

Scooting Along to IPv6 Anycast

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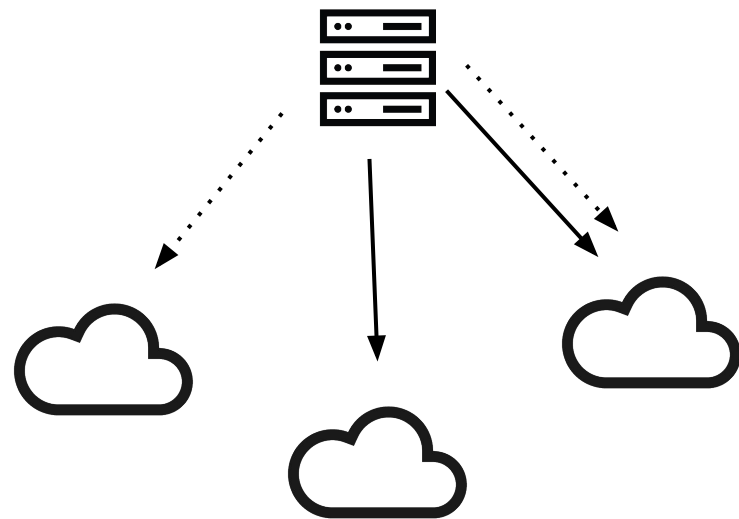
Dealing With Legacy Configurations

- Some (large) legacy users have v6 explicitly disabled on the CDN
 - Rooted in concerns that IPv6 was less reliable.
- We want IPv6 on.

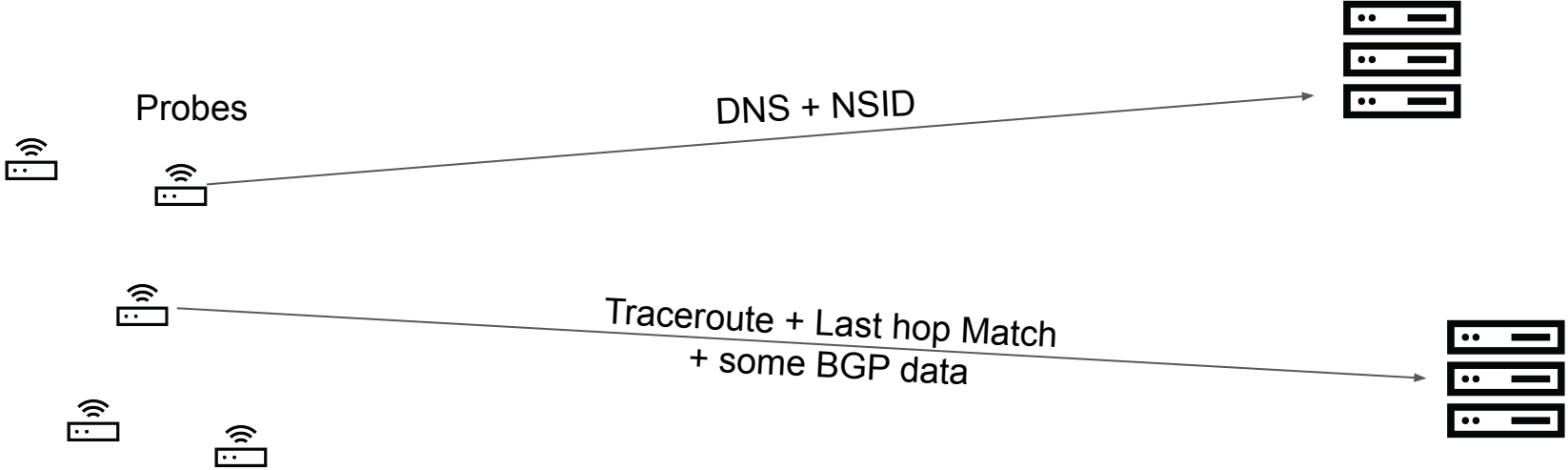
What will happen if we turn on v6?

What do we expect?

- Differences in announcements:
 - Set of peers for v4 vs v6.
 - Provider behaviors.
- Variations in tuning:
 - Performance driven tuning applied unevenly.
- Are clients:
 - Going to use similar paths?
 - Going to connect to the same site?

