

IPv6 is coming but IPv4 isn't going

Panel Discussion: When can we turn off IPv4?
RIPE NCC::Educa IPv6-only

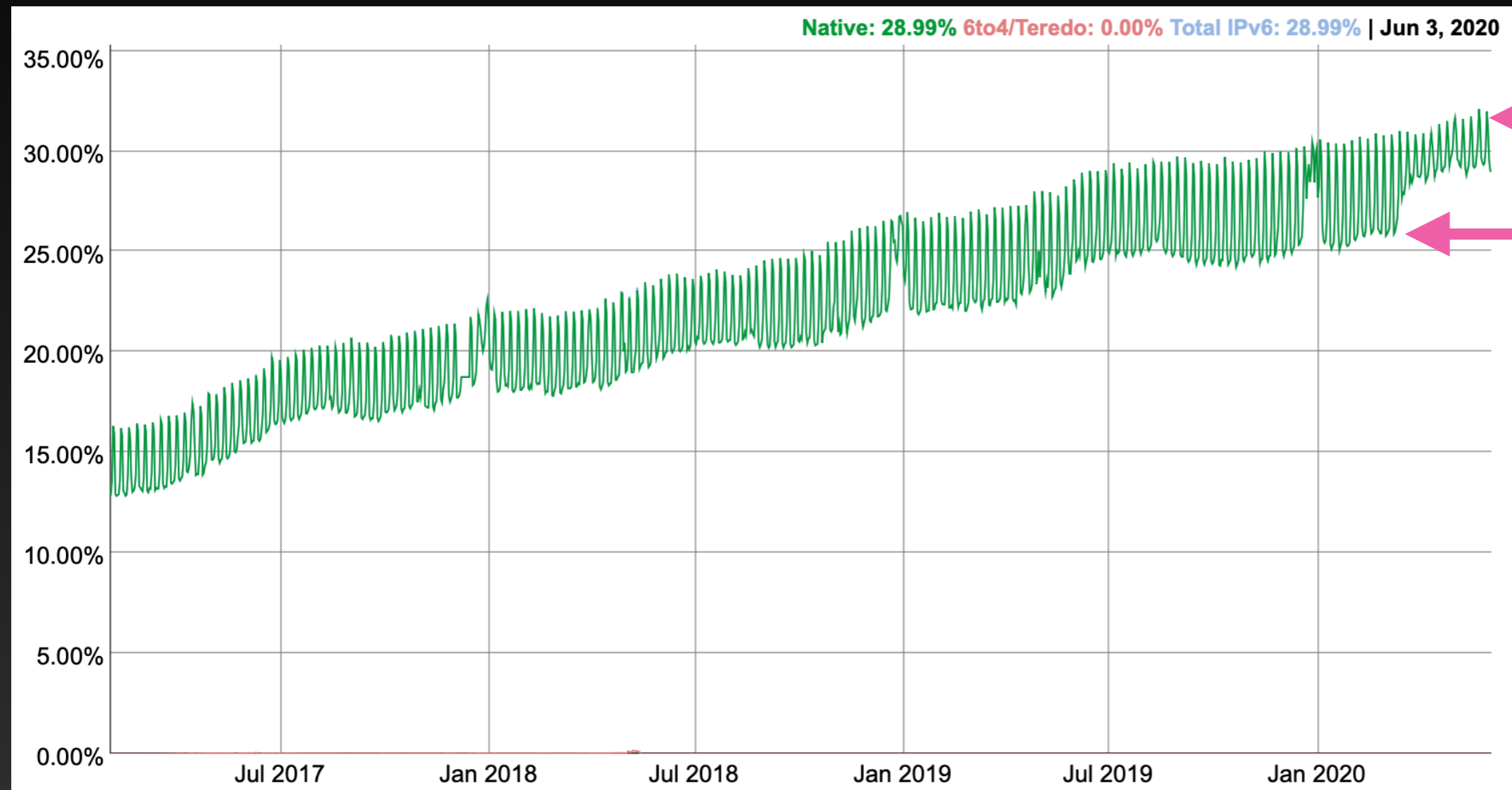
8 June 2020, Iljitsch van Beijnum

Making things hard or easy

- If you're a fast growing ISP:
 - IPv6-only is very easy
 - IPv6 with IPv4aaS is relatively easy
 - IPv4-only is hard/expensive
 - dual stack is harder than IPv4-only

Making things hard or easy

- If you're a slow-growing enterprise:
 - IPv4-only is relatively easy
 - the real problem is internal RFC 1918 addressing
 - full dual stack: twice the work, not twice the benefit
 - IPv6-only: very rough transition
 - mostly IPv4-only + a little IPv6 is probably the sweet spot



home IPv6

work IPv6

IPv4-as-a-service

- IPv6-only clients → IPv4-only servers: 😊
- IPv4-only clients → IPv6-only servers: 😬
- So:
 - clients can move to IPv6-only
 - servers *can* remain IPv4-only, but dual stack is better

IPv4-as-a-service

- ISPs need to do the IPv6 → translation
- 80/20:
 - the last 20% of traffic to IPv4-only services: fine
 - but translating the first 80%? Not so much!
- ISPs with IPv6-only customers will push big platforms to dual stack to save money on translators

Do we even want 100% IPv6-only?

- Happy eyeballs: if IPvX doesn't work, application switches to IPvY within milliseconds
- With IPv6-only (or IPv4-only) you have to wait for slow, dumb protocols like BGP to reroute
- So having separate IPv4 and IPv6 connections is a great way to get more redundancy without running complex (routing) protocols