

A First Look: The Impact of the DURZ Rollout January 30th – July 15th 2010

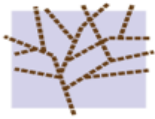
September 29th, 2010

Wayne MacLaurin – DNS-OARC



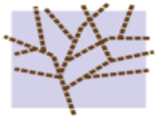
DNSSEC Rollout

DATE	Event
Jan 27, 2010	L starts to serve the DURZ
Feb 10, 2010	A starts to serve the DURZ
Mar 3, 2010	I and M start to serve the DURZ
Mar 24, 2010	D, E, and K start to serve the DURZ
Apr 14, 2010	B, C, F, G, and H start to serve the DURZ
May 5, 2010	J starts to serve the DURZ
Jul 15, 2010	Distribution of validatable, production signed root zone and publication of root zone trust anchor

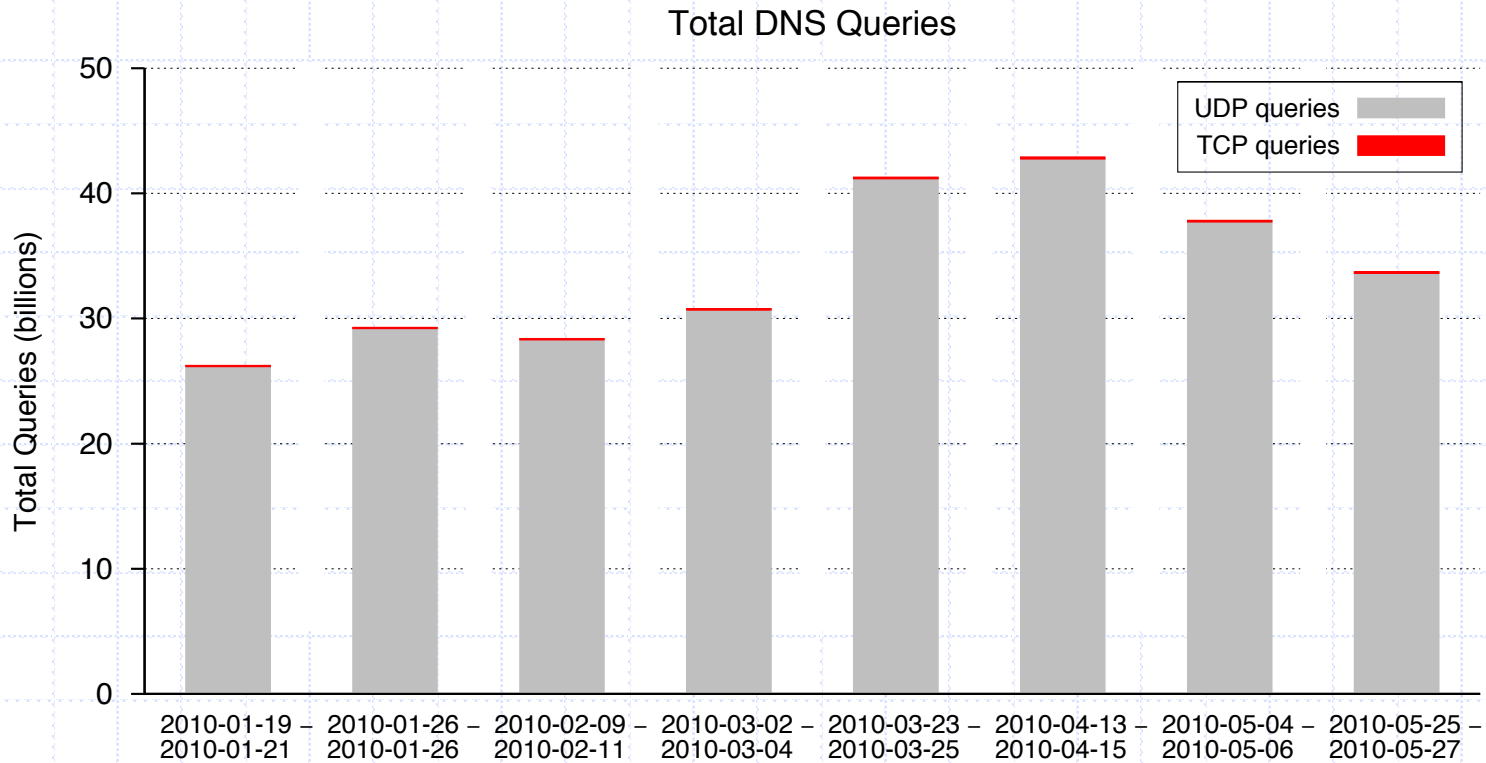


Data Collection

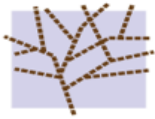
Event	Collection Start	Collection End	Collection Size (gzipped pcaps)
initial baseline	2010-01-19 18:00Z	2010-01-21 18:00Z	0.91 TB
L	2010-01-26 18:00Z	2010-01-28 18:00Z	1.06 TB
A	2010-02-09 18:00Z	2010-02-11 18:00Z	1.39 TB
I, M	2010-03-02 06:00Z	2010-03-04 18:00Z	1.44 TB
D, E, K	2010-03-23 14:00Z	2010-03-25 20:00Z	1.64 TB
B, C, F, G, H	2010-04-13 13:00Z	2010-04-16 00:00Z	2.95 TB
J	2010-05-03 16:00Z	2010-05-05 20:00Z	1.93 TB
final baseline	2010-05-25 17:00Z	2010-05-27 19:00Z	1.75 TB
Validatable zone	2010-07-14 13:00Z	2010-07-19 13:00Z	4.3 TB



