



**RIPE
NCC**

DNSMON Developments

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- DNSMON: a RIPE NCC service since 2003
- Monitoring “important” DNS zones
 - root servers
 - (most) “classic” gTLDs and (a subset of) ccTLDs
 - infrastructure zones such as in-addr.arpa and e164.arpa
- Data collection and related visualisations
- Based on TTM (Test Traffic Measurement) nodes as vantage points until 2013-2014

- The data collection infrastructure (TTM) is scheduled for decommissioning
- Backend was ageing and difficult to maintain
- The current actively developed active measurement network for the RIPE NCC is RIPE Atlas
 - DNS measurements are already part of RIPE Atlas
 - The increasing pool of RIPE Atlas anchors provides a stable set of vantage points
 - Therefore RIPE Atlas provided a good platform on which the DNSMON service could be reimplemented
- New service URL: <https://atlas.ripe.net/dnsmon/>

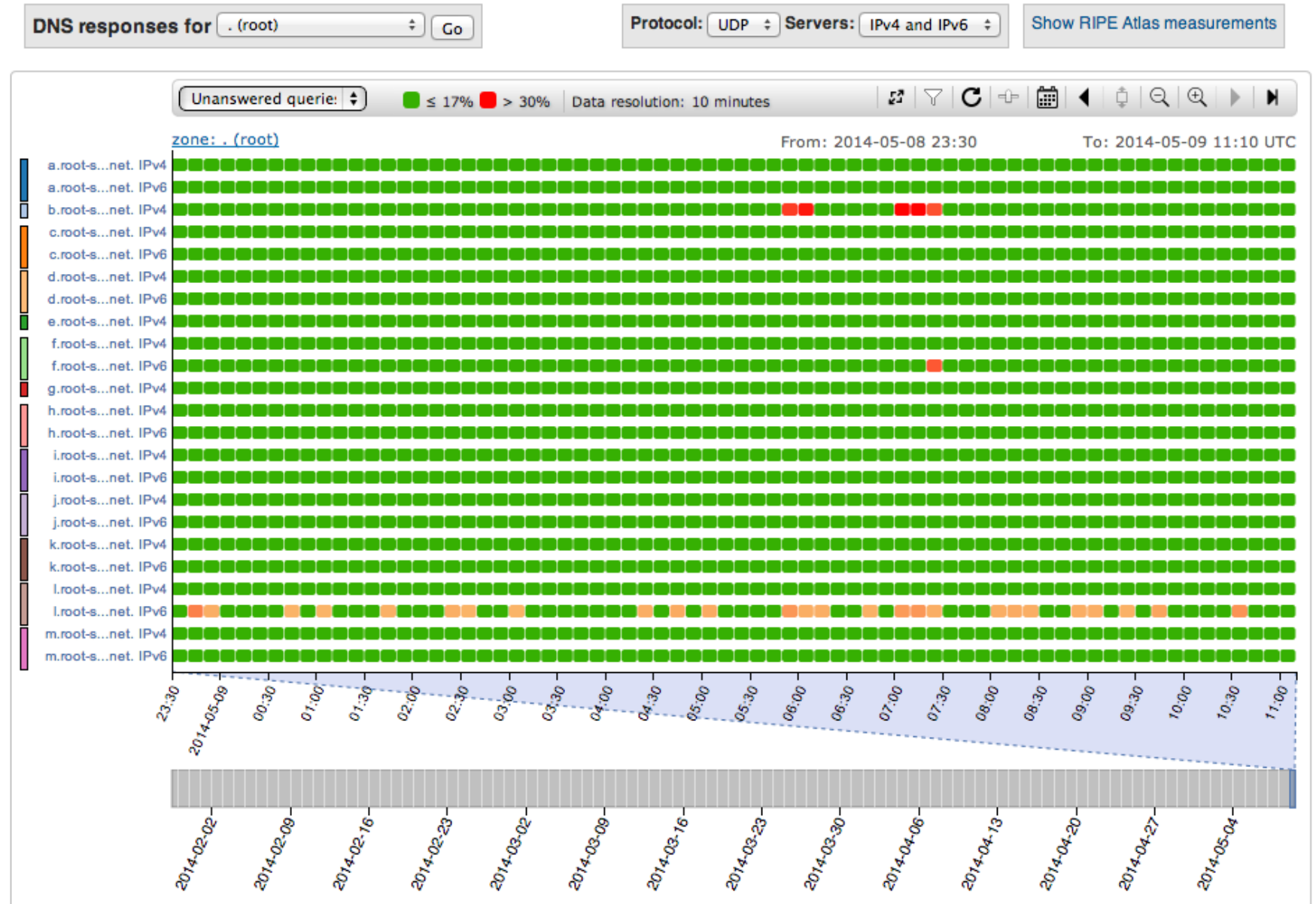
- Vantage points are different (RIPE Atlas anchors vs TTM)
- Raw data format is RIPE Atlas JSON, available via APIs
- New features:
 - Built-in support for TCP queries and traceroutes
 - Visualisation is client side, interactive
- Changed features:
 - No DNSMON server-side generated RRDs
 - Measurements are not retried on failure
 - Minimal visualisation delay — measurement results are public / real-time anyway

