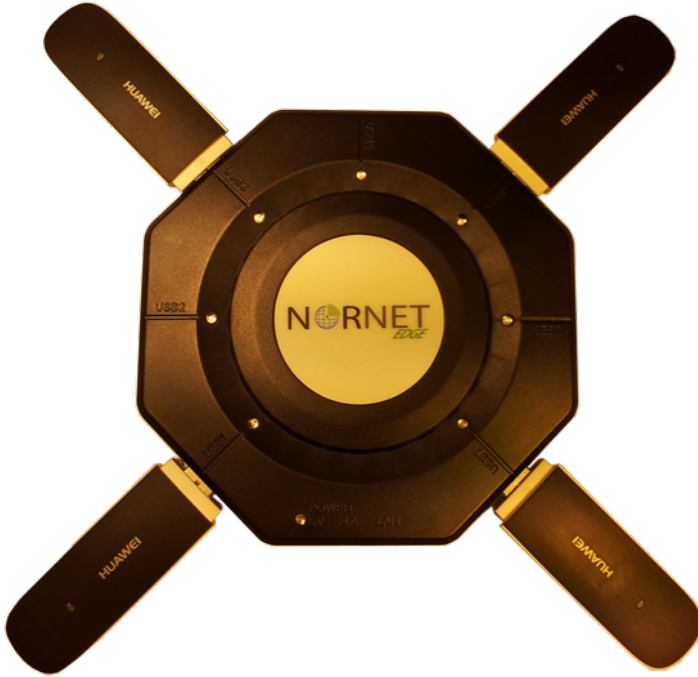# NorNet Edge Platform to Measure Mobile Broadband
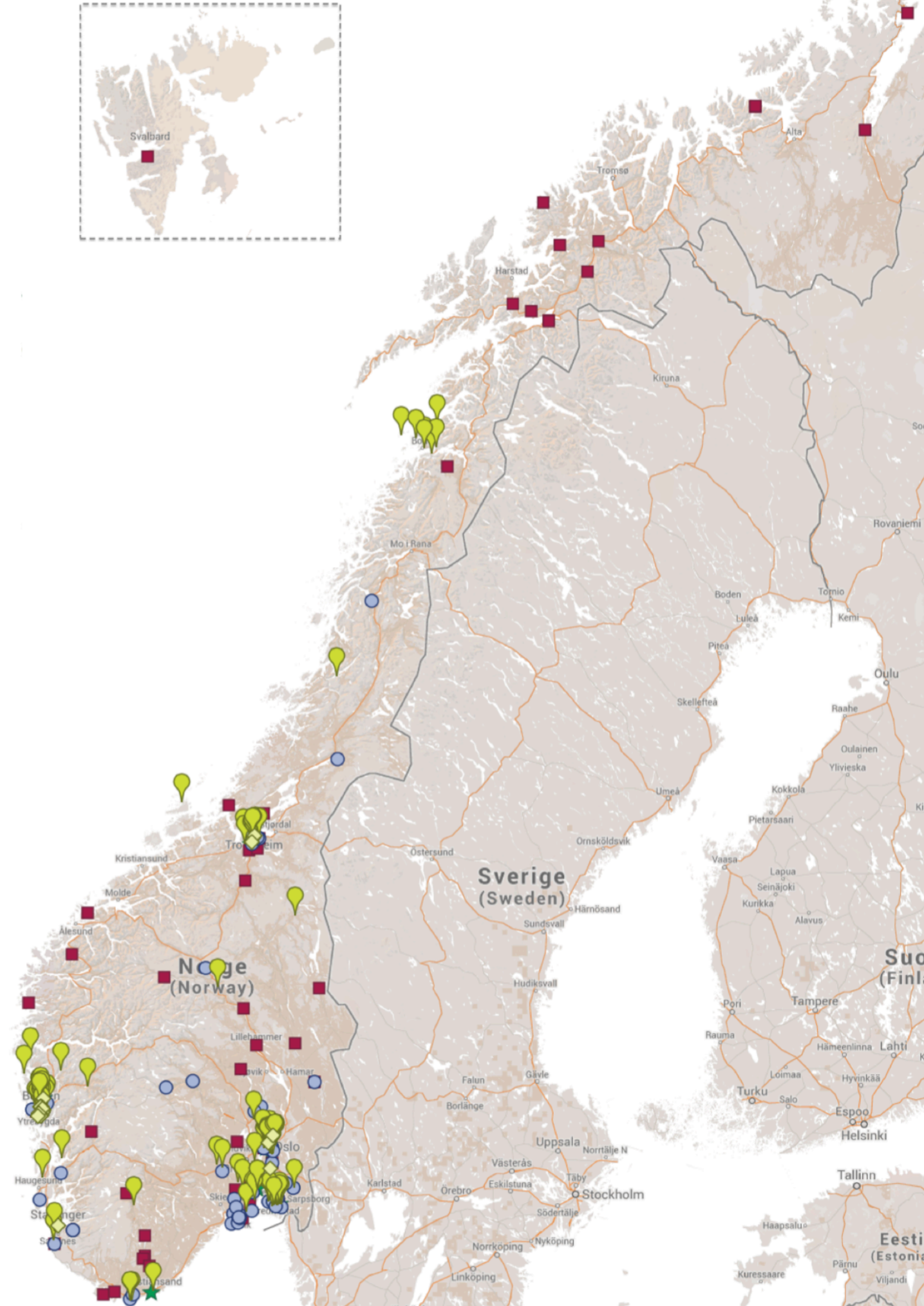
Džiugas Baltrūnas
PhD Student & Research Engineer
CRNA@Simula

