

# Some initial DITL 2010 observations

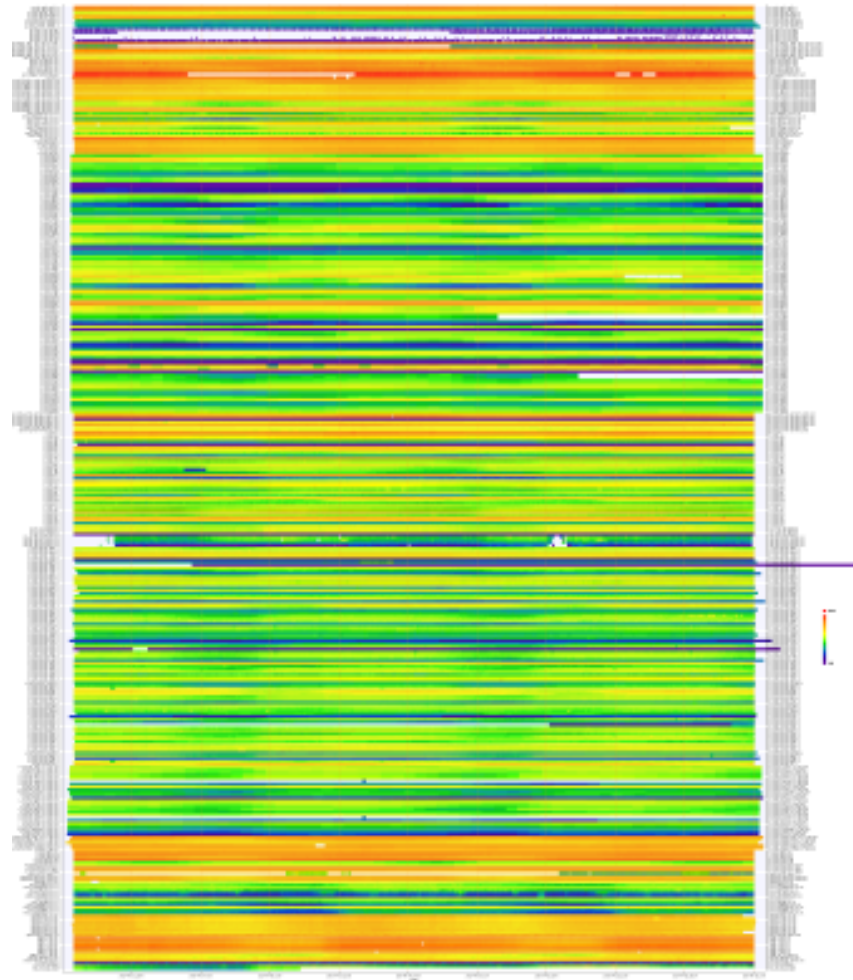
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# apologies

- Not the talk I hoped for..
- Still processing data.
- Ran out of time, fighting fires
- Work in progress, will be presenting improved versions at RIR meetings in 2010

# Too much data!



# Actually, 12h too much data..

- I didn't check my filenames and sent the proceeding 12h of data for some nodes to DITL/OARC
  - We better not be paying for transit...
- So this is not an overview of DITL as a whole.
  - Its about the take-away messages APNIC is finding in the 2010 collection.

# Goals

- Compare trends 2008/2009
- Monitor deployment of DNSSEC in APNIC reverse zones
  - During DITL, 2 sets of 5 zones/day applied
- Capture query,response
  - Last year, only got queries for some nodes
- Avoid last years mistakes
  - Clock sync, wrong interface tapped..

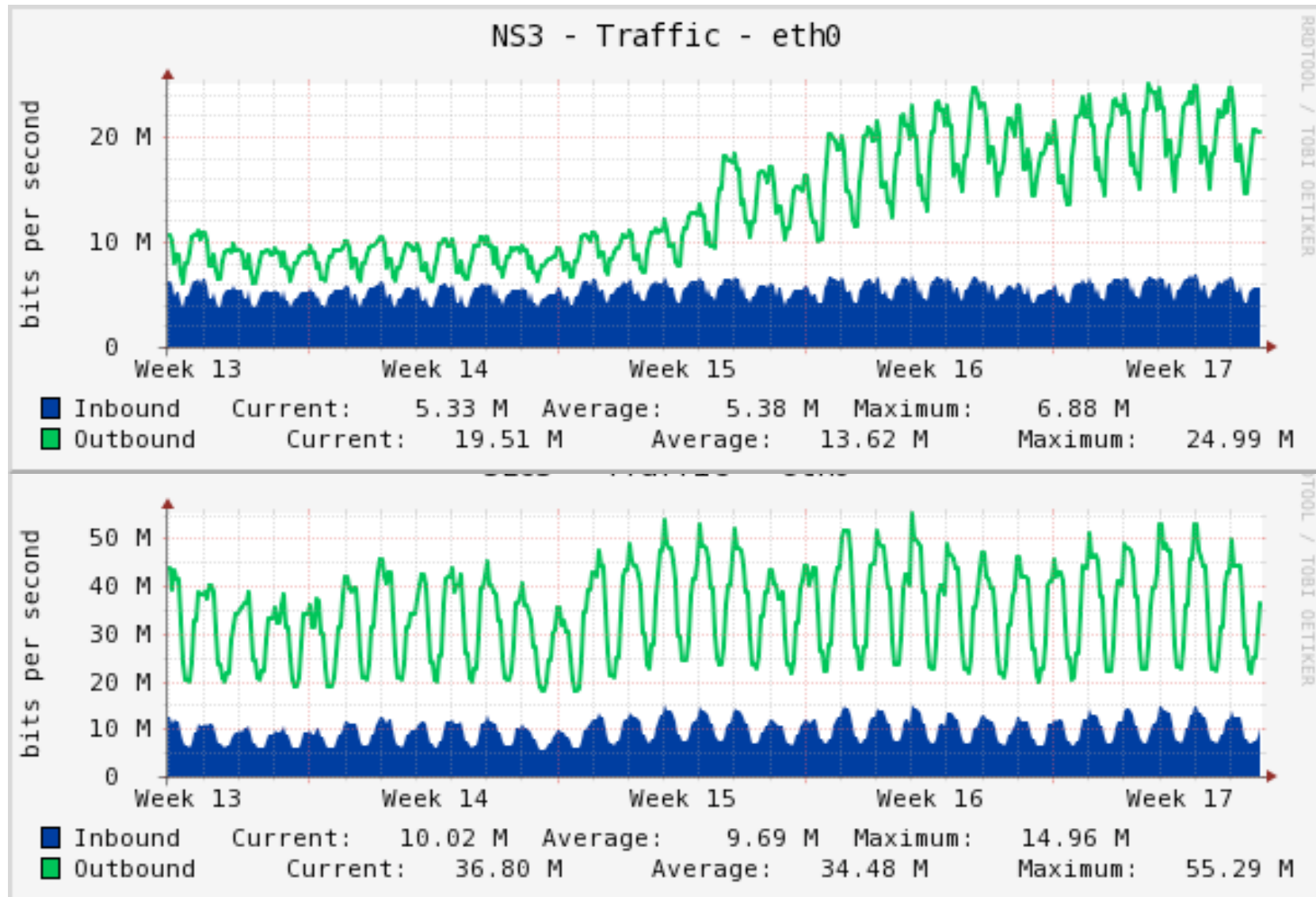
# Data volumes

- 2.8Tb of uncompressed data, over 51hrs
- 1.1Tb compressed.
  - Non-DNSSEC packets compress 70%, DNSSEC 50%
    - (less redundancy in the binary of keys, sigs)
- More than last time, but not unmanageable
  - Required some 'parking space' for data off collector
  - TB filestores just not cheap enough yet
  - Took about 3x as long to export
- Can retain 24h data, more if query-only
  - But answers are useful

