Current Activities

Kishor Panth

NREN Board

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Nepal Research & Education Network

- Facilitator of advanced research and education

- Member of Asia-Pacific Advanced Network (APAN)

- Develop national computational grid for R&E

- Provide access to "have-not"s

- Sharing of knowledge and resource

- Establish Knowledge-Center to support ICT initiatives

- Promote and support APAN

Current Activities

- Building Network

- Rural Networking

- Telemedicine

- Distance Education

- IPv6 Testbed

- Climate-change/Global-warming Monitoring
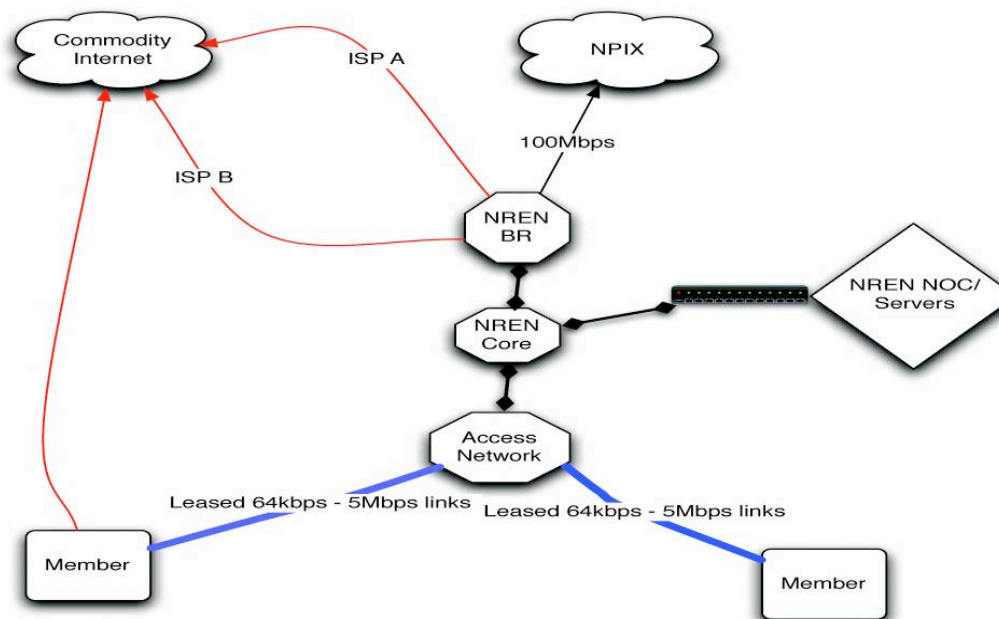
NREN Network

- IP Resource

  - IPv4 Address Space - 202.52.0.0/23

  - AS45170

- Hardware (Mostly, donated by NSRC)

  - Routers - Cisco 7200 VXR NPE 400, 7200, 2600s

  - Switches - HP400X Series, Cisco 2960

  - Access Network - Cisco 1700s and Soekris routers

  - Wireless (2.4 and 5.8 GHz) Radios

Connectivity

- Our network is concentrated in the Capital city

- Connected to the Global R&E networks (APAN-JP,)

- Local connectivity 10- 100 Mbps
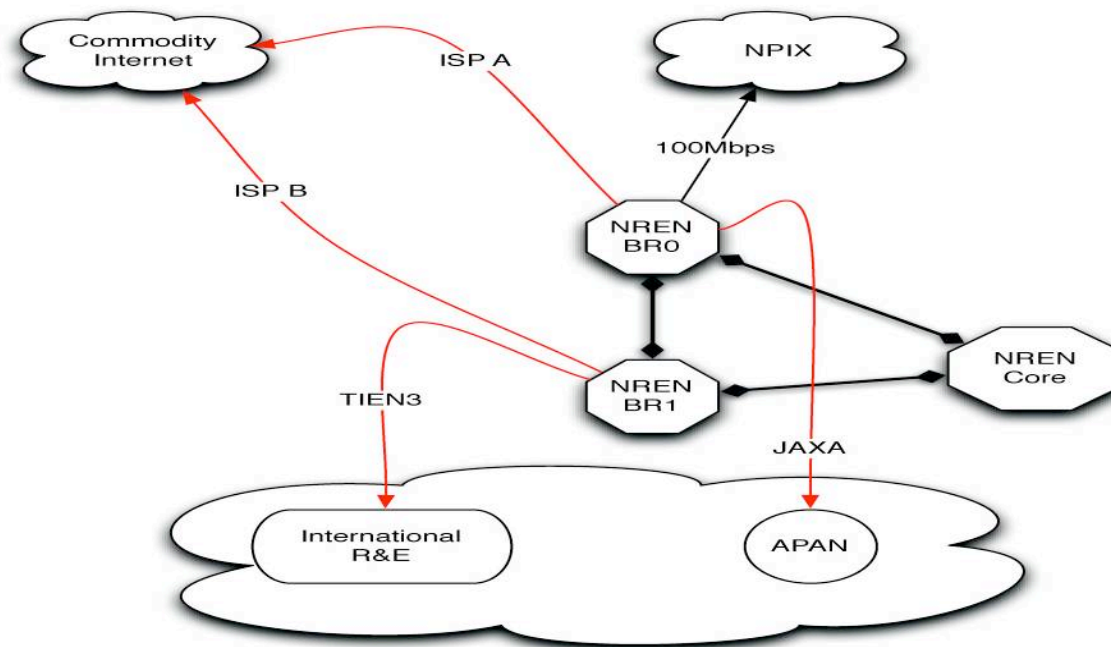
- International Bandwidth 10 Mbps