NorNet Users Workshop, Oslo, 2015-08-28

[**simula** . research laboratory]

Nornet Edge platform to measure MBB networks

Measurement servers

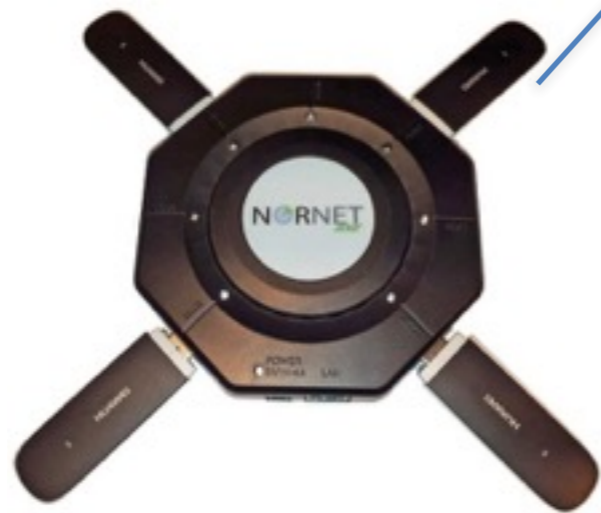**Management and data repository**

Measurement traffic

Management traffic

Measurement results
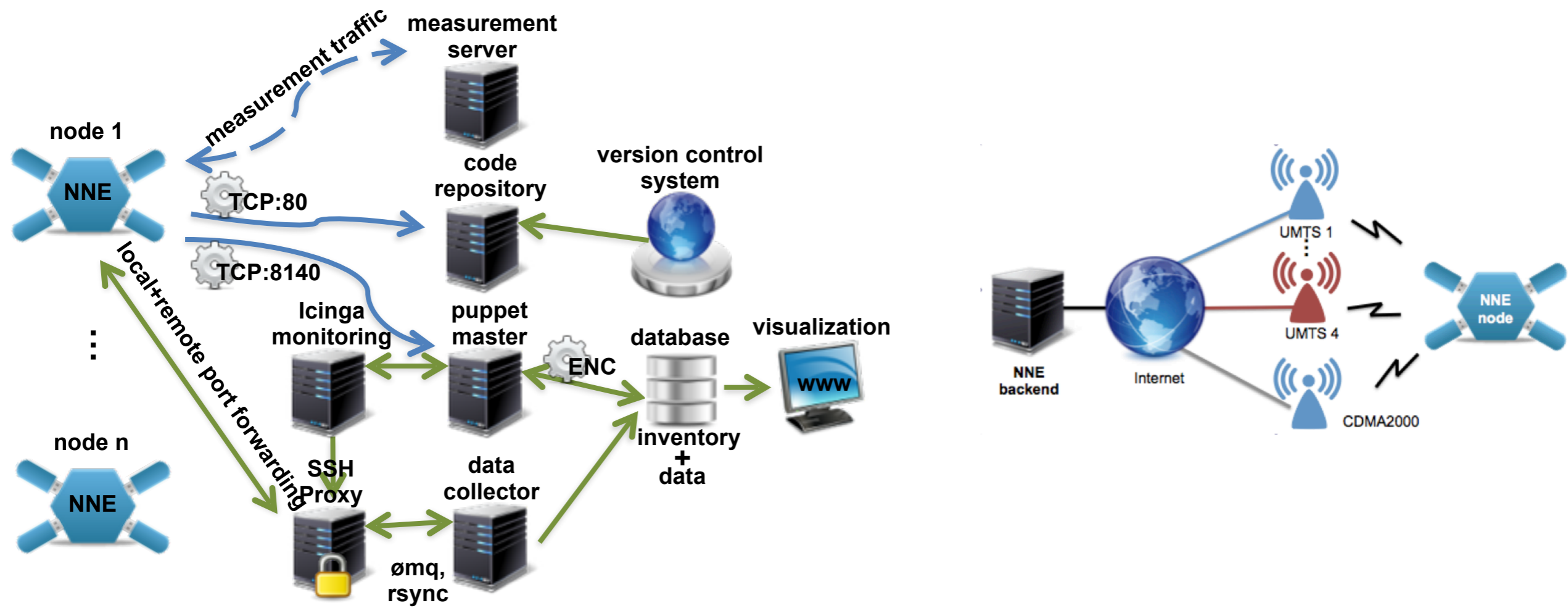
Database queries

Measurement nodes

Visualization

Nornet Edge platform to measure MBB networks

More than 100 Linux based measurement nodes distributed across Norway

Deployed in rural and urban areas, and on trains

