

# bifrost

KTH/CSD course kick-off  
Summer 2009

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# What is bifrost?

Small Linux USB

For infrastructure

For research

Name of network and collaboration

# For who?

Networking people

Unix/Linux

Needing a small flexible disto

# Objectives?

Hardware selection

Software selection

Testing

Development

# Basic functions?

Routing

Firewalling

Login services

Traffic logging

Gateways etc

# Basic functions?

Routing

Firewalling

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Traffic logging

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Ipv4, ipv6

# Routing

Routing uses tested versions of quagga  
Bgp, OSPF both Ipv4, ipv6

# R & D

Close collaboration with Linux networking  
Developers and industry

NAPI (3 years)

Pktgen,

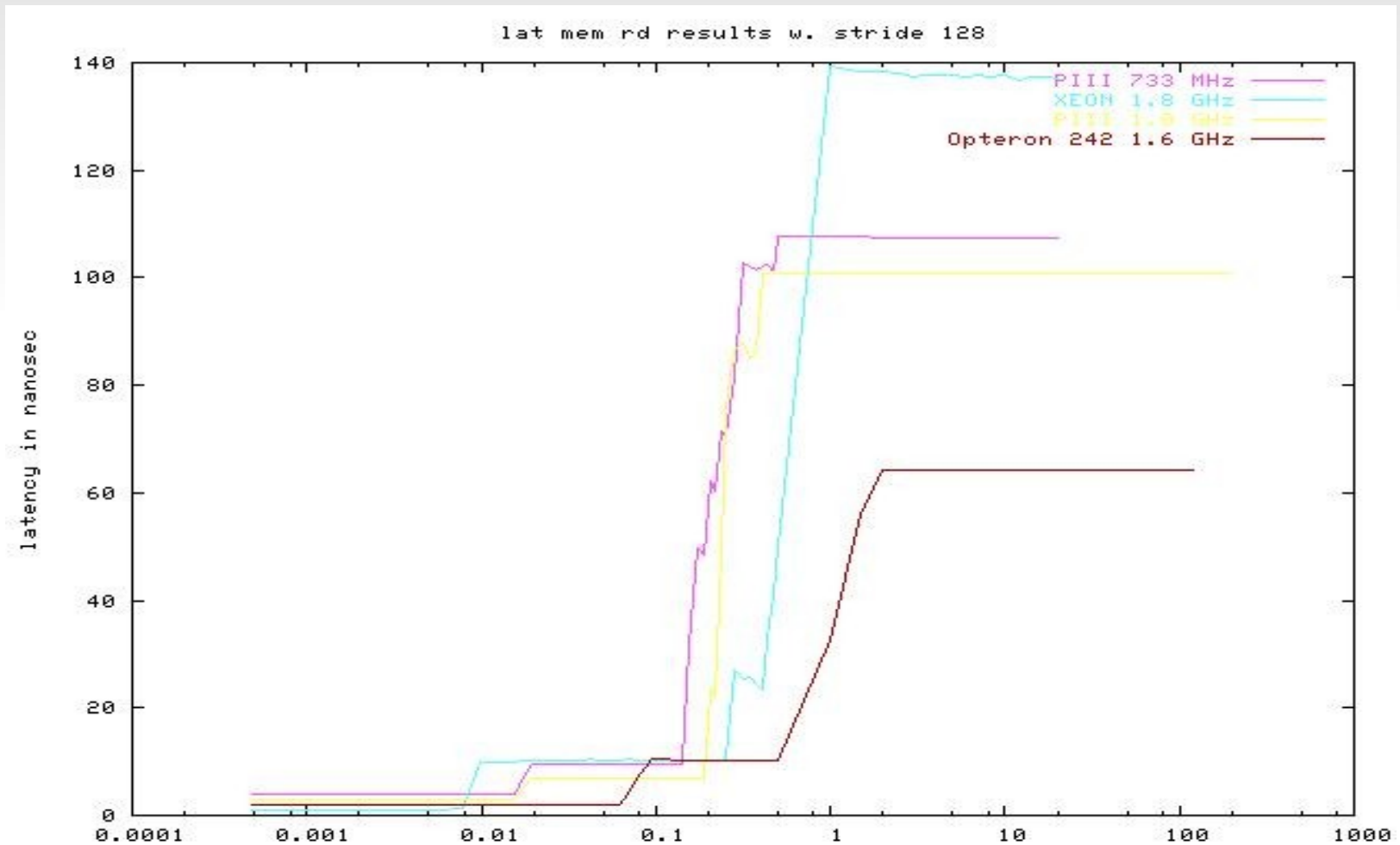
fib\_trie, (routing algo)

