ERILLISVERKOT

Virve Broadband Progress

Bapco 2020

11.3.2020, Coventry, United Kingdom

Jarmo Vinkvist
COO
Virve operator
part of Erillisverkot Group
Finland

Photos: Erillisverkot / Olavi Airaksinen
(if not other name mentioned)

Facts of Finland & Virve

- Geograph area: 338.000 km², *(> 35 % Larger than UK with 67 million people*), population: 5,5 million
- EU member; 1.340 km Schengen border with Russia
- Virve network:
  - Virve is owner and operator of the network
  - 100 % owned by State of Finland
  - Airbus: 1.400 Base Stations, 17 Switches
  - All Security Authorities in One Network
  - > 44.000 subscribers
  - ~ 250.000 group calls and ~ 10 million SDS messages/ day

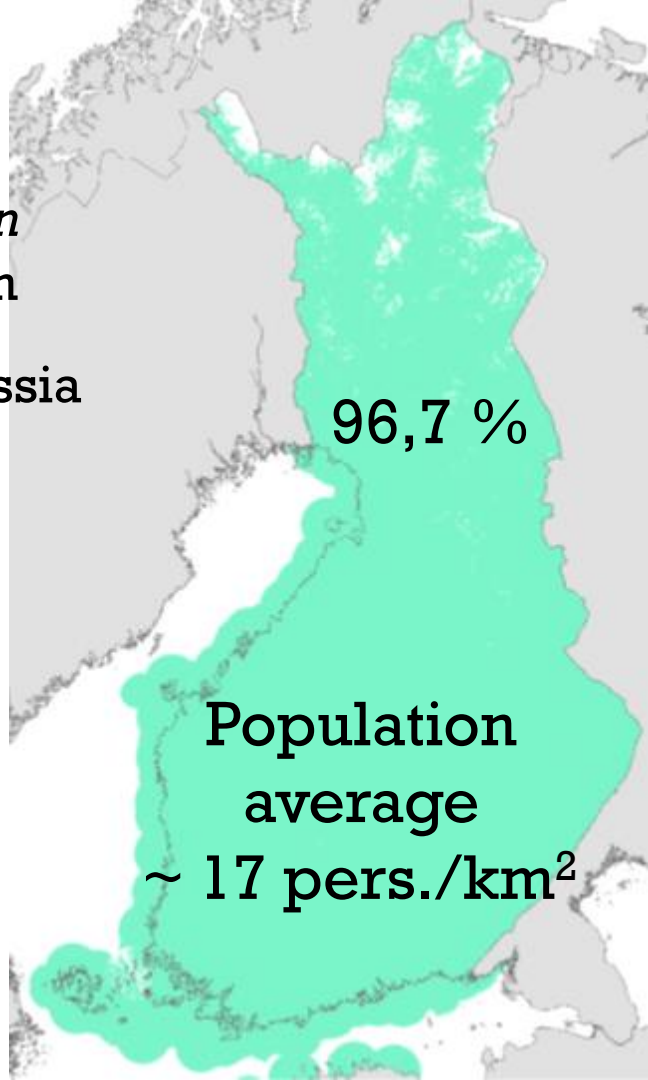


Photo: Erillisverkot / Olavi Airaksinen

One shared Tetra network for all PS users

Photo: Erillisverkot / Olavi Airaksinen

1.

Photos: Erillisverkot / Studio Koivunen

2.

3.

Photo: Erillisverkot

4.

Photo: Erillisverkot

2019 - 2025 Significant Savings

- 2019 GSM-R was closed down
- Railways joined to Virve (Tetra)

Photo: Erillisverkot / Perttu Karttunen

Finland – Norway – Sweden connected

Photo: Erillisverkot

Behind the Ecosystem in Society

+ Laws
+ Trust
+ Cooperation
+ Happiness
+ Education

Ecosystem and Apps

160 separate
112 (911) centers in
Separate organizations

→

15 common
112 Centers for
All Security
Authorities

→

6 common
112 Centers
In Finland

Police
Field
Command
System

→

Common Field Command System:
Police, Fire and Rescue
Social & Health, Border
Guards, Custom,
Defence Forces

→

2nd Gen Common System

Sustainability & Green Energy

+ Base station on Sokosti mountain with 168 solar power panels, installed on 1998

Photo: Erillisverkot / Telia

Photo: Sami Hätönen, Police

On February 1st 2019 new Laws enables

- National Roaming
- Priority
- Pre-emption

- Virve as Service Operator (owned by State of Finland. Same role as Motorola is having in ESN, in UK)

Photo: Erillisverkot / Olavi Airaksinen

On March 6th 2020 Quotations received

- RAN (1 of 3: DNA, Elisa or Telia 4G will be selected)
- Core (Ericsson or Nokia)

- RFI for MC Apps and Device Ecosystem done

Photo: Erillisverkot / Olavi Airaksinen

Why change?

