

# Little-Known IXPs in Asia Pacific

*Che-Hoo Cheng*

*Infrastructure & Development Director*

*APNIC*

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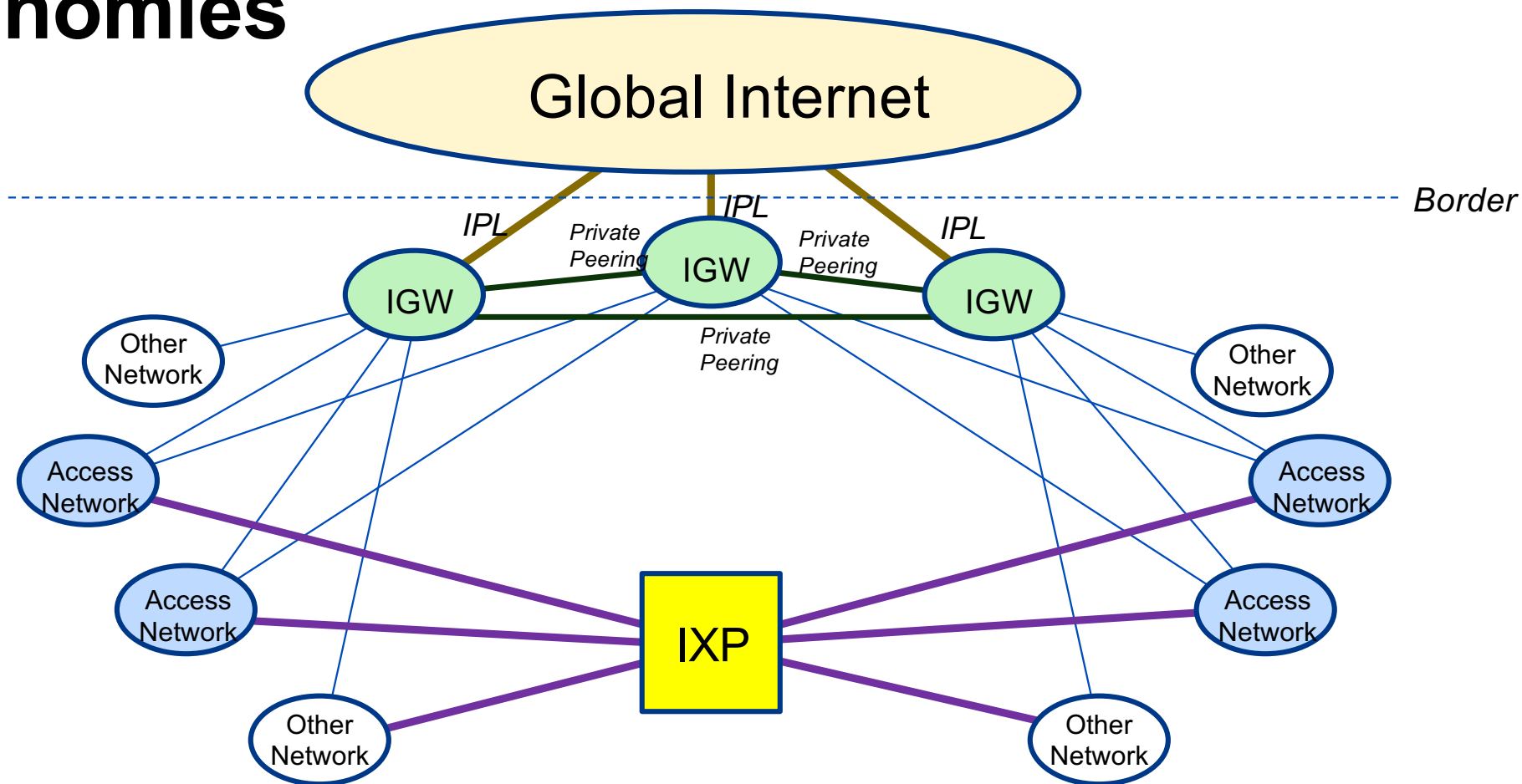
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# Background

- IXPs are helping Internet development in general
- Developed economies mostly have commercial IXPs
- Developing economies rely more on non-commercial community-based IXPs
  - Some are known mainly locally, serving mostly local needs
  - They are playing an important role locally
    - Keeping local traffic local
    - Faster, cheaper, more direct & lower-latency connectivity
  - Particularly important to isolated island economies and land-locked economies
  - External/international GWs focused vs edge/stub networks focused

