Bifrost Workshop
KTH/ICT/TSLab in Kista 2010-01-27 am

09.30-10.00 Communication Infrastructure R&D at KTH/ICT, Björn Pehrson

10.00-10.30 Research on Virtual networks in FEDERICA, Peter Sjödin KTH

10.30-11.00 P2Pnext, Raul Jimenez KTH

11.00-11.10 Report from Linux/Netconf 2009 Jesper Dangaard Brouer

11.10-11.20 DOM (Optical Modules), Robert Olsson UU/KTH

11.20-11.40 New namespace in Linux/Bifrost, Jens Låås UU

11.40-12.00 Minimal Network Element/Low Power Router, Georgios, Cheimonidis Andreas Tsopelas, KTH

12.00-13.00   Lunch break

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13.00-13.20 SCTP, Karl Johan Grinnemo KTH

13.20-13.40 IIS Classifier Project status/ Olof, Bengt, Robert KTH/UU

13.40-14.00 Platform for building small and static apps, Jens Låås, UU

14.00-14.30 Demos

14.30-14.50 100G optical networking, Bernt Sundström, KTH

14.50-15.00 Netlogon status, Emil, UU

15.00-15.20 Bifrost 6.0 and beyond and HW, Jens, Emil, Robert UU/KTH

15.20-15.40 Linux-based Multicore Packet Processing,Mattias Rönnblom Ericson

15.40-16.00 Summary of 10GbE talk from LinuxCon Jesper Dangaard Brouer

16.00-16.20 Hardware level speeds of 82599 and issues with current chipsets

16.00-16.20 iptv-probe kernel module work, Jesper Dangaard Broue

16.20-16.40 UU/10g bgp router upgrade project, Hans, Emil, Robert UU

Communication Infrastructure R&D at KTH

- Theoretical vs experimental research

- Basic vs applied research

- Funding sources: VR, Vinnova, Eureka, EU

- Stakeholders from a market perspective

  - **Producers**: system manufacturers, operators

  - **Consumers** and consumer agents:

    - Public sector: healthcare, education, governance, housing,...

    - Private sector: housing

  - **Policy makers and regulators** (PTS) fairness, public good,...

- Communication Infrastructure Research Centre (Circ)

- Role model: www.i2cat.net

Communication Infrastructure R&D at KTH

- Communication System Architecture
  - Demanding applications and services:
    - SIP-based services, HD video conferencing/streaming
  - Harnessing peer to peer communication
  - Virtualization
  - Scalability
  - Security and robustness
- Network design and operation
  - High performance networks
  - Infrastructure sharing, Open access business models
  - Community networking:
    - business models in areas of little or no commercial interest:
    - Stockholm - Jokkmokk - Tarfala

Demanding applications and services: SIP-based services

- Minisip is an open source SIP User Agent ("Internet A/V phone").

  - Phone calls, HD/SD/Webcam video calls, instant messaging

- Features:

  - SIP compliant (RFC 3261 and more)

  - Multiple lines (users) on the same phone and multiple incoming/outgoing calls simultaneously

  - Focus on security: TLS, end-to-end security, SRTP, MIKEY (DH, PSK, PKE)

- Selected off the shelf hardware

Network elements based on
open source software and standard hardware components

- HDVC&S

- Bifrost 1GE/10GE routers

- Minimal Network Element

- Robust Multihomed Residential Gateway

- Network services (DNS, DHCP, User Management,...)