- Virve is based on TETRA technology
  - TETRA does not support all modern communication needs
- There is a need to connect to everything and everyone, e.g.
  - File services, video services, databases
  - Private/public clouds
  - Drones, robots, sensors

→ Virve must evolve to stay relevant

Virve 2.0 - what is it?

+ Evolution of Virve services
+ MC mobile broadband
+ Based on 4G/5G technologies
+ Radio access as a service
+ Private core network

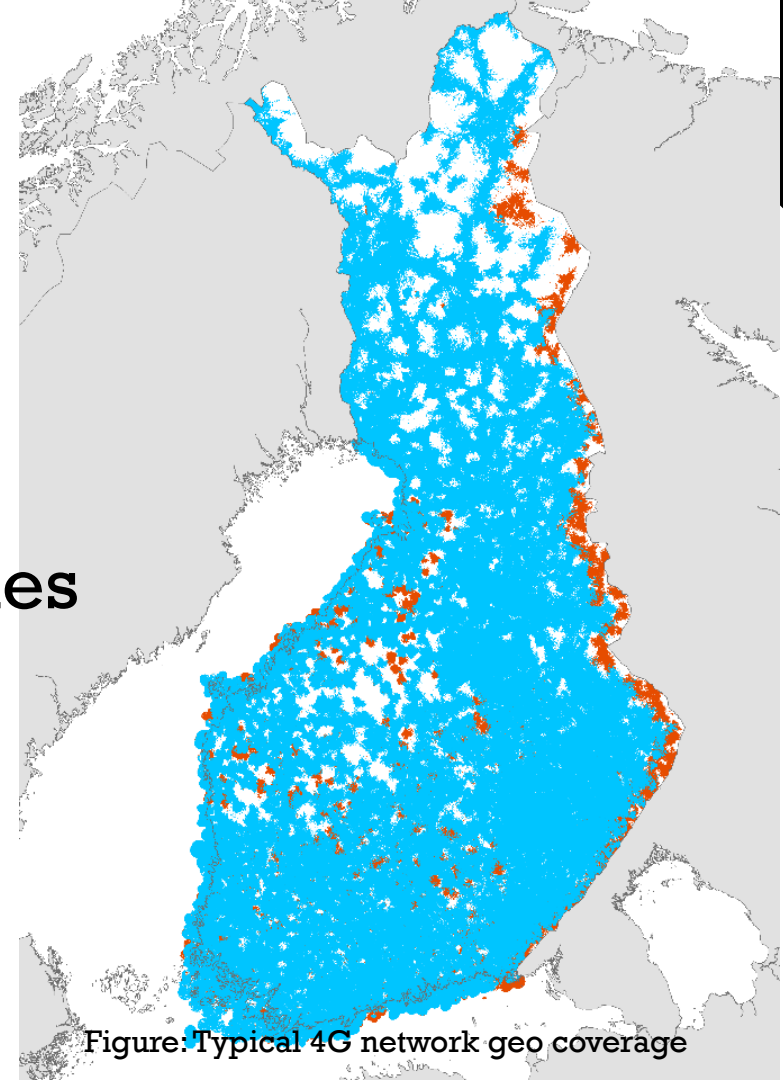
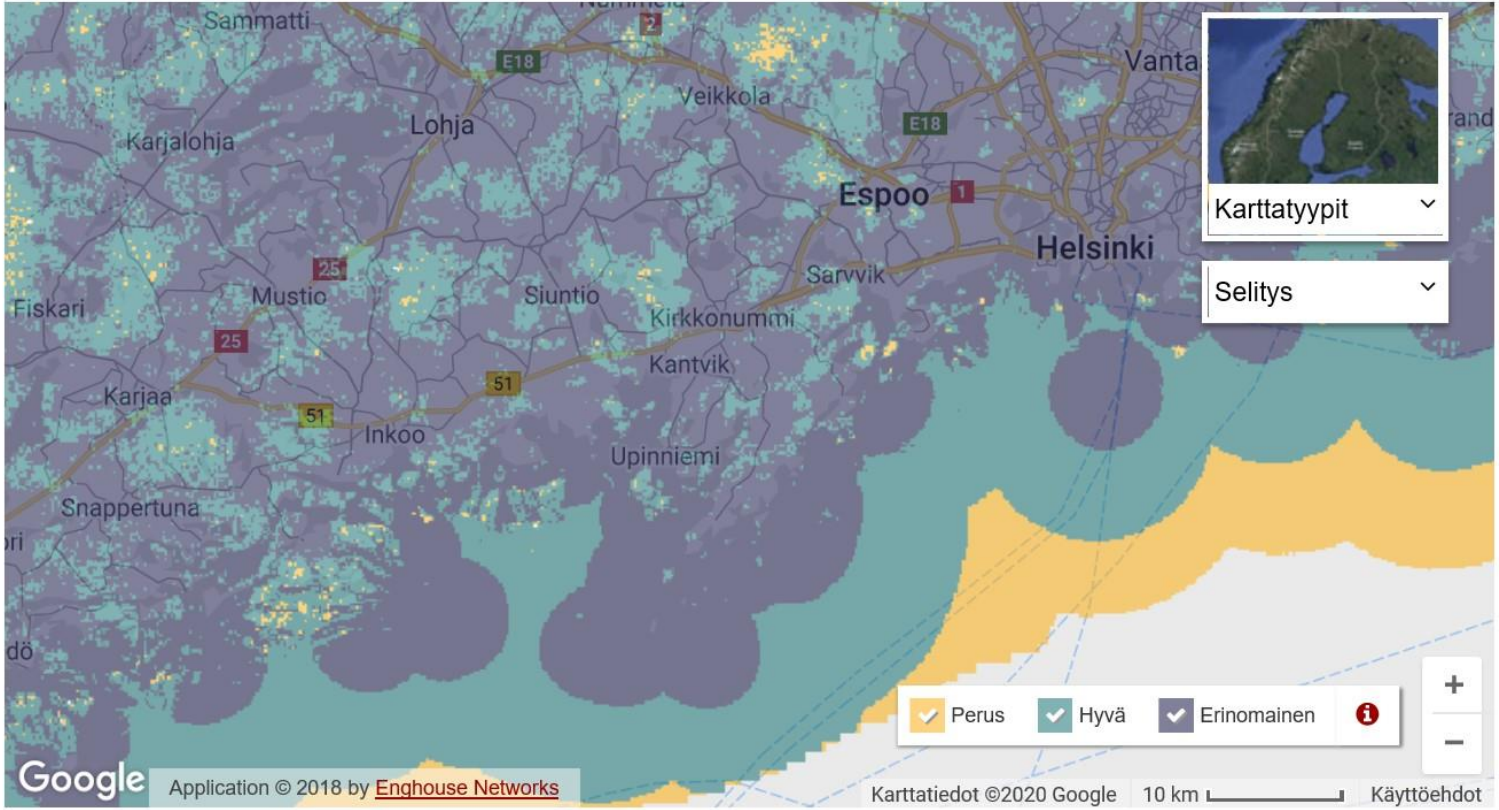


