Establishing peering one small step at a time

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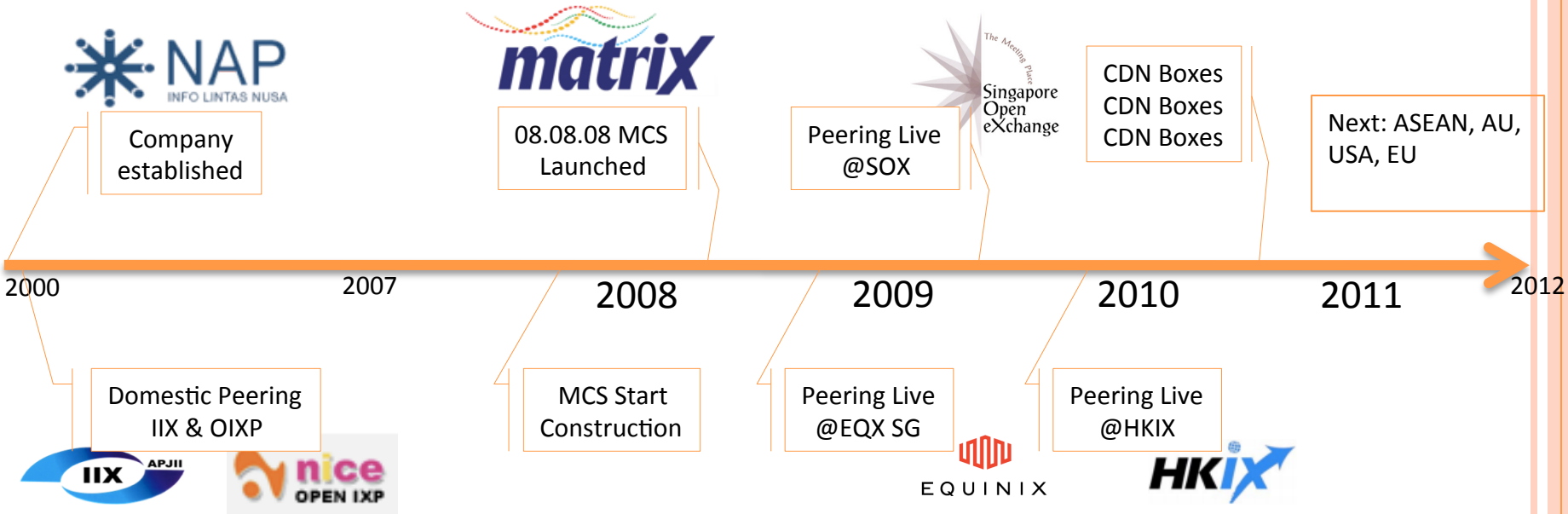
Our problems (so do many countries in AP)

- Incumbent monopolized the international gateway
- IPLC is expensive
- Difficult to obtain license
- Lack of understanding of international Transit/Peering
- Customers demands getting more sophisticated

