Defining some terms

APNIC

Introducing Peering terms

- To get a better understanding of Internet Exchanges we need to understand some of the terms used
- These terms are common when talking about how organisations connect to each other on the Internet

Transit, Customers and Peering

- Follow the money!
- Transit Provider
  - Who you are paying for access to “The Internet”
- Customers
  - They are paying you for access to “The Internet”
- Peering – aka Interconnection
  - Not access to “The Internet”, just each other’s infrastructure and customers
  - Typically no money changes hands

Transit

- Provide access to “The Internet”
- Requires a circuit to an “upstream” ISP
  - Could be local (domestic) or international
  - Typically circuit has fixed capacity, not tied to usage
- Also requires service from the “upstream” ISP
  - Billing is based on usage, typically 95th percentile
- Repeat to get the level of redundancy required
  - Two circuits to the same “upstream” ISP
  - Circuits to two, or more, “upstream” ISPs

Peering, aka Interconnection

- Connection to a “peer” network
  - Exchange of traffic to customers of each peer
- Requires a circuit to the peer
  - Cost based on capacity of the link
  - May also require a cross connect in a data centre
  - Could be fixed cost or more likely monthly recurring fee
- Traffic is settlement free
- Cost is the same if zero bytes exchanged or link saturated
  - Don’t saturate the link, customers will be grumpy ☺

Types of Peering

- Private Peering
- Bi-lateral Peering
- Multi-lateral Peering

Private Peering

- Dedicated circuit between two peers
- Can use a cross connect within a data centre;
- Or via dark fibre, telco circuit, microwave, …
- Used where traffic levels high between two peers
- Expensive, cost shared between only two parties
  - Often in pairs; each peer pays for one
- But ultimate in control

Bi-lateral Peering

- Uses an Ethernet switch at an Internet Exchange
- Single cross connect to the switch
  - Peer can be remote (e.g. using Metro-Ethernet)
- Dedicated BGP peering between two peers
- Relies on the IXP to manage the switch
- Bandwidth shared by multiple peering relationships
- But direct relationship between the two peers
  - More control (granularity)
  - If bad things happen can turn down BGP on one peer

Multi-lateral Peering (MLPA)

- Uses an Ethernet switch at an Internet Exchange
- Single cross connect to the switch
- Single BGP peering session to a "route server"
- Easiest to setup, only one session
  - Automatically peer with everyone else
- Reliant on IXP for both switch and route server
- Relationship is with the IXP
- Lesser control (granularity)
  - If a peer has a problem less options to workaround

Types of Peering Policy

- Open
- Selective
- Restrictive

Open Peering

- "Have a pulse peering"
- Will peer with anyone
  - Typically bi-lateral or multi-lateral at an existing facility
  - Negligible additional cost so why not?
- Typically content providers have an open policy

Selective Peering

- Some negotiation may be necessary
- Will only peer bilaterally and NOT with a Route Server
- May have some rules that peers must fulfill
  - volumes, ratios, number of multiple connects
- May only connect outside of their primary market

Restrictive Peering

- Rules! Rules! And even more Rules!
- Has a (written) policy that defines if they will peer
  - Often with rules are set so that they don't peer
- Often involves a minimum level of traffic
  - Could require a test peering to check conformance
- Also can include a "ratio" in/out traffic levels

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