Analysis of Query Source and Anycast

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What is Netnod, and what do we do?

By a foundation fully owned incorporation

Not for profit

Provides:

• IX in 6 locations
• DNS in 55 locations
• NTP-service in 5 locations
• Other services related to SSR
Netnod history

1992-1996 there was a distributed IX at Royal Institute of Technology

1996 the TU-foundation was created

Goal was increased robustness and security

The IX was moved to bunkers in the mountains
DNS services hosted all over the world
Background

We did this investigation in 2012

The result was kind of scary...

• Highest number of queries to London was from Germany...
• In Oslo, there where queries from all over the place...

It was time to see whether it is better 2015
Peering

More than 2000 BGP peers, and more than 60% with IPv6

Include route servers at larger IX:es

We are always looking for more peers!

➡ Yes, we do have an open peering policy

Email: peering@netnod.se

Info: http://as8674.peeringdb.com
Analysis of query src

Based on src IPv4 / IPv6 address
Looking at 10 largest AS:es per site
Economy represented based on RIR information
Based on snapshot in april 2015
Absolutely not 100% correct, but somewhat ok representation
Some observations

Most nodes behave as expected

5.6% IPv6

1.5% RFC1918 addresses, which should not be there

➡ 8.15% in Mumbai, 1.11% in Paris

Some IX:es see traffic from places far away, very odd routing

Nodes with a lot of transit get traffic from more diverse locations

Smaller (and national) IX:es have higher percentage of local traffic

Global eyeball providers are clearly visible at some IX:es

*Result seems to be better today than 2012*
Amsterdam - AMX

Other: 59%
NL: 16%
KZ: 6%
PT: 3%
US: 4%
DK: 5%
FR: 8%
PT4: 3%
Amsterdam - AMX

- Other: 59%
- NL: 16%
- FR: 8%
- KZ: 6%
- US: 5%
- PT: 3%
- DK: 2%
Ashburn - ASH

- US: 69%
- Other: 26%
- CA: 1%
- AR: 1%
- NL: 1%
- GB: 2%
Brussels - BNX

- BE 12%
- US 15%
- CA 2%
- DE 2%
- TW 2%
- FR 10%
- Other 56%
Malmö/Copenhagen - CMX

- **SE** 25%
- **DK** 69%
- **Other** 6%
Beijing - BEI

- Other: 2%
- US: 1%
- CN: 97%
Tokyo - TPP

- Other: 25%
- Taiwan (TW): 21%
- South Korea (KR): 8%
- China (CN): 19%
- Japan (JP): 27%
Paris - PAR

Other
11%

GB
2%

FR
87%
Paris - PAR

- RENATER
- COMPLETEL
- ALTITUDELETECOM
- IP SLA
- FIRSTHEBERG
- RMI-FITECH
- EASYNET
- JUSSIEU
- PARISSUD
- CEG-HOSTING
- Other
Oslo - NIX

- NO: 88%
- US: 4%
- SE: 2%
- CN: 2%
- EU: 1%
Oslo - NIX (IPv6)

- US: 8%
- CN: 5%
- EU: 3%
- SE: 3%
- NL: 2%
- TH: 2%
- NO: 74%
Oslo - NIX (IPv6)
Without NO
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