

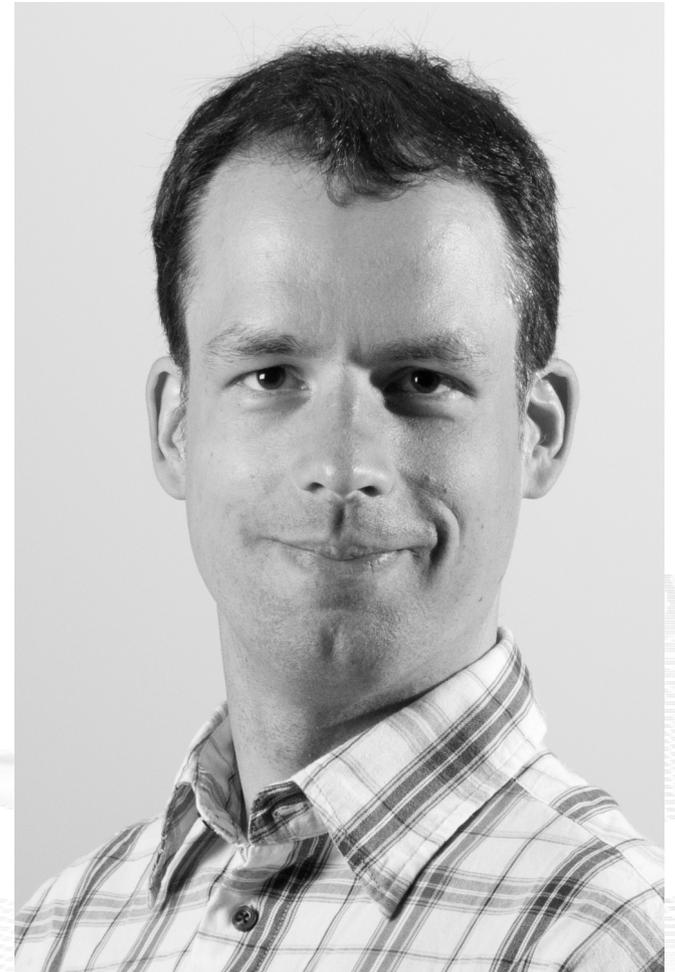
87th IETF Meeting

The NorNet Testbed: A Platform for Evaluating Multi-Path Transport in the Real-World Internet

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Goals of the NorNet Project

- Building up a **realistic** multi-homing testbed
- Wired and wireless
 - Wired → “NorNet Core”
 - Wireless → “NorNet Edge”
- **Perform research with the testbed!**



How to get a realistic testbed?

Idea: Distribution of NorNet over whole Norway

- **Challenging topology:**
 - Large distances
 - A few “big” cities, many large rural areas
 - Svalbard:
 - Interesting location
 - Many polar research institutions
- **NorNet Core:**
 - Currently 10+1 sites
- **NorNet Edge:**
 - Currently ca. 400 nodes



A NorNet Core Site Deployment

A NorNet Core site:

- 1x switch
- 4x server
 - 1x tunnelbox
 - 3x research systems
- At least two ISP connections
 - Uninett 
 - Other providers
- IPv4 and IPv6 (if available)



