



IPv6 P-t-P addressing:

The case for /127's

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Infrastructure Architecture

What's wrong with using /64's?

- In theory, nothing! (*)
- In practice, well, that's a different story!



Problems with /64's

- Ping-pong problems on SONET/SDH links
 - Assume 2001:db8::0/64 and 2001:db8::1/64 are 2 sides of a PtP interface
 - Somebody pings 2001:db8::2
 - What happens now?
- Ping sweep of death
 - Assume same addressing as above
 - Link-type is ethernet
 - Somebody ping sweeps 2001:db8::0/64
 - How many outstanding NDP requests will you have?
 - What do you think will happen to your router when it's busy dealing with them, and doesn't get to refresh 2001:db8::1



Is that really a fault of /64's?

- But these are implementation problems!
- Can't we fix these with ACLs?
 - _ Good luck :)
- Can't we fix the SONET/SDH forwarding semantics?
 - _ How long do you think before a new spin of the ASICS gets in your routers?
- Can't we fix the NDP queue prioritization?
 - _ Yes, but, again, have you asked a vendor for a new feature lately?
 - _ How long before you got it?
- Summary:
 - _ We need something that works **now**, not 18 months from now
 - _ We need something relatively manageable
 - _ Meanwhile, we still should address the above issues



So, what can we do?

- Proposal:
 - Allocate a /64 for every P-t-P interface
 - Assign (and configure) only the first /127 of the /64 onto the router
- Benefits:
 - Configured /127's suffer from none of the drawbacks of the /64's
 - Easy to read for humans (:::0 and :::1)
 - Same **allocation** plan for the whole network
 - Can deploy this **today**



Questions?