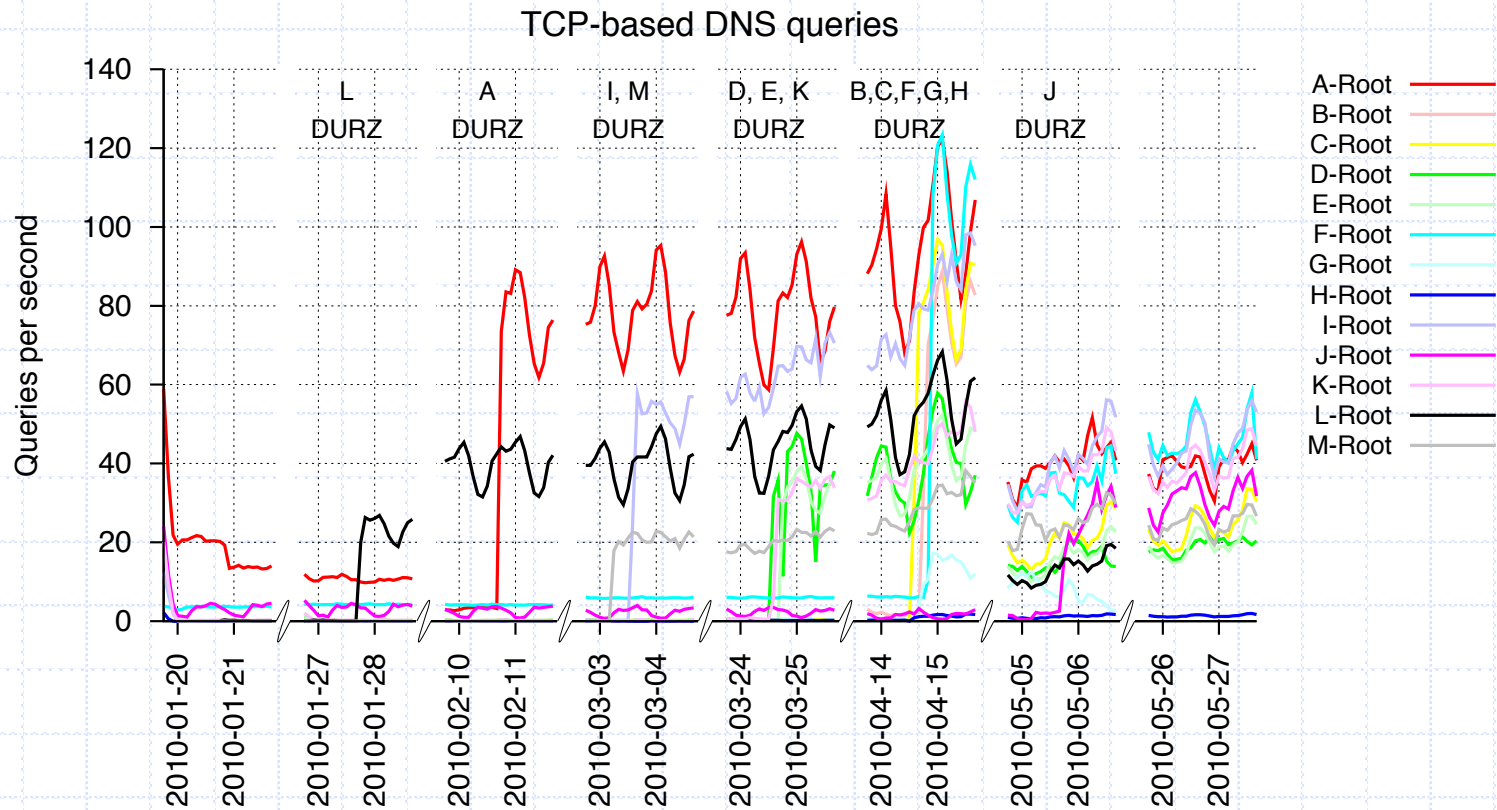
DNS Query Statistics



> 200,000 queries per second
< 1% TCP

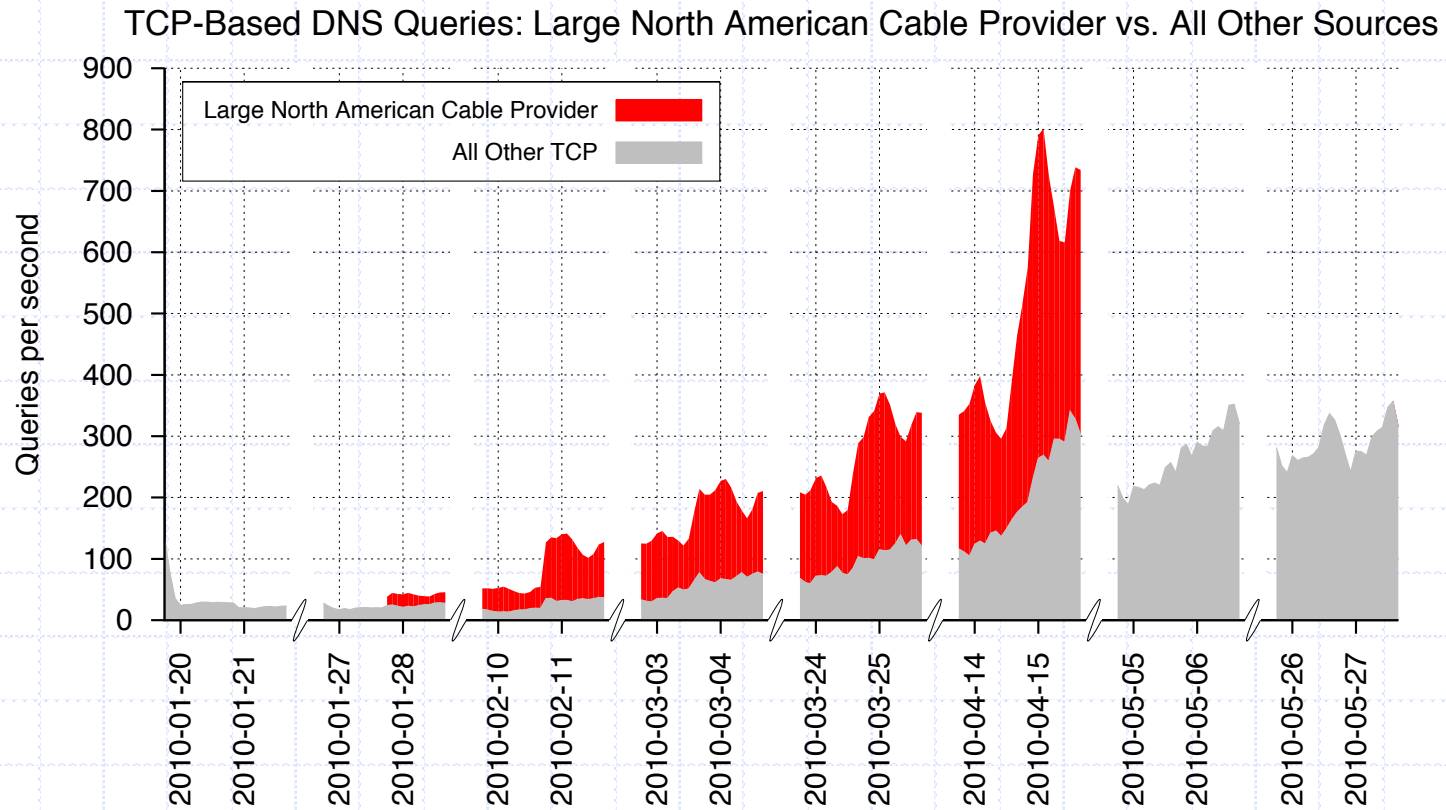


