An analysis of the Internet interconnection density in IPv6 compared to IPv4

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Master Thesis

• Studying again
->Master of Science in Advanced Networking
Finding a Topic

• Problems in my daily life, relevant to a lot of people
• Inspiration from Martin Levy
• An analysis of the Internet interconnection density in IPv6 compared to IPv4
So what is the issue?

• IPv6 latency / speed is not the same as on IPv4
• Because of:
  – MTU, tunnels, hardware, etc.
  – The peering interconnection density in v6
• The amount of interconnection density seems different in v4 and V6 for various reasons:
  – V6 is still in a test phase
  – Just the new sessions get dual stacked
  – Etc...
How to measure and research it...

• Network latency is measured with ping and traceroute

• Lets take a lot of them from a lot of sources in IPv4 and IPv6 to common destinations.
  -> RIPE ATLAS

• Who peers with who and where?
  -> RIS DATA and Routeviews

• I want to see which IX or PNI the traceroute goes over
  -> traceroutes and PeeringDB
Next....

- Collect a lot of data....
- Analyze them
- Figuring out why people are not setting up the same amount of peering sessions in IPv6 as in IPv4
- Quantify the difference
- Ask the networks why and try to figure out how to solve this
- -> Write a Thesis😊
- Report back to you guys at the next MAT session
Questions and Comments?

• Is this research actually helpful for the community?

• Does anyone else see this as an issue?