# Possible Scenario in Developing Economies



# Relative Neutrality Is Important

- Not-for-profit member/participant/community-based would help
- Sharing of CDN caches mostly needed
- Root/TLD DNS servers also needed
- Minimum value-added services
- Government's involvement in some cases

# Shared CDN Caches at IXPs

- More and more local IXPs in developing economies want to provide shared CDN caches for their participants to help their community
  - Cost recovery and cost sharing / accounting are major issues to them though
  - Can do charging by usage which should be fairer
- CDN providers are starting to accept such model
  - They mostly look at cache efficiency (cache hit ratio) and traffic volume for justifications
- It should be good to have shared CDN caches
  - At smaller developing economies
  - Especially for gathering small ISPs together to meet the requirements of CDN providers

# Some Little-Known IXPs to Share

- In operation with real traffic among  $\geq 5$  participants
- Not an exhausted list
  - Just those we had some involvement
  - Not covering APIX members as they are more well-known
- Please lend a hand to help these IXPs if you can
  - Especially CDN providers

<b>IXP Name</b>	<b>Bhutan IX</b>
City, Economy	Thimphu, BT
Website	<a href="https://www.btix.bt">https://www.btix.bt</a>
PoP(s)	TechPark, Thimphu
# of Connected ASNs	14
Peak traffic	1.34 Gbps
Route Server(s)	Yes (BIRD)
RPKI/ROV	Yes (dropping invalids)
PeeringDB Entry	Yes - <a href="https://www.peeringdb.com/ix/2355">https://www.peeringdb.com/ix/2355</a>
IXPDB Entry	Yes - <a href="https://ixpdb.euro-ix.net/en/ixpdb/ixp/757/">https://ixpdb.euro-ix.net/en/ixpdb/ixp/757/</a>
Using IXP Manager	Yes
CDN Caches	Yes (Google, FB, Akamai jointly by BT and Tashi Cell; Cloudflare hosted at IX)
Contact	<a href="mailto:noc@btix.bt">noc@btix.bt</a>

<b>IXP Name</b>	<b>MISPA IXP</b>
City, Economy	Ulaanbaatar, MN
Website	N/A
PoP(s)	GEMNET ULN POP1
# of Connected ASNs	9
Peak traffic	5Gbps
Route Server(s)	Yes (BIRD)
RPKI/ROV	No (under planning)
PeeringDB Entry	Yes - <a href="https://www.peeringdb.com/ix/2407">https://www.peeringdb.com/ix/2407</a>
IXPDB Entry	No
Using IXP Manager	No
CDN Caches	No
Contact	<a href="mailto:support@mispa.mn">support@mispa.mn</a>



<b>IXP Name</b>	<b>Vanuatu IX (VUIX)</b>
City, Economy	Port Vila, VU
Website	N/A
PoP(s)	Govt. DC, Port Vila
# of Connected ASNs	5
Peak traffic	100Mbps
Route Server(s)	Yes (Cisco)
RPKI/ROV	No (under planning)
PeeringDB Entry	Yes - <a href="https://www.peeringdb.com/ix/971">https://www.peeringdb.com/ix/971</a>
IXPDB Entry	Yes - <a href="https://ixpdb.euro-ix.net/en/ixpdb/ixp/494/">https://ixpdb.euro-ix.net/en/ixpdb/ixp/494/</a>
Using IXP Manager	No
CDN Caches	Yes (Google & Akamai – but not shared with members)
Contact	<a href="mailto:info@vix.vu">info@vix.vu</a>

<b>IXP Name</b>	<b>Fiji IX</b>
City, Economy	Suva, FJ
Website	<a href="http://www.taf.org.fj">http://www.taf.org.fj</a>
PoP(s)	Fintel Landing Station
# of Connected ASNs	8
Peak traffic	N/A
Route Server(s)	No (planned with IX upgrade)
RPKI/ROV	No (planned with IX upgrade)
PeeringDB Entry	Yes - <a href="https://www.peeringdb.com/ix/3085">https://www.peeringdb.com/ix/3085</a>
IXPDB Entry	No
Using IXP Manager	No
CDN Caches	N/A
Contact	<a href="mailto:Magnesh.Reddy@taf.org.fj">Magnesh.Reddy@taf.org.fj</a>