routing stats

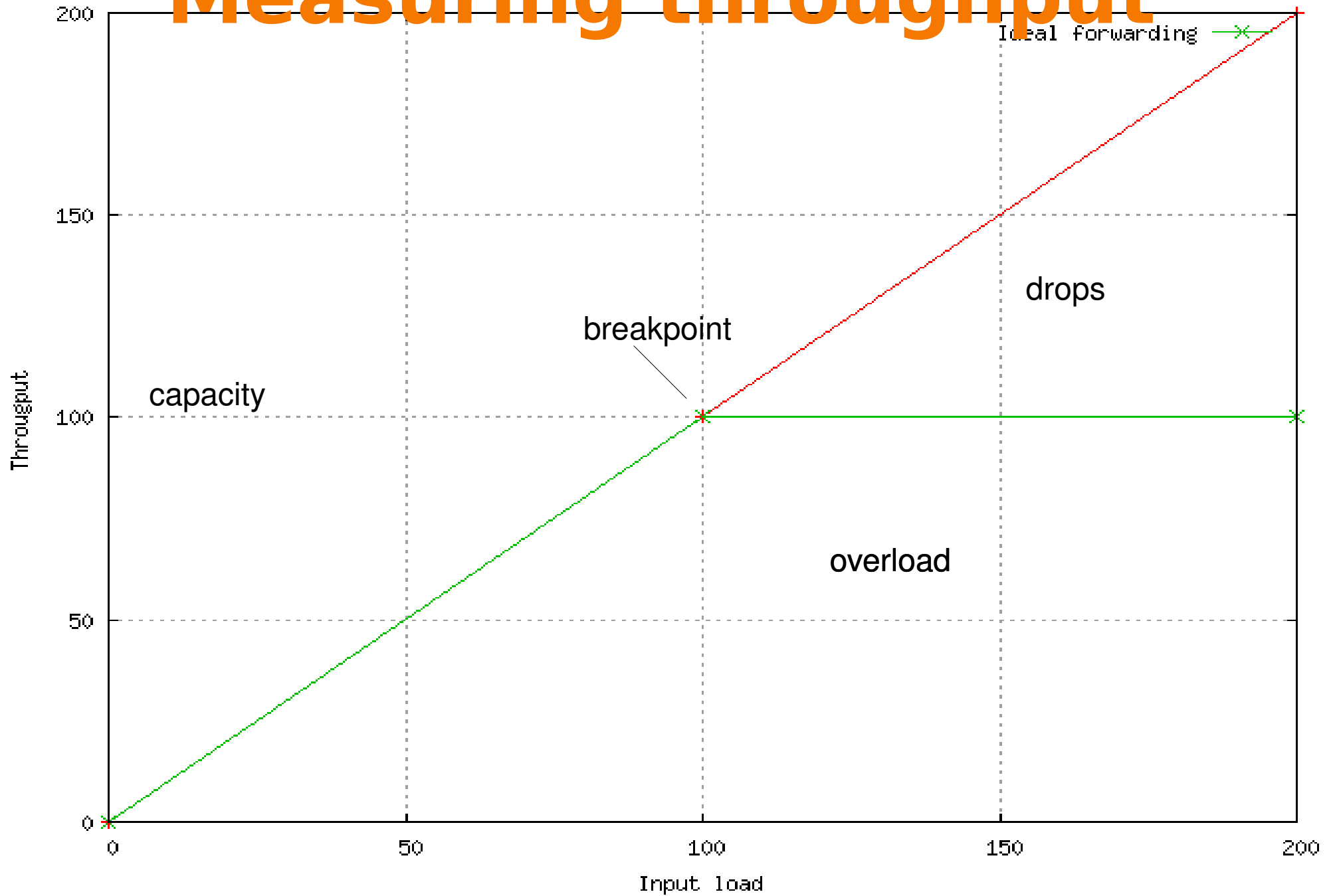
Etc, etc



# Cache effect/Performance



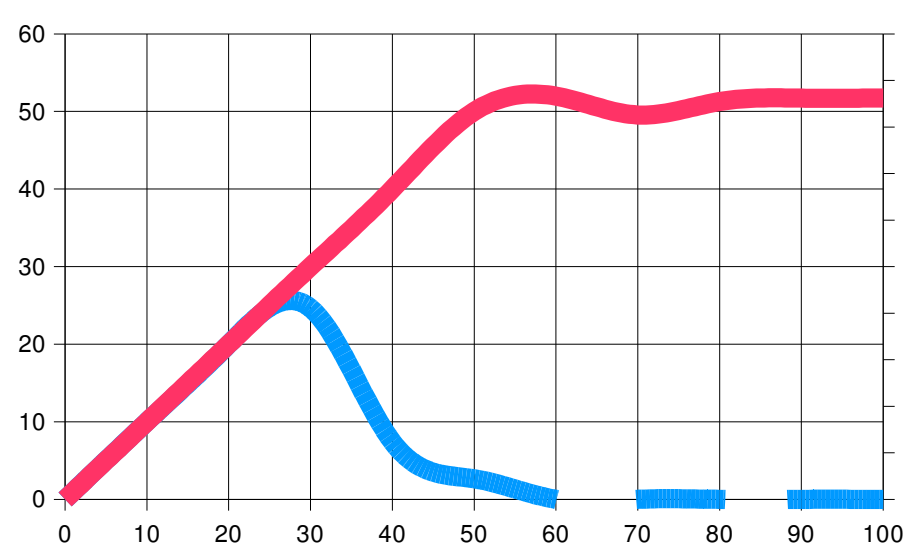
# Measuring throughput



# Overall Effect

- Inelegant handling of heavy net loads
  - System collapse
- Scalabiity affected
  - System and number of NICS
    - A single hogger netdev can bring the system to its knees and deny service to others

Summary 2.4 vs feedback



## March 15 report on lkml

Thread: "How to optimize routing performance"

reported by [Marten.Wikstron@framsfab.se](mailto:Marten.Wikstron@framsfab.se)

