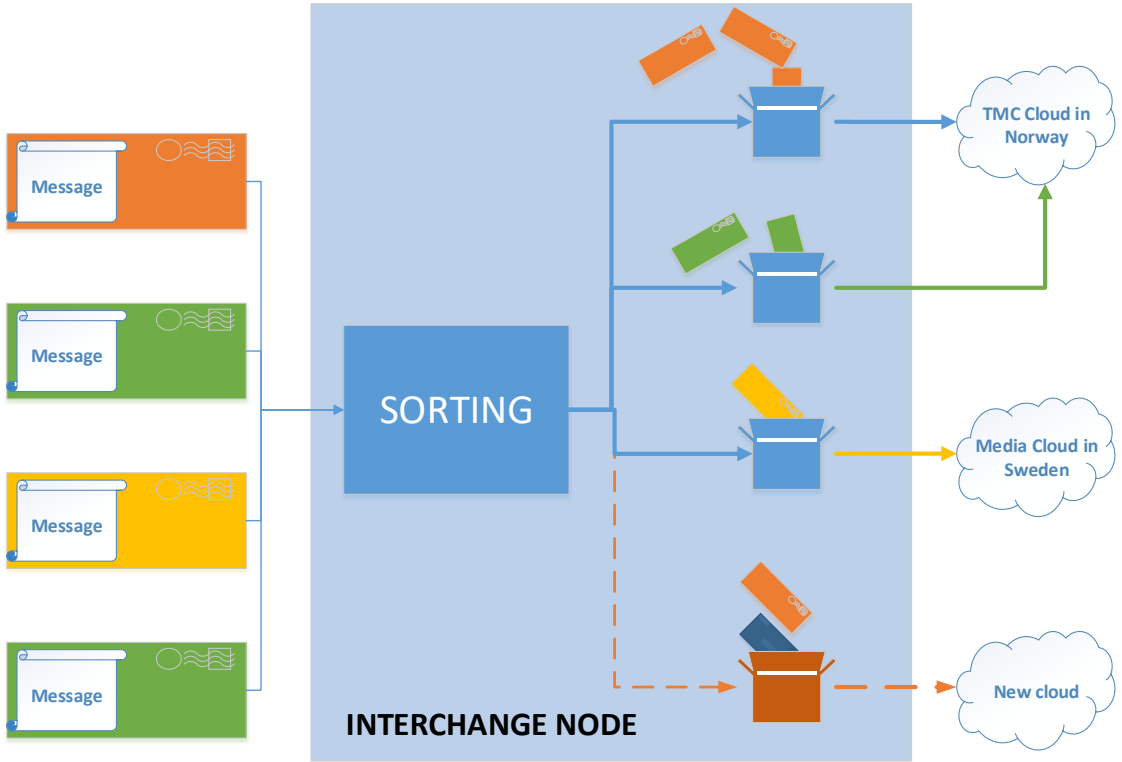
Interchange simply explained

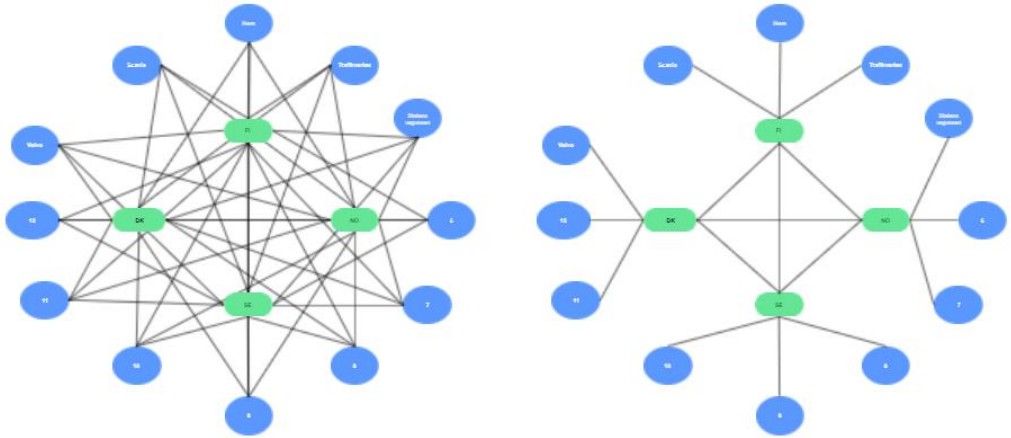
- Interchange node receives all types of messages and information from different sources
- Users subscribe to requested information
- The information is instantly available for the users
- It is easy and straightforward to connect to the interchange node



From NordicWay1 to NordicWay2

- Distributed architecture
  - Network of interchange nodes

- Federation:
  - Allows that messages can be forwarded between the interchange nodes so the servic provider can mainly connect to one interchange node.
  - Automated detection of neighbours
  - Automatisation of queue buildin
  - Allow automated onboarding