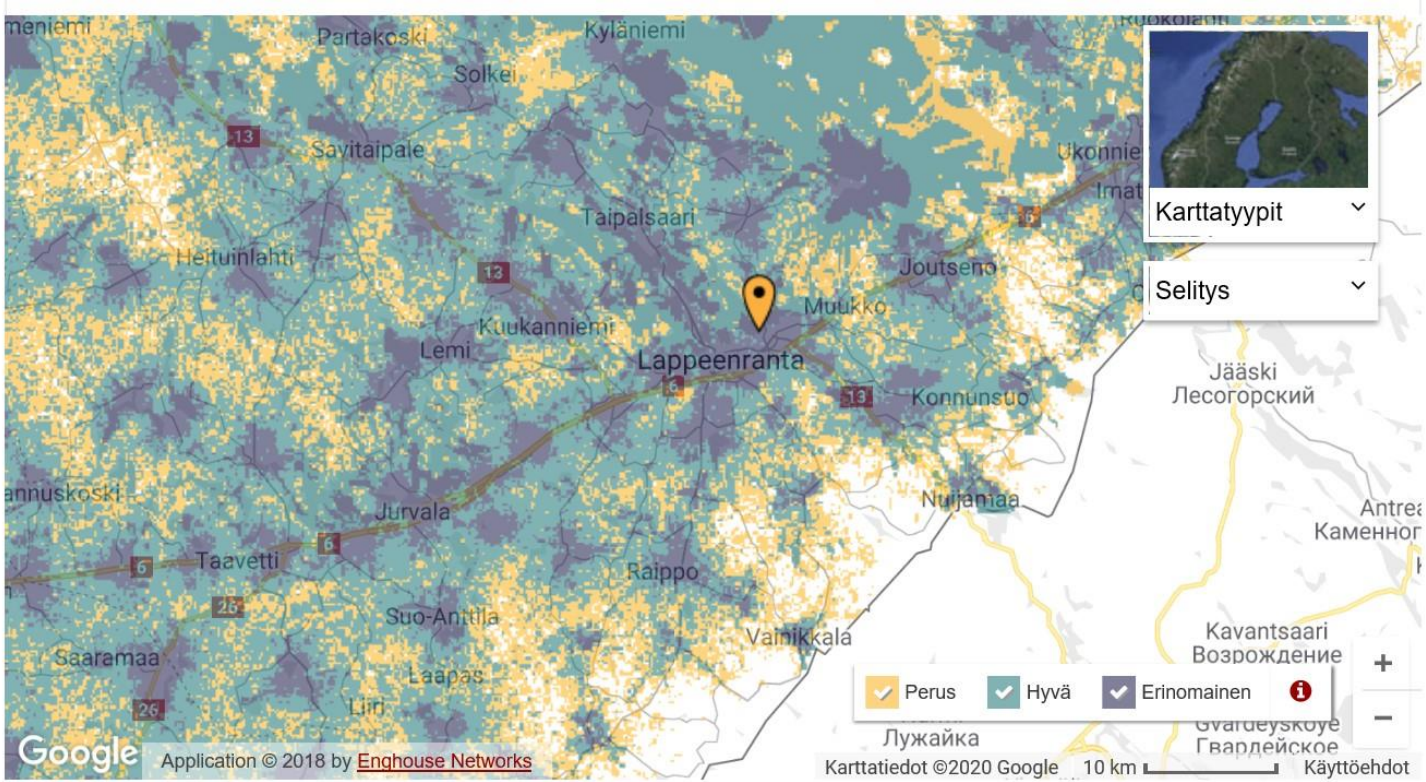
Figure: Typical 4G network geo coverage

4G / 4G+ / 5G coverage: Capital area



Päivitetty viimeksi 20 helmikuu 2020

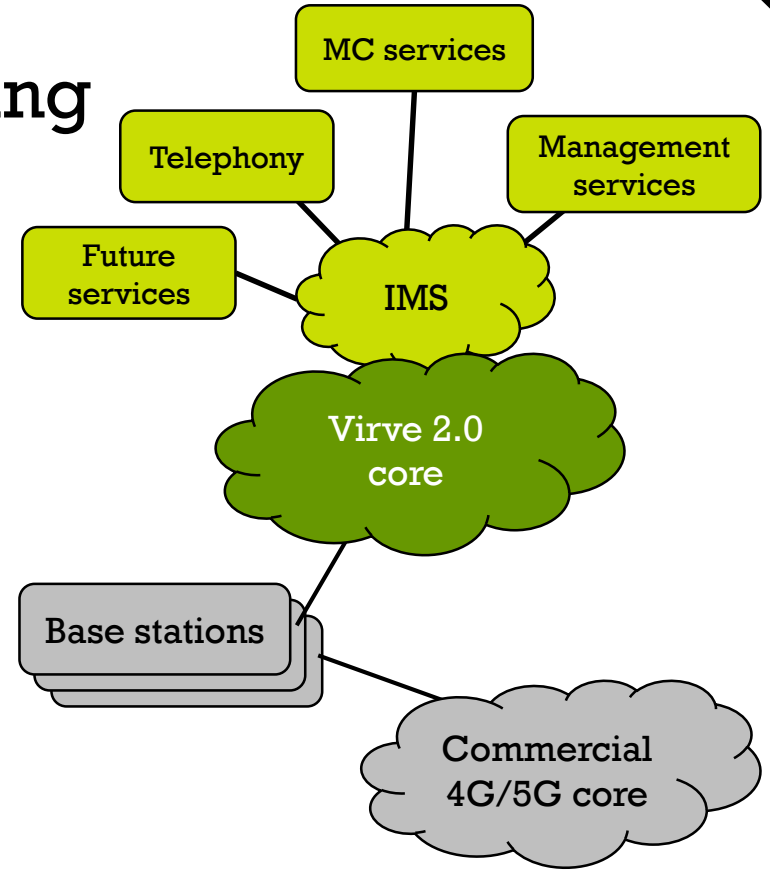
4G / 4G+ / 5G coverage: South - East



Päivitetty viimeksi 20 helmikuu 2020

High level architecture

- MOCN model for RAN sharing
- IMS-based services
  - MC voice/data/video
  - User/group/etc. management
  - Telephony (VoLTE)
  - Future services



