Measuring IPv6 Deployment

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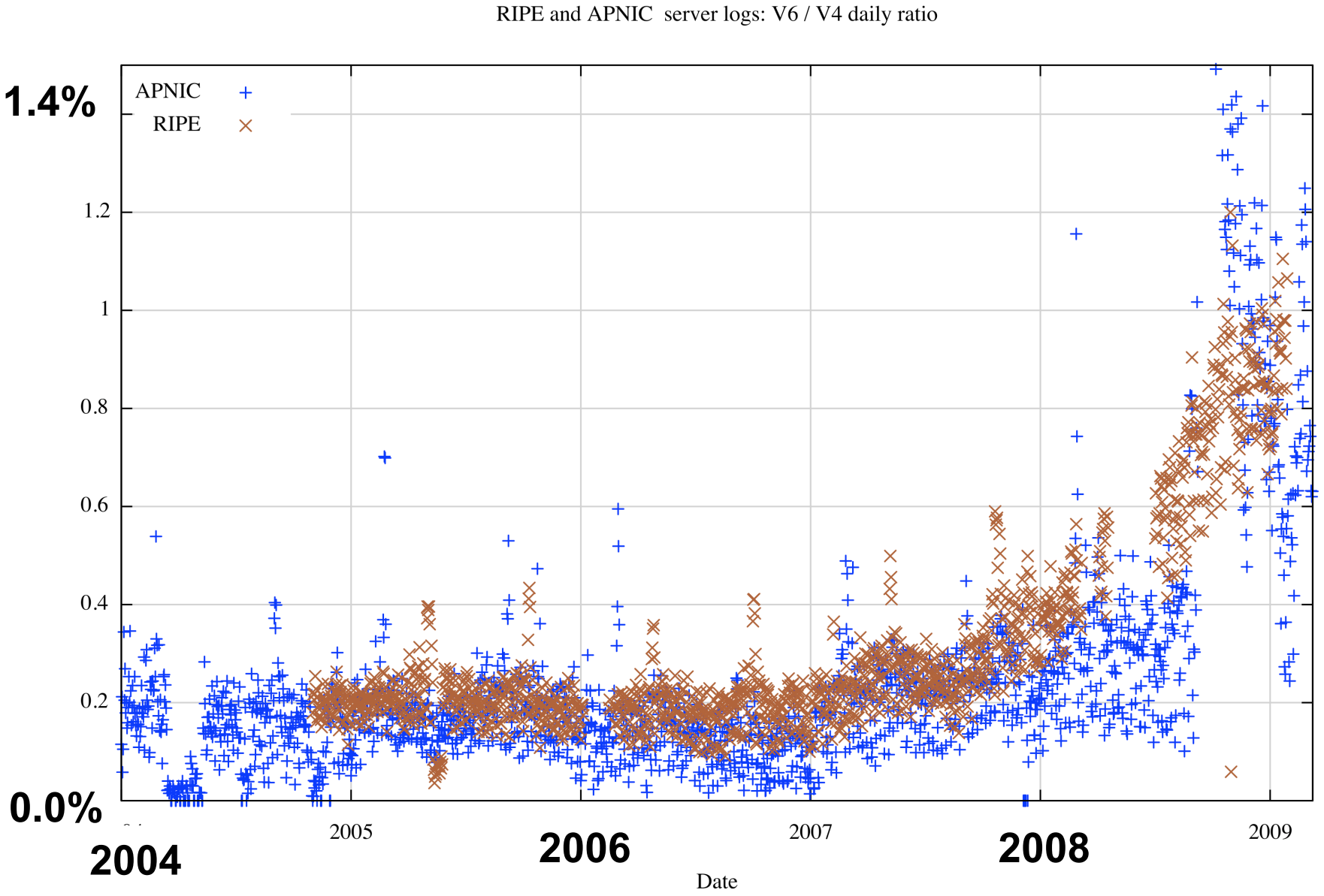
How much IPv6 is deployed?

- How can we measure the extent to which the Internet can support IPv6?
- Can we make estimates of when IPv6 will be deployed comprehensively?

End-to-End Approach to Measurement

- When a server offers a client the choice of IPv6 or IPv4 how many clients successfully choose IPv6?
  - For a client to complete a transaction with a server using IPv6 all the network components to support that transaction must be in place and working
  - Uses the property of current platforms that dual stack clients will prefer to attempt a IPv6 connection before falling back to IPv4
- Repeat the same measurement every day to establish a useful long term data series
- Correlate the data across multiple servers

Web Server Stats



What's this saying?

- Relative use of IPv6 was **0.2%** in the period 2004 – 2006
- Relative use of IPv6 has increased from 2007 to around **1%** today
- There has been strong increase in IPv6 take-up from 2008
- IPv6 deployment has probably passed early adopter phase and has moved into the initial phase of broad scale adoption by late 2008
- A continuation of this rate of doubling of the relative use of IPv6 will see IPv6 achieve a critical mass of deployment of **25%** within the **next 5 years**
- This is a very small sample – more measurement points would assist in increasing the confidence level in these measurements

Some more general Observations

- Internet Measurement is not necessarily a major exercise in big numbers and large budgets – extremely useful information can be gathered from well controlled small scale measurements
- Measuring individual components or subsystems for their level of IPv6 support is not very useful – IPv6 requires support across all elements of the Internet so measurements should reflect the capability of the complete network environment, rather than just one element or subsystem
- Single snapshots of a phenomenon are far less useful than extended data series when using the data for predictions and forward planning

Thank You

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