- Linux 2.4 peaks at 27Kpps

- Pentium Pro 200, 64MB RAM

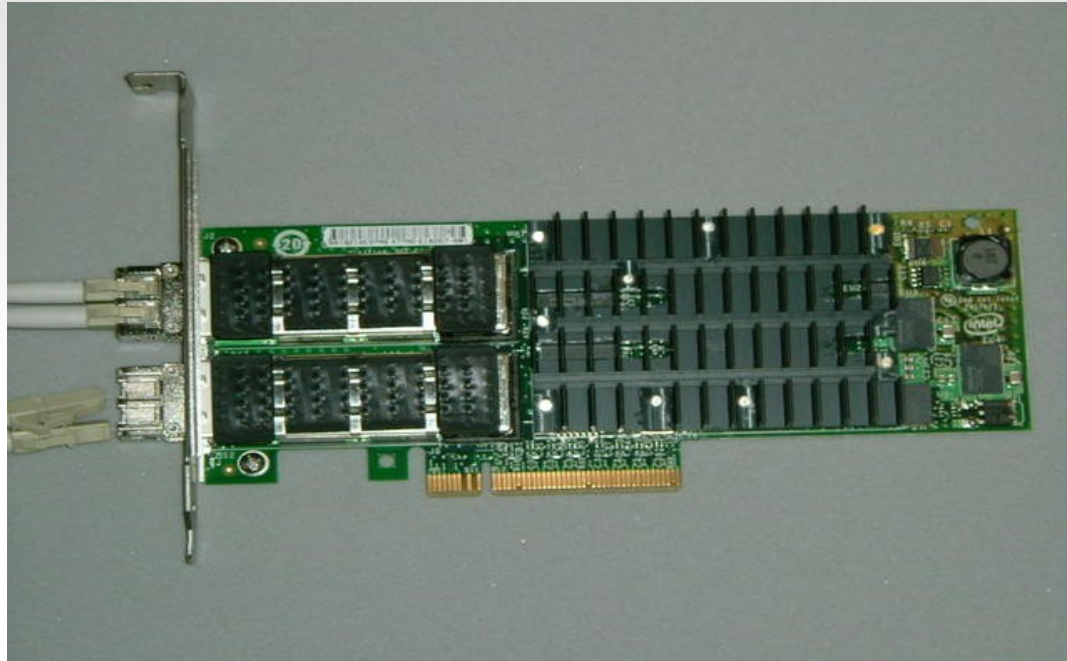
# Lab



**Not all were selected...