New device types

Additional services

Timeline

Prioritized subscription 2019-2021

MC Apps 2020-2022

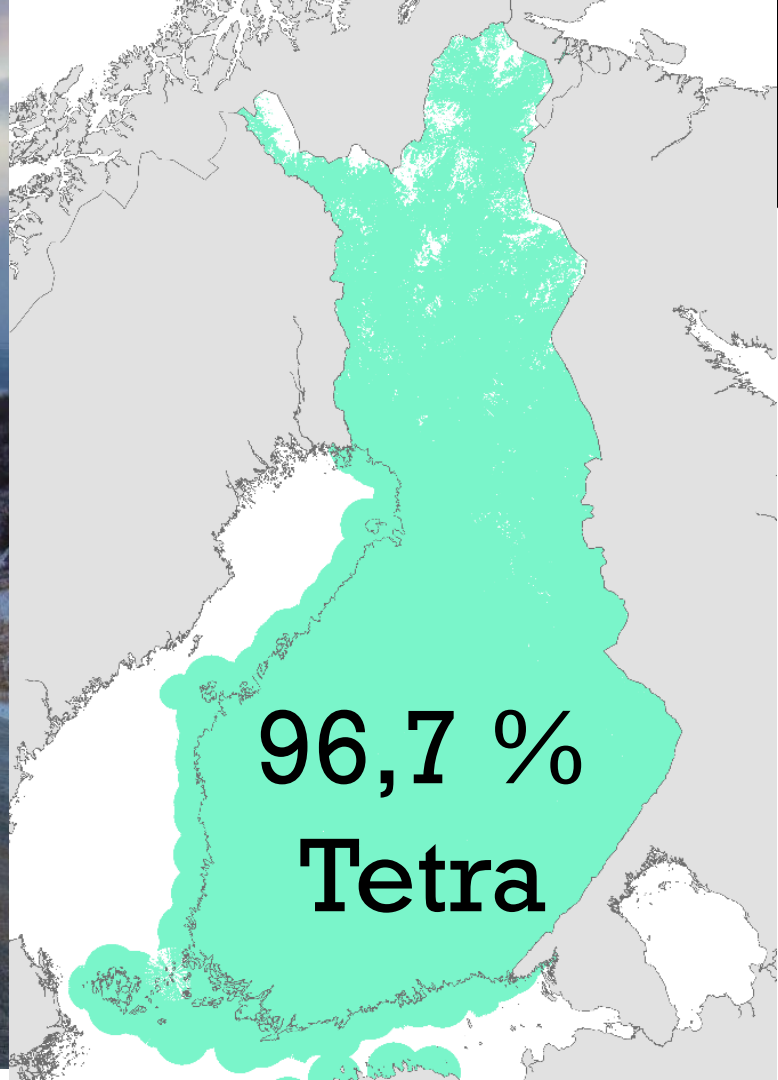
Migration to Virve 2.0 2022-

Agile service development cycle

Virve 2.0 Challenges

- Resilience
- Coverage