# Lessons learned

- Lessons learned this time
  - Clock sync: ✓
  - Updated tools: ✓
  - Disk space: ✓
- Bandwidth out of room: priceless
  - Ie, we couldn't get more for love nor money in time ☹️

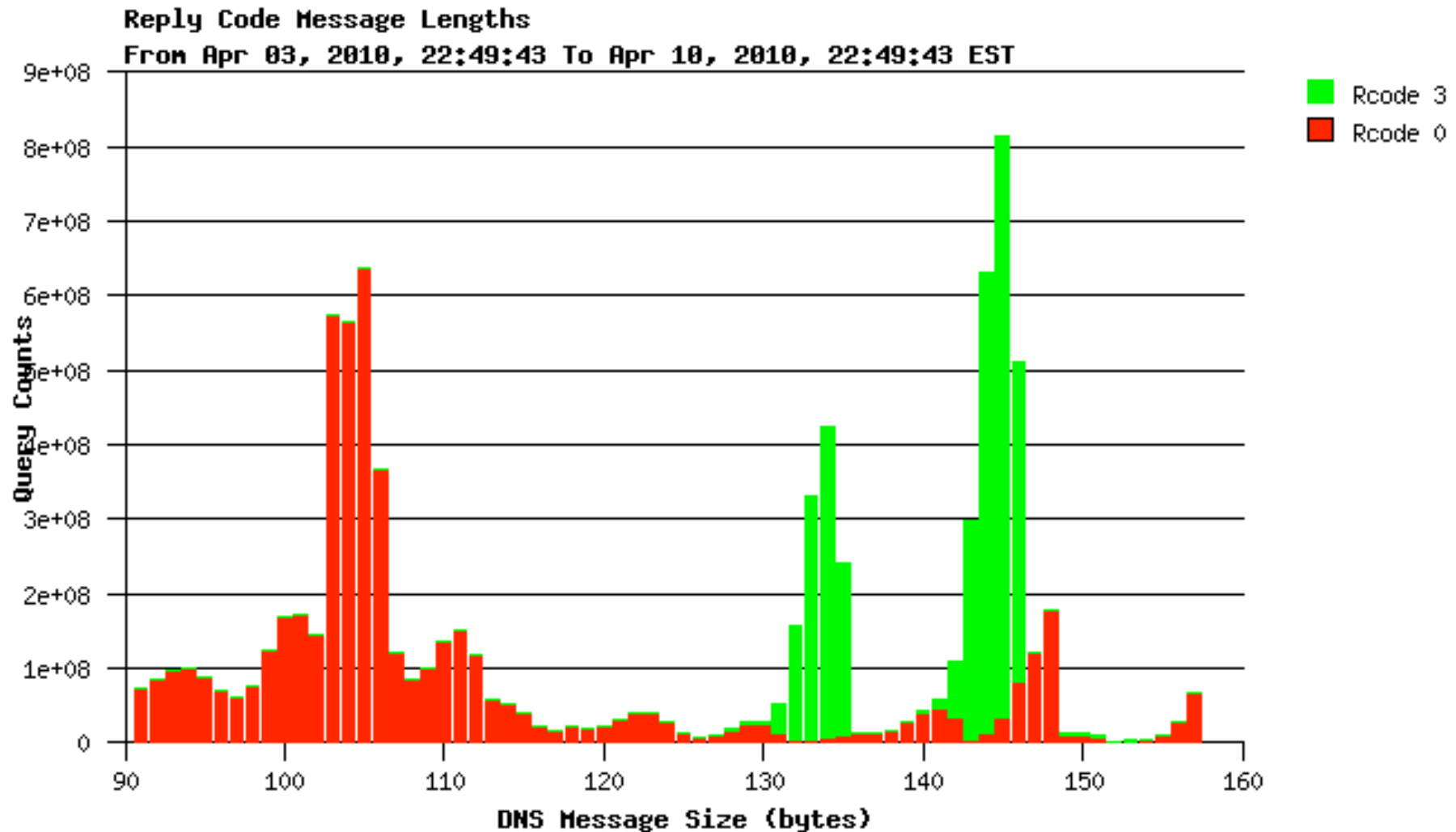
# Growth in BW from DNSSEC



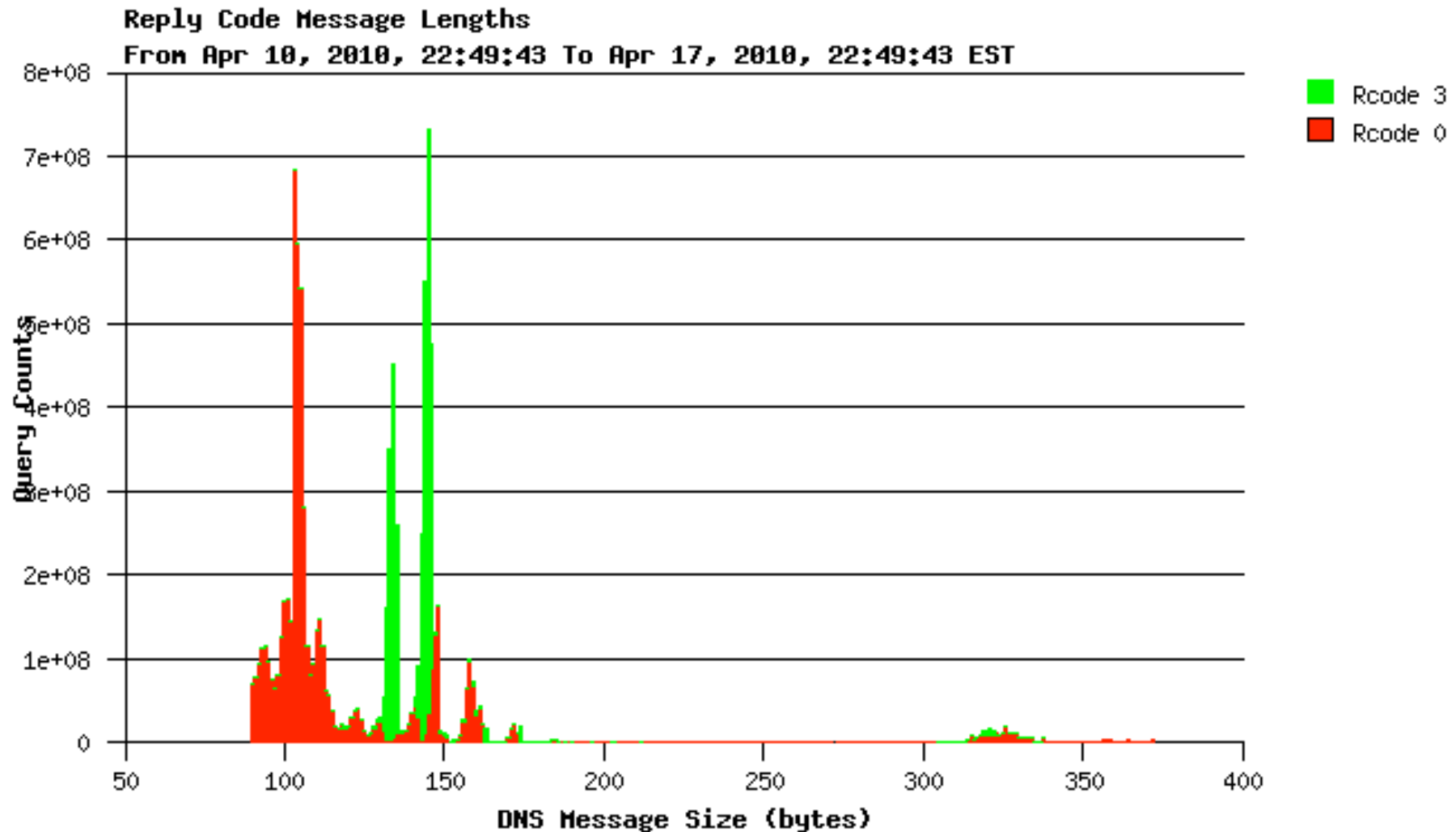
# Growth is only in payload

- No additional query load from signing
  - Not entirely true: its just at the 0.001 level right now
- Large increase in outbound data packet sizes

