IXes in the AP Region

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Chair of APNIC's IX Special Interest Group
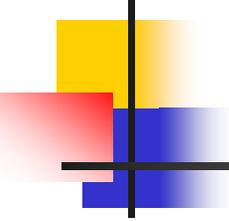
IXes in the AP region

- **Many countries still have no IXes**
  - US or Europe is the IX
- **Those which do have two types**
  - Neutral IX
  - Commercial IX
    - Either marketing IX – L3 transit ISP service
    - Or peering IX run for profit
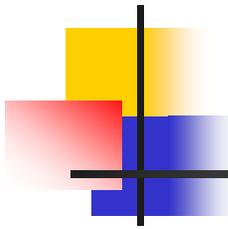
IXes in the AP region

- Countries without IXes:
  - Have regulatory barriers
    - "you will connect to the Internet through the monopoly government owned telco"
  - Have dominant monopoly telco who has vast majority of the Internet business
    - Small ISPs don't have independent international bandwidth
  - ISPs mistrust each other
    - "Connecting to IXes means they can steal my customers"
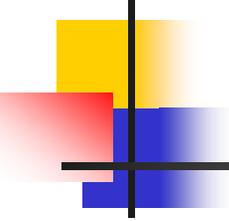
IXes in the AP region

- **Countries without IXes**
  - ISPs simply don't know or realise the economic advantages and savings
    - Keeping local traffic local means less cost going to international circuits
    - Means more money for local Internet service provision
    - Generates local Internet economy – content stays local, latency is improved, usage increases
  - ISPs believe an IX is very complicated
    - They see "Western IXes" with big switches, big routers, big expenses, big complexity
    - Not helped by equipment vendors trying to sell big switches and routers
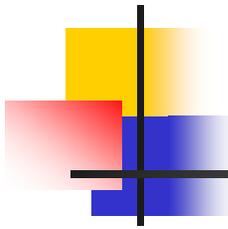
IXes in the AP region

- Countries with IXes
  - Have established non-profit or for-profit IX operations which follow "traditional" models, OR
  - Have dominant transit provider with localised IXes in one or two major cities, OR
  - IX is used purely as a marketing term by a commercial entity and is no more than a router offering BGP4 peering, with local transit and/or transit to the international Internet
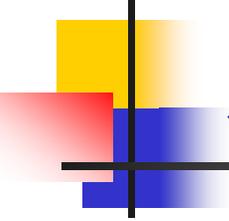
Japanese IXes

- NSPIXP
  - Operated by WIDE – non-profit IX
  - NSPIXP2 in Tokyo, NSPIXP6 for IPv6
  - NSPIXP3 in Osaka
- JPIX
  - Commercial IX from Nov 1997
  - Tokyo metro locations, Nagoya and Osaka
- JP-NAP
  - Commercial IX from Mar 2001
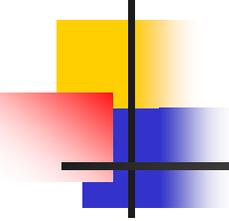
Korean IXes

- KIX(Korea Internet eXchange)
  - Non Profit IX, by NCA
  - www.kix.ne.kr
- KT-IX(Korea Telecom IX)
  - Commercial IX, Operated by Korea Telecom Corp.
  - www.kix.net
- DIX(Dacom IX)
  - Commercial IX, Operated by Dacom Corp.
  - www.bora.net
- KINX(Korea Internet Neutral eXchange)
  - Commercial IX, Operated by KINX Inc.
  - www.kinx.net
- NGIX(IPv6 Next Generation IX)
  - IPv6 IX, Operated by NCA
  - www.ngix.ne.kr
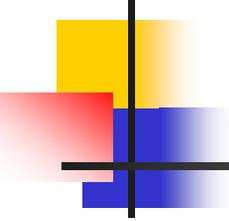
Asian IXes

- Hong Kong
  - HKIX Non-profit IX since 1997
- Singapore
  - SingTel IX
    - Commercial L3 ISP transit service
  - Singapore Open Exchange since 2001
    - Non-profit, hosted at National University of Singapore
- Philippines and Indonesia also have several IXes
- Other countries have a variety of commercial or marketing IXes
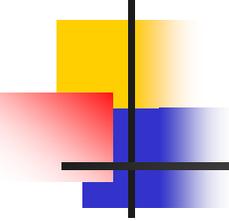
IXes in the AP region

- Settlement:
    - Major AP telcos have lobbied US Government and ITU re cost settlement of transoceanic circuits and Internet traffic
    - ITU "supported" the cause
    - But industry has not changed position
- This has resulted in pan-Asia IX movement
    - Idea is to link all of Asia's IXes together
    - Several different bandwagons
        - ITU-Asia, ISOC-ID, ARIX, e-ASEAN,…
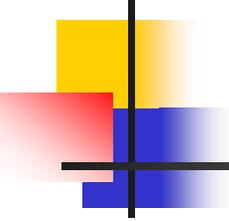
Pan-Asia IX movement

- Idea to link all of Asia's IXes together into one super IX
  - "This will create an Asia backbone"
  - "This will result in Asian traffic staying in Asia"
  - "This means we won't need so much trans-pacific capacity"
  - "This means we can get free peering with US ISPs"
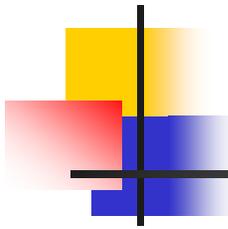
IXes in the AP region

- **Several issues ignored so far:**
  - Much Asian content is outside the region
  - Who pays for the inter IX capacity?
    - How much needed? How to control usage?
  - Who says that Tier-1 ISPs in the US will peer for free
  - Who says that any US ISP will share the trans-pacific circuit cost
  - Each country has little interest in the content and activities of other countries within the region
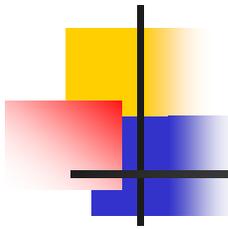
IXes in the AP region

- Efforts now under way to try and coordinate and sort out the pan-Asia IX issues
  - APtel conference in May discussed IX issue
  - APIA is trying coordinate diverse efforts
  - Possibility of formation of entity similar in concept to Euro-IX
- Efforts under way to explain IX advantages in IX-free countries
  - APRICOT and other major events
  - Individual efforts