**



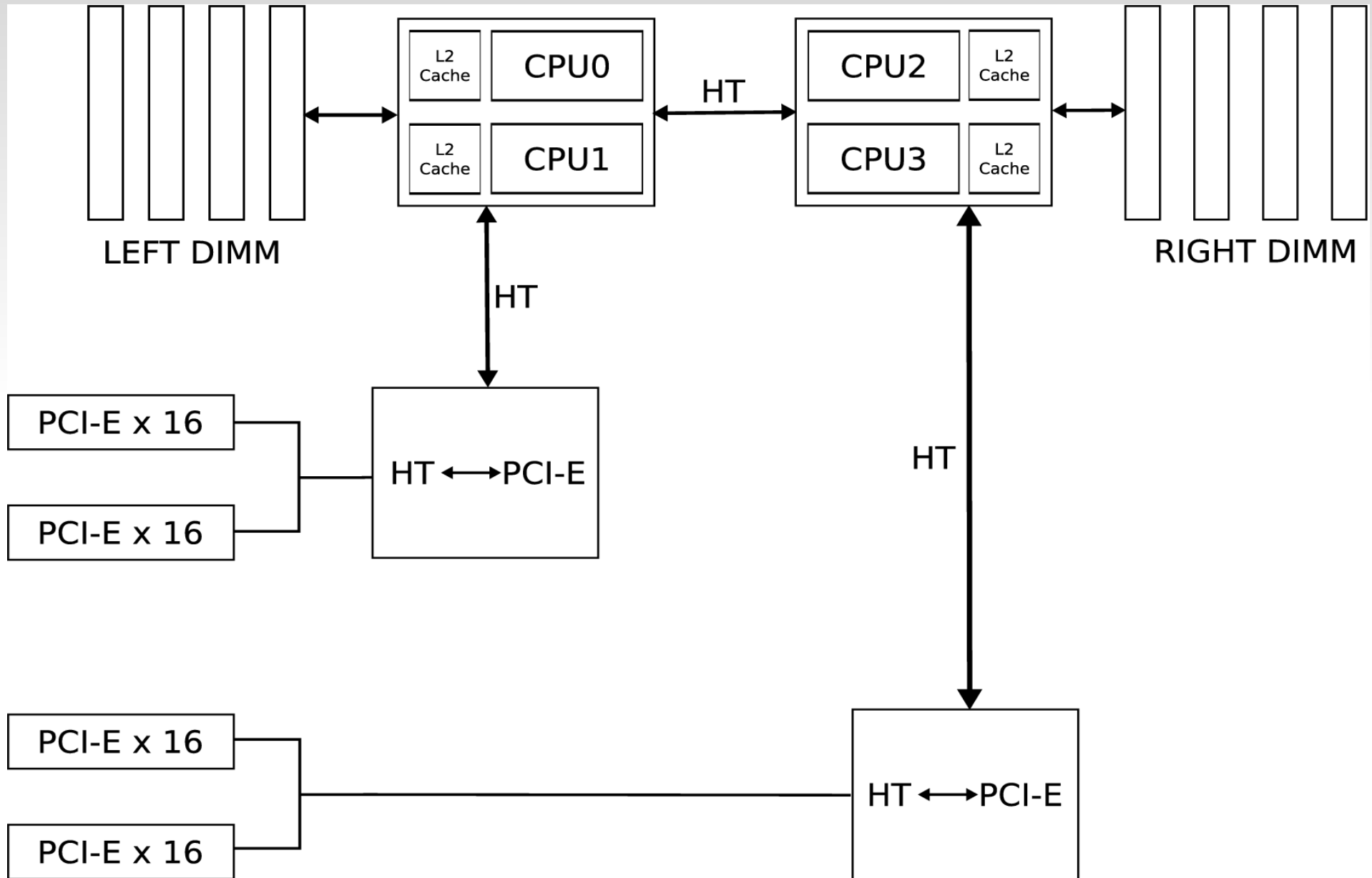
# Hardware - NIC



Intel 10g board Chipset 82598

