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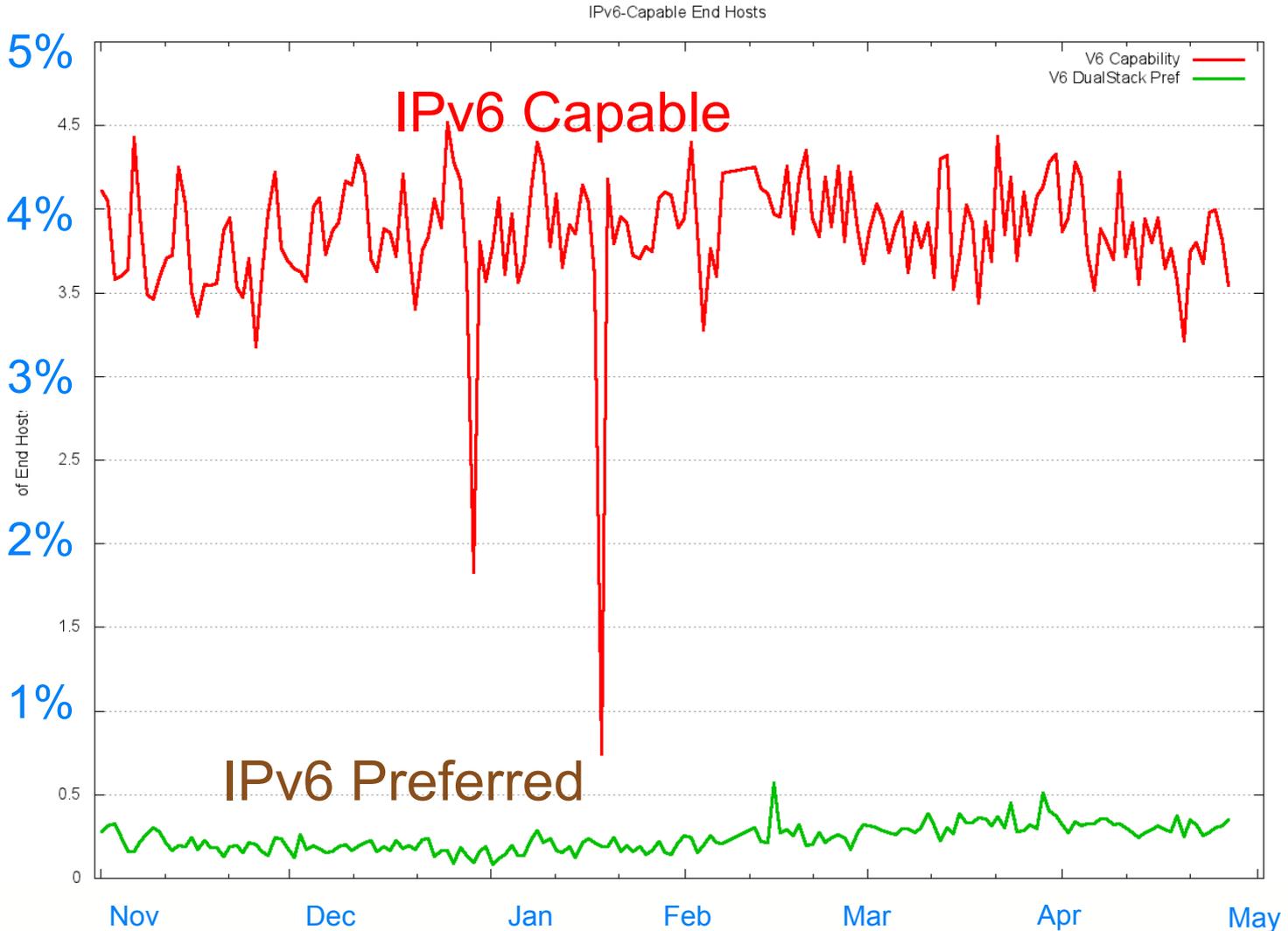
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# How Much IPv6 is Out There?

- We have been measuring the number of Internet clients who can complete an entire end-to-end IPv6 connection
- We've used embedded IPv6 "tests" in banner ads to perform IPv6 capability tests on a diverse set of some 100K clients per day for an extended period
- The results...

# IPv6: “could” vs “will”



# 4% is Not Enough

- AsiaPac is now running on empty with IPv4!
- Europe/Mid East will probably exhaust its remaining pools of IPv4 addresses by late 2011
- It would have been encouraging to see client capability over 25% by now, rising to over 40% by year end
- The blocking factor at present appears to be a combination of widespread use of NATs and a lack of native IPv6 in the Access Networks

# Why are we so slow to move?

- Market dynamics are not sending clear signals to all actors
  - Some differences between motivations of content and carriage services are becoming evident
  - Some parts of the carriage sector see relative self advantage in deploying Carrier Grade NATs and further delaying investment in IPv6 services
  - Content providers are sending out mixed signals, with more use of IPv4 CDNs that extend inside carrier networks, as well as calling for IPv6 adoption

# IPv6 uptake is not fast enough...

- The problem is not technical
- The problem is not a lack of promotion
  - although active promotion helps
- The problem is not a lack of IPv6 requirements in public procurement programs
  - although such programs also help
- The problem lies in the dynamics of the complex interaction between a diverse set of Internet actors

# Cost and Benefit are not aligned

- Much of the immediate cost of IPv6 transition lies within the access carriage sector, where commodity utility margins are hindering any new large scale investment in network infrastructure
- Much of the long term benefit of IPv6 transition lies with the content sector and end users, neither of which are willing to pay an immediate premium for IPv6, as it provides no incremental utility to existing services

# Is this Transition an instance of a technical “Market Failure”?

In which case we may need to look to use some additional Public Good distribution mechanisms to provide the needed impetus to the market to assist in completing this transition

# Risk of Inaction

Continued delay by incumbents to embrace IPv6 allows further industry consolidation, and increased ability by carriage and content incumbents to define (and limit) the parameters of future competition.

What is at risk here is the future of a truly open public network infrastructure for public communications