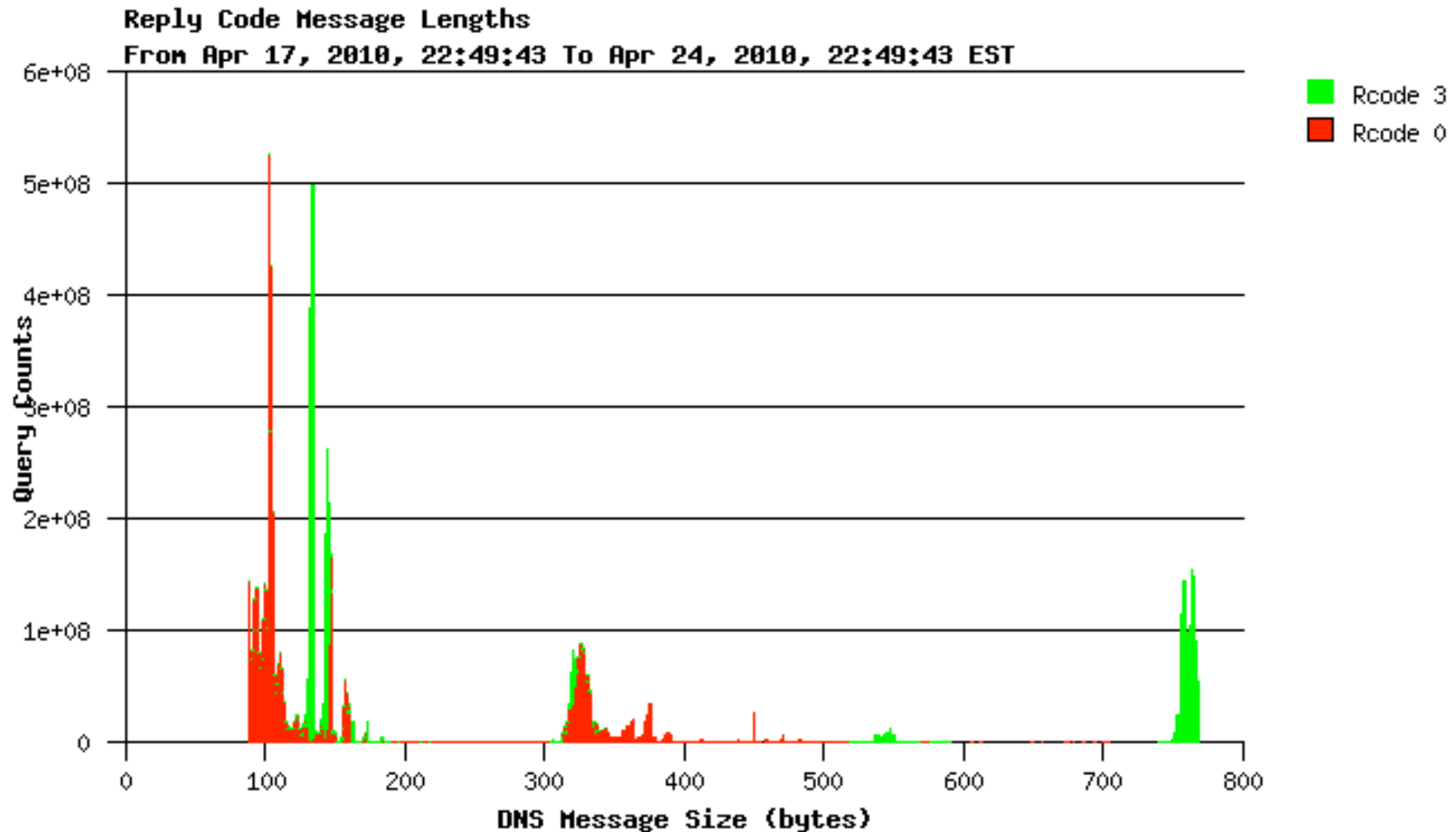
# Before DNSSEC



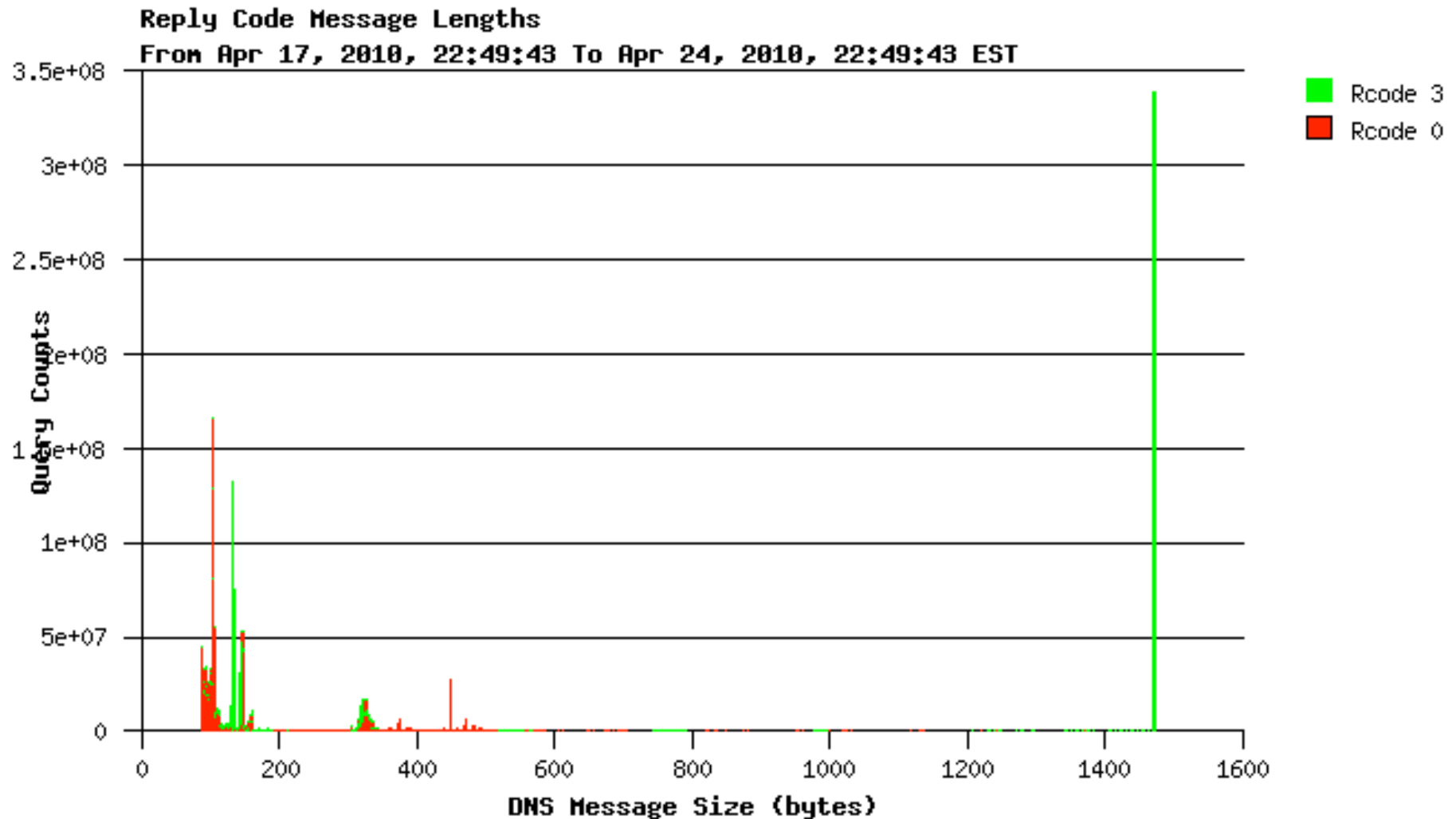