Current Logical Network

Commodity Internet

ISP A

NPIX

ISP B

100Mbps

NREN BR

NREN NOC/ Servers

NREN Core

Access Network

Leased 64kbps - 5Mbps links

Leased 64kbps - 5Mbps links

Member

Member

Nepal Research and Education Network (NREN)
Logical Network Diagram
v2008042101

Proposed Logical Network

Nepal Research and Education Network (NREN)
Proposed Core Logical Network
v2008042102

Partnership

- Health and Health Applications

  - HealthNet (Institute of Medicine, Tribhuvan University)

  - Model Hospital (PHECT)

- e-Learning

  - Nepal Wireless Networking Project

- Campus Network - 10 University Colleges (1st Phase)

- Industry

  - Service Providers, NPIX, Network Providers

- NGOs, INGOs

Health Applications

- Video and Audio communications via Internet

- Narrow the gap between rural health-posts and well-equipped urban hospitals

- Diagnosis and consultation with specialists at urban hospitals staying in the rural area

- Possibility of distance-learning

- Using mix of wireless and other available medium to connect remote area with NREN partners
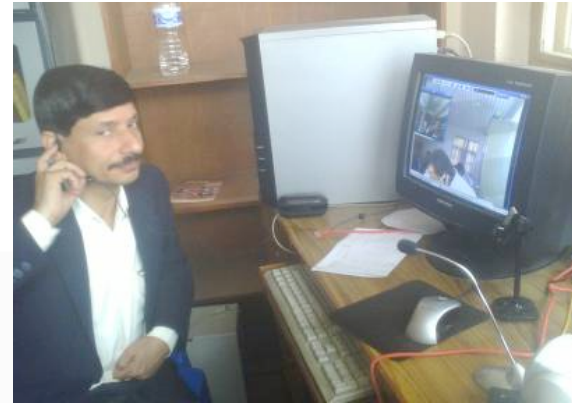
Model Hospital

