bouvet

Nordic WAY 2

Nordicway Interchange

Heart of the NW ecosystem

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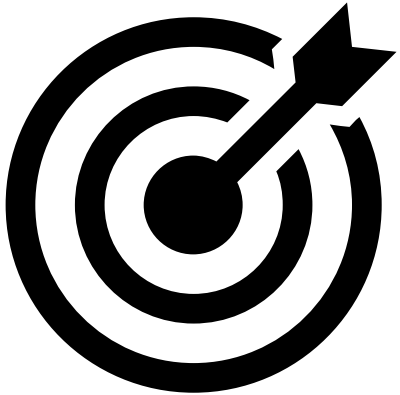
Goals

- Real time data exchange between many different actors' back end systems
- Highly scalable
- Minimum effort for data exchange



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Example

- Norwegian public roads administration wants information about incidents on the road, like slippery road or accidents.
- This information may be available from several different service providers, like OEMs or road assistance companies.
- These service providers may also be interested in getting information about road condition and road maintenance from the road operators.
- Problem is that this information is locked down in company databases and systems.
- The road administration has the same problem; data it wants to share, but no good way to do it.

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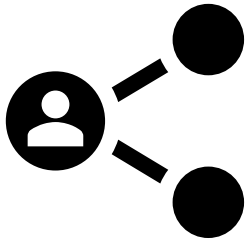
The data sharing problem

The problem is NOT:

- Lack of standardized data formats. Several data formats exist that cover a wide range of use cases.

The problem is:

- Lack of data sharing ecosystem.



Specifically the problem can be broken down in to two:

1. No way to know what data is available from what provider.
2. Existing solution mainly rely on one-to-one bilateral data exchange. This is expensive to build and maintain, and impossible to build large scale when the number of actors get large.

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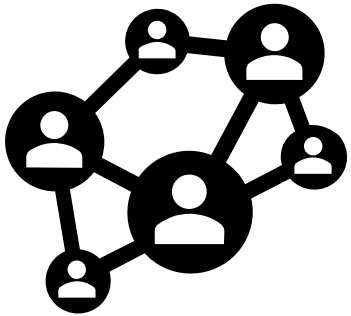
The interchange network

- Started working on a solution for these problems back in Nordicway 1
- AMQP based solution with automated service discovery and data subscription handling.
- Work picked up by C-ROADS
- The Nordicway 3 interchanges will be harmonized with the C-Roads specifications.



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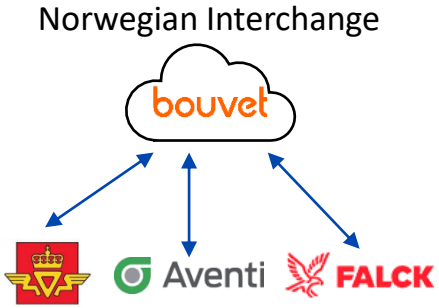
The interchange network



- It works by having several message brokers called interchanges, that can gather data from different service providers. These could be either national or privately run.
- Each interchange keeps track of all the datasets that are available from the service providers that are connected to it and stores meta data about the data (e.g. Geographic coverage, types of data, data format, who provided the data etc.)
- The information about the available data is then shared between all the interchanges so that each interchange knows what data is available, and where to find it.

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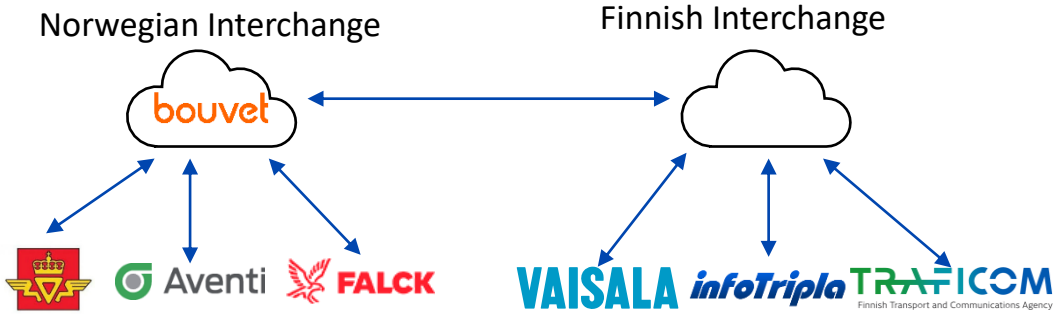
The interchange network



- Service providers can now just tell the interchange what data it is interested in (e.g. “I want information about traffic accidents in Oslo”)
- The interchange knows where to find that information and creates a data stream that fits those criteria available to the service provider.
- The provider of the data does not need to do anything to facilitate the data exchange, and if a new provider starts sharing data that also fits the criteria, that data is added to the data stream automatically.

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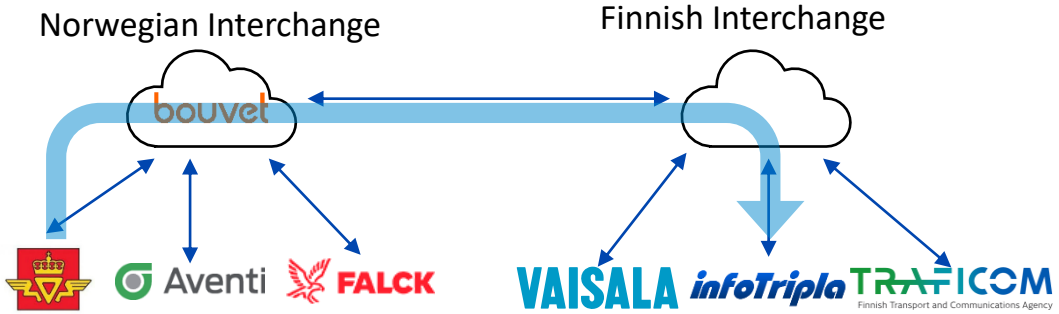
The interchange network



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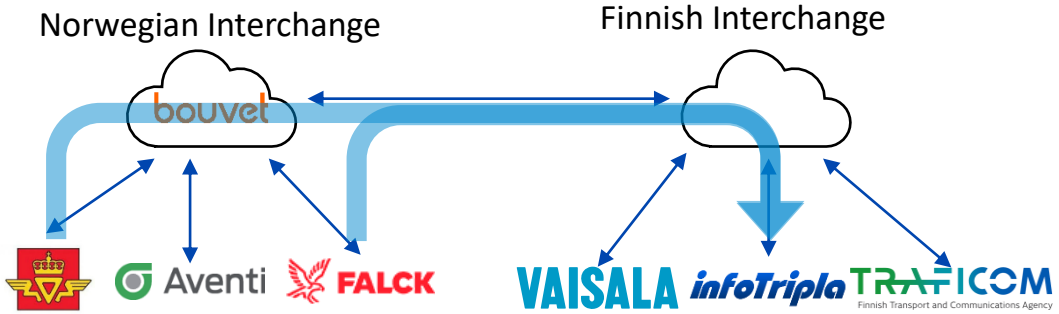

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Implementation

- The Norwegian interchange node implementation is open source.
- Developed by Bouvet for the Norwegian Public Roads Administration.
- Available on Github: github.com/NordicWayInterchange/interchange

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Thank you

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