# The week before/during DNSSEC



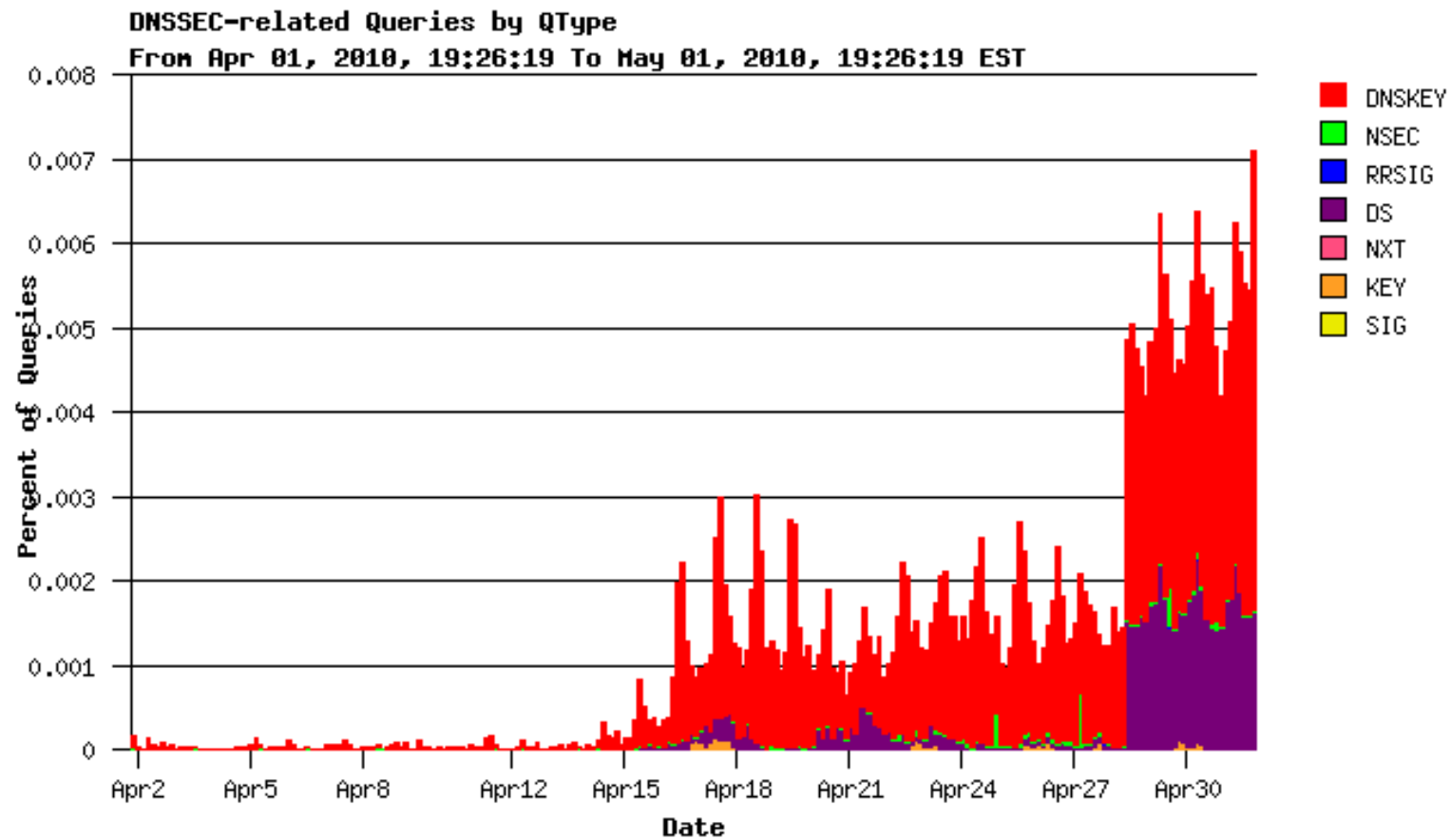
# After DNSSEC deployment (all NS)