<b>IXP Name</b>	<b>PNG (Neutral) IXP</b>
City, Economy	Port Moresby & Lae, PG
Website	<a href="https://www.pgix.org.pg">https://www.pgix.org.pg</a>
PoP(s)	Govt. DC, Port Moresby; N/A (Lae)
# of Connected ASNs	7
Peak traffic	4Gbps
Route Server(s)	Yes (BIRD)
RPKI/ROV	No
PeeringDB Entry	Yes - <a href="https://www.peeringdb.com/ix/2332">https://www.peeringdb.com/ix/2332</a> & <a href="https://www.peeringdb.com/ix/3417">https://www.peeringdb.com/ix/3417</a>
IXPDB Entry	No
Using IXP Manager	No
CDN Caches	Yes (Google & FB)
Contact	N/A

<b>IXP Name</b>	<b>PCTA IX</b>
City, Economy	Manila, PH
Website	<a href="https://pctaix.com">https://pctaix.com</a>
PoP(s)	Total Information Management, Inc. Datacenter - Carmona, Cavite
# of Connected ASNs	7
Peak traffic	9Gbps
Route Server(s)	Yes
RPKI/ROV	No
PeeringDB Entry	Yes - <a href="https://www.peeringdb.com/ix/3379">https://www.peeringdb.com/ix/3379</a>
IXPDB Entry	No
Using IXP Manager	No
CDN Caches	No (but shared Conversant SwiftCache)
Contact	<a href="mailto:engineer@pcta.org.ph">engineer@pcta.org.ph</a>

<b>IXP Name</b>	<b>Pakistan IX (PKIX)</b>
City, Economy	Islamabad, Karachi & Lahore, PK
Website	<a href="http://pkix.pk">http://pkix.pk</a>
PoP(s)	N/A
# of Connected ASNs	7 (Lahore)
Peak traffic	2.65Gbps (Lahore)
Route Server(s)	Yes (BIRD in Lahore)
RPKI/ROV	No (under planning in Lahore)
PeeringDB Entry	No
IXPDB Entry	Yes (Lahore) - <a href="https://ixpdb.euro-ix.net/en/ixpdb/ixp/636/">https://ixpdb.euro-ix.net/en/ixpdb/ixp/636/</a>
Using IXP Manager	Yes (Lahore)
CDN Caches	No
Contact	N/A

<b>IXP Name</b>	<b>Kolkata IX</b>
City, Economy	Kolkata, IN
Website	<a href="https://kolkataix.in">https://kolkataix.in</a>
PoP(s)	STT Kolkata 1, BASIS Technologies Pvt. Ltd. NOC
# of Connected ASNs	13
Peak traffic	10Gbps
Route Server(s)	Yes (FRR)
RPKI/ROV	Yes (MANRS IXP Participant)
PeeringDB Entry	Yes - <a href="https://www.peeringdb.com/ix/1577">https://www.peeringdb.com/ix/1577</a>
IXPDB Entry	Yes - <a href="https://ixpdb.euro-ix.net/en/ixpdb/ixp/617/">https://ixpdb.euro-ix.net/en/ixpdb/ixp/617/</a>
Using IXP Manager	Yes
CDN Caches	Yes (Akamai)
Contact	<a href="mailto:peering@iifon.org">peering@iifon.org</a>

# IXP Development Package of APNIC

- Training & Technical Assistance as the minimum
  - Technical & non-technical
- Other possible support items (on case-by-case basis according to individual needs):
  - Ethernet switch
  - Root Server anycast instance
  - Route Server
  - ROV & IPv6 deployment support
  - IXP Manager
  - RIPE Atlas Anchor
  - CSIRT Establishment
  - Honeypot of Honeynet Project for Threat Analysis
- APIX & MANRS Memberships are recommended to all IXPs

# Other Help & Support by APNIC

- APNIC also provides help & support to:
  - APIX
  - Peering Asia
  - Peering Forums hosted by not-for-profit IXPs
  - NOGs (which IXPs usually support)
  - MANRS
- APNIC also sponsors:
  - PeeringDB
  - IXP-DB
  - IXP Manager



# Thank You