TCP Traffic





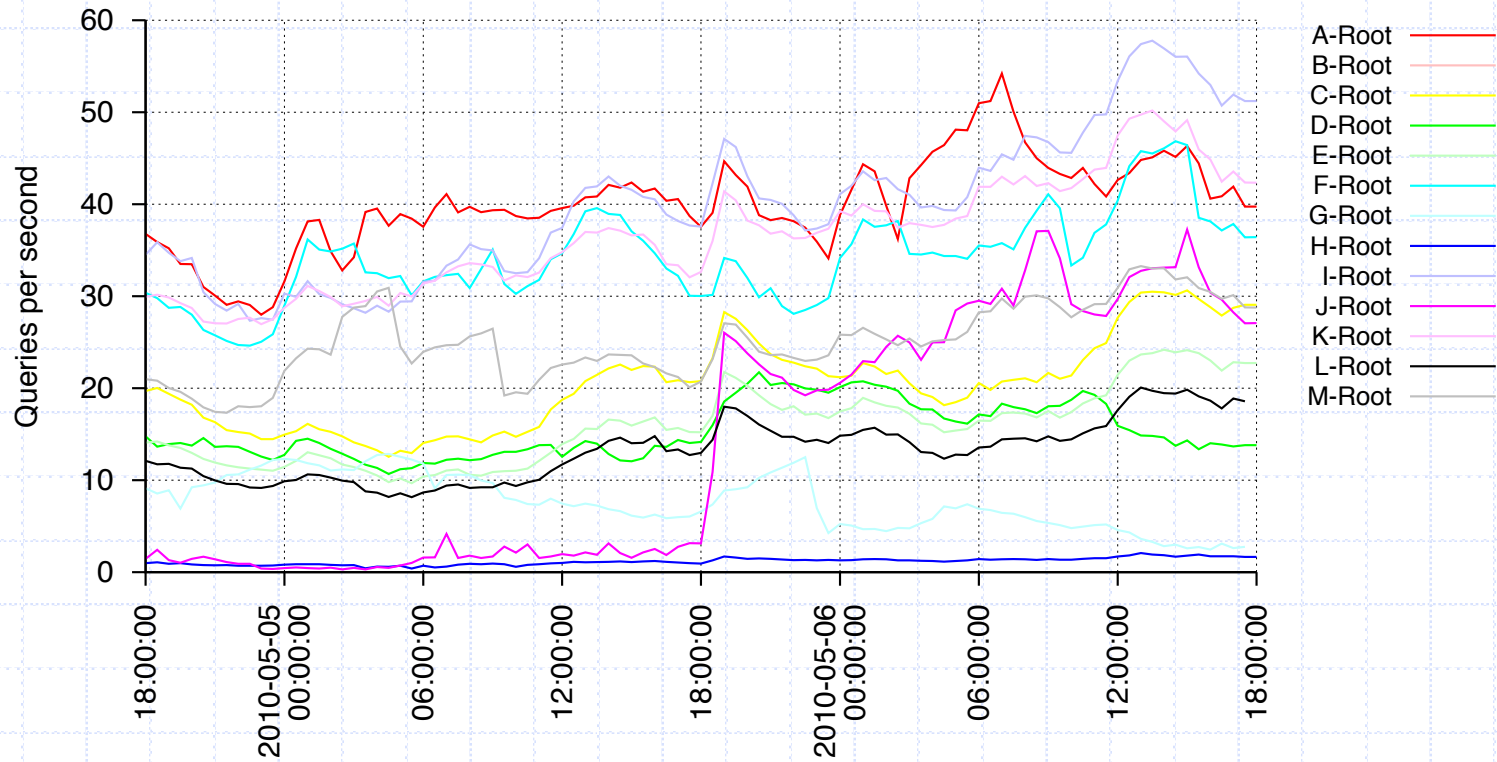
Anomalies





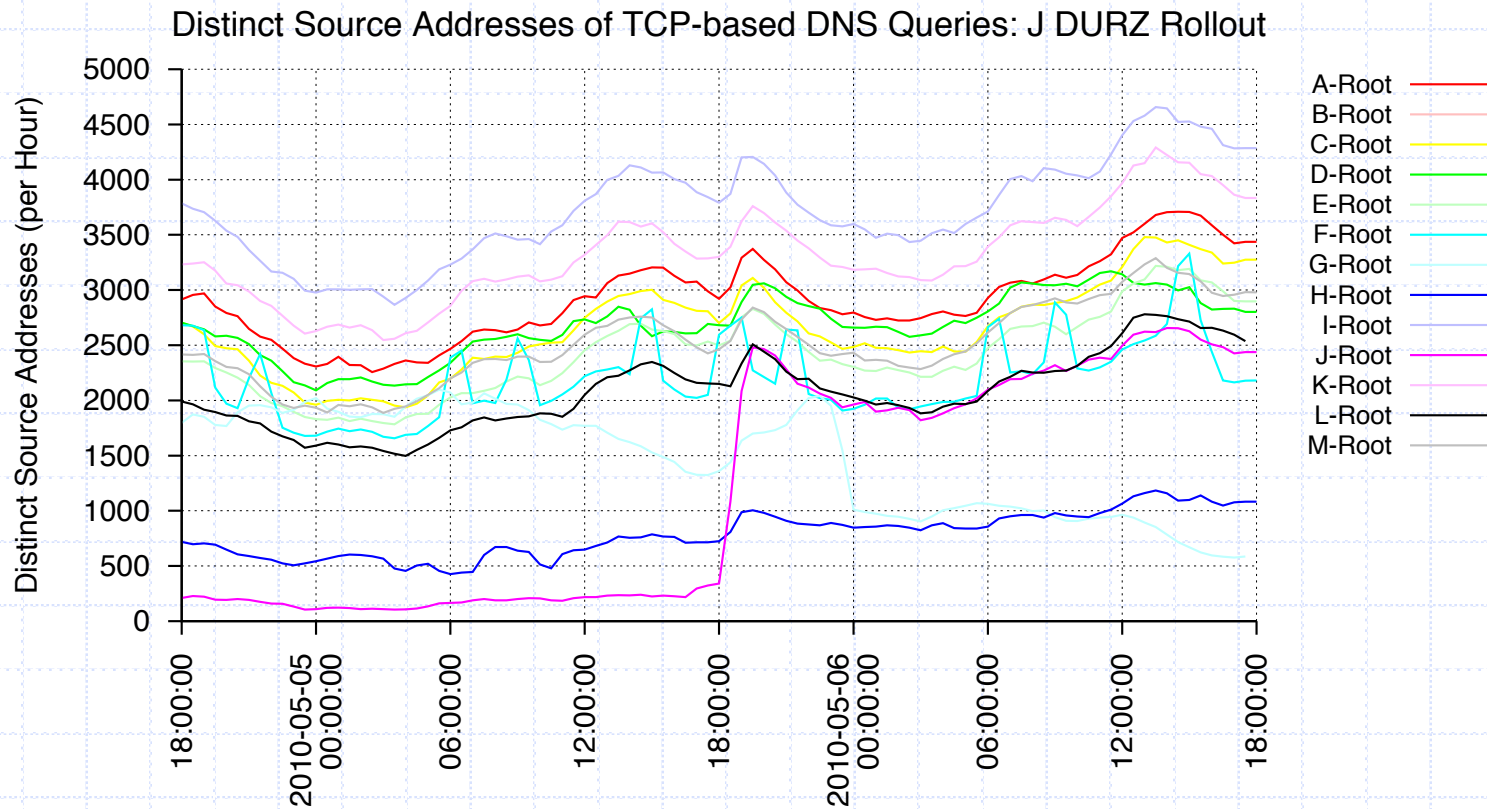
