Peering in General and in Europe

Frank Orlowski
DE-CIX Internet Exchange

myself

- Currently I work for the DE-CIX Internet Exchange in Frankfurt/Germany.
- Before that I was a Peering Manager at Deutsche Telekom in New York
- Before that I was a Peering Manager for various german networks

MENOG

- We think it‘s great to have a network operators group in every region and appreciate the chance to support the very 1st MENOG in Bahrain.
- Especially since social networking between ISPs is essential for both Peering and new developments in the Internet industry

Peering in general

- Advantages of Peering
- Public vs. Private Peering
- Showstoppers
- Peering Policies
- Peering Rollout Process

Advantages of Peering

- Peering is ***significantly cheaper*** than IP Transit and will help you to ***reduce IP Transit*** costs
- Peering will give you ***direct access*** to many Content- and Eyeball networks
- Peering leads to ***shorter AS paths*** and helps to ***improve your profile*** in a competitive market environment.
- Peering allows ***direct control*** over the traffic flows.
- Peering make the Internet ***robust and reliable***
- ***Peering is where the Internet lives***

Public vs. Private Peering

- Public Peering
  - All participants are connected to one Public Peering VLAN / switching fabric
  - Very cost efficient solution to reach many Peers (only port price does apply; no traffic charges)
  - Easy way to start Peering
  - Routeservers makes it easy to gain Peering for those that have an open Peering Policy
  - Value add portal functionalities are being developed by many IX

Public vs. Private Peering

- Private Peering
  - Dedicated dark fiber connections
  - Depending on location you will have to pay a MRC for the fiber
  - Mainly used for the exchange of higher traffic volumes (migration from Public to Private)
  - Solution of choice for Tier 1 and very large Tier 2 providers (which typically have less than 40 Peers)

Types of Internet Exchanges

- International Internet Exchange
  - Owned and /or operated by not-for-profit associations
  - Provides connectivity between national providers, connectivity between national and int'l ISP's and between foreign providers
  - Ex. AMS-IX, DE-CIX. LINX (provide backup)
  - Typically 90+ percent market share in their home market

Types of Internet Exchanges

- Regional/National Internet Exchanges
  - Created as projects of smaller ISP‘s
  - In many cases participation is free of charge
  - Number of routes very limited
  - Mainly for the exchange of regional traffic
  - Backup function for national traffic (not really)

Showstoppers

- Lack of...
  - Affordable bandwidth (Ex. Many regions of russia where Transit is cheaper than Transport ☹
  - Carrier neutral colo (or „how not to motivate major global Content Delivery Networks to buildout to my market“)
  - Proper regulatory environment or no regulation at all (preffered: No involvement of the regulator, keep things simple)

Typical Peering Rollout process

- Connect to your regional IX
  - Start Peering at your regional IX and make sure your Transit providers are the right ones (Ex. If you try to get Peering with difficult to peer targets don‘t buy from their Peers)
  - Typically pays of immediatly
  - Gain some experience being a Peering Manager
  - Come up with ideas how to gain additional Peering (outside of your home market)

Typical Peering Expansion

- Connect to an Int‘l IX of your choice
  - Do the numbers (both $$$ and traffic statistics) to figure out wether expanding Peering does make sense for your or not
  - Expand Peering reach to International IX‘s, get your direct connectivity to your major traffic sources / destinations (hint: Tier 1‘s don‘t own content and eyeball traffic)
  - Examples for Int‘l IXs in Europe: AMS-IX, DE-CIX LINX

Peering Policies

- „open“ Policy (heartbeat Peering Policy)
  - Peer with everyone, regardless of type of provider (restrictions may apply)
  - Mainly used by all kinds of content providers / Content Delivery Networks and
  - Many Tier 2 and Tier 3 providers have an open Peering Policy, too.

Peering Policies

- „selective“ Policy
  - This ISP will only peer with another ISP that does meet the prerequisites listed in a Peering Policy (Ex. Minimum traffic x Mpbs, Coverage at least x countries, Number of routes announced)
  - Mainly used by bigger Tier 2 providers (Ex. FT, DT, Telia...)

Peering Policies

- „restrictive“ Policy
  - Peer with a very limited number of networks
  - Typically don‘t want to add more Peers
  - Example: Tier 1 providers such as UUNET/MCI/Worldcom/Verizon, Sprint, AT&T, L3...

Get Peering

- Define your own Peering Policy
- Make your business partners (transport providers, upstreams etc.) aware how important peering is.
- Leverage your buying power to gain Peering
- Do not stop to explain to difficult to peer targets why Peering does make sense (bad quality typically hurts both parties)
- If you feel that a Peering Target is not following it‘s Peering Policy you might want consider to involve the regulator (in Europe threatening them is ususally good enough ;-)
- Go out and party with your Peers ! ☺

Peering Agreements

- Peering Manegers talk, exchange emails and setup Peering, pretty simple.
- Signing Peering Agreements is not very popular
- If a Peering Partner insists on getting a contract signed he might have good reasons (Regulatory requirement ?)
- Try to get something in writing if you combine Peering with other deals

Peering in Europe

- History
- History & News
- Regional Tier 1
- What‘s next ?

History

- Many IXs were established in the mid 1990s to exchange traffic within a specific market rather than routing traffic via the US (remember MAE-EAST and MAE-WEST?)
- All IXs grew over the years, at this point some IXs are more professional than others
- According to Wikipedia three biggest IX in the world are based in Europe

History & News

- Many central & western European Networks connected to a number of Exchanges throughout the Europan Union.
- US Players (especially CDN‘s) moved eastwards and connected to 2-3 european Exchanges.
- A new trend is that Eastern European IP Players move westwards; in many cases to Frankfurt since they are already have SDH and Voice/VOIP gear in place
- They want to get cheaper and better quality transit plus they want their direct connectivity (->Peering) and control over traffic flows with Google, Limelight, Akamai etc.

Regional Tier 1‘s

- Basically there is no such thing as a regional Tier 1 because they still need to buy Transit to maintain a full routing table
- Big European Incumbents started years ago to make themselves very difficult to peer targets, same thing seen in emerging markets (Ex. Russia where only the Top4 players peer with each other).
- When many of the european markets were liberalised in the late 1990‘s alternative dial-in ISP‘s were very popular. With broadband access being the solution of choice this changed, people signed up with incumbents or cable ops)

What‘s next ?

- We predict Peering traffic will continue to grow at 100+ percent per year, difficult to accomodate this growth because
- Higher bandwidth solutions (Ex. 100GE) will not be available in the next 3 years
- Internet Exchanges will need to look at new developments, incl. VOIP Peering and NGN interconnects
- Players from emerging markets including EE and ME will use Peering strategies aggressively

Questions ?

- frank.orlowski@de-cix.net
- frank@beachmail.de
- Skype: frank.orlowski