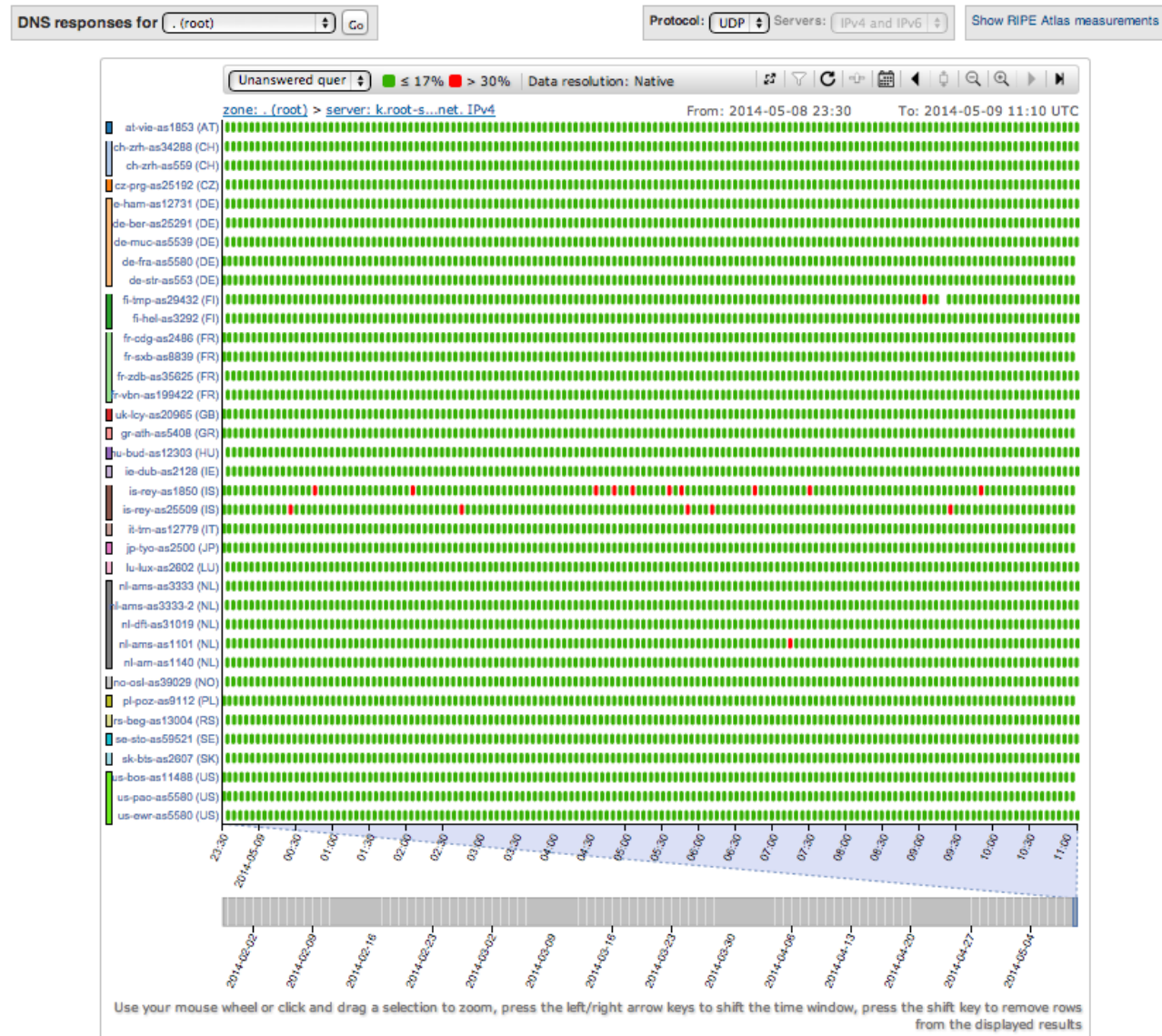
Type	Protocol	Extra	Frequency (seconds)	Use
hostname.bind	UDP		240	not yet (instances?)
soa	UDP	NSID	300	server+probe views
soa	TCP	NSID	300	server+probe views
traceroute	ICMP		300	additional info
version.bind	UDP		86400	not yet (instances?)