J-Root Rollout

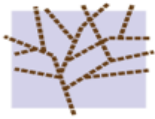
TCP-based DNS Queries: J DURZ Rollout



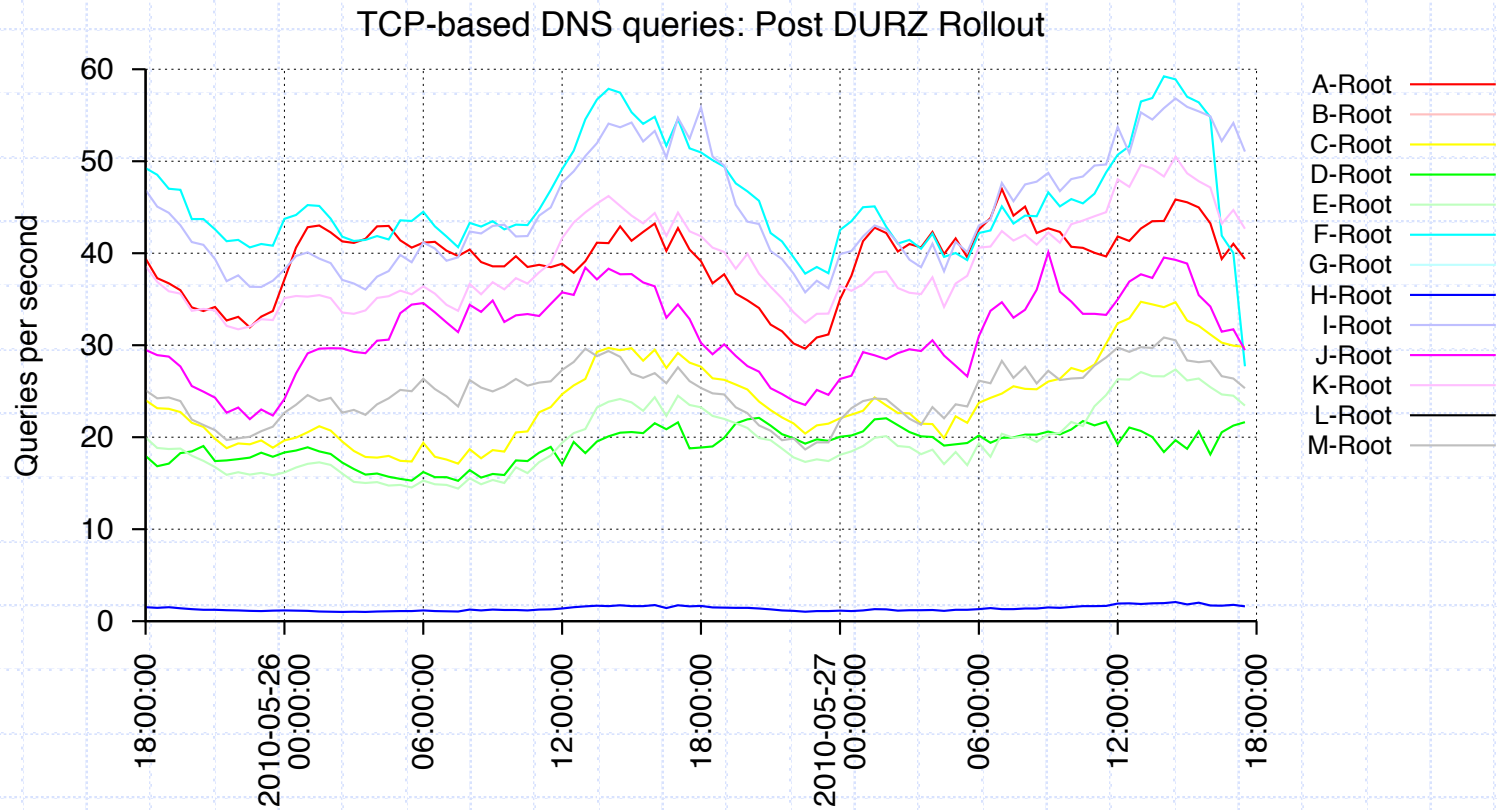


