RIPE NCC Tools

A Glimpse

Marco Hogewoning | May 2019 | Norway
Two Types of Tooling

• Internal
  • Results are often externally visible

• External
  • Heavily used internally as well

• Evolution of our tooling
  • Many start as internal tools
  • Somebody asking a particular question
  • Ideas during hackatons
Internal Tools

Looking at Our Membership
How We Usually Show Our Members

**Total Number of LIRs**

Current number of Local Internet Registries (LIRs) in the RIPE NCC service region. (Note that in April, some LIRs with outstanding invoices got closed.)

**LIRs With IPv6**

Number of Local Internet Registries (LIRs) in the RIPE NCC service region that have IPv6 resources.

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**All (16022 LIRs)**

- 3 stars: 2441 (15%)
- 2 stars: 1590 (9%)
- 4 stars: 3282 (20%)
- 1 star: 4618 (28%)
- no IPv6: 4091 (25%)
# What We See Internally

## Demographics

![Export to CSV button]

### Total result 493

<table>
<thead>
<tr>
<th>REG-ID</th>
<th>Legal name</th>
<th>Country</th>
<th>Industry</th>
<th>Size</th>
<th>Status</th>
<th>Activation Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>no.daldata</td>
<td>DALDATA AS</td>
<td>NORWAY</td>
<td>Media / Entertainment</td>
<td>50-249 employees</td>
<td>PROVIDER</td>
<td>2014-12-07</td>
</tr>
<tr>
<td>no.nkr</td>
<td>NordkappNett AS</td>
<td>NORWAY</td>
<td>IT Services / IT Consultancy</td>
<td>2-9 employees</td>
<td>PROVIDER</td>
<td>2015-08-19</td>
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<tr>
<td>no.rasxesider</td>
<td>Raske Sider AS</td>
<td>NORWAY</td>
<td>IT Services / IT Consultancy</td>
<td>2-9 employees</td>
<td>PROVIDER</td>
<td>2015-03-09</td>
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<tr>
<td>no.ae</td>
<td>ACDER ENERGI AS</td>
<td>NORWAY</td>
<td>Infrastructure (Transport / Hospital)</td>
<td>50-249 employees</td>
<td>PROVIDER</td>
<td>2015-11-03</td>
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<tr>
<td>no.harstadkommune</td>
<td>Harstad Kommune</td>
<td>NORWAY</td>
<td>Government / Regulator / Municipality</td>
<td>2,500 and more employees</td>
<td>PROVIDER</td>
<td>2016-01-26</td>
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<tr>
<td>no.sniper</td>
<td>Sniper Paintball AS</td>
<td>NORWAY</td>
<td></td>
<td></td>
<td>PROVIDER</td>
<td>2017-03-20</td>
</tr>
</tbody>
</table>
Combining Datasets

Industry by Country

<table>
<thead>
<tr>
<th>Industry</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom</td>
<td>101</td>
</tr>
<tr>
<td>Software</td>
<td>87</td>
</tr>
<tr>
<td>Vendor</td>
<td>86</td>
</tr>
<tr>
<td>Unknown</td>
<td>77</td>
</tr>
<tr>
<td>IT</td>
<td>35</td>
</tr>
<tr>
<td>Services</td>
<td>27</td>
</tr>
<tr>
<td>Enterprise/Manufacturing/Retail</td>
<td>21</td>
</tr>
<tr>
<td>Government/Regulator/Municipality</td>
<td>19</td>
</tr>
<tr>
<td>Media/Entertainment</td>
<td>14</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
</tr>
<tr>
<td>Hosting Company</td>
<td>4</td>
</tr>
<tr>
<td>Banking/Financial</td>
<td>3</td>
</tr>
<tr>
<td>Internet Community</td>
<td>3</td>
</tr>
<tr>
<td>Academic/Research</td>
<td>3</td>
</tr>
<tr>
<td>Hardware Vendor</td>
<td>2</td>
</tr>
<tr>
<td>NREN</td>
<td>1</td>
</tr>
</tbody>
</table>
Test: New Membership in Norway?

- ISP/telco and hosting
- IT Consultancy
- Government
- Media
- Other industries
- Unknown

Before 2000

2000-2004

2005-2009

2010-2014

2015-current
### Different View: Top Networks

**Internet Users covered:** 44,463,788  
**Total Internet Users:** 51,675,738  
Internet users coverage is estimated using percentage of IPv4 Public and Private probes.