- Development was done mostly 2013 Q4 - 2014 Q1
- Internal tests: January 2014
- Beta test with early users: February - March 2014
- Public beta: April - May 2014
- Production: June 2014 onwards
- Run two systems in parallel until end of June 2014
- Stop data collection in old DNSMON in July 2014
- Stop data visualisation in old DNSMON by end 2014
- Keep old and new data available indefinitely

Visualisation – Zone View

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Latest DNSMON measurements from probe 6029 (fr-zdb-as35625)

Switch to a different probe:

Showing the latest 10 results (approximately 2014-04-17 06:39 UTC to 2014-05-09 11:27 UTC) for each target/measurement type.

Hover over a cell to see the exact timestamp and absolute response time. Click a cell to see details and traceroutes.

Relative RTT baseline: ☒ per measurement ☐ per row

Relative RTT colour range: <= 125% > 200%

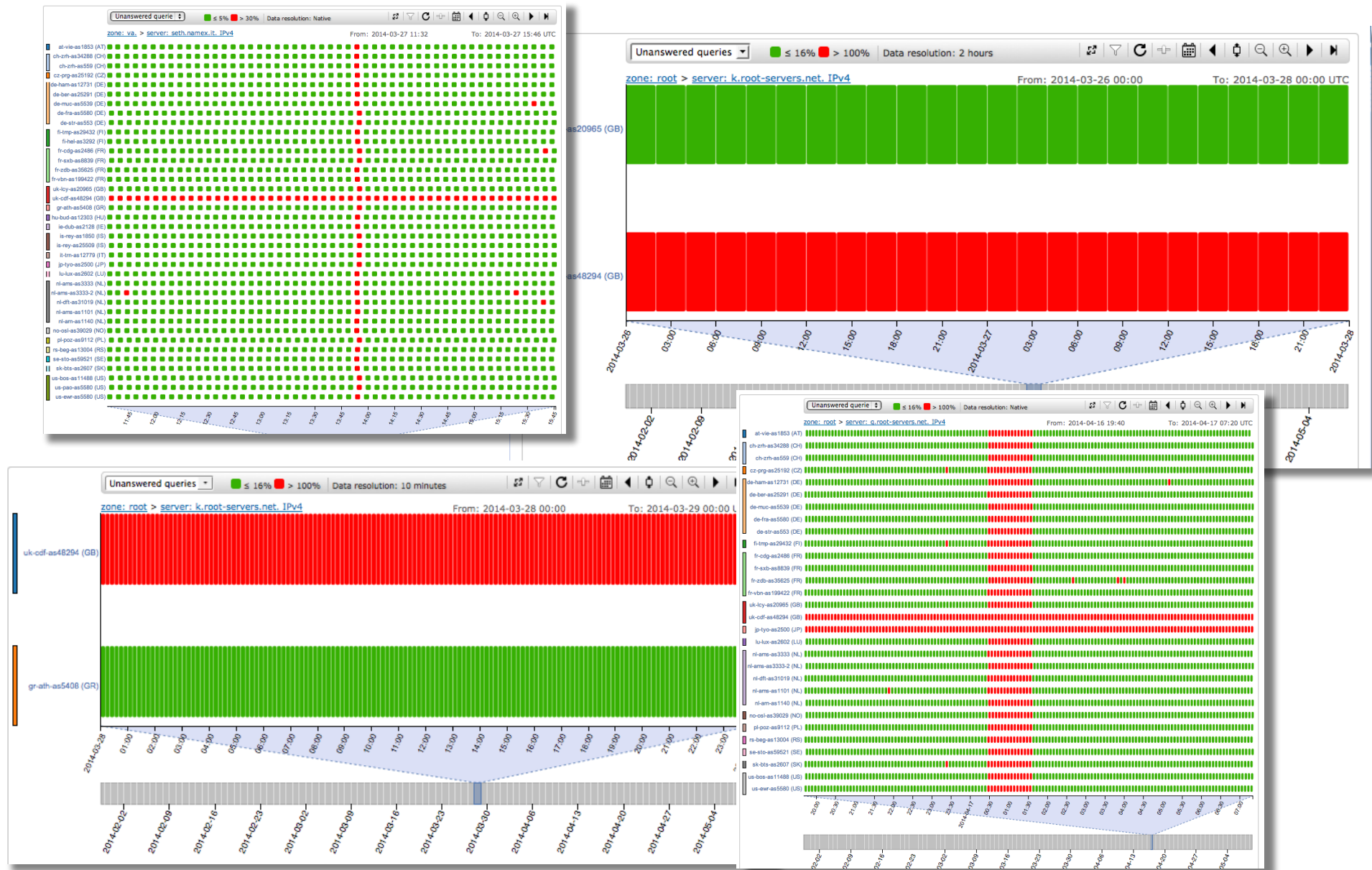
Show hosts

Search:

Zone	Hostname	IPv4 UDP SOA	IPv4 TCP SOA	IPv6 UDP SOA	IPv6 TCP SOA
no.	z.nic.no.	50 50 50 50 50 50 50 50 50 50	99 102 96 99 103 100 99 101 98 94	50 50 50 50 50 50 50 50 50 50	101 101 101 101 101 101 101 101 101 102
nz.	ns4.dns.net.nz.	288 287 288 287 287 287 287 287 287 288	568 567 568 567 568 568 568 568 568 568	N/A	N/A
nz.	ns7.dns.net.nz.	7 7 7 8 7 7 7 7 7 7	13 13 14 14 13 13 13 13 13 13	22 21 21 21 21 21 21 21 21 21	42 42 41 43 42 42 42 42 42 42
nz.	ns2.dns.net.nz.	282 283 282 282 283 282 283 282 282 283	563 567 568 563 563 562 564 562 562 563	275 276 275 275 275 275 275 275 X 275	540 539 540 540 540 540 540 540 540 540
nz.	ns1.dns.net.nz.	282 283 282 282 283 282 283 282 282 283	566 567 568 564 566 563 563 562 562 563	286 287 286 286 286 286 286 286 X 286	539 537 539 539 539 539 539 539 539 540
nz.	ns5.dns.net.nz.	28 13 16 14 14 23 13 13 14 13	20 28 26 20 28 26 27 26 20 26	37 23 24 20 23 25 32 22 23 23	43 44 44 42 43 44 43 45 40 42
nz.	ns3.dns.net.nz.	283 284 283 283 283 283 283 283 283 283	562 561 568 569 562 562 561 561 563 562	N/A	N/A
nz.	ns6.dns.net.nz.	21 23 22 23 22 24 21 22 22 22	42 44 42 42 43 43 44 44 46 44	17 21 27 17 17 17 17 17 16 17	38 38 34 36 34 35 35 34 34 36
org.	a0.org.afiliat-nst.info.	112 112 112 112 112 112 112 112 112 112	224 224 224 224 242 215 232 221 219	272 272 272 272 272 272 272 272 272 276	544 544 544 544 544 544 544 544 544 545
org.	d0.org.afiliat-nst.org.	83 83 83 83 83 83 83 83 83 83	189 189 189 189 170 180 189 189 189 189	272 272 272 272 272 272 272 272 272 273	543 543 545 544 544 543 543 544 544 551
org.	a2.org.afiliat-nst.info.	9 11 9 9 9 9 10 9 9 9	17 18 18 18 18 18 18 18 18 18	15 15 15 15 15 15 15 17 15 15	30 30 30 30 30 30 30 30 30 31
org.	c0.org.afiliat-nst.info.	20 20 20 20 20 20 20 20 20 20	39 39 39 39 39 39 40 39 40 40	19 19 19 20 19 19 19 19 19 19	38 38 38 39 39 39 39 39 37 39
org.	b0.org.afiliat-nst.org.	20 20 20 20 20 20 20 20 21 20	39 39 40 39 39 40 39 39 39 39	20 20 20 20 20 20 20 20 20 20	37 38 38 38 40 39 38 38 37 38
org.	b2.org.afiliat-nst.org.	7 7 7 7 7 12 7 7 7 7	13 13 13 13 14 13 13 13 14 13	6 6 7 7 7 8 8 8 8 8	13 14 13 14 15 14 14 13 13 13