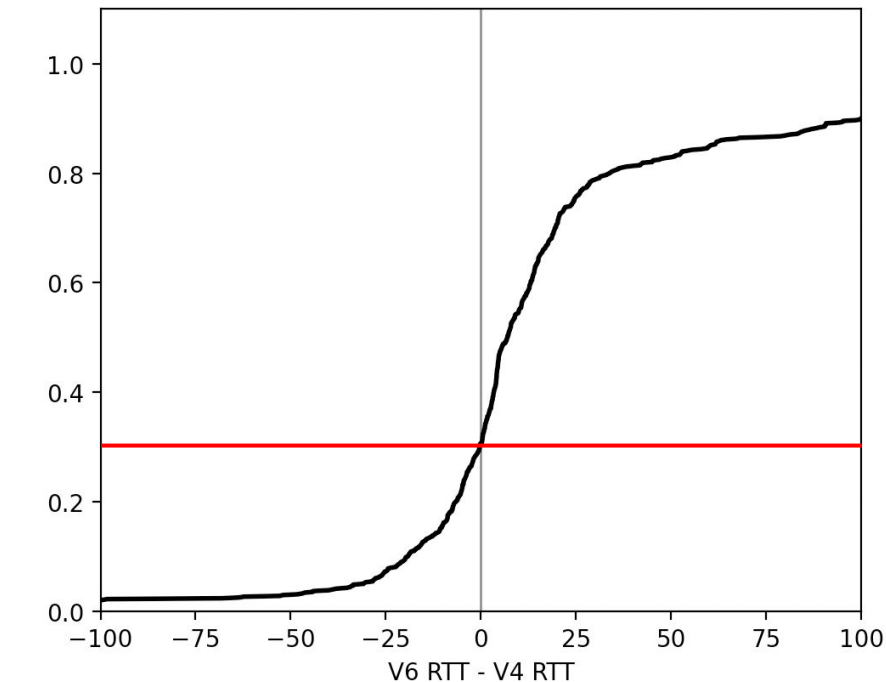


External Probes

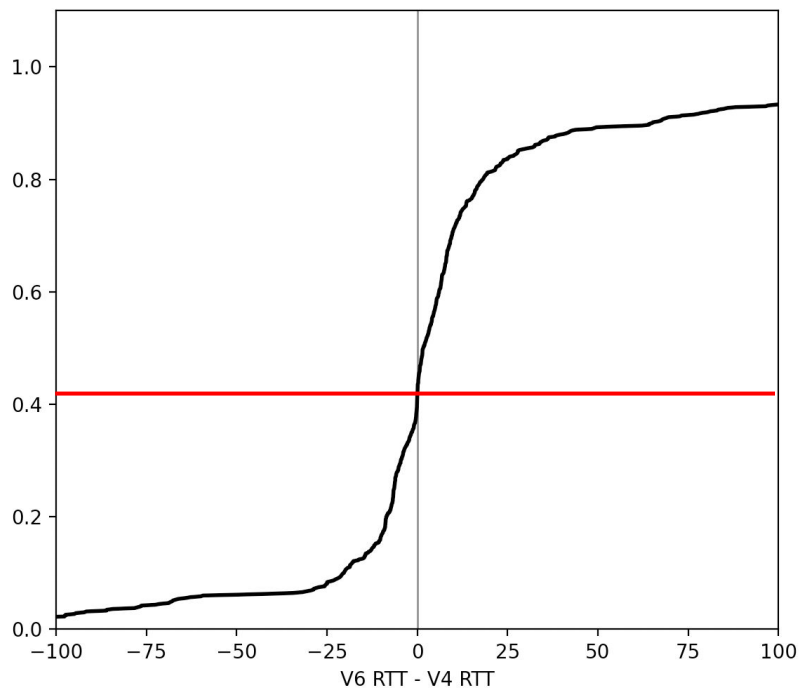


External Probes - Global Anycast

- 80% of dual stack Atlas probes map to the same anycast site.
- 70% of movers saw a decrease in performance
 - About 20% of those were significant ($>20\text{ms}$)