- Network management tools
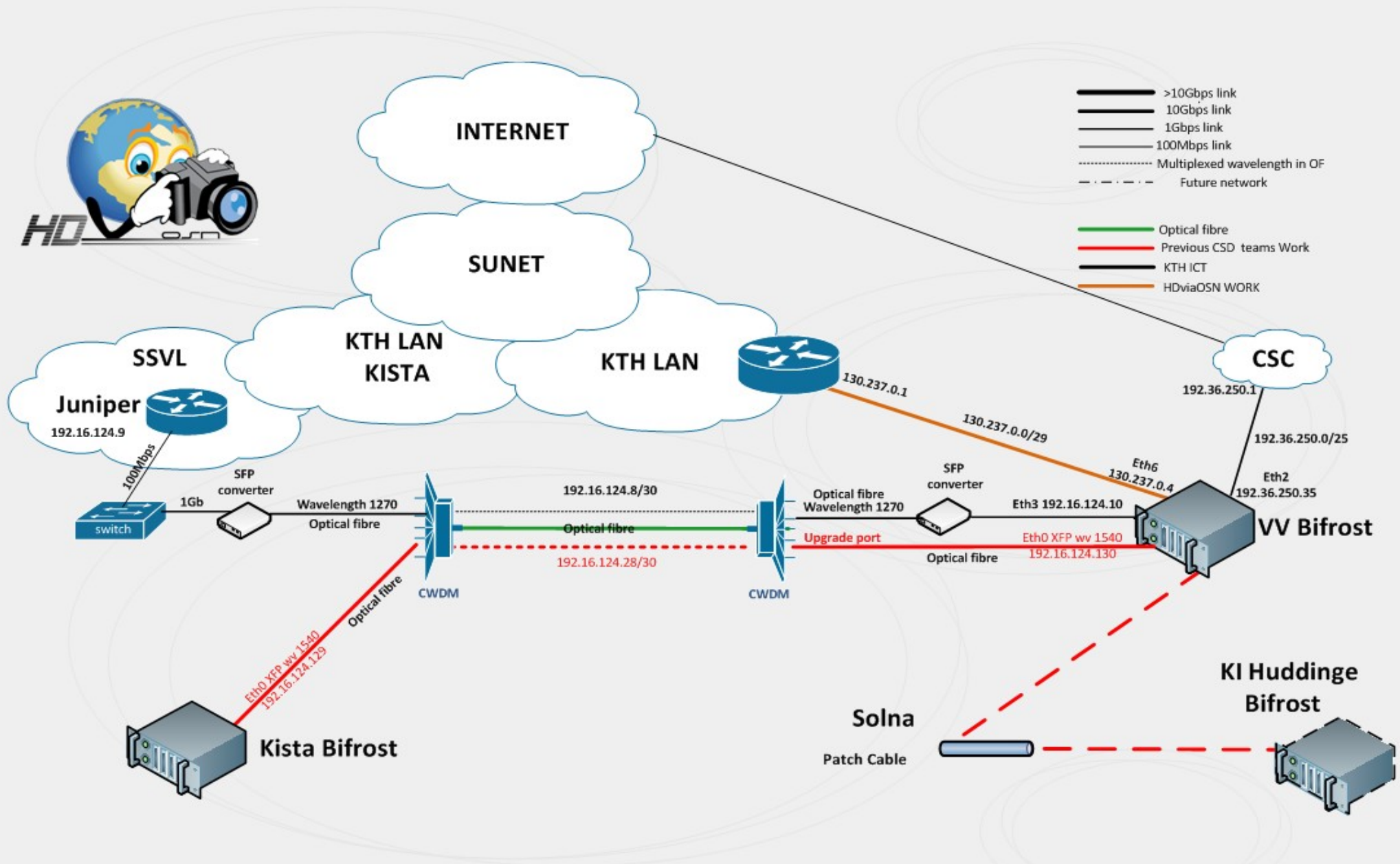
Network design and operation

- SSVL (AS8973, 192.16.124.0/22, 2001:6b0:32::/48)
  - SGN, SSVL, StockholmOpen, BalticOpen
- Carenet
- African NRENs
- Rural areas off the power grid
- Infrastructureless communication
  - DTN: Bytewalla
  - Wireless sensor networks: Water quality management

www.BalticOpen.net

Carenet Network Topology

African NRENs and IXes

- www.ubuntunet.net

- www.wacren.org

- www.feast-project.org

- MoRENet

- MAREN

- Rwednet

- SomaliREN

- Mozix

- Rinex

- Namibia

- Zambia

- Malawi

- Burundi