Open chip specs. Thanks Intel!

# Block hw structure



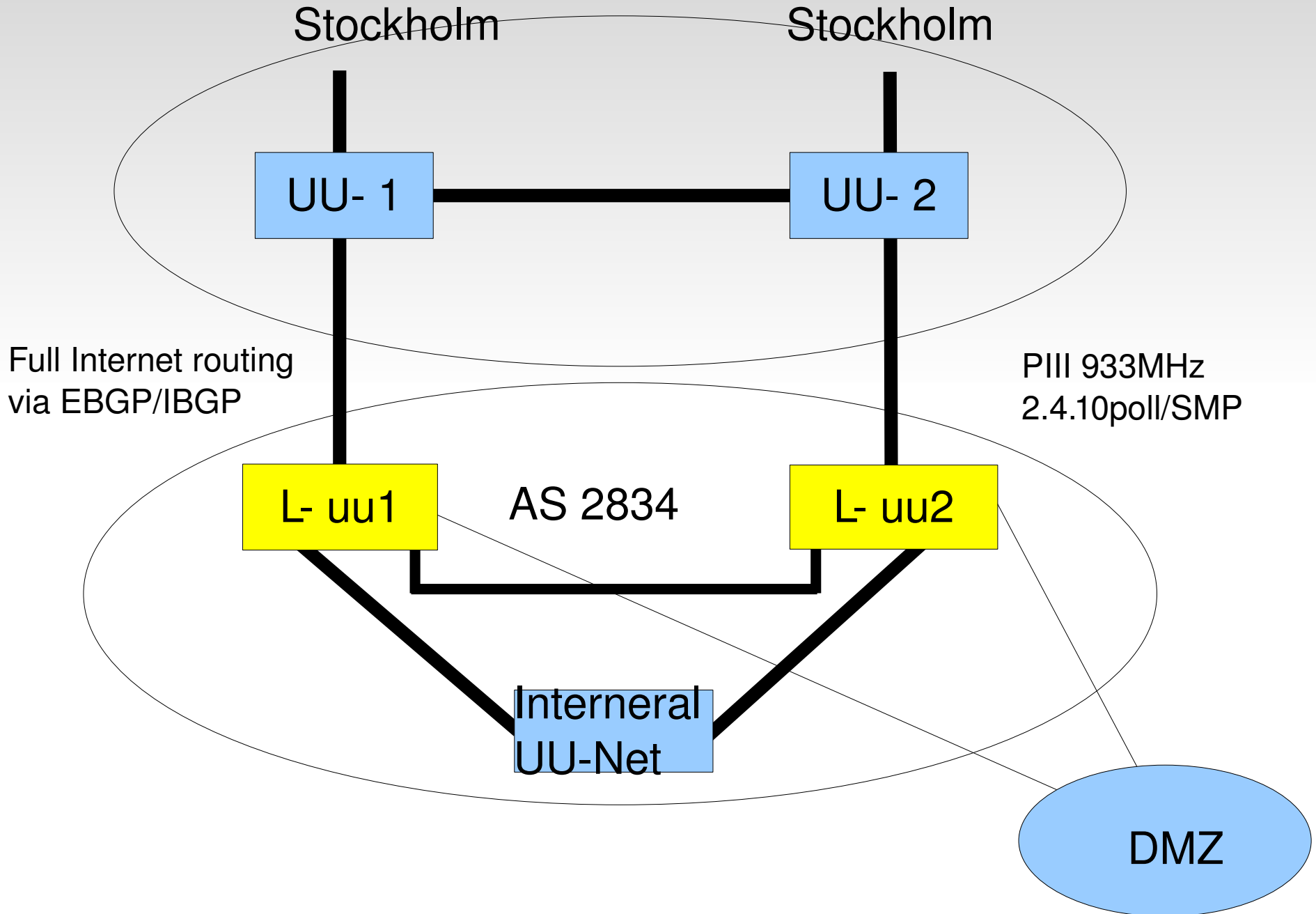
# Hardware - Box (set 2)