# NS1 (SOA ns)

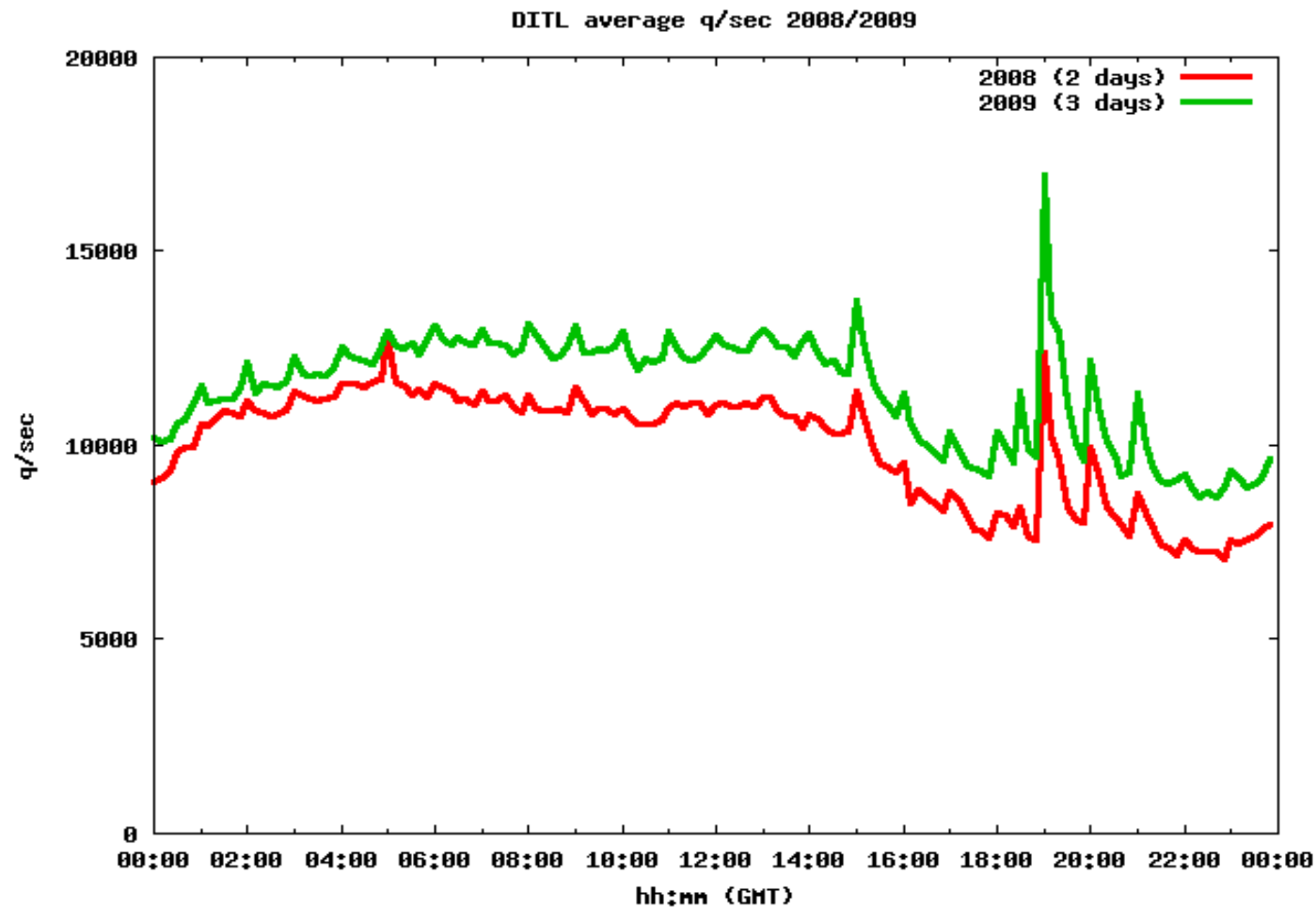


# DNSSEC deployment (from DSC)

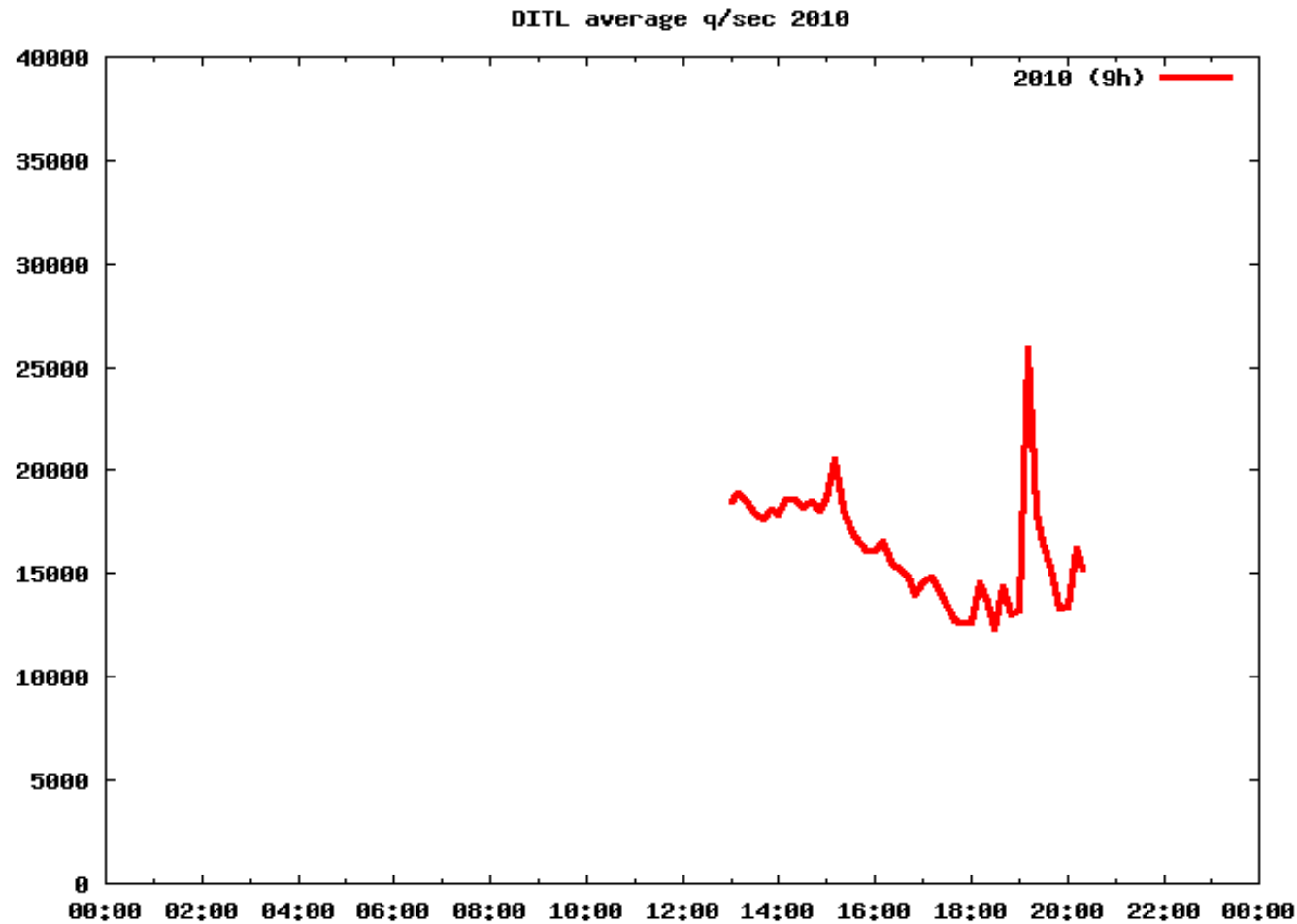


# Daily trends

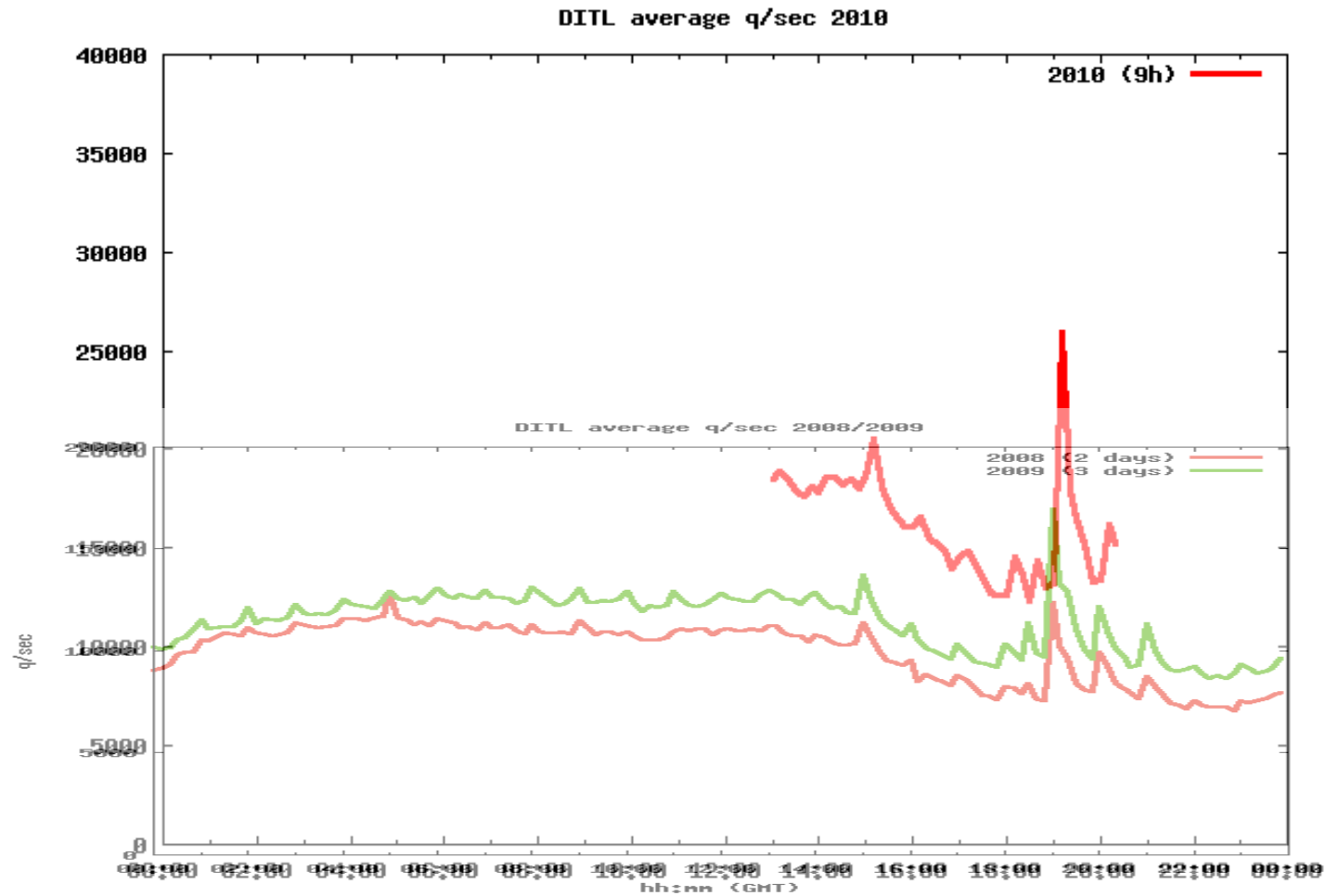
# DITL 2008-2009 AP region



# DITL 2010 AP Region, 9hr sample

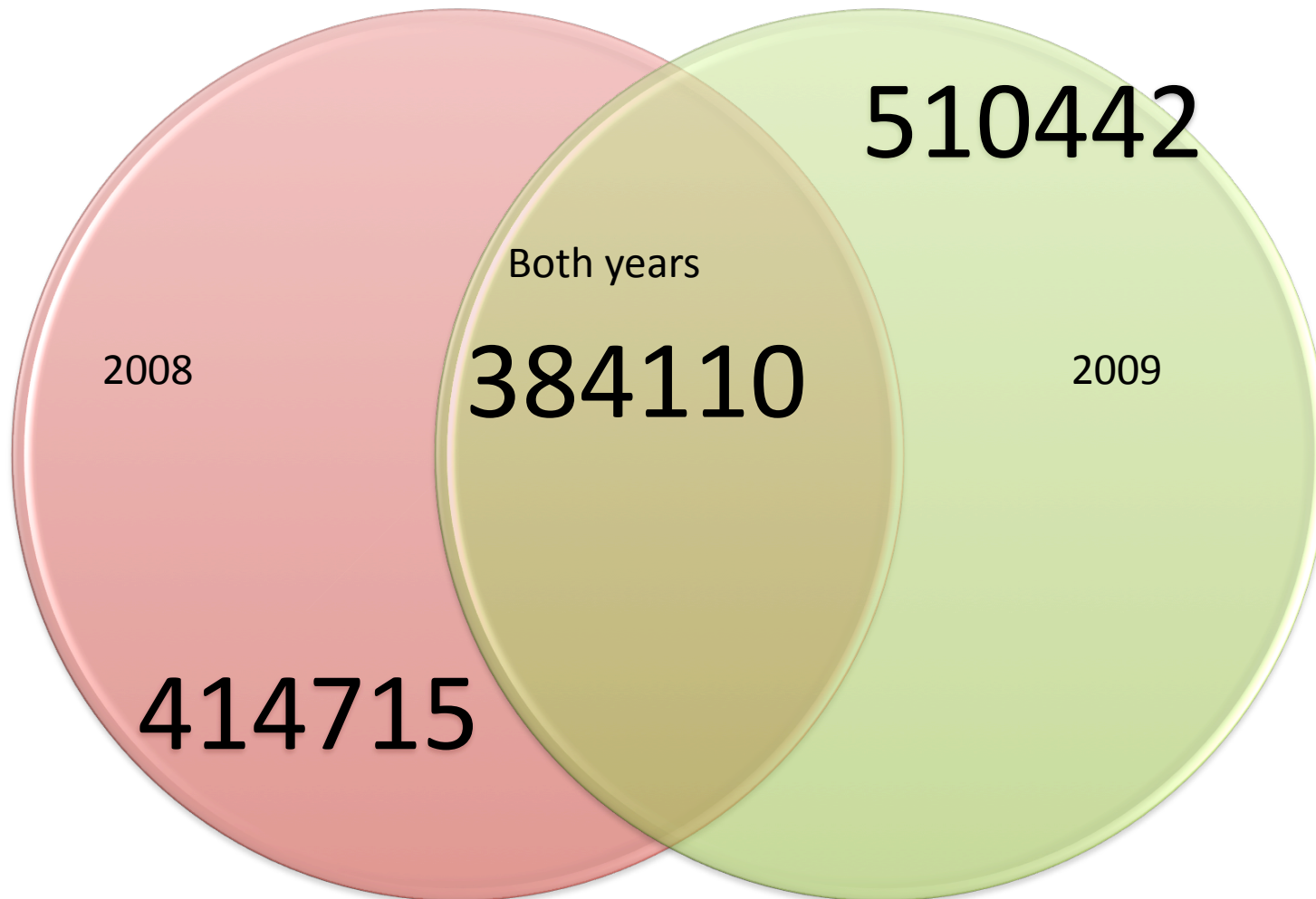