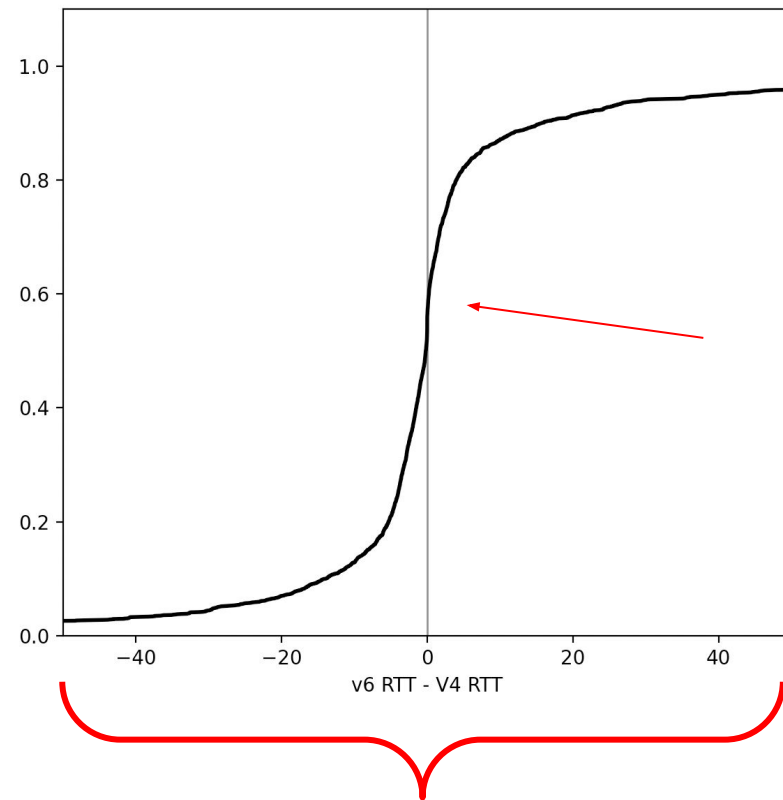
External Probes - Regional Anycast



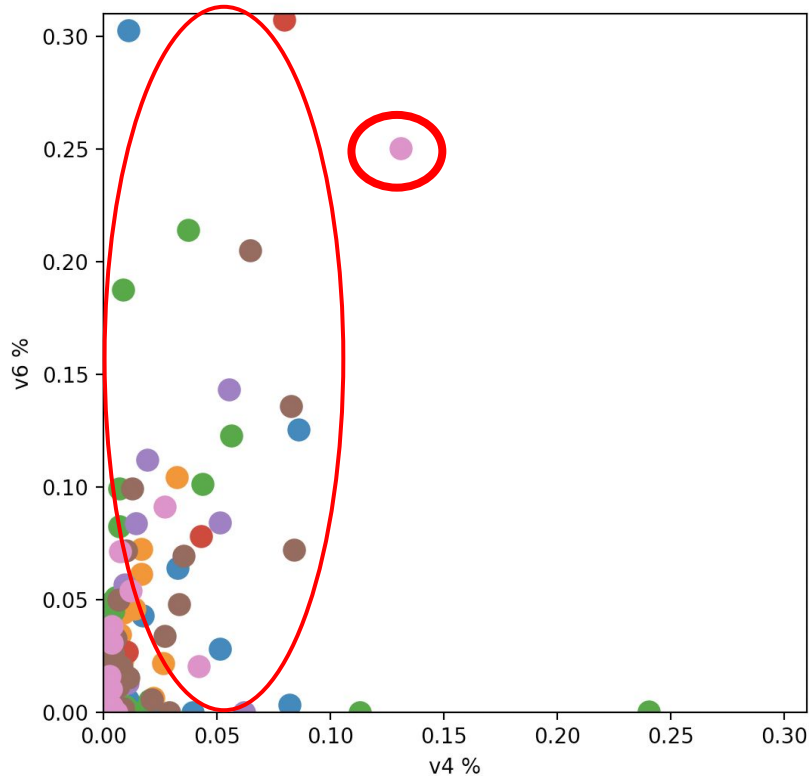
- Here, the error is bounded approximately by continent.
- Approximately 82% map to the same location
- For the remaining 18%, about 58% of movers saw a decrease in performance

Organic Traffic

- 55% of <pop, asn> pairs perform better with v6
- Tighter bounds overall



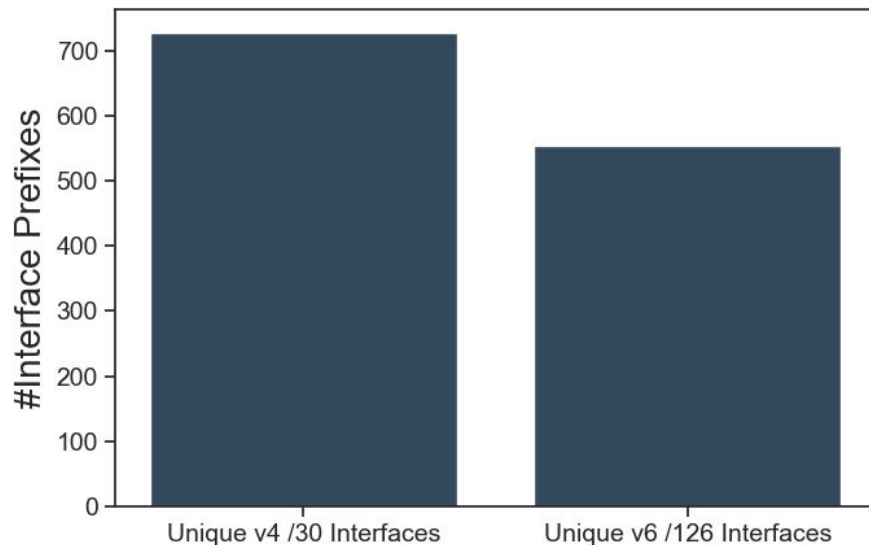
Organic Traffic



- Some large v4 contributors appear nearly-single stack.
- Larger v6 providers take a significant portion of the v6 share.

What about the way back?

- Probing outward (from one pop to 10k hosts in an AS)
 - The network appears different
 - Overall performance appears similar



Moving Forward

- What is going to happen if we turn v6 on?
 - Different views all look a little different?
- We have something existing to compare!
 - How do we leverage known v4 behaviors?
- How do we ensure measurements accurately reflect a future v6 user base?
 - New customers, new providers.