- General hospital in Kathmandu

- Run by non-profit PHECT

- Telemedicine Partner

- Hub for Wireless Networking

- Connected to NREN backbone through Fiber, Bandwidth of 10 ~ 20 mbps

- to Gaurishankar Community Hospital, Dolakha

  - Connected over Wireless

  - Consultation with Specialists

Telemedicine - From Model Hospital, Kathmandu to Dolakha Hospital

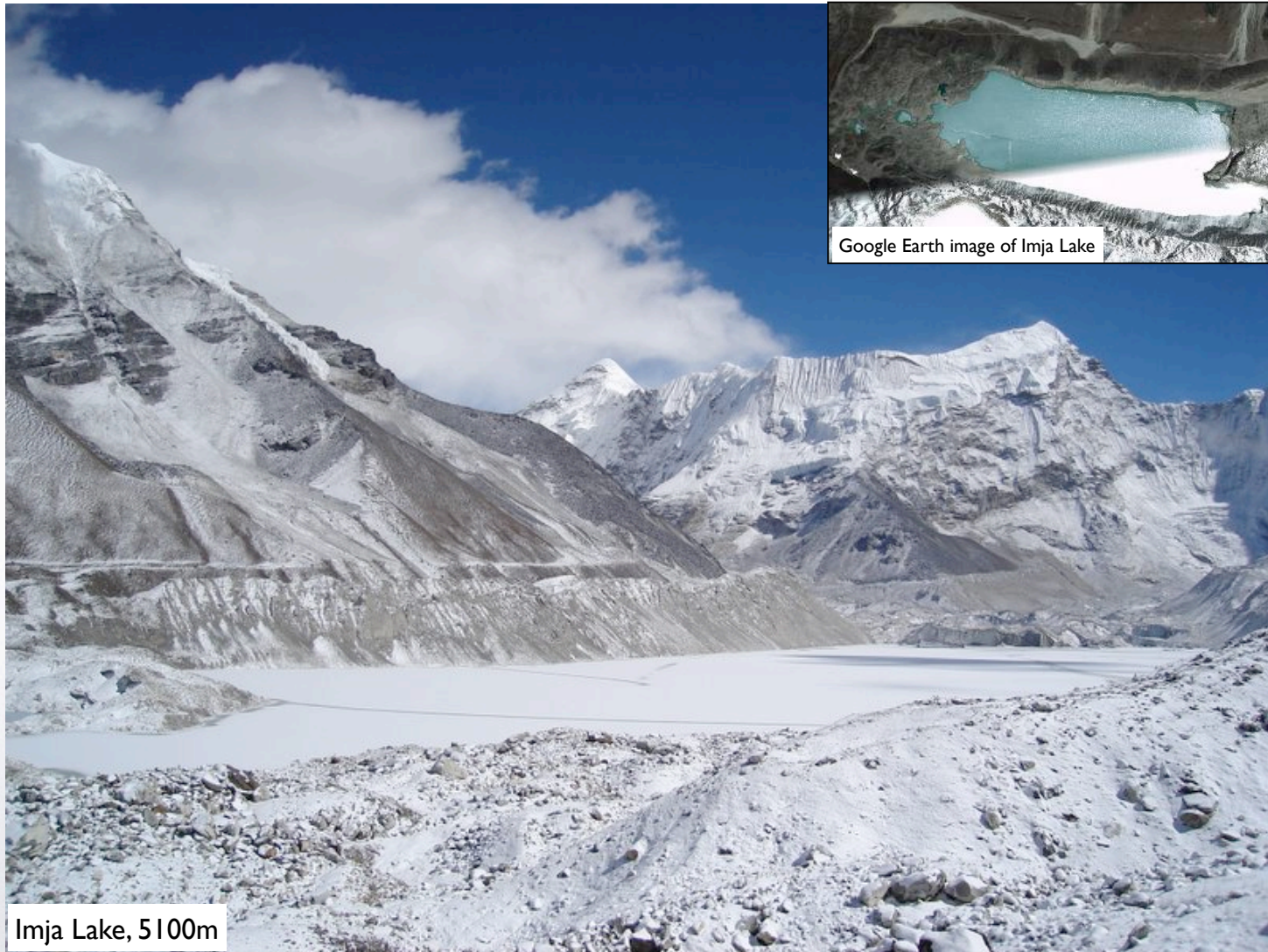Telemedicine - From Model Hospital, Kathmandu to Dolakha Hospital