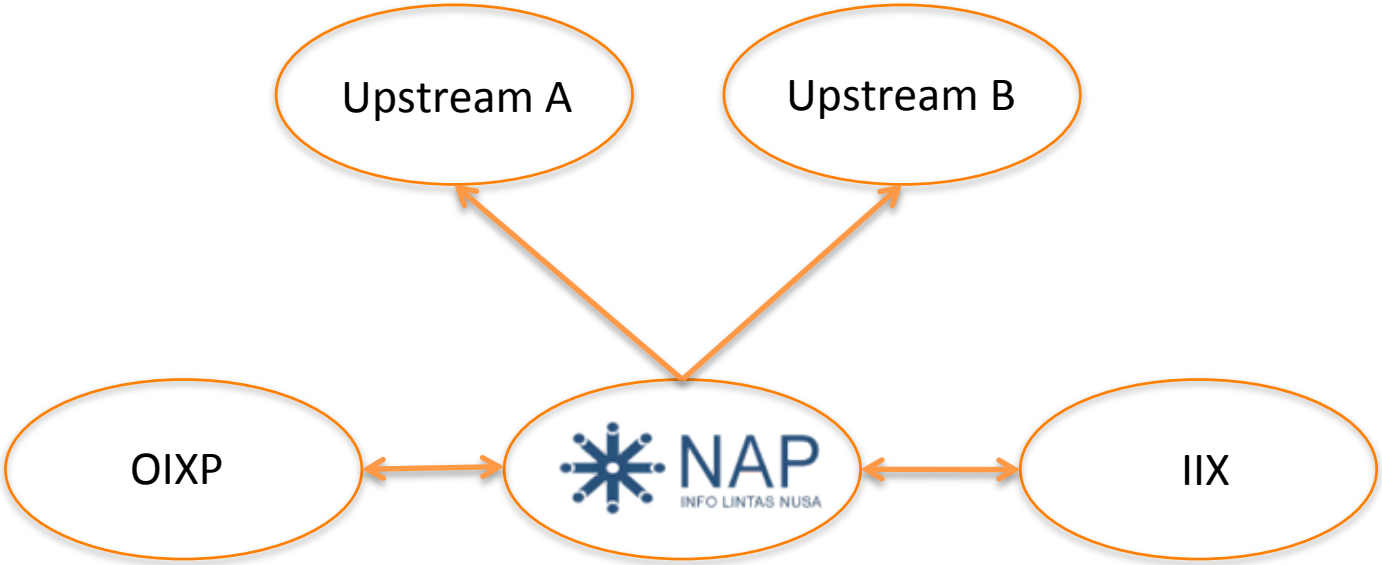
THE SOLUTIONS – OR OUR SOLUTIONS

- ~~Incumbent monopolized the international gateway~~
  - Liberalization of telecom market by regulator, BIG HURRAY !
- ~~IPLC is expensive~~
  - We built our own cable system, BIGGER HURRAY !
- ~~Difficult to obtain license~~
  - Not true, if we try hard enough anyone can get it
- ~~Lack of understanding of international Transit/Peering~~
  - Everybody need to start somewhere
- ~~Customers demands getting more sophisticated~~
  - Trying to make customer happy is a never ending job

MILESTONES


NAP INFO LINTAS NUSA
Company established
matrix
08.08.08 MCS Launched
Singapore Open eXchange
Peering Live @SOX
CDN Boxes
CDN Boxes
CDN Boxes
Next: ASEAN, AU, USA, EU
2000
2007
2008
2009
2010
2011
2012
Domestic Peering IIX & OIXP
IIX APJII
nice OPEN IXP
MCS Start Construction
Peering Live @EQX SG
EQUINIX
Peering Live @HKIX
HKIX

Domestic Peering



- As a domestic ISP: 2 Upstreams + 2 IX connection
- Transit was very expensive
- ID is fortunate to have IX since early days
- Own NSP license but IPLC price is insane.

Telecom liberalization by the regulator

- 2 incumbent operators: Indosat and Telkom Indonesia
- Indosat control international, Telkom Indonesia control domestic
- In 2002 major telecom liberalization begun
- Booming of new player: ISP, mobile operator, IDD operator, Sub Sea Cable operator.