Dedicated 3G and LTE connections using USB modems

Tools and server-side infrastructure for measurements
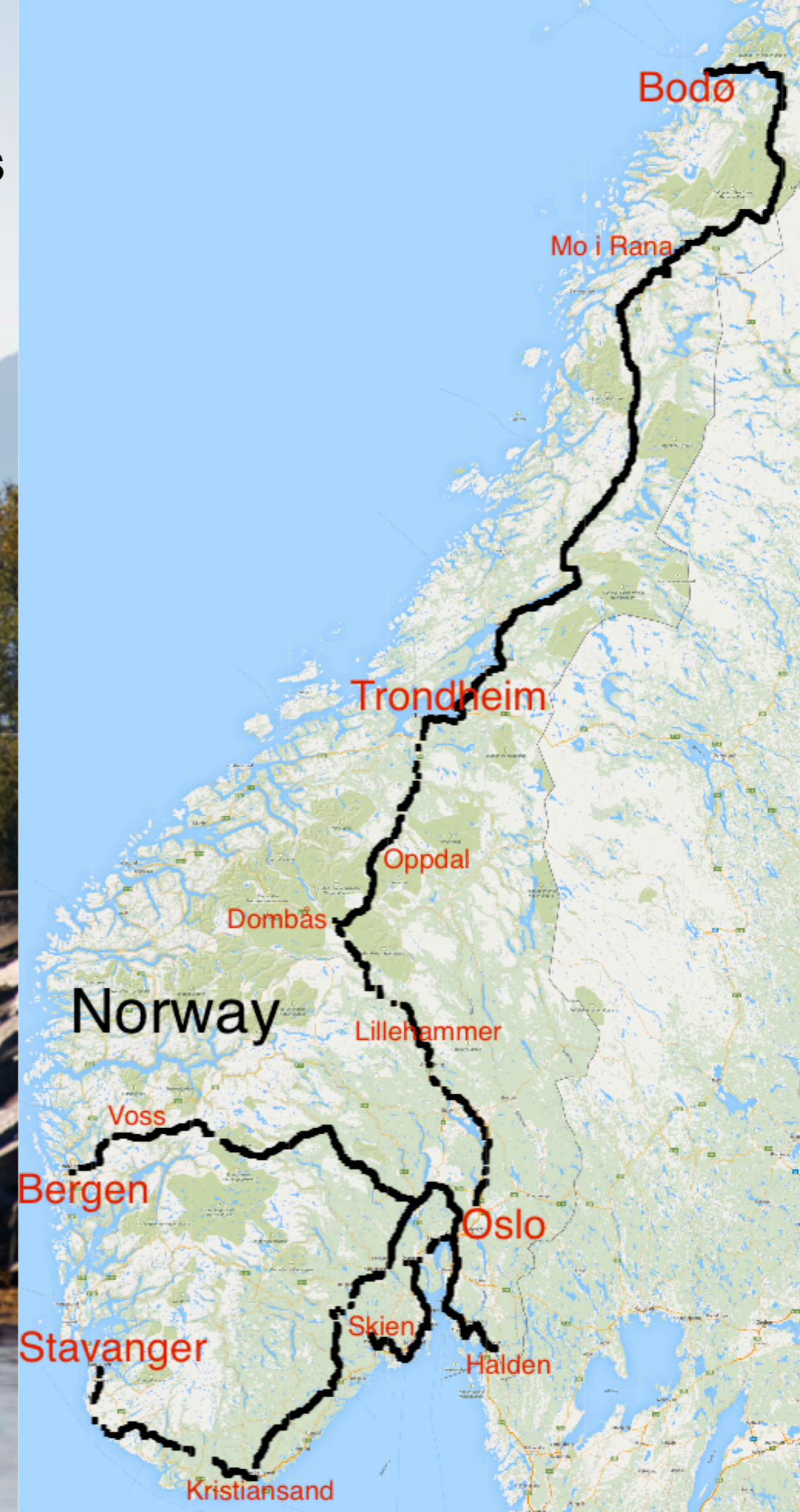
Recent changes in the Norwegian MBB ecosystem
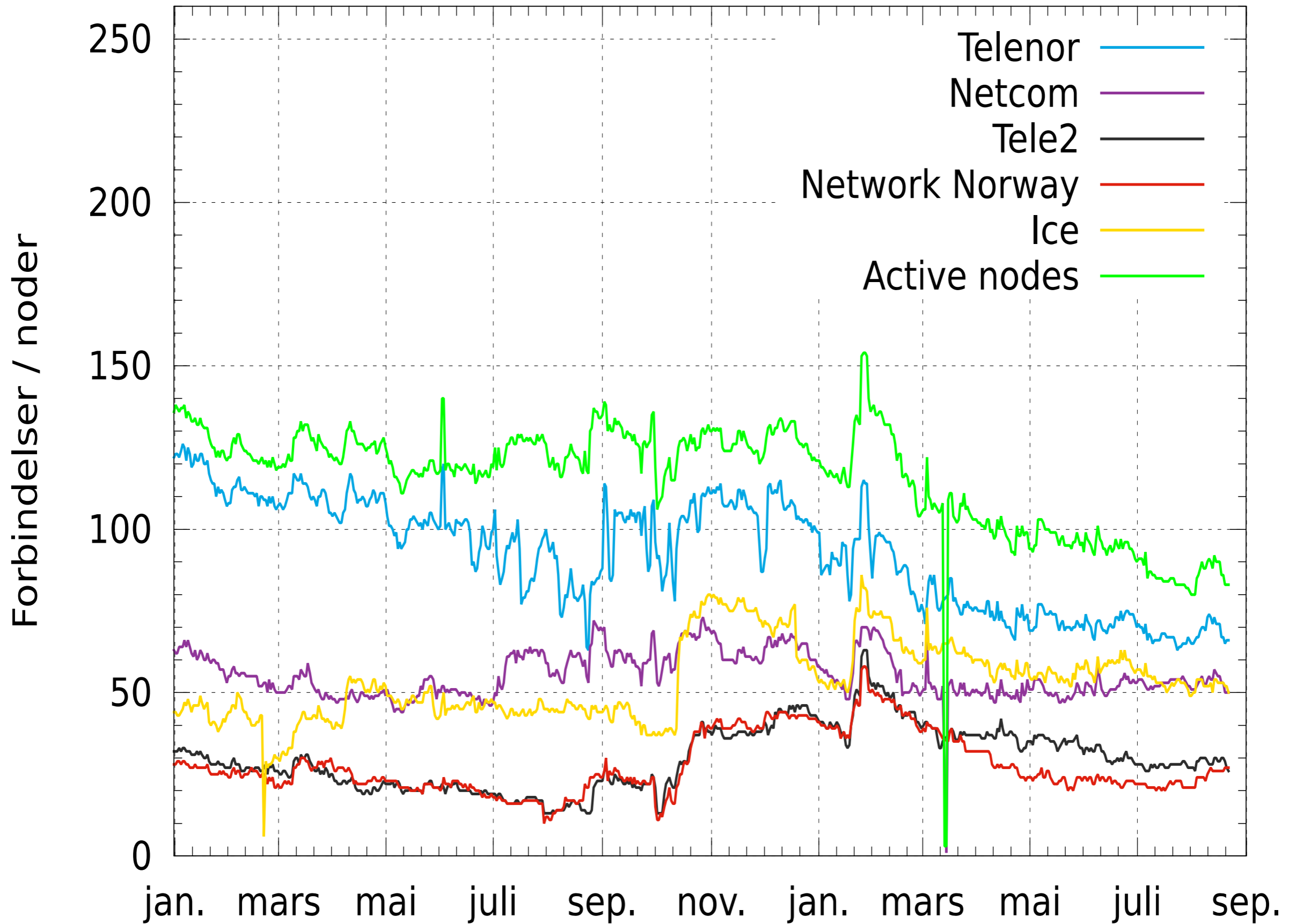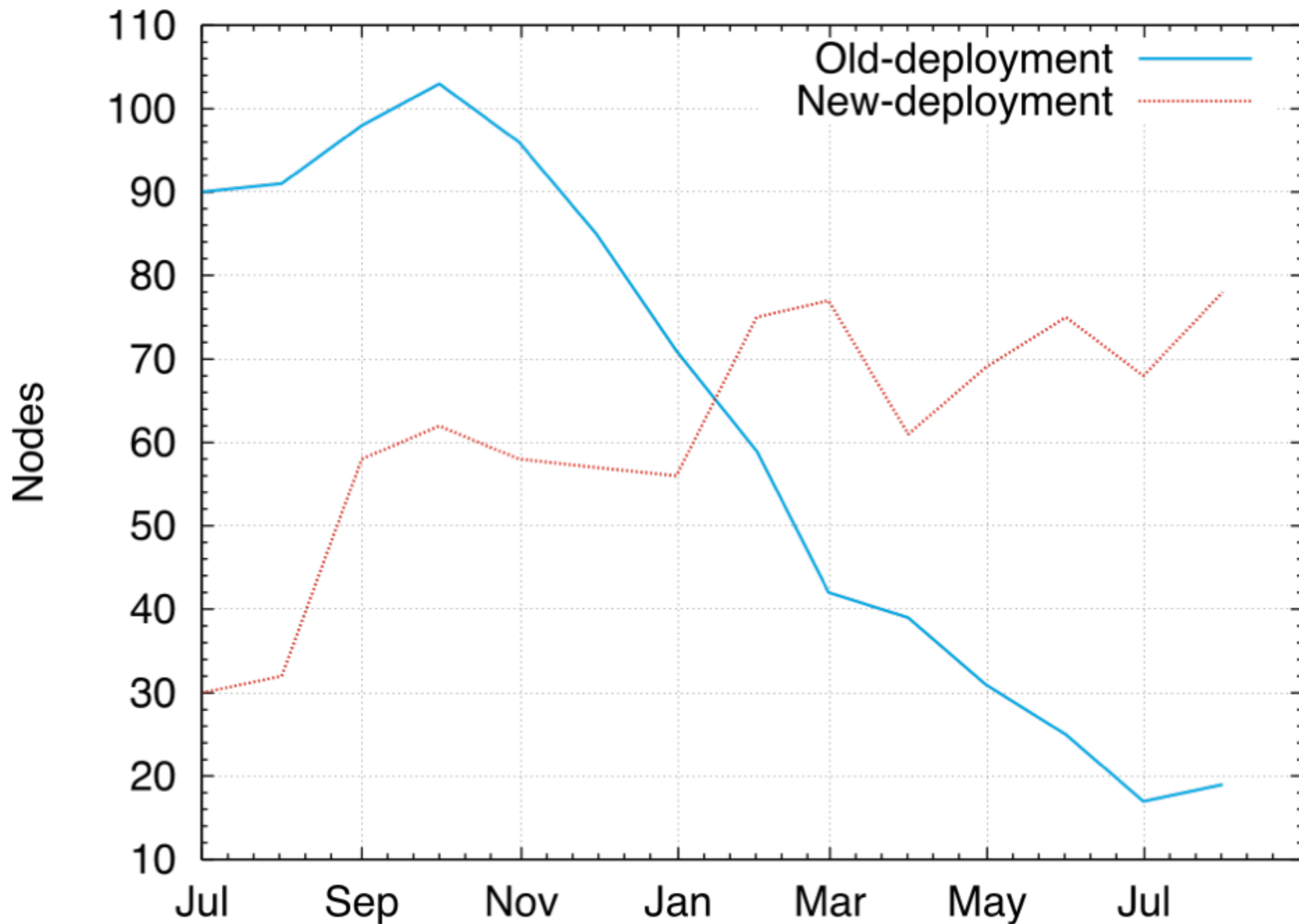
NNE@mobile