<table>
<thead>
<tr>
<th>ASN</th>
<th>Name</th>
<th>Estimated Population %</th>
<th>IPv4 Public Probes</th>
<th>IPv4 Private Probes</th>
<th>IPv4 Total Probes</th>
<th>IPv6 Public Probes</th>
<th>IPv6 Private Probes</th>
<th>IPv6 Total Probes</th>
<th>More</th>
</tr>
</thead>
<tbody>
<tr>
<td>2119</td>
<td>TELENOR-NEXTTEL</td>
<td>42.88</td>
<td>21</td>
<td>4</td>
<td>25</td>
<td>10</td>
<td>1</td>
<td>11</td>
<td>View</td>
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<tr>
<td>20695</td>
<td>ALTIBOXAS</td>
<td>15.23</td>
<td>13</td>
<td>3</td>
<td>16</td>
<td>6</td>
<td>1</td>
<td>7</td>
<td>View</td>
</tr>
<tr>
<td>41154</td>
<td>GET-NC</td>
<td>10.63</td>
<td>8</td>
<td>3</td>
<td>11</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>View</td>
</tr>
<tr>
<td>15659</td>
<td>NEXTGENTEL</td>
<td>7.23</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>View</td>
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<tr>
<td>2116</td>
<td>ASN-CATCHCOM</td>
<td>5.36</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>View</td>
</tr>
<tr>
<td>3292</td>
<td>TDC</td>
<td>2.06</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>View</td>
</tr>
<tr>
<td>12929</td>
<td>NETCOM-AS</td>
<td>1.97</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>View</td>
</tr>
<tr>
<td>34057</td>
<td>NTE-BREDDANB</td>
<td>1.49</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>View</td>
</tr>
<tr>
<td>50638</td>
<td>VENTEOHOSTING</td>
<td>1.37</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>View</td>
</tr>
</tbody>
</table>
Membership Diversity is Growing

• Many new members from other sectors
  • Do not have an Internet background
  • Internet is an important part of their business case
  • Partially driven by IPv4 address shortage?

• Traditional ISP market consolidated
  • Few large players have majority of market share

• Different members have different needs
  • We always appreciate your feedback
Showing Network Relationships

- Based on routing information
  - Collecting BGP data
  - Combined with AS Data

- Tools include:
  - BGP Play
  - IXP Country Jedi
  - RIPE Stat

ASN Interconnection graph for Norway
http://sg-pub.ripe.net/emile/ixp-country-jedi/latest/NO/
Network Performance Indicators

• Not a new adventure
  • Remember the old Test Traffic Measurement (TTM)?
  • Older versions of DNSMON

• Times and tools change
  • Meanwhile we have built RIPE Atlas
  • Multipurpose measuring platform
  • Thousands of vantage points
The New DNS Monitoring (DNSMON)

- Based on RIPE Atlas measurements
- More data points and new visualisations
DomainMON: Measure Your Own

• Based on the same tools as DNSMON

• Test your own domains using RIPE Atlas
  • Specify your own set of nameservers
  • Configure and select a set of probes
  • RIPE Atlas credits deducted based on number of probes
There Is More

- RIPE Atlas is huge
  - Approximately 9700 probes connected
  - We have 258 anchors online
  - About 14,000 concurrent measurements running
  - Recording close to 5000 results per minute
- A lot of these results are public
  - You can also configure your own measurements
- Our data is getting big
RIPE Atlas LatencyMON

• Easy tool to combine and show latency trends
  • Select an arbitrary set of probes and measurements
  • Compare results even to different targets
  • Zoom and select on specific time periods
  • Streaming updates the charts in real time

• Multiple display options
  • Show absolute values or relative to each other
  • High, low and average or just the average
LatencyMON: Select Probes

### General Information

<table>
<thead>
<tr>
<th>ID</th>
<th>#1402318</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group ID</td>
<td>#1402318</td>
</tr>
</tbody>
</table>

Select the probes you want to add to the group. NOTE: you can use only probes not participating in other charts.
LatencyMON: Example
LatencyMON: Example
The Next Step: TraceMON

- We have a huge collection of traceroutes
  - And of course you can create your own set
  - We also have access to similar third party data
- Visualise network topology
  - From a wide collection of vantage points
  - Time based just as the other tools
- Add other related information to nodes
  - Recognise and indicate known IXPs
  - Include geolocation data
TraceMON: Example
TraceMON: Node Details

**France-IX (AS57734)**

- **IP:** 37.49.236.2
- **Located in:** Paris, FR
- **PeeringDB:**
  - IXP: France-IX, Paris, FR
  - Lan: 37.49.236.0/23
- **Routing Info:**
  - 57734 - FRANCEIX, FR
  - Announced: Yes
- **Registry info:**
  - Resource: 57344-58367
  - Name: IANA 16-bit Autonomous System (AS)
  - Numbers Registry
  - Desc: Assigned by RIPE NCC

**Buttons:**
- Contact holder
- Whois
- See BGP events
TraceMON: Network Annotations
Future Development

• These tools are still being developed
  • We rely on your feedback for improvement
  • Tell us what is good and what isn’t
  • Suggest new features

• Help us to maintain our datasets
  • Keep PeeringDB records up-to-date
  • Add and maintain data to the OpenIPMap project
  • TraceMON contains a number of update buttons
More Reading

• Several RIPE Labs articles about these tools
  • See http://labs.ripe.net

• Documentation
  • https://atlas.ripe.net/docs/tools-tracemon/
  • https://atlas.ripe.net/docs/tools-latencymon/
  • https://atlas.ripe.net/docs/domainmon/

• Have a look at http://atlas.ripe.net
  • Sign up, request probes and configure measurements
  • Become a part of the community
Questions?

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