KOREN/APAN - Next Steps

2000. 4.13

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10~100 Gbps Network for KOREN

- Toward Tera bps Network
- Application-driven
- Join Leading Edge Group

CA*net 4 Overall Objective

- To deploy a network architecture where the GigaPOPs at the edge manage and control their own fiber and their own wavelengths
  - Condominium fiber and condominium wavelengths
- To deploy a novel new optical network of distributed optical IXs that gives GigaPOPs at the edge of the network (and ultimately their participating institutions) the ability to setup and manage their own wavelengths across the network and thus allow direct peering between GigaPOPs on dedicated wavelengths and optical cross connects that they control and manage
- To allow the establishment of wavelengths by the GigaPOPs and their participating institutions in support of QoS and grid applications to support true peer-to-peer networking
- To allow connected regional and community networks to setup wavelength direct peering relationships with similar like minded networks to reduce the cost of Internet transit
- To offer an "optional" layer 3 aggregation service for those networks that require or need such a facility
- To partner with private sector in building "carrier neutral" distributed optical Internet exchange facilities across Canada

1. Background / History

KOREN: 1995(?) ~

APAN: 1997 ~

2. Recent Network Technology Development

Ethernet : 1 Gbps --> 10 Gbps --> 40 Gbps --> ?

Fiber : DWDM

Wireless : Wireless LAN(IEEE802.11b?)

Switching : 40 Gbps and beyond

3. Case Studies

(1) Canada(CA*net 3, CA*net4)
(2) Netherlands(Surfnet5)
(3) Sweden
(4) USA(Supernet)
(5) China(CERNET)

4. Issues

(1) 10~100 Gbps for KOREN in 2001-2002

- Physical Layer(WDM, Ethernet,..)
- Routing(OBGP?)

(2) Applications

- Digital Video
- GRID
- Medical
- Virtual Reality

(3) Demonstration Centers

(4) International Links

5. Remarks

(1) Need to join the leading-edge group

Canada, USA, Sweden, Netherlands, (China),...

(2) Focus on applications

Applications should define the bandwidth and routing.

(3) APAN in the next stage

Interconnection of national gigabit networks

Regional coordination

Global coordination

(4) Technology Transfer

Need to transfer technology developed in 1997-2001;

Digital Video

Video Conferencing(H.323. MPEG)

Multicasting

Network measurement

Reference

CA*net	www.canarie.ca
Sufrnet	www.surfnet.nl
Supernet	www.ngi-supernet.org
Sweden	www.nord.net
CERNET	www.cernet.edu.cn