# Traffic compared to 2008/2009

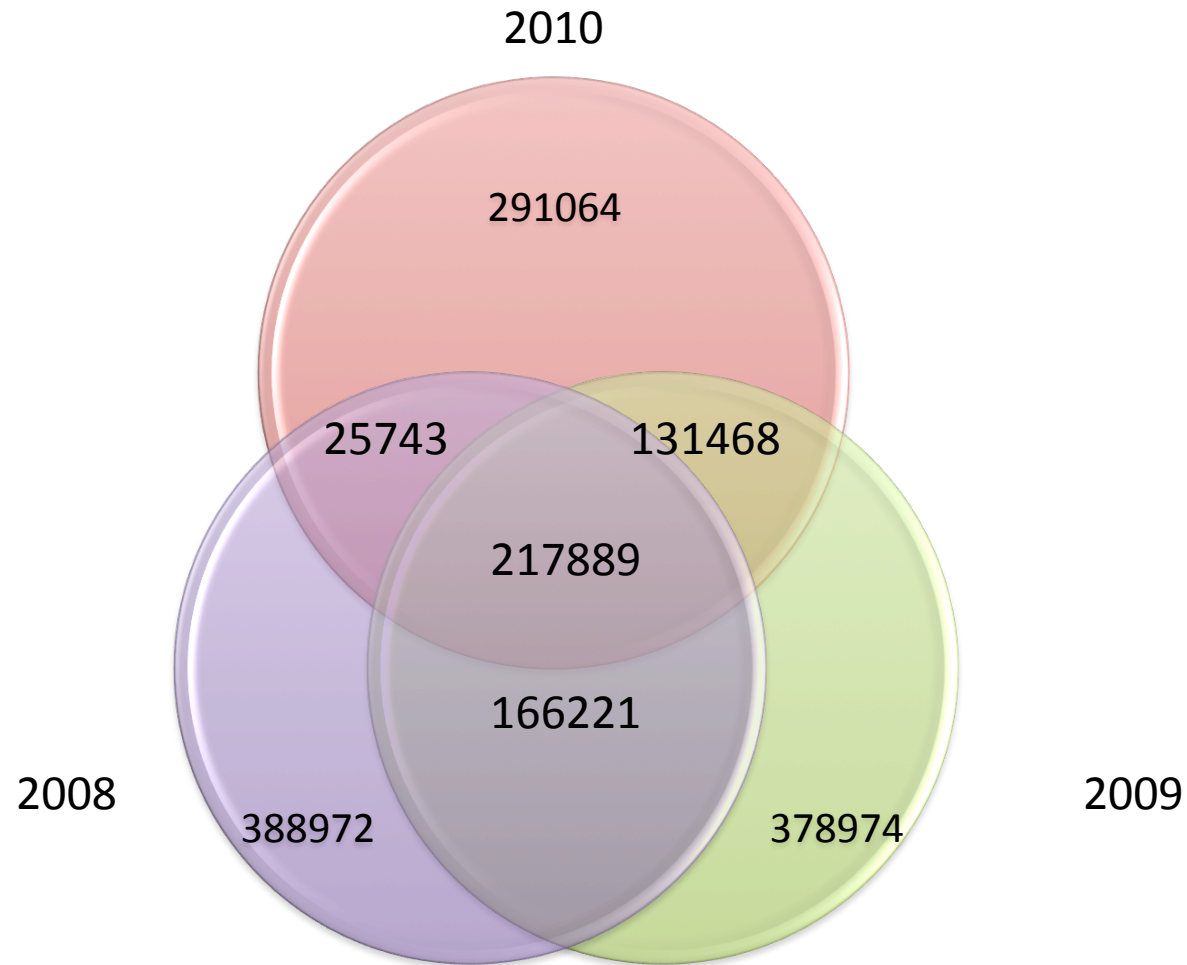


# Unique Ips using DNS servers

# Unique IPs in 24h 2008/2009

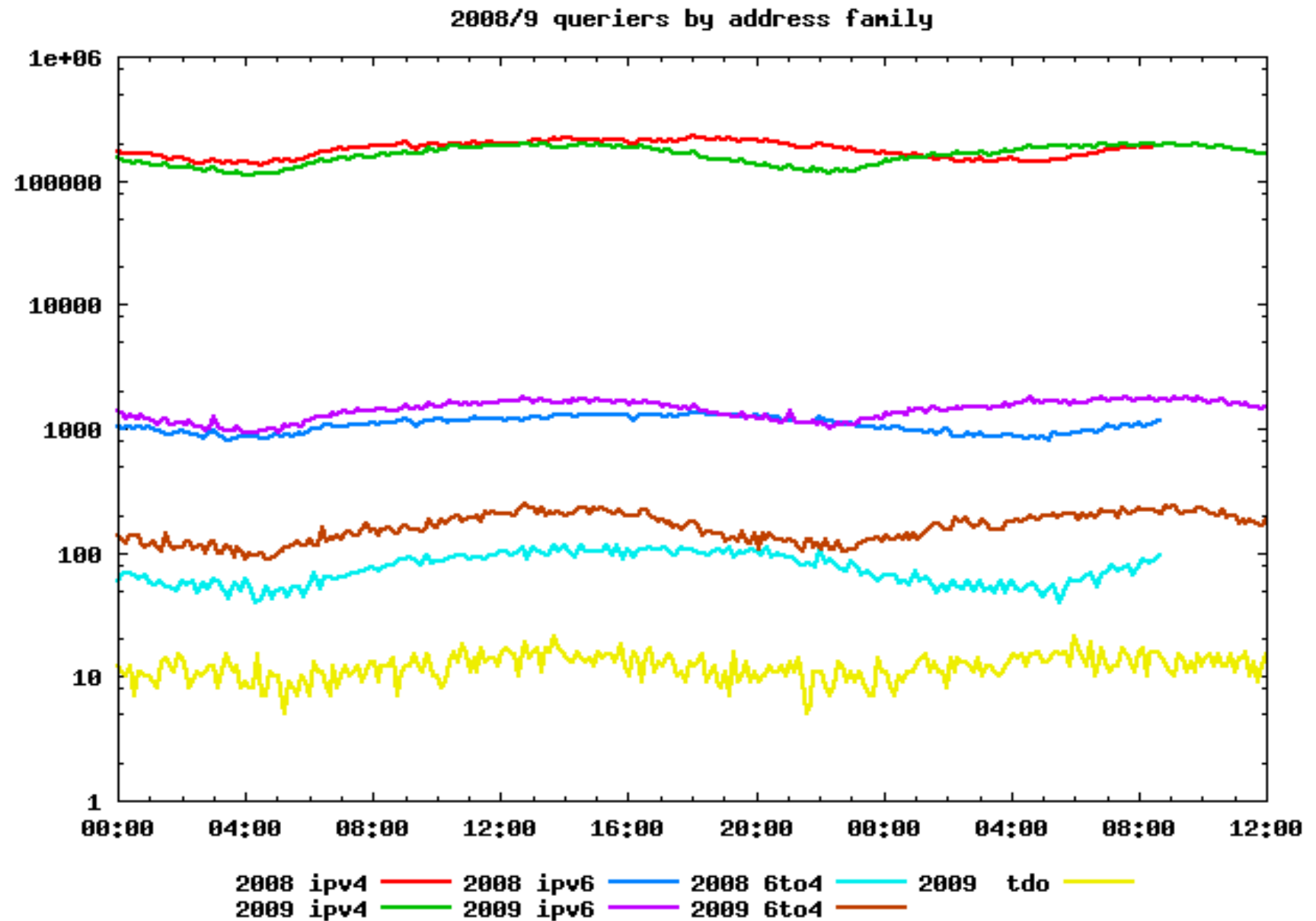


# Unique IPs in 24h 2008/2009/2010

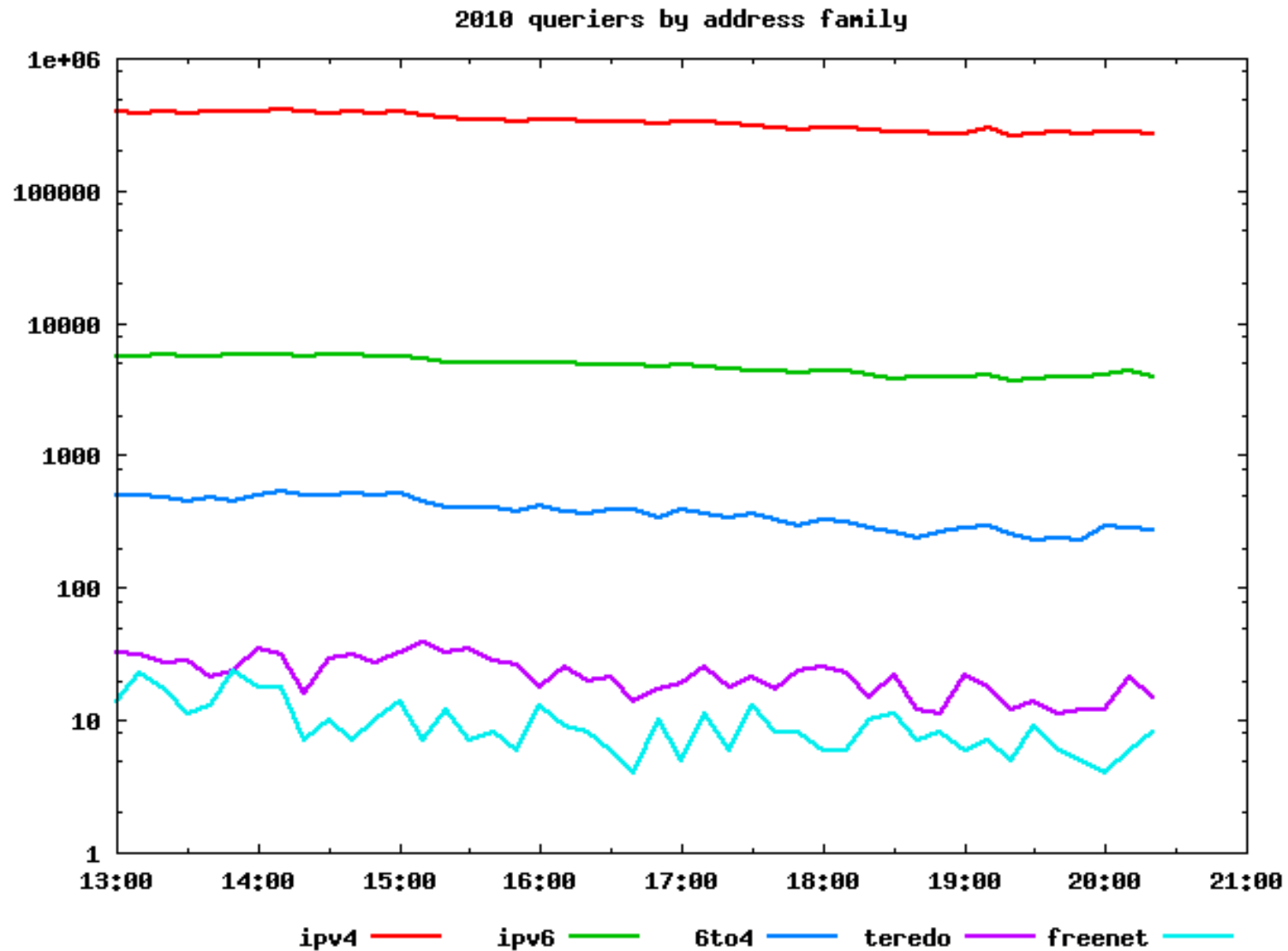


# Query by protocol

# Queries by IP protocol 2008/2009



# Queries by IP protocol 2010



# Mission accomplished!

- Captured DNSSEC turn-on for at least 10 of the zones, all nodes. (3)
- Hope to analyse, present later in 2010
- DITL works for us
  - Provides basic DNS scaling/behaviour insights
  - Informs V4:V6 uptake discussions (fed to OECD, INR policy discussions, other forums)
- Anycast deployment coming, will alter per-node traffic levels, will alter our story a bit in future.