



# **TREX, an IXP as a Research Platform**

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TREX Tampere Region Exchange

**TREX is ...**

- an Internet Exchange Point (IXP)
- a Next Generation Exchange Point
- a Research Platform

## Internet Exchange Point (IXP)




- The Internet is based on packets flowing seamlessly from one network to another
- The Internet is based on ISP cooperation
  - ISP = Internet Service Provider
- With lots of ISPs, an exchange point is the cheapest way to connect them all together
- Exchange points keep traffic local



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## Next Generation Exchange Point






Dedication to ...

-  improving services
-  research
-  future technologies

## Research Platform

- Private VLAN
- Lower threshold for interconnection
- Faster to set up

Areas of research include ...

-  Emerging Technologies
-  Modelling and Measurement
-  Interoperability
-  Inter-operator Cooperation
-  Services

## Emerging Technologies

- IPv6 multicast in a multi-operator environment
- QoS/DiffServ in a multi-operator environment
- MPLS in an IXP
- DWDM OXC in an IXP

## Modelling and Measurement

- Predicting the future
- Routing table growth
- Observing the phenomena that take place in the real world

## Interoperability

- New technologies (e.g. DWDM OXC)
- New protocols (OSPFv3 for IPv6)
- New vendors

## Inter-Operator Cooperation

Pretty advanced for basic IP exchange, but not so for ...

- WLAN Roaming
- Inter-operator QoS
- Bitstreaming

## Services

- Important DNS infrastructure
- VoIP exchange
- IPTV
- National time and frequency standard



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**Last Slide**

Thank you for listening!