5 operational nodes aboard long distance trains

[nsb.no]

The number of active nodes decreased, but is still ~100

New deployment strategies stabilized the node count

Published 2nd report on MBB performance in Norway

For første gang ser forskerne ved Simula tegn til at mobiloperatørenes nett blir mer til å stole på.

SIMULA
Nå er faktisk mobilnettene mer stabile

Men ren flaks at det har vært få alvorlige feil?

Simula har kjørt en tre ukers test for å sammenlikne egenskapene ved 3G og LTE. Illustrasjonsfoto: Colourbox
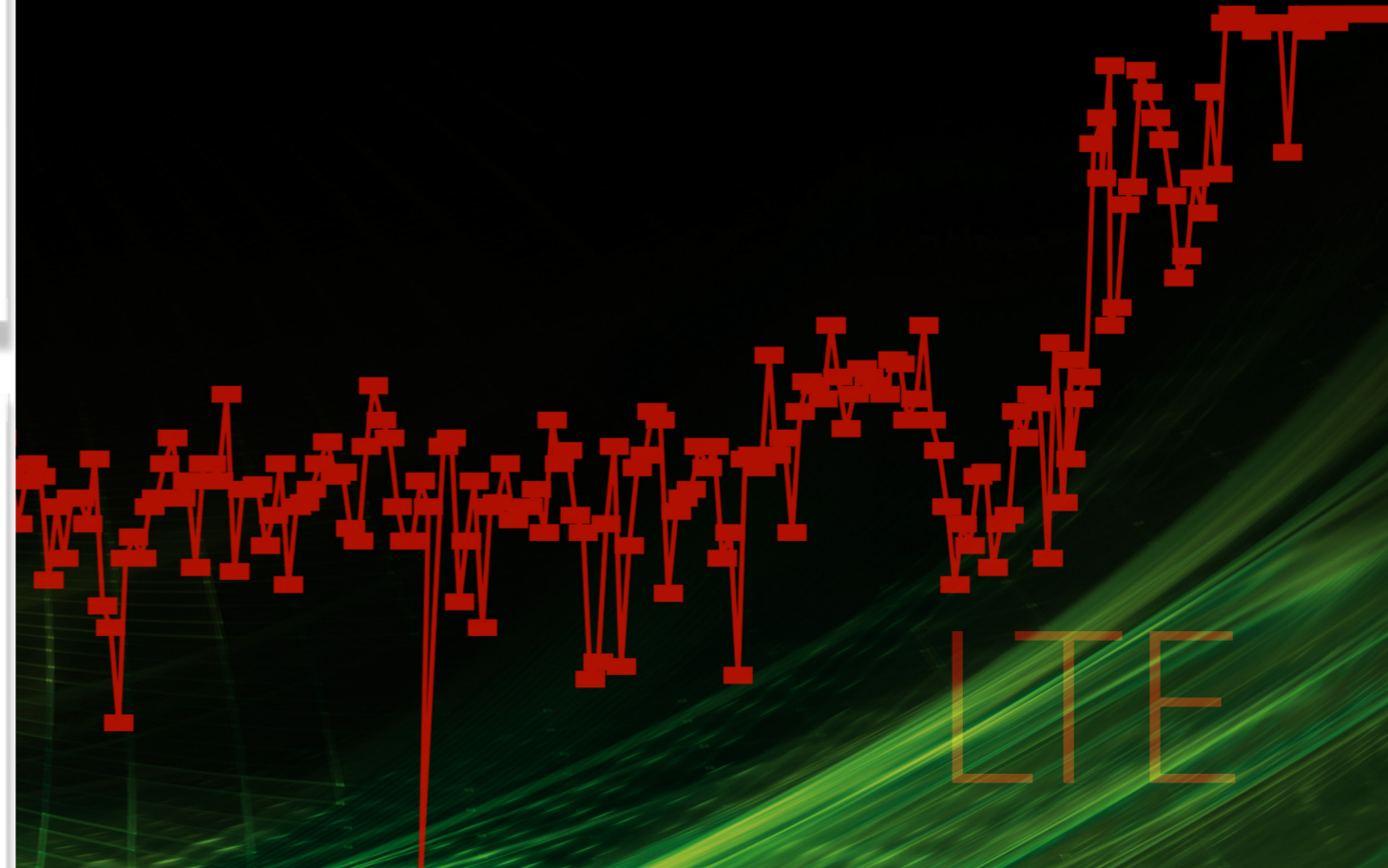
LTE
Nå er det forsket på 4G vs 3G