Photo: Erillisverkot / Olavi Airaksinen



Roadmap 2021–

SERVICES

HARDENING

TECHNOLOGY

4G

4G/5G

5G

VIRVE

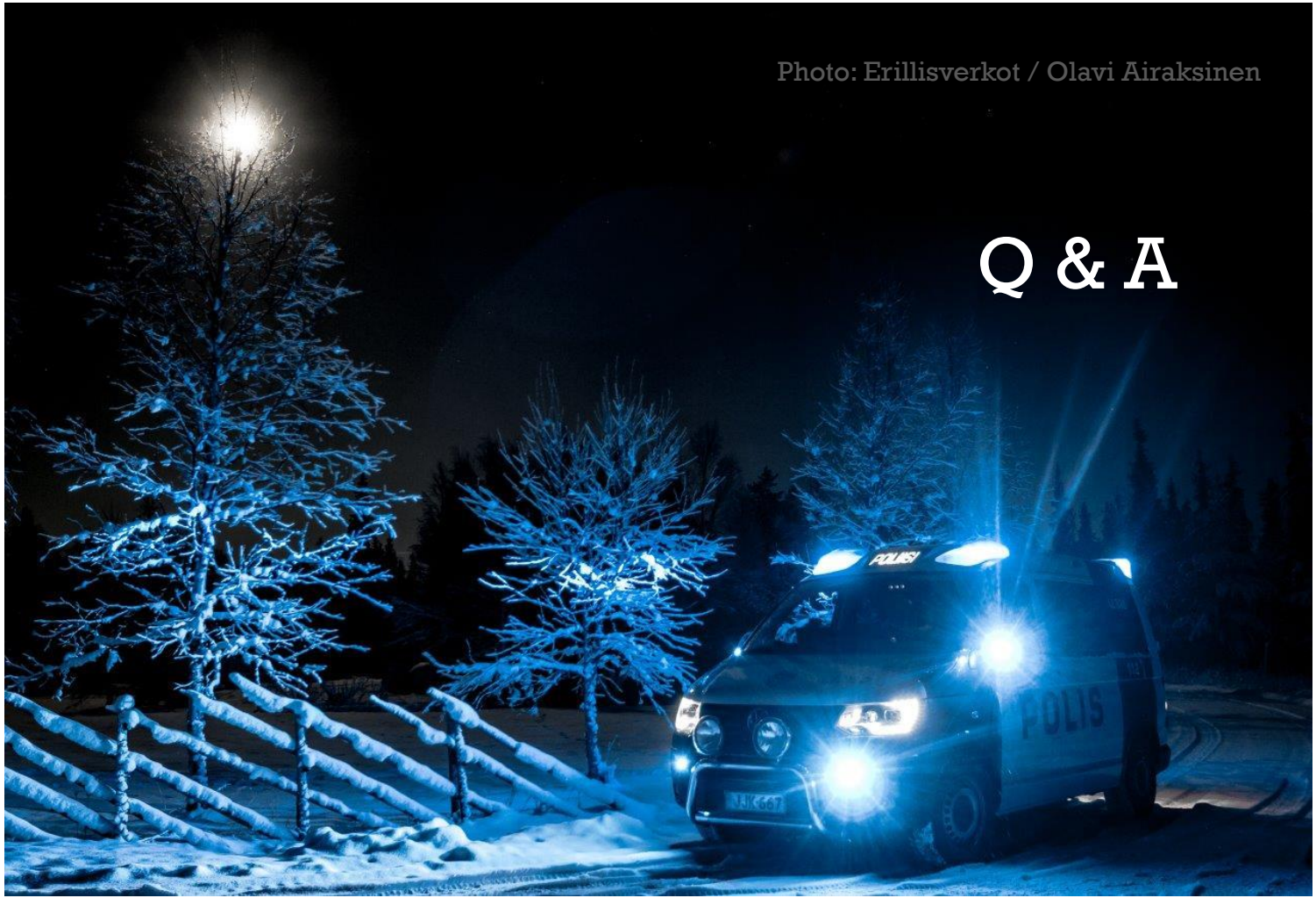


Photo: Erillisverkot / Olavi Airaksinen

Q & A

Thank
You !
Photo: Erillisverkot / Olavi Äiräksinen