pl.	a-dns.pl.	30 30 30 30 30 30 30 30 30 30	71 75 75 75 75 75 75 75 75 75	N/A	N/A
pl.	g-dns.pl.	X X X X X X X X X X	90 102 102 90 102 104 102 97 102 97	49 49 49 49 49 50 49 49 49 49	30 38 37 38 130 37 38 37 37 38
pl.	i-dns.pl.	13 14 14 14 13 14 13 13 14 13	27 26 26 27 26 26 26 26 27 27	N/A	N/A
pl.	d-dns.pl.	50 50 50 50 50 50 50 50 50 50	100 99 100 100 100 100 99 99 100 100	N/A	N/A
pl.	c-dns.pl.	28 28 28 28 28 28 28 28 28 28	56 56 56 56 56 57 56 57 57 56	N/A	N/A
pl.	h-dns.pl.	30 30 30 30 30 30 30 30 30 30	71 71 71 71 72 71 71 71 71 71	168 168 168 168 168 168 168 168 168 168	332 332 331 X 332 332 332 332 331
pl.	e-dns.pl.	57 58 58 57 57 58 58 57 58 57	64 64 74 75 75 75 75 74 74 74	N/A	N/A
pl.	f-dns.pl.	49 49 49 49 50 50 50 49 50 49	98 101 99 102 99 98 98 98 98 98	49 48 48 48 48 48 48 48 48 48	36 36 36 36 36 36 36 36 36 36
se.	g.ns.se.	51 51 51 51 51 51 52 51 51 51	104 103 102 108 108 108 105 105 105 105	56 56 56 56 56 56 56 56 56 56	112 104 112 104 104 104 104 112 112 112
se.	b.ns.se.	58 58 58 58 58 58 58 58 58 58	80 85 82 75 85 82 77 75 75 75	40 40 42 40 40 40 40 40 40 40	80 85 82 80 85 82 85 85 84 85
se.	a.ns.se.	40 40 40 40 40 40 41 41 40 40	75 74 74 74 75 80 80 74 74 80	30 30 30 30 30 30 30 30 30 30	78 78 77 77 78 78 77 77 78 77
se.	j.ns.se.	20 20 20 20 20 20 20 20 20 20	39 39 38 39 40 39 39 39 40 40	19 19 19 19 19 19 19 19 19 19	38 38 38 38 38 38 38 38 38 38

DNSMON – “Capture the flag!”

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- Game on!
 - Use DNSMON and find a view that looks like a flag
 - It's ok if it's not an actual flag, provided it looks nice
 - It should be reproducible – send us the permalink (URL) to dnsmon-flag@ripe.net before Friday 9am
 - We'll pick and announce the winner on Friday
- Additional rules:
 - It's **not allowed** to fiddle with DNS servers/zones to achieve an envisioned result
 - ... especially not with someone else's zone!
 - ... or abuse RIPE Atlas / DNSMON itself

Service URL:

<https://atlas.ripe.net/dnsmon/>

Questions?

