
Testbed possibilities in FI SHOK

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CSC/FUNET

Introduction

■ ICT SHOK FI WP4: 'Testbed'

■ Goals

- Build a testbed to enable new kinds of testing between researchers
- Enables deployment and testing experience which should bring new perspective to research

■ Activities and people

- CSC (2 FTE): backbone network, test coordination
 - Based on the new Funet network (leased fiber, DWDM, CWDM)
 - Pekka Savola (WP4 lead), Jari Miettinen, Kaisa Haapala, Matti Laipio, Marko Memonen, Roy Molini, Pekka Kytölaakso, Leila Pohjolainen
- TUT (0.5 FTE): access networks
 - Jarmo Harju, Karri Huhtanen
- HIIT (0.5 FTE): access networks
 - Pekka Tonteri, others?

Possibilities

■ Three testbed connectivity options

- Separate Internet connection (non-firewalled)
- Point-to-point lambda connection
 - Usually a CWDM wavelength (layer 1) or DWDM (all layer 2's)
 - Metropolitan, national and international testbed coverage
- Multipoint-to-multipoint layer 2 network (standard Ethernet)

■ Sometimes no special infrastructure is needed

- Just using regular Internet connectivity
- Using IP/L2 tunneling (e.g. OpenVPN)

■ TUT is working on an access network framework

- Connect other kinds of access networks to the backbone
- Enable testbed participants or third parties to provide these access networks for others to test

Use Cases (Internet connection)

- A research group develops advanced IP features
 - E.g., TCP or IP options, IPv6, multicast, DCCP or SCTP, ...
- More than just lab testing/development is desired
- University/company firewall prevents using Internet
- IT admins don't want or can't resolve this
- A separate Internet connection to the group
- Example: HIIT's test connection (PlanetLab, etc.)

Use Cases (p2p lambda)

- Two research groups (A in Espoo, B in Tampere)
- Involved in a project, want to develop or test together
- Working on next-generation Ethernet
 - Requires changes to Ethernet header or payload
- Fiber-like connectivity between the groups
 - Over larger distances Ethernet framing would need to be used

Use Cases (mp2mp ethernet)

- A company pilots a service to specific audience
 - E.g. all ICT SHOK FI participants
- Offering the service over Internet not feasible
- Lambda connections to all the participants
- Lambdas connected to a central Ethernet switch

Wanted: users

- We just provide the opportunity
- It's up to you researchers to collaborate and use it
 - You have to come up with the way to test, develop, etc. leverage this
 - We can help with refining ideas, but the work must be yours
 - We can also try to help in coordinating tests (or finding partners)
- Some practicalities
 - Contact Pekka Savola or someone else at CSC if interested
 - Contact early - delivery could take 0-4 months
 - A cost is involved
 - But CSC's ICT SHOK FI budget covers at least 50% (until spent :-)
 - A contract is needed
 - University IT admins must be aware and in some cases involved

Questions, comments, ...

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