

The Interconnect business case

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Why interconnect at all?

- As talked about earlier - it would be pretty lonely otherwise...
- Interconnects are
 - Transit links, paid connectivity
 - Private peering with other networks based on unilateral agreements
 - Public peering over shared infrastructure

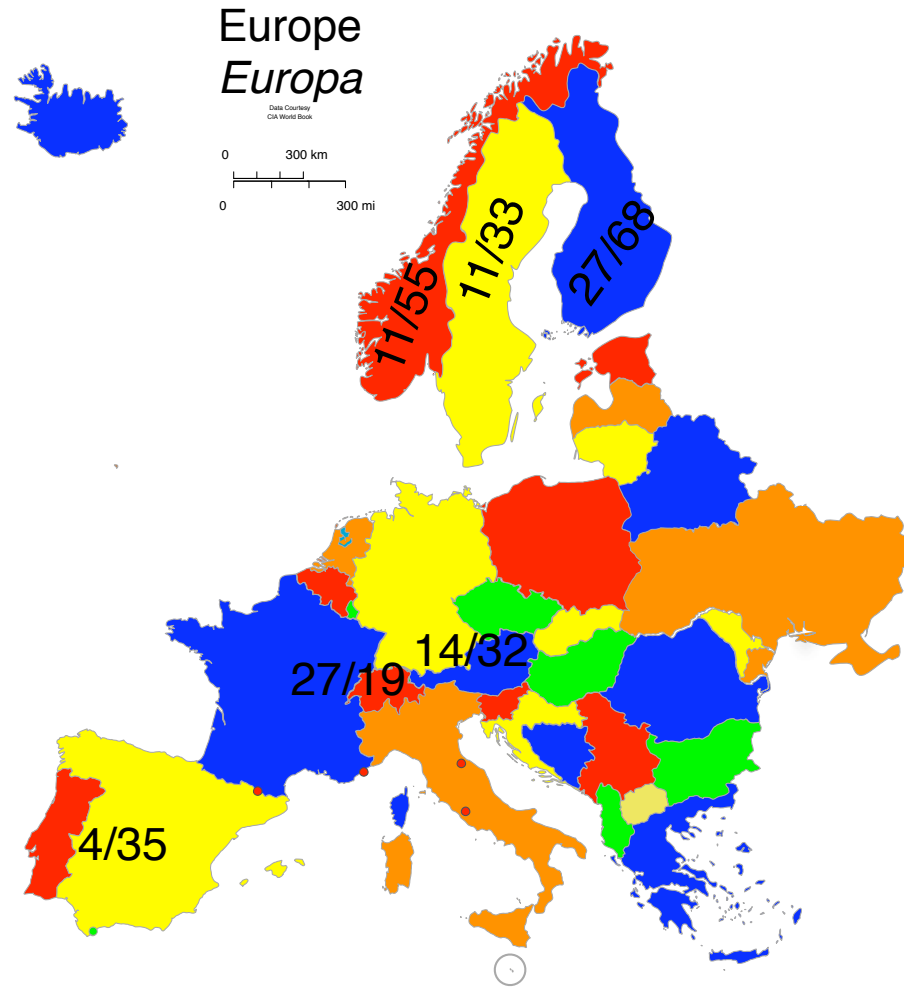
History of peering in Europe

- Emerged as a way to save on costs
 - For transport capacity (that was kept 'artificially' high by ex/PTTs and half-circuit pricing)
 - For transit / trans-atlantic costs
- International circuits where low bandwidth so delay was less of an issue in the early days

History of peering in Europe

- In the early European Internet, most traffic was destined for the US as most content was US based
- Over time, more content was developed in Europe
 - Mainly to meet localized interest, culture and language
- Local content changed the traffic flows, and most likely changed the interconnect landscape

History of peering in Europe



History of peering in Europe

- As can be seen on the previous slide traffic shifted to be localized to language regions around 2001
- Keeping traffic local helped with “customer experience”, and became (at least partly) a goal in itself
- Hot potato routing helped and meant that transport costs were shifted to the peer as quick as possible

History of peering in Europe

- While hard to prove, the dense interconnects in Europe helped innovate services and content
- At a time when transit prices and transport prices were high, peering provided a way to lower end-user costs and stay competitive against mostly foreign (US based) providers

So what do I gain from peering?

- Keeping regional/national traffic regional and local is always good
 - Cheaper, Better performance - will help to develop local content
- Redundancy
 - You are no longer dependent on a single provider as upstream and their current operational status
- Control - allows you greater control of traffic flows

But where do I peer?

- Can be done via private or public peering
- Public peering and the establishment of Internet Exchange Points (IXPs) followed in the deregulation of Europe (as consequence of more operators - not of deregulation)
- Establishing neutral ground where traffic can be exchanged with multiple parties to the price of one connection will benefit the exchange of traffic

Other benefits with IXPs

- Often IXPs or the local operator community have decided to co-locate common services at IXPs
- These services are normally of general benefit to the Internet community
 - NTP-service, ccTLD-servers, IRR copies, etc
- Peering with and providing (often free) transit to the IXP infrastructure will help your customers

But how much difference does it make?

- A small asian provider with a satellite uplink connecting to Linx in London picked up 11k routes from the route-servers and 40k routes in total
 - With only little traffic to offer and little effort
- Peering abroad doesn't always make sense, but be sure to make the numbers
- But peering nationally almost always makes sense

But I am the dominant transit provider!

- Are there cases where peering won't be beneficial?
- Well, if you are the dominant telco (PTT) you can only loose customer base over time
 - The immediate standard action is to try and monopolize the transit connections, but that will only work that far
 - The moment there is an alternative transit path (terrestrial or satellite) everyone will loose out

Regulation!

- Governments tend to like to regulate (keeps them busy and justify their jobs :-)
- But in the case of peering, i.e for-free exchange of traffic - there really isn't anything to regulate
- When it comes to resilience and robustness there isn't really anything to regulate either, as peering is a complement to transit (And from on a national security POV the converse is also true) - and here customer demand will regulate better than any government

Rock Solid Internet Exchange

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