Connecting Remote CNs to an IXP

by

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THAILAND
Thai Samakhee (First TakNet village) is a small rural village in the northwest of Thailand.

50 households with 300 populations

**Before 2013**

- 2 ADSL links provided by one ISP
- $33/month for a subscription
- less than 10 villagers had Internet at home

**TakNet CWMN**

- Expanded to 21 sites (as of October 2019)
- Internet cost is shared among villagers
- $8/month for a subscription
- Attract villagers to use the Internet
- ~1100+ active users
Example: Thai Samakkekee
Net2Home: a community ISP

- Type 1 ISP:
  - Infrastructure: No network
  - Service Provided: Internet access
  - Service Areas: entire country
  - Types of Users: general

- Shareholders: open to all community network members
Net2Home: an ISP w/o Network Infrastructure

Each CN connects to commercial ISPs with networks

How can CN exchanges content among themselves?

How can CNs share common resources/services?

How can Net2Home manage the services fairly and effectively?
Why connecting to an IXP?

- Net2Home has many gateways connecting to different ISPs; some are on neutral IXPs while others may not
- More local content providers likely to share content via IXPs
- Provide a direct connection means an ability to control routing
- Enabling domestic exchanges among Net2Home members and BKNIX members
Effective Bandwidth Utilization

- Users share common interests: “in trend” movies, TV programs, music as well as educational materials
- Proxy and cache servers
- Common services for ALL CNs include
  - Exchanges of local content among CNs
  - Cloud service
  - Peering with other IXP members
HOW?

Use IP tunnelling to direct traffic between gateway of CN and Net2Home border router.

Use Proxy and Cache at each CN.

Towards Micro DC at CN level and reverse proxy at Net2Home gateway to IXP.

=> CNs on IXP.
BKNIX: a community IXP

- Established: 21 Feb 2015
- Number of members: 29 ASNs
- Traffic: 36.02 Gbps (Peak) / 12.47 Gbps (avg.)
- Website: bknix.co.th
Ongoing developments...

- Content delivery on N2H
  - Cache for popular content
  - Reverse proxy to promote local content
- Local services
  - แบ่งปั๋น platform for resource sharing
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Thank You
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