AMD Opteron 2356 with one quad core 2.3GHz Barcelona CPUs on a TYAN 2927 Motherboard (2U)



# 10 year in production at Uppsala University



# KTH/CSD

Current focus  
Optical to Open Source Router

Energy next??

# XFP Optical modules



XFP's are 10G and available for Long Range

# XFP Optical modules



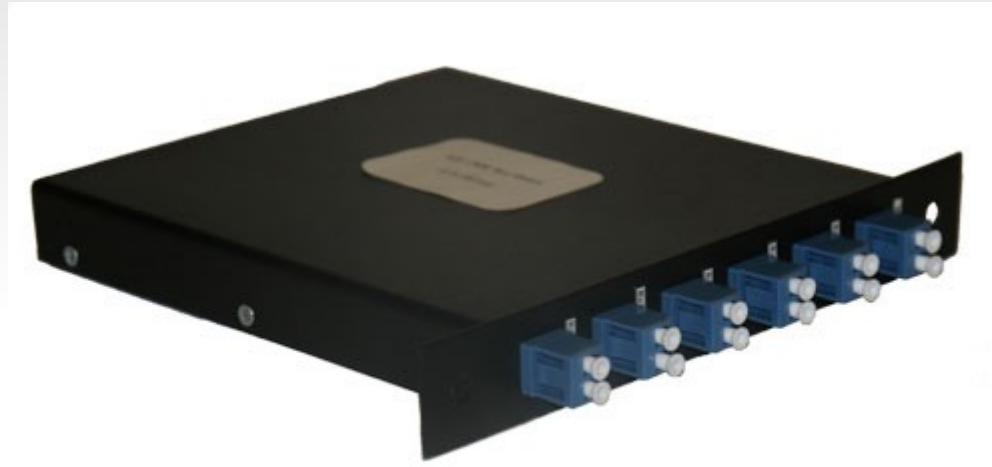
XFP's uses LC-connectors

# XFP Interface Board



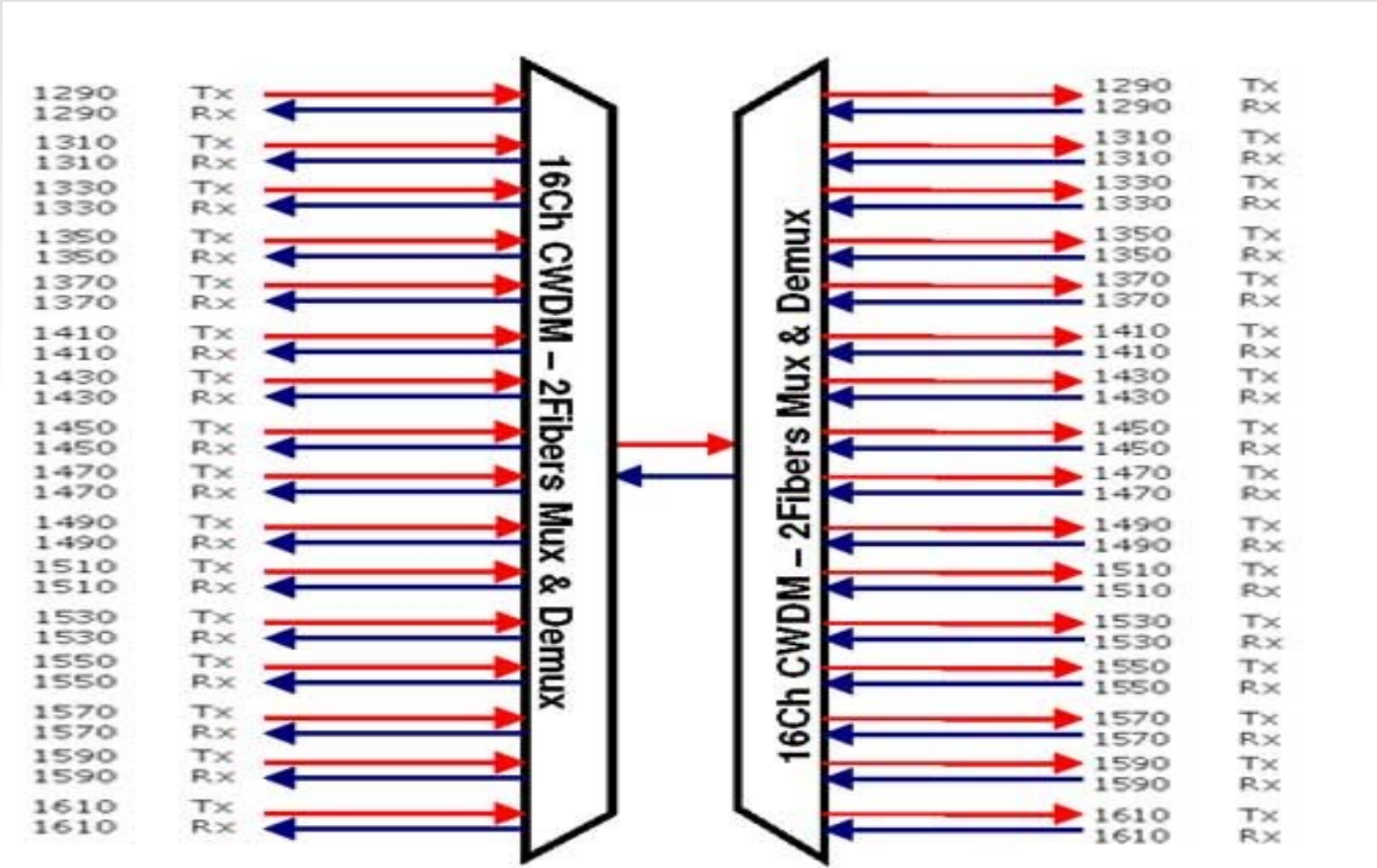
