RIPE Atlas
Continuing Development

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What is Atlas

• Next-generation active measurement network
• Geographically spread vantage points
• Small, easily-deployable probes
  - USB powered
  - Hardwired trust material
  - No open ports
  - Don’t listen to local traffic
  - Firmware can be remotely updated
Benefits

• More vantage points
• Continuous measurements
• Cost-effective compared to individual efforts
• Independent source
  - Governments: comparative data about connectivity
  - LIRs: detect network abnormalities, optimise
  - Researchers: long baseline for trend analysis
  - Community: new tools based on aggregated data, situational awareness
Maps

RTT to Fixed Destinations
Maps

DNS Anycast Check (c-root)
Maps

Comparative DNS Root RTT

<table>
<thead>
<tr>
<th>Name Server</th>
<th>Min RTT</th>
<th>Last update (UTC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L (IPv4)</td>
<td>25.199ms</td>
<td>2011-11-29 11:26:58</td>
</tr>
<tr>
<td>M (IPv4)</td>
<td>119.904ms</td>
<td>2011-11-29 11:26:36</td>
</tr>
<tr>
<td>J (IPv4)</td>
<td>143.521ms</td>
<td>2011-11-29 11:27:47</td>
</tr>
<tr>
<td>I (IPv4)</td>
<td>179.631ms</td>
<td>2011-11-29 11:26:19</td>
</tr>
<tr>
<td>K (IPv4)</td>
<td>185.371ms</td>
<td>2011-11-29 11:29:46</td>
</tr>
</tbody>
</table>
User Defined Measurements (UDM) Strategy

• Start with a small set of variables
• Enable features over time
• Allow more resource usage over time
• Add measurement types based on demand
UDM Implementation

• Tied to credit system
• Centralised scheduling
• Consideration for host’s requirements
• In beta testing
  - Promising results
UDM (beta)

- Currently:
  - Ping (v4/v6)
  - Traceroute (v4/v6)

- Upcoming:
  - DNS query
UDM (beta)

- Currently:
  - Worldwide

- Upcoming:
  - Region
  - Country
  - AS
  - Prefix
  - Probe
UDM (beta)

• Configurable aspects:
  - Resolve on probe
  - Timing
  - Number of probes
  - Response to low number of probes
  - Intervals
  - Notifications
  - Public
Results of ‘ping’ UDM
Planned Developments

• Roll-out of UDM
• More UDM types
• Real-time access to (raw) data
• APIs to the system
• Automatic alerts/notifications
• More (types of) maps
• More probes distributed and installed
Probes Distributed

- Register for a probe
- Collect your probe
Probes Deployed

• Register your probe
• Connect your probe
Links

- **Atlas:** [http://atlas.ripe.net](http://atlas.ripe.net)
- **Articles:** [http://labs.ripe.net/atlas](http://labs.ripe.net/atlas)
- **UDM testing:** atlas-dev@ripe.net
- **Measurements Community Builders:** mcb@ripe.net
- **RIPEstat:** [http://stat.ripe.net](http://stat.ripe.net)
- **TTM:** ttm@ripe.net
- **Labs:** [http://labs.ripe.net](http://labs.ripe.net)
Questions?
Links

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• **Labs:** http://labs.ripe.net
Bonus Slide: RIPE Atlas for Every LIR

Proposal to deploy 20,000 probes in next 18 months

- **Article:** [https://labs.ripe.net/Members/dfk/a-ripe-atlas-probe-for-each-ripe-ncc-member](https://labs.ripe.net/Members/dfk/a-ripe-atlas-probe-for-each-ripe-ncc-member)
- **Input:** ncc-services-wg@ripe.net