J-Root Rollout – Distinct Addr





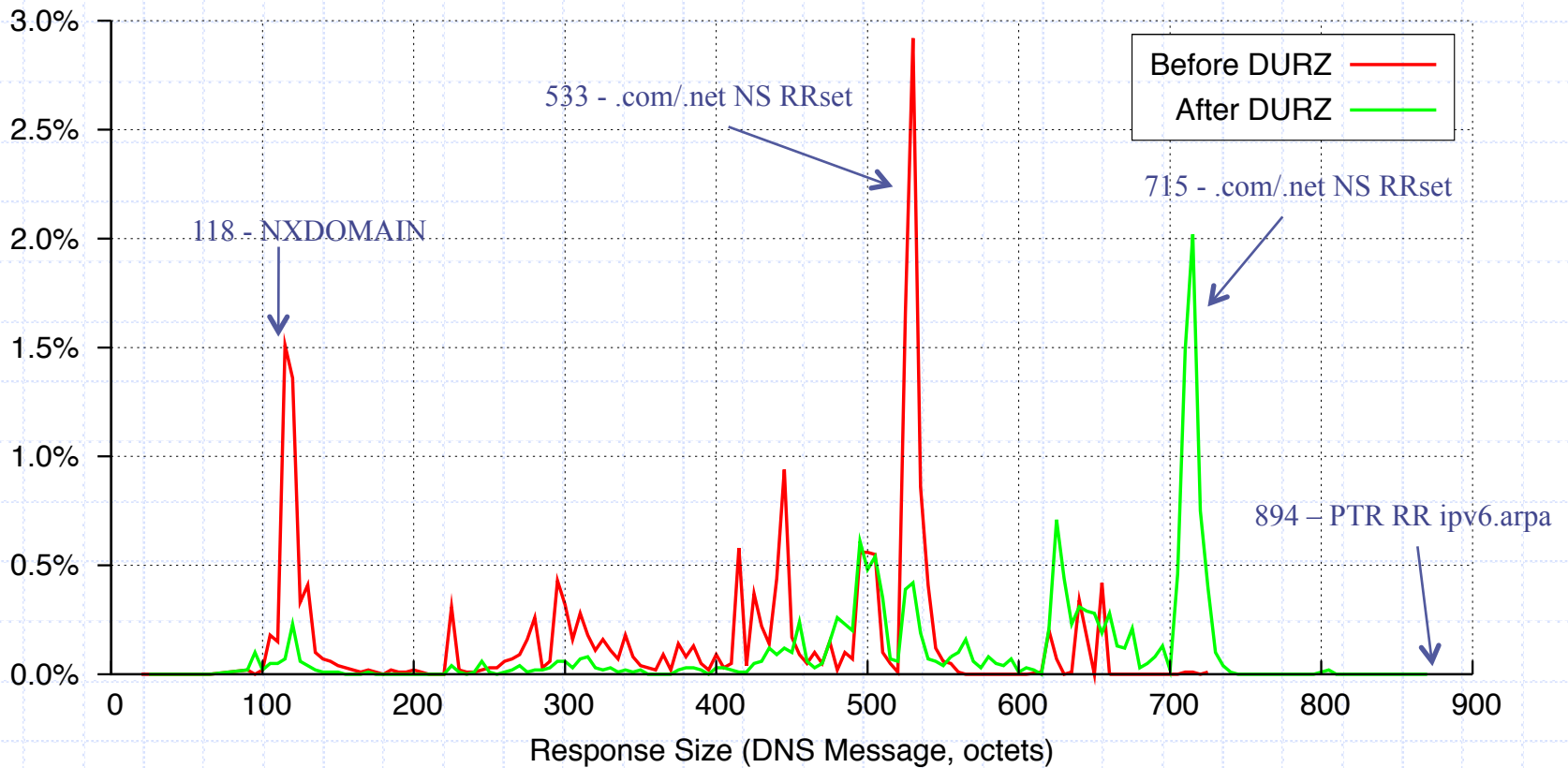
Post DURZ



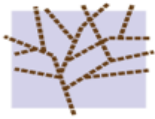


DNS Response Size

DNS Response Size On J-Root Before and After J DURZ Rollout
(Actual Distribution)