Simula har sjekket den ekte hastigheten.
Av Espen Zachariassen (@ezach)
Publisert 16. april 2015 kl. 07:47

Robusthet i norske mobilnett
Tilstandsrapport 2014, CRNA

LTE

CRNA Centre for Resilient
Networks & Applications
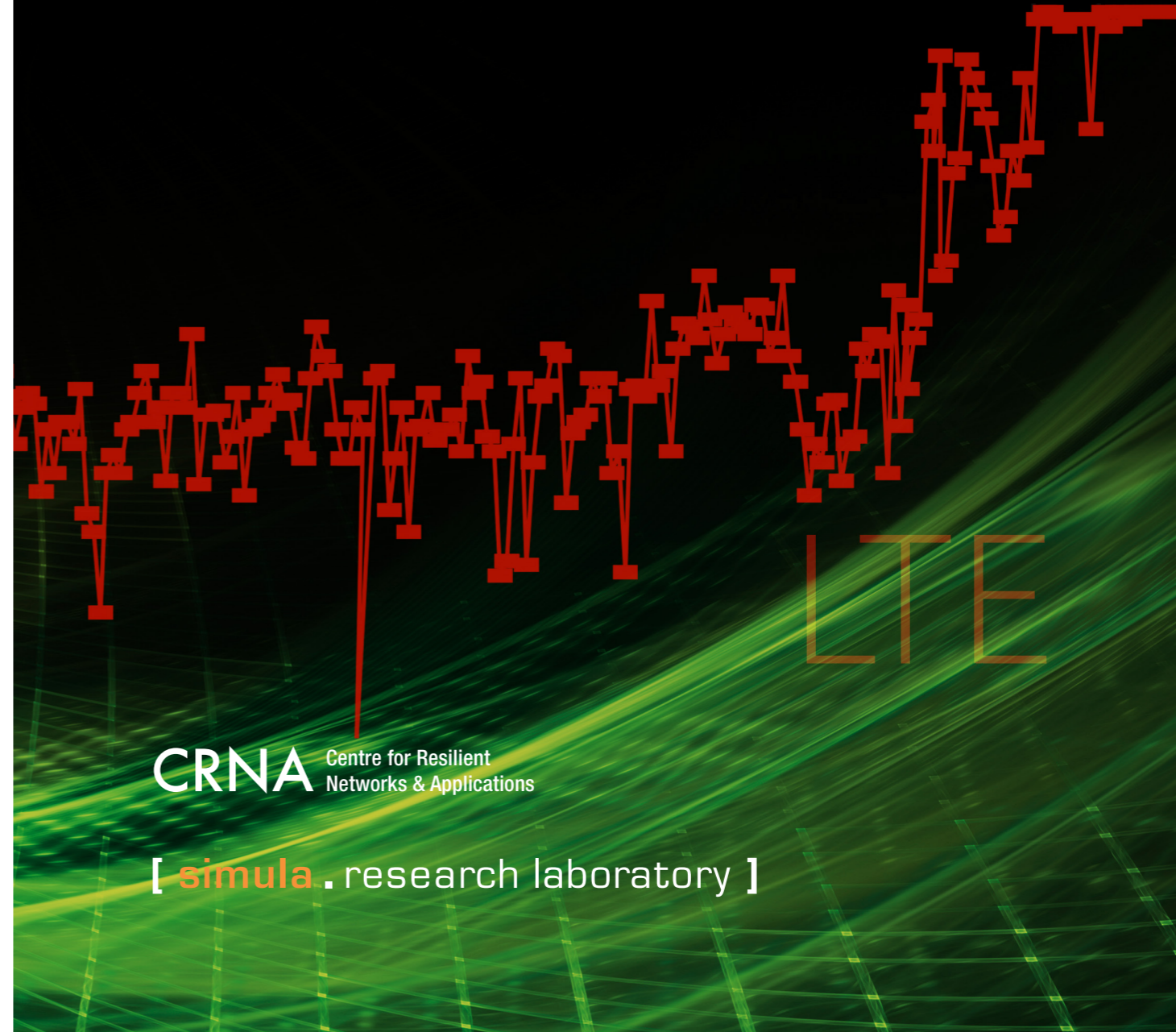
[simula . research laboratory]