SUN Neptune 10g PCIe x8

# CWDM MUX/DEMUX 4 Ports

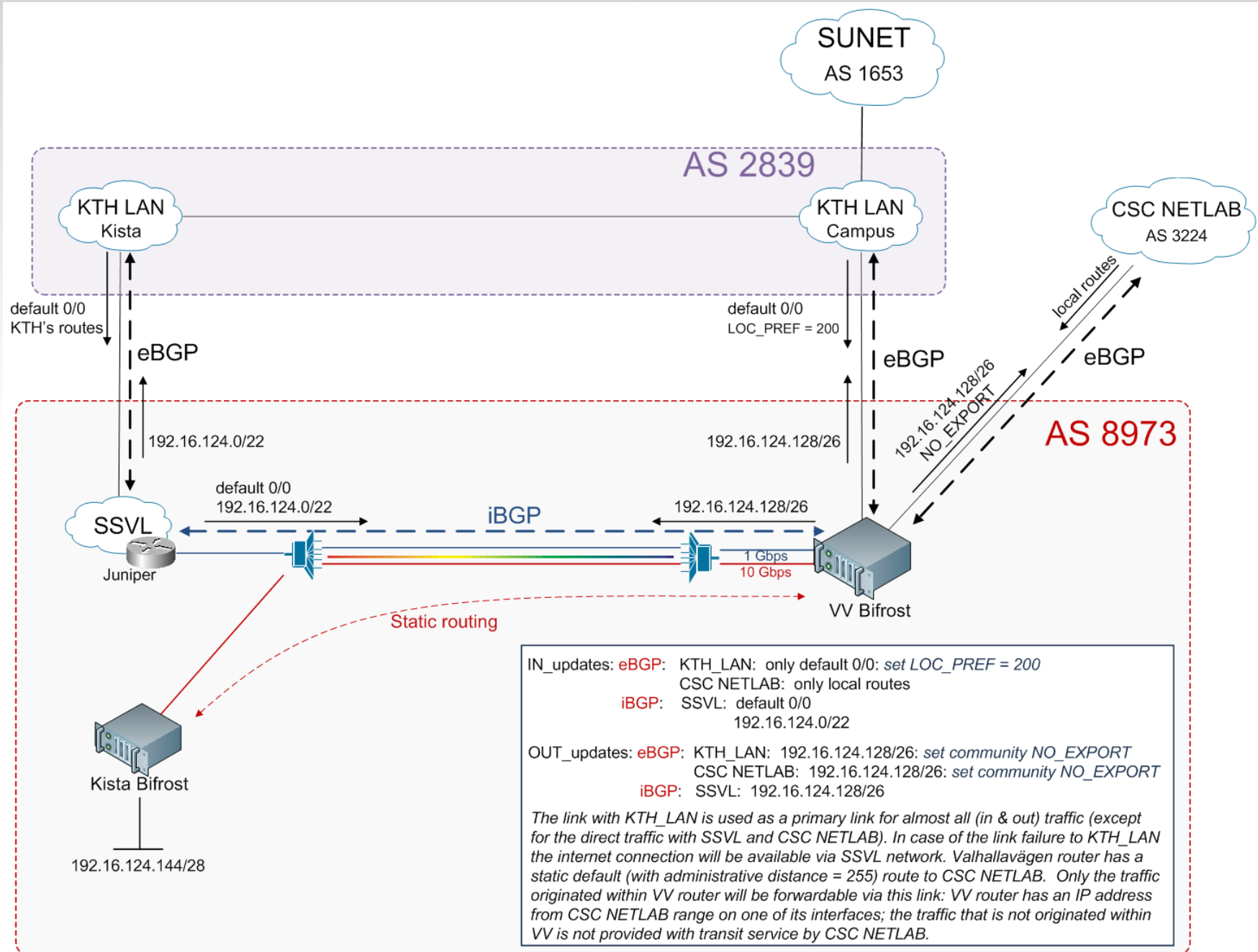


Price idea 600 Euro

# CWDM MUX/DEMUX 16 Ports



# Usage





**That's all**

Questions?