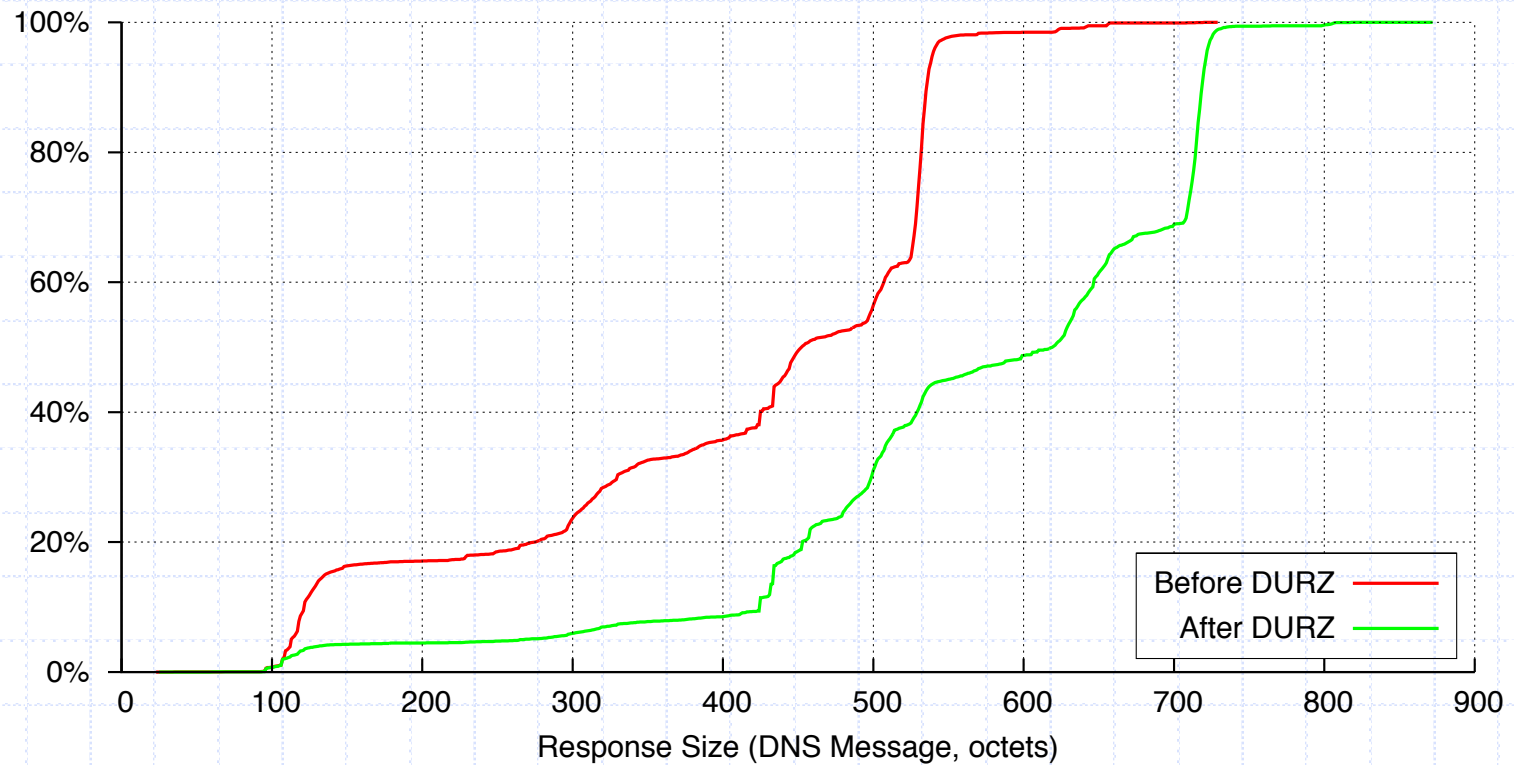


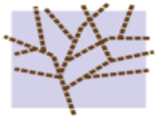
Replies increased by roughly 180 octets



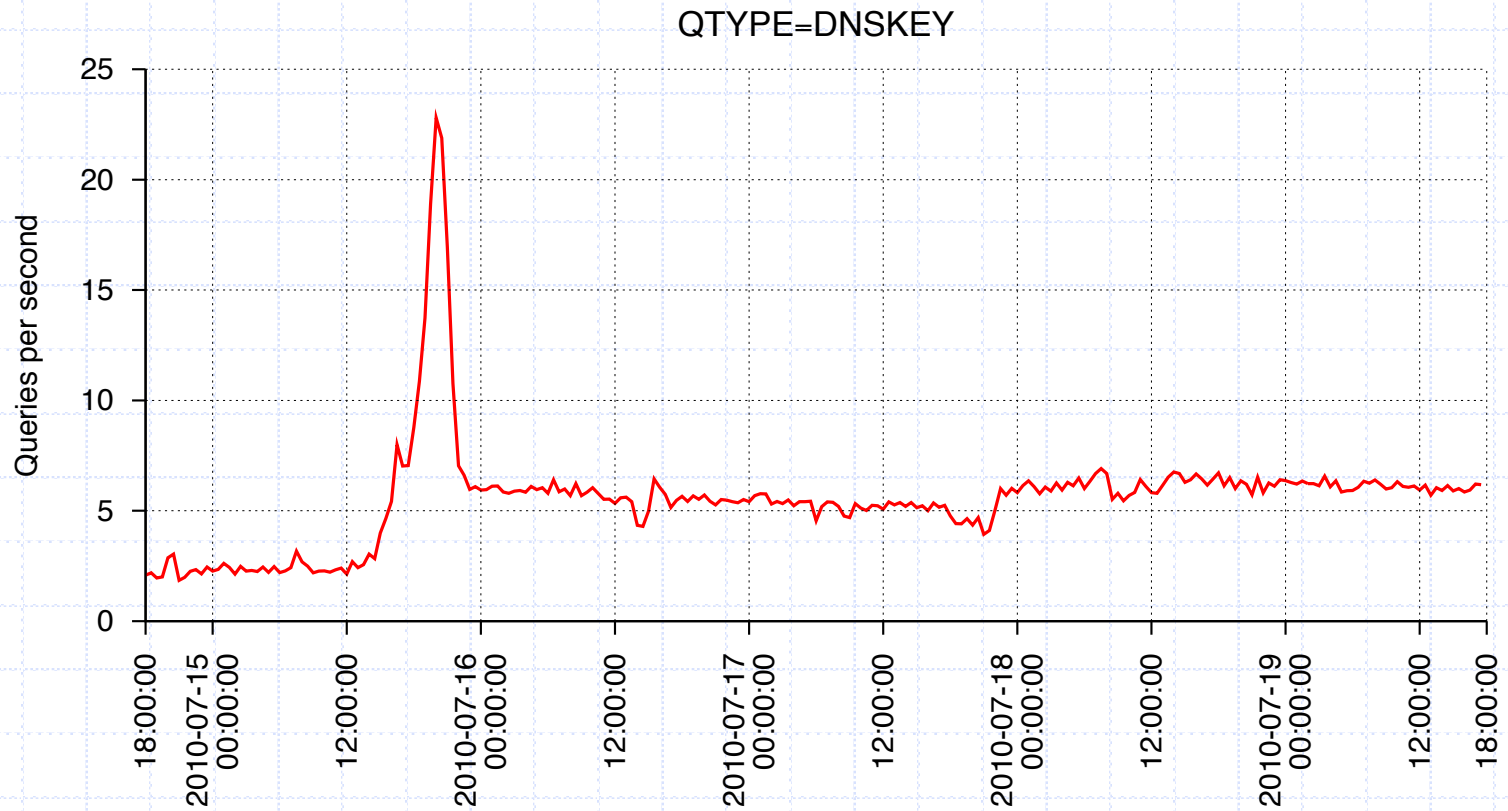
DNS Response Size

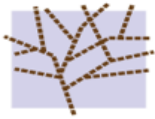
DNS Response Size On J-Root Before and After J DURZ Rollout
(Cumulative Distribution)





July 15th





Conclusions and Follow-up

- ◆ the Internet survived
- ◆ TCP queries up marginally
- ◆ DNS response size increased 180octets

- ◆ Thanks to Geoffrey Sisson, Duane Wessels, ICANN and the Root-Server operators