UNIS

Longyearbyen 78.2°N,15.6°E

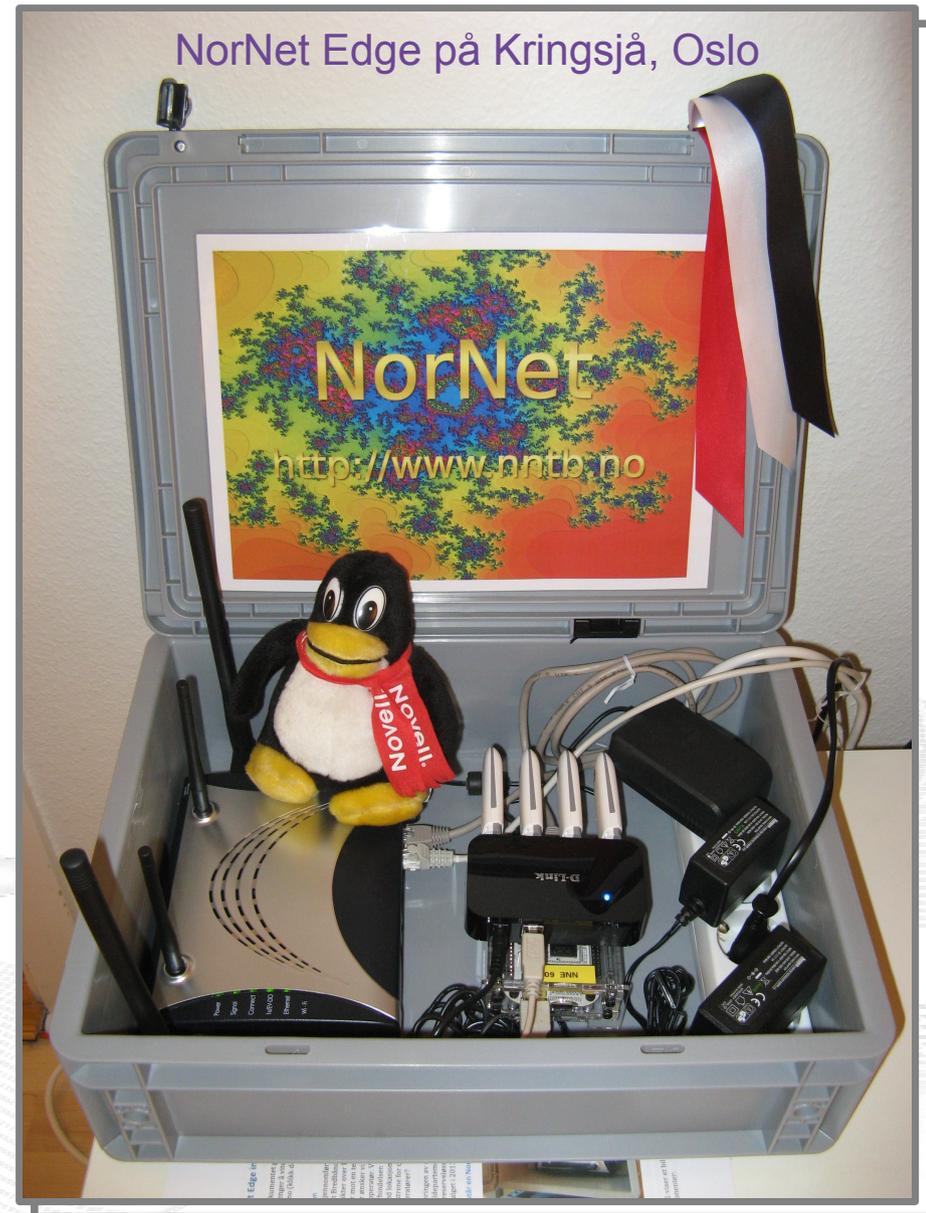


NorNet Core på Svalbard

The NorNet Edge Box: Ready for Deployment

Box contents:

- Beagle Bone or Ufoboard embedded Linux system
- 4x USB UMTS:
 - Telenor, NetCom,
 - Network Norway, Tele2
- 1x ICE CDMA mobile broadband
- 1x Ethernet
- Power supplies
- Handbook