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Protocols

- Message payload: DATEX II
- Basic Interface: transfer of data between backends:
  - AMQP 1.0
- Improved Interface: control interface between backends’
  - HTTP/REST

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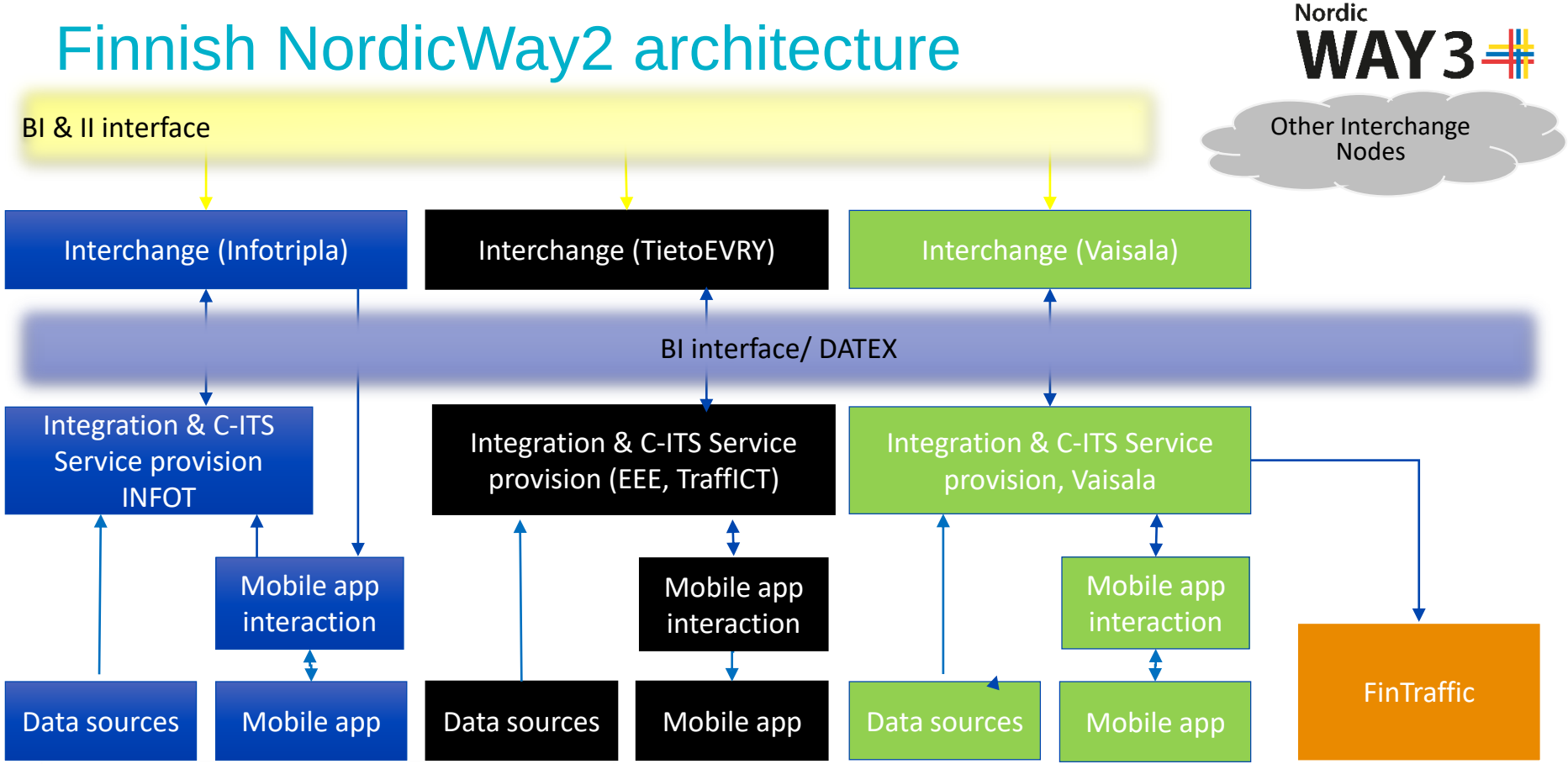
Finnish NordicWay2 architecture



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Lessons learned from Finland

- Architecture: 3 operators, real life services and users, only cellular
- Technically all worked well
- Socio-economic: socio-economic benefits can be expected by 2030
- Interfaces to traffic lights and VMS challenging
- GDPR issues challenging: use of location information and data sharing
- New ecosystems and business models are still unclear, example public authorities and cities
- Much less services users participated to pilot as initially planned; pilot not used for marketing the applications
- Public sector funding is needed – private industry business models unclear
- After the pilot in June 2020, no interchange node left in operation
- C-ROADS interoperability was not achieved

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