HealthNet Nepal

- Health sector targeted ISP

- Operated by Institute of Medicine, Tribhuvan University

- Tools and Services

  - Health discussion groups

  - Health Resources

  - Journals

  - Databases

  - Training Materials

  - Software Packages

Remote Monitoring Imja Lake

- Glacial lake in risk of out-burst flood

- 5100m

- 10km south of Mt. Everest

- Major tourist destinations on the danger zone downstream of the glacier

- Installed Field Servers

  - Gathers environmental data like temperature and water level

  - Relays data to Namche >> Tokyo >> Internet

Google Earth image of Imja Lake
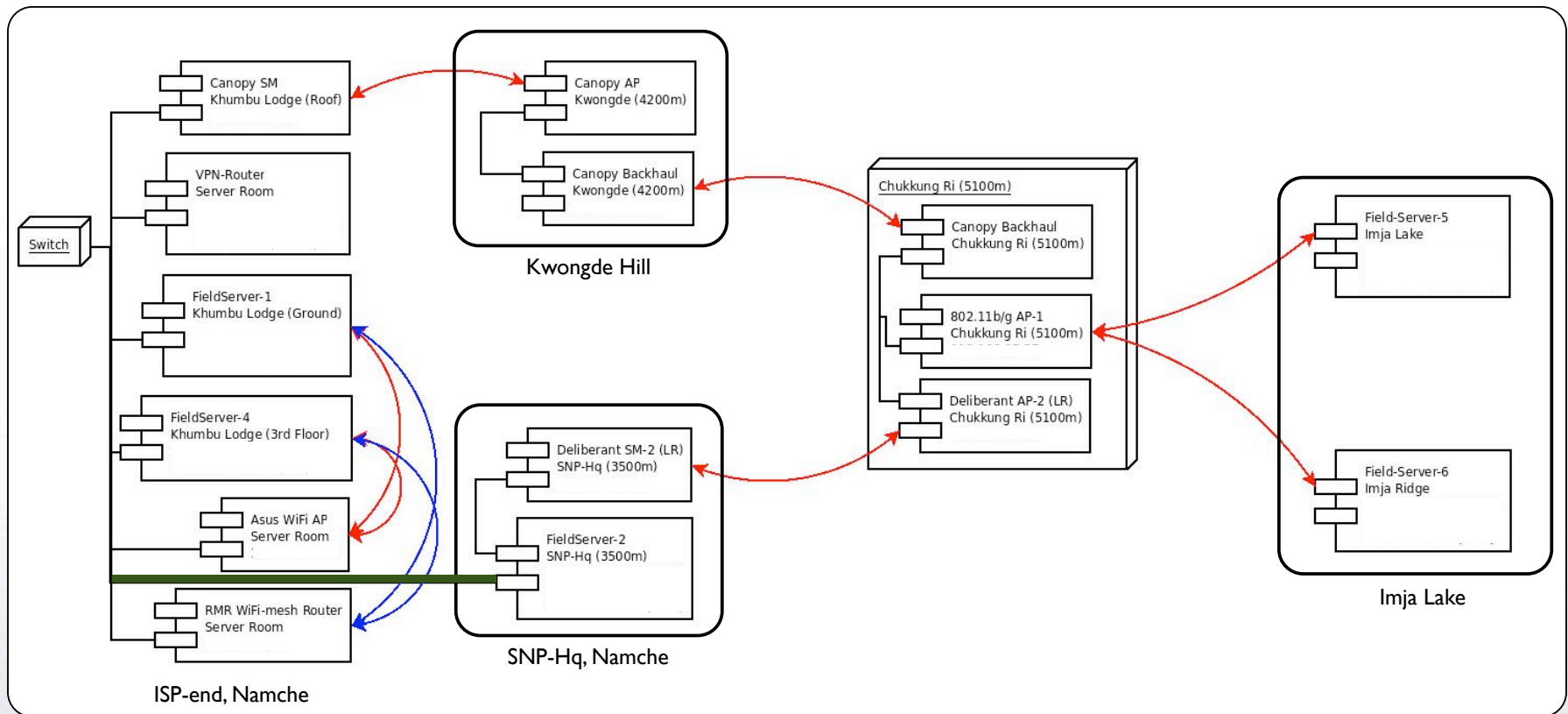
Imja Lake, 5100m

Field Server

- Remote Sensor, equipped with environmental sensors, photographic camera and wireless radio

- 5 Field Servers deployed in Everest region

  - 2 near Imja lake (5400m & 5100m)

  - 2 in Namche Bazaar (3450m)

  - 1 in SNP Headquarters (3500m)

- Connected via wireless to ISP in Namche

- A Field Server is observing traffic condition in Kathmandu, equipped with High-resolution network camera

Pictures taken by Field Server's onboard camera stitched together. Taken 2007-11-13

Wireless Network in Everest Region

Relay station at Chukkung Ri (5100m)

Field Server Monitoring Web Page

http://fsds.dc.affrc.go.jp/data4/Himalayan/

Most Visited ▾   Getting Started   Latest Headlines

Field Server Monitoring Agent

Field Servers Data Display
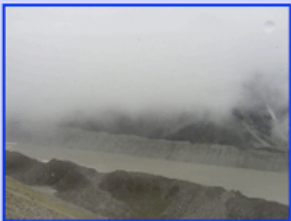
Format ver.2.2 [2008/05/15]
T.FUKATSU (NARC,Japan)

select FieldServer
all data / round_cam

◉ fs ○ Cam

Field Server

Himalayan06
(e-Lab FS4, Imja ridge)

Himalayan05
(e-Lab FS4, Imja Lake)

Himalayan04 (EOS version)

Himalayan02 (2008 Standard version)

Himalayan01 (demo version)

Himalayan03 (Toshiba-cam version)

Himalayan06_cam   Himalayan05_cam   Himalayan04_cam   Himalayan02_cam

Himalayan06_daily   Himalayan05_daily   Himalayan04_daily   Himalayan02_daily

Field Server Real-time Data			
Himalayan06	**Himalayan05**	**Himalayan04**	**Himalayan02**
Interval 0 sec.	Interval 0 sec.	Interval 600 sec.	Interval 300 sec.
TimeZone: GMT+09:00	TimeZone: GMT+09:00	TimeZone: GMT+09:00	TimeZone: GMT+09:00
Date 2008/06/02	Date 2008/06/04	Date 2008/08/14	Date 2008/08/14
Time 14:01:07	Time 12:01:57	Time 15:21:57	Time 15:29:07
Air-Temp. 9 C	Air-Temp. 10.5 C	Air-Temp. 20.2 C	Air-Temp. 13.6 C
Humid. 64 %RH	Humid. 65 %RH	Humid. 47 %RH	Humid. 76 %RH

Done

http://fsds.dc.affrc.go.jp/data4/Himalayan/

(48 minutes remaining)

Thank You

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