IXPs and Peering

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Asia Pacific IXPs

We'll just touch on the rest of the world out for now

What is an IXP

- Any Layer 2 facility that helps ISPs and Organizations with their own ASN connect and exchange bilateral routing information with each other for IPv4, IPv6 and Multicast traffic exchange.
- Each Participants in an IXP controls their own routing policies and decisions.

IXPs in AP Region

- Can be categorized in different ways
  - International Reach and Participants
  - Traffic Size
  - No. of Members
- Each of the above can have unique reasons

> 10G

- Japan - Otemachi Building - JPNAP, NSPIXP2 (DIX-IE), JPIX, BBIX (probably >100G)
- Hongkong - HKIX.. all colo facilities are on it
  - 100% 10G Platform upgraded in 2009
- Korea - KIXP and KIDC - mostly cross connects

> IG

- Singapore - Equinix, SOX
  - Most significant and gaining importance
  - The National Broadband Plan should help.
- Australia - WAIX, Perth; PIPE Networks, Equinix Sydney
- NewZealand - APE, WIX.. plus a few others
- India - NIXI

IG

- PH Open IX - Manila
- Kualalumpur IX
- IIX - Indonesia
- VNIX - Vietnam
- NPIX - Kathmandu
- BDIX - Dhaka
- Colombo IX, Sri Lanka
- OpenMIX, Mongolia

Transit Mono/Duo/Tri polies

- Singapore
- China
- Thailand
- Malaysia (?)
- Pakistan
- Taiwan
- Most others where there is no IXP

International Reach

- Hongkong - HKIX
  - Possibly also because it's one of the oldest.
- Equinix Singapore
  - Very attractive to SEA, SA and ME
- Japan (JPIX, JPNAP)
  - Traditional Point of Interest from US

Noticeable Patterns

- The more advanced and older the Internet and IXP is each country, the more organized it gets. This may led to operations being run by commercial entity or in commercial manner.
- Most ISPs and Members still prefer some say in how the IX is run and managed.

Operational Trends

- Growth to 10G Ethernet
  - Most IXPs are now on the path to 10G
- Optical Port Density
  - As switches get more security features, and it's easier to backhaul over longer distances, IXP need more optical ports, even if the traffic levels aren't.
  - NPIX just bought a new switch with large number for optical ports, even with <1G traffic

Operational Trends

- IPv6
  - 80% of all IXPs in AP region support v6. 90% do Dual Stack.*(informal survey)
  - Many are ready but members are not
- Multicast
  - Not clear, many offer it on separate vlan, but not much demand.

Operational Trends

- Route Servers
  - Most Offer, few are Mandatory
- Jumbo Frames
  - What is jumbo Frame (?)... ;-)
  - I haven't seen or observed any move towards efforts on using jumbo frames at IXP. I hope IXPs without any FE ports would look into this in future.

New IXPs

- Still a lot of countries in AP region don't have proper IXPs. Specially in countries with restrictive International policies.
- We still see new IXPs being formed now and then, but it's slowing.

Rest of the World

Thanks