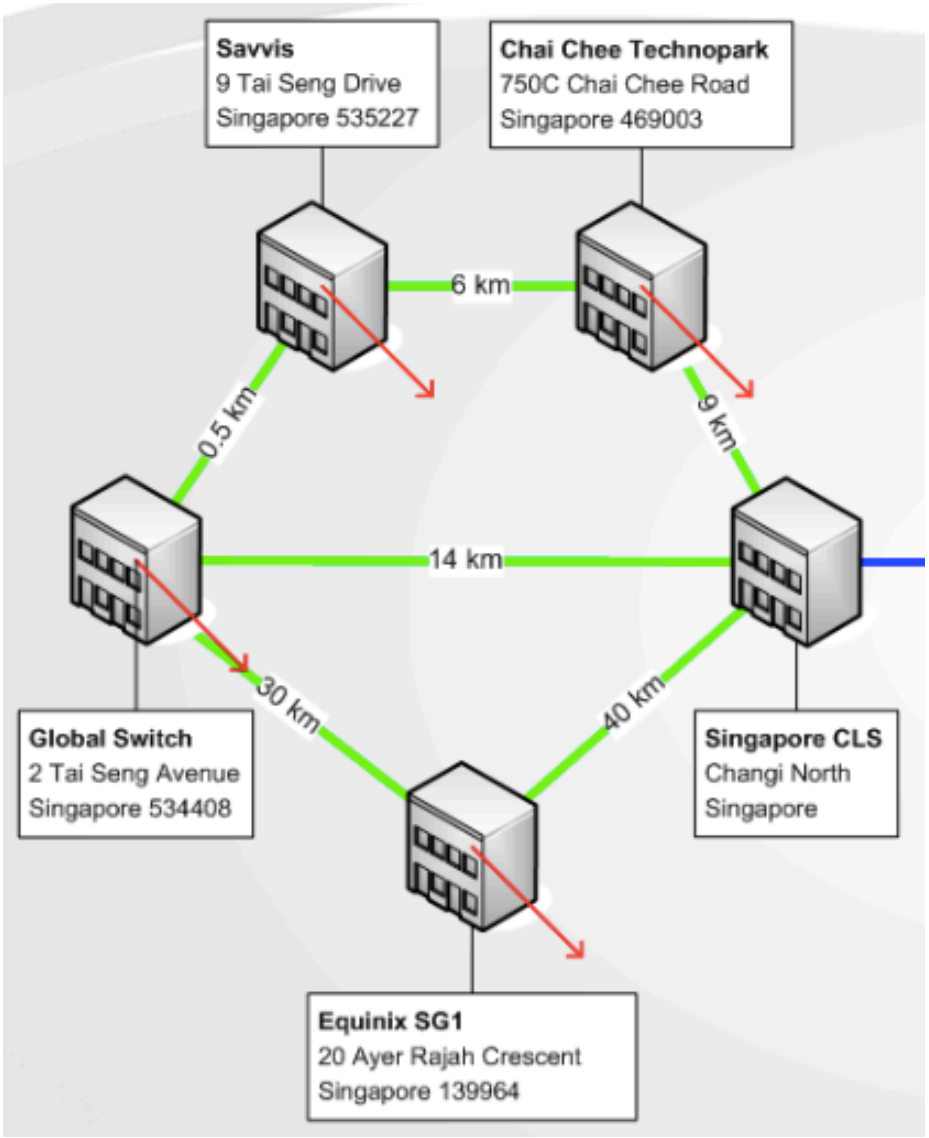
Study your Geography

MATRIX CABLE SYSTEM

BY MATRIX NETWORKS PTE LTD AND PT. NAP INFO LINTAS NUSA

- FBO license (SG) and JarTaTup license (ID)
- Designed capacity 2.5Tb
- Gen 3 TYCO
- Distance 1,055 km
- 3 BU from Singapore to Jakarta:
  - To Batam, Indonesia
  - To Kalimantan, Indonesia
  - To Perth, Australia
- Repeater system
- Buried 1-10 meter
- Life span 25 years.

First International Node



- Pick the right DC
- Study your options carefully
- Every DC is unique

- 4 nodes in Singapore
- IX availability in nodes (peeringdb.com is good start).

Public Peering Exchange

- Join the IX where your nodes located
- Connected to Equinix Exchange – 1st intl peering
  - Start with Fe, upgrade to Ge within 3 months
  - Peering events, peering list, lots of emails
  - Ge to 2xGe to 10Ge takes slightly longer
- Connected to SOX – 2nd intl peering
  - Port charge is FOC, ask for 1G immediately
  - Xconnect cost is $$$
- Turn up multiple session whenever possible
- Prioritize IX for traffic engineering

Ratio: 25% traffic coming from peering pipe

Life is good ☺

Private Peering

- Explosion of mobile user + home internet became more affordable in Indonesia
- Private peering is the way to go
  - Shorter hop
  - Direct connection (no IX involve)
  - Rule: traffic ratio requirement
- Private Peering in nodes with least expensive cost (xconnect is $$$)
- Go for the highest port available

Ratio: 15% public, 25% private

Life is good ☺

STUDY YOUR GEOGRAPHY – ALWAYS

Major cable hub in NE Asia: HK, TW, KR, JP

1. HKIX @ HK
   - 166 G 101 1995
2. Equinix Exchange @ HK
   - n.a. n.a. 2009
3. TWIX @ Taipei, TW
   - 4.9 G 39 1997
4. KINX @ Seoul, KR
   - 71.9 G 42 1999
5. JPIX @ Tokyo, JP
   - 153 G 124 1997
6. JPNAP @ Tokyo, JP
   - 210 G 81 2001

Beyond Singapore

- Shortest path, Cost effective, Matured IX = HKIX
- HKIX - www.hkix.net
  - Layer 2 IXP with mandatory MLPA for HK routes
  - One of the oldest IX in Asia
  - A healthy IX with very diverse participants
  - Port charge = FOC
- IPLC portion is no longer "Free"
  - SG-HK plenty of capacity
  - BW scaling must be plan carefully (Fe > Ge > 10G)
  - Protection ?

Ratio: 20% public, 25% private

Life is almost perfect ☺

CDN BOXES

- CDN next to eye balls
- 2010, deployment of numerous CDN clusters
- Same rule: traffic ratio requirement
- Win-Win solution:
  - CDN distributed content closer to eye balls
  - Our customer enjoy better surfing experience

Ratio: (Peering+CDN boxes) : Transit = 55% : 45%

Life is almost perfect ☺

HOMEWORKS

- Peering traffic ratio
  - More BLPA on existing IXs
  - More CDN companies + upgrade of current CDN deployment
  - More IX presence: ASEAN, AU, USA, EU
- Traffic Engineering
  - Routing issue (asymmetric routing)
  - Increase efficiency

Problems along the way

- 1st International Node
  - Very expensive start up cost (Cable Construction, Nodes setup, etc)
- Public Peering Exchange
  - New kids on the block, nobody know us
- Private Peering
  - Router/Switch ports and Xconnect (who pays what)
- CDN Boxes
  - Convincing content operators
- Beyond Singapore
  - Layer 8 issue (persuading the upper management)

Good Tools

- PCH IX DB - https://prefix.pch.net/applications/ixpdir/
- PeeringDB - http://www.peeringdb.com
- HE BGP - http://bgp.he.net
- CIDR Report - http://cidr-report.org

LESSONS

- (Transit $ > Peering $) = FALSE
- Peering quality could be worse than Transit
- Policy = Close, it may not be true ☺
- Try to deploy as many CDN boxes
- Constant monitoring Cacti/MRTG/Netflow
- peeringdb.com > visit regularly
- Who is the peering coordinator
- Attends gathering: * Peering Forum, *NOG, BnP

Questions ?

Terima Kasih (Thank You)

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