Tilstandrapport 2014: reliability over time and 3G vs LTE

Operators are more stable than last year

Several of the improvements can be attributed to concrete configuration changes by operators

LTE brings improvement to the QoE in terms of higher speed, less delay, and reduced packet loss
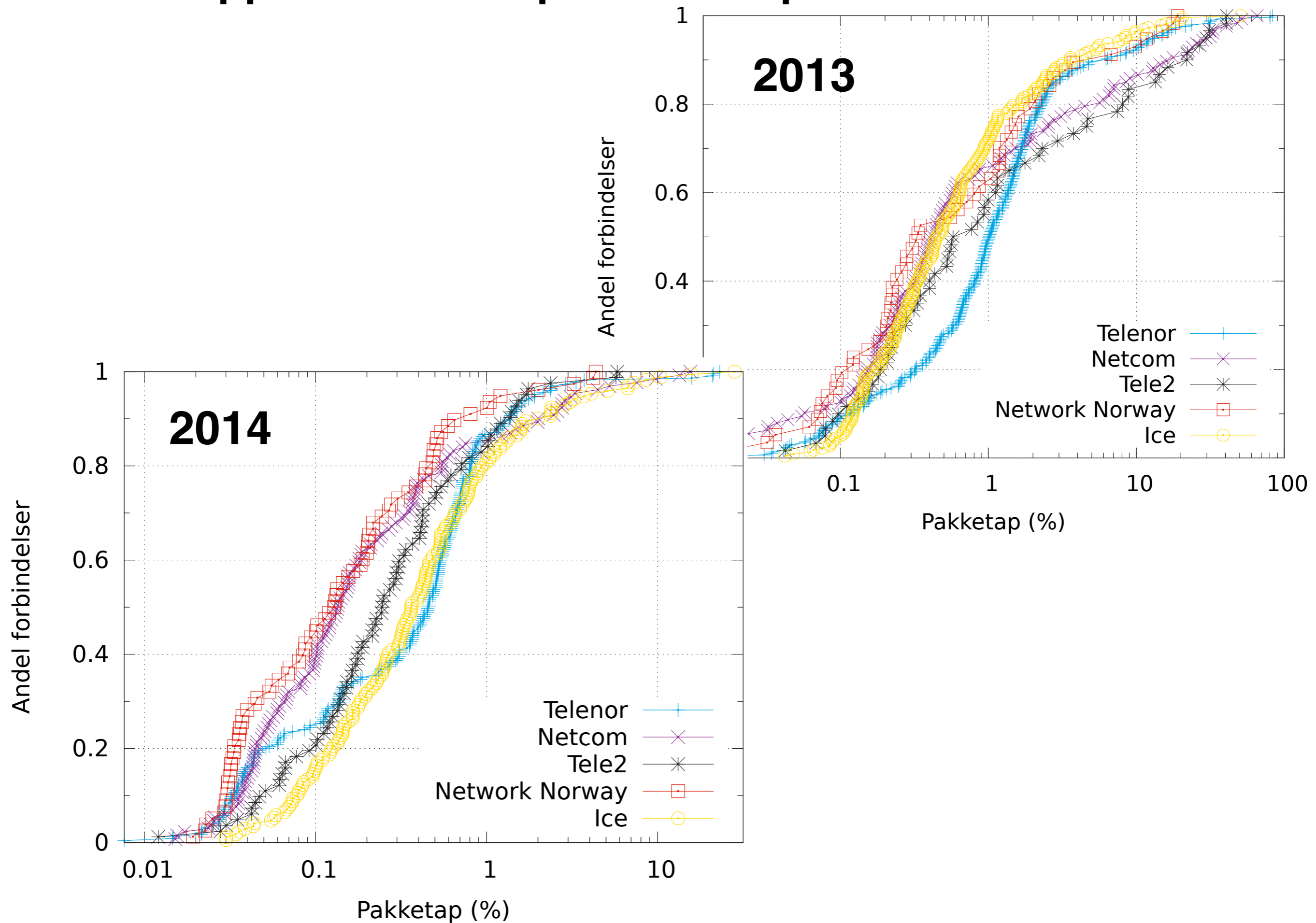
Robusthet i norske mobilnett
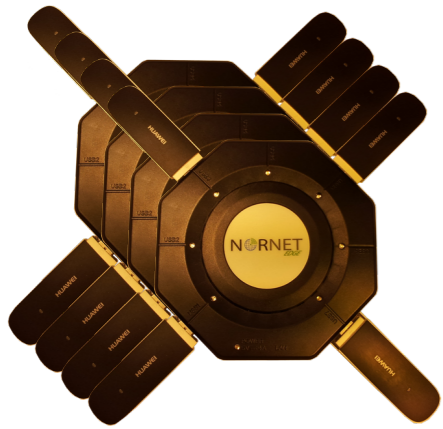Tilstandsrapport 2014, CRNA