NorNet Edge Visualisation

NorNet Edge Visualization

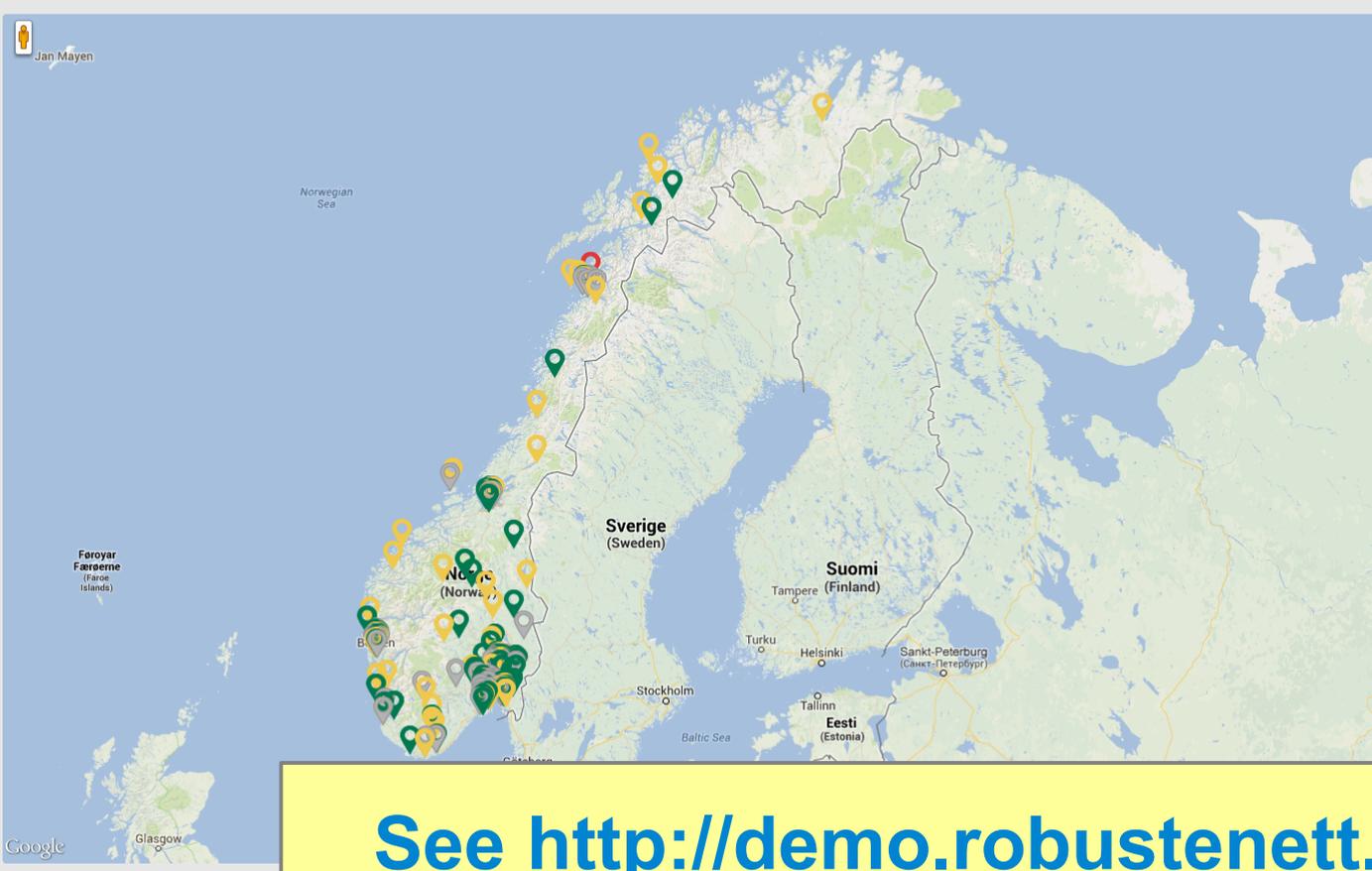
Dashboard Comparative view 2013/7/26 13:54:32

OPERATOR: All

COLOR CODE

- All networks available
- Some networks available
- No networks available
- Node unreachable

UP RATE, %: 83



Search by location or node id

LOCATION	NODE ID	STATUS
Åmot	nne255	●
Asker	nne379	●
Aurskog-Høland	nne365	●
Aurskog-Høland	nne367	●
Aurskog-Høland	nne376	●
Aurskog-Høland	nne377	●
Aurskog-Høland	nne411	●
Austrheim	nne554	●
Bardu	nne272	●
Berg	nne262	●
Bergen	nne202	●
Bergen	nne236	●
Bergen	nne238	●
Bergen	nne283	●
Bergen	nne284	●
Bergen	nne285	●
Bergen	nne286	●
Bergen	nne291	●
Bergen	nne292	●
Bergen	nne293	●

See <http://demo.robustenett.no!>

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Users

“The road to hell is paved with unused testbeds.”

[James P. G. Sterbenz]

- Of course, NorNet does **not** intend to be another unused testbed!
- NorNet will be open for all interested users!
 - Similar to PlanetLab ...
 - ... but with higher node availability and tighter monitoring
 - ... and, of course, **multi-homing**
- **Particularly, it can also be used by the MPTCP community!**

More details to be announced soon!

The 1st NorNet Users Workshop (NNUW-1)

The 1st International NorNet Users Workshop

NNUW-1

Fornebu, Akershus/Norway

September 18-19, 2013

See <http://www.nntb.no/>

Any Questions?

N  R N E T

Visit <http://www.nntb.no> for further information!