LTE

CRNA Centre for Resilient
Networks & Applications
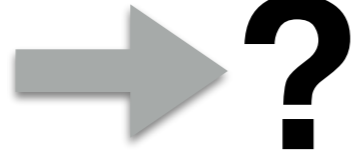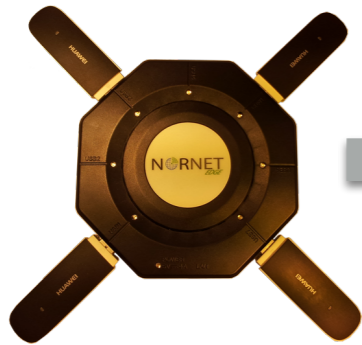
[simula . research laboratory]

Tilstandrapport 2014: drop in overall packet loss

2013

Andel forbindelser

Pakketap (%)

Telenor
Netcom
Tele2
Network Norway
Ice

2014

Andel forbindelser

Pakketap (%)

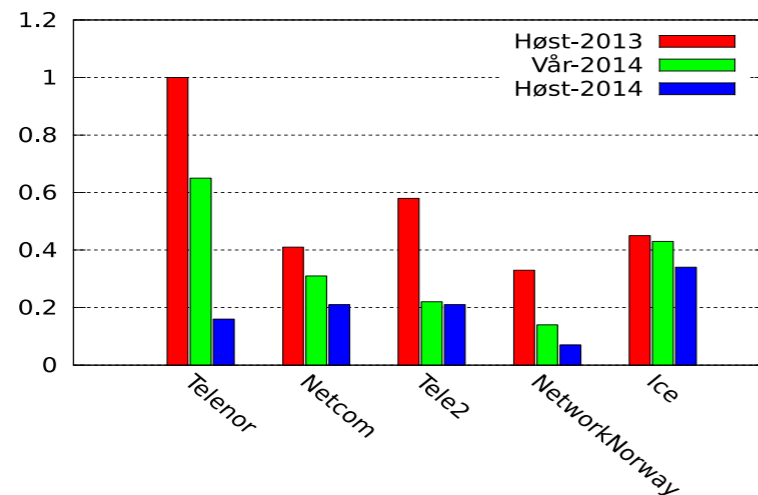Telenor
Netcom
Tele2
Network Norway
Ice

Next steps: more nodes, new hardware and measurements
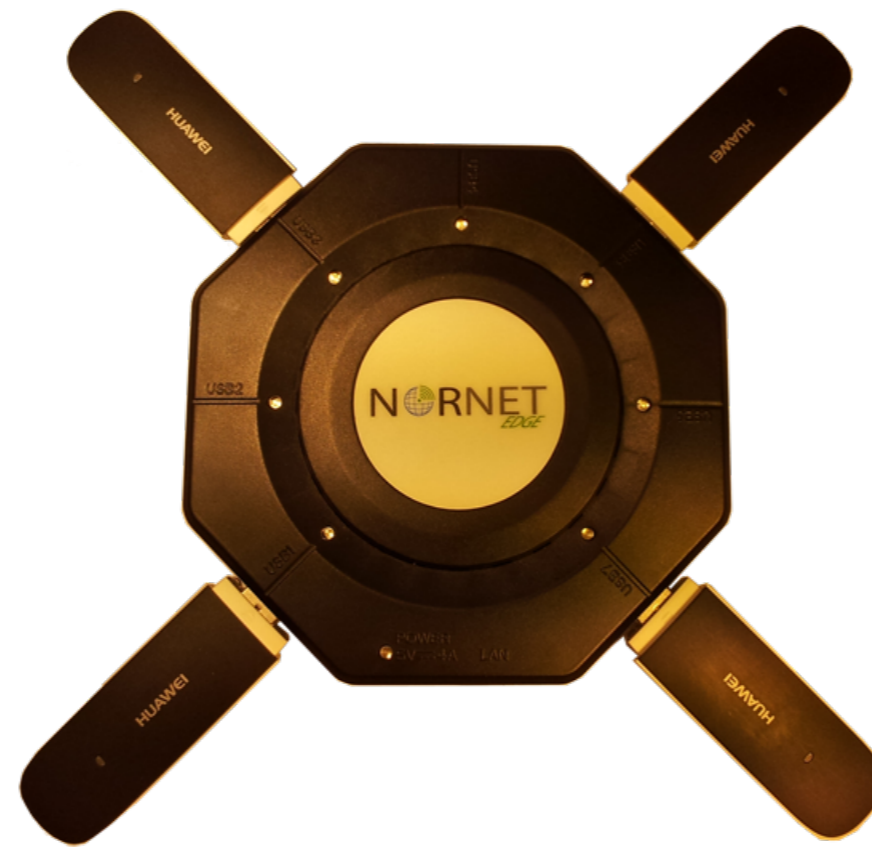
Shipping 40 more nodes is in progress

The next generation of hardware ?

New measurements and focus on mobility

NorNet Edge has proven to be a successful long-term platform to measure reliability of MBB networks

The testbed is counting its third year of operations: 24 billion data points

Maintaining the high number of active nodes remains challenging

More nodes and more focus on LTE and mobility are the next steps

Exploring opportunities to build a small experimental LTE network in-house

Questions?

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