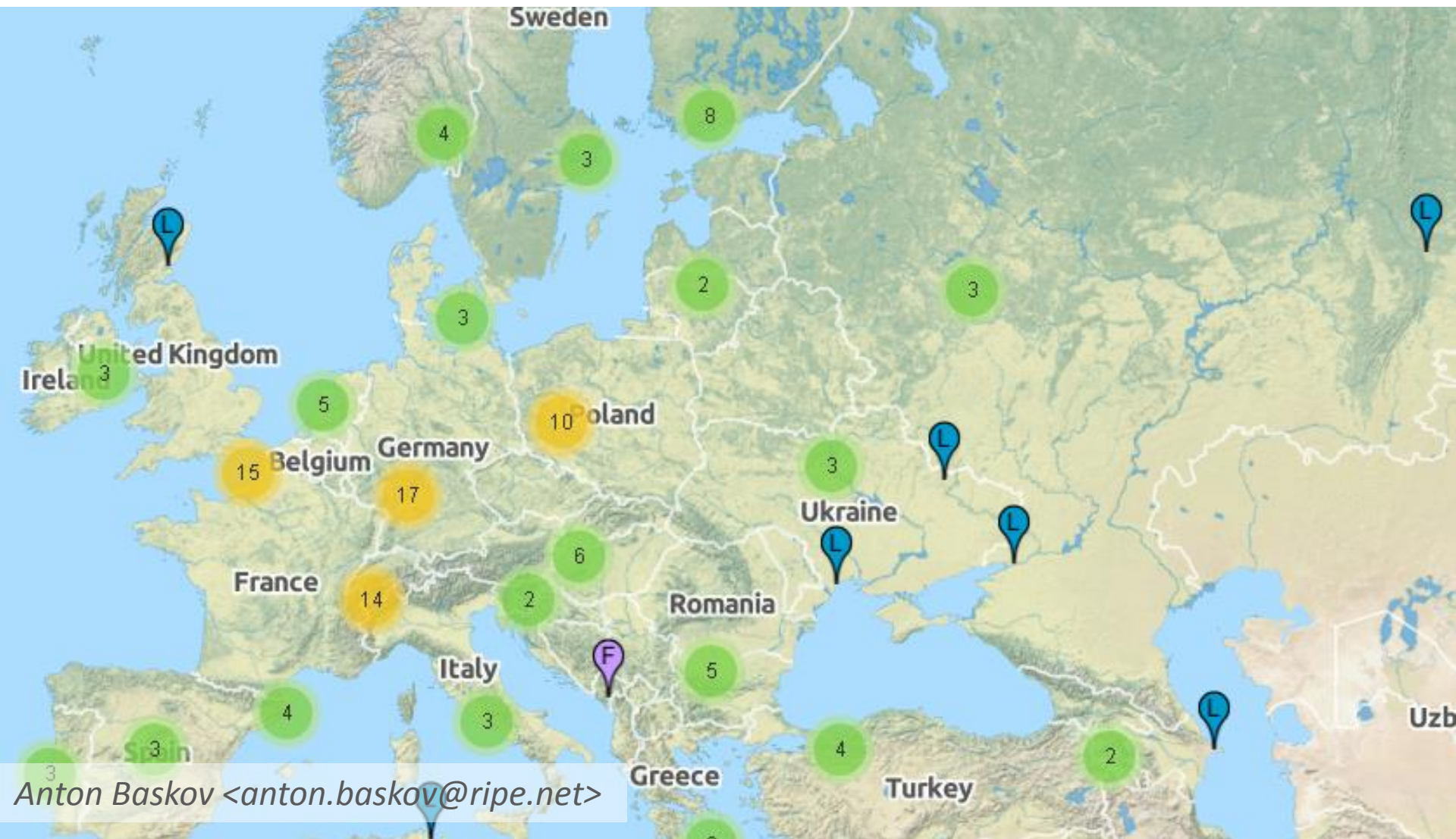


DNSMON



DNSMON

- RIPE NCC service since 2003
- Monitoring important DNS zones
 - root servers
 - (most) “classic” gTLD and some of ccTLDs
 - infrastructure zones, like in-addr.arpa or e164.arpa
- Data collection and related visualizations

→ *<https://atlas.ripe.net/dnsmon/>*

DNSMON

New DNSMON service based on RIPE Atlas Anchors



September 2014:
74 anchors around the world

DNSMON

Available data

- **SOA** (*UDP / TCP*)
- Traceroute (*ICMP*)
- hostname and version (*UDP*)
- *IPv4 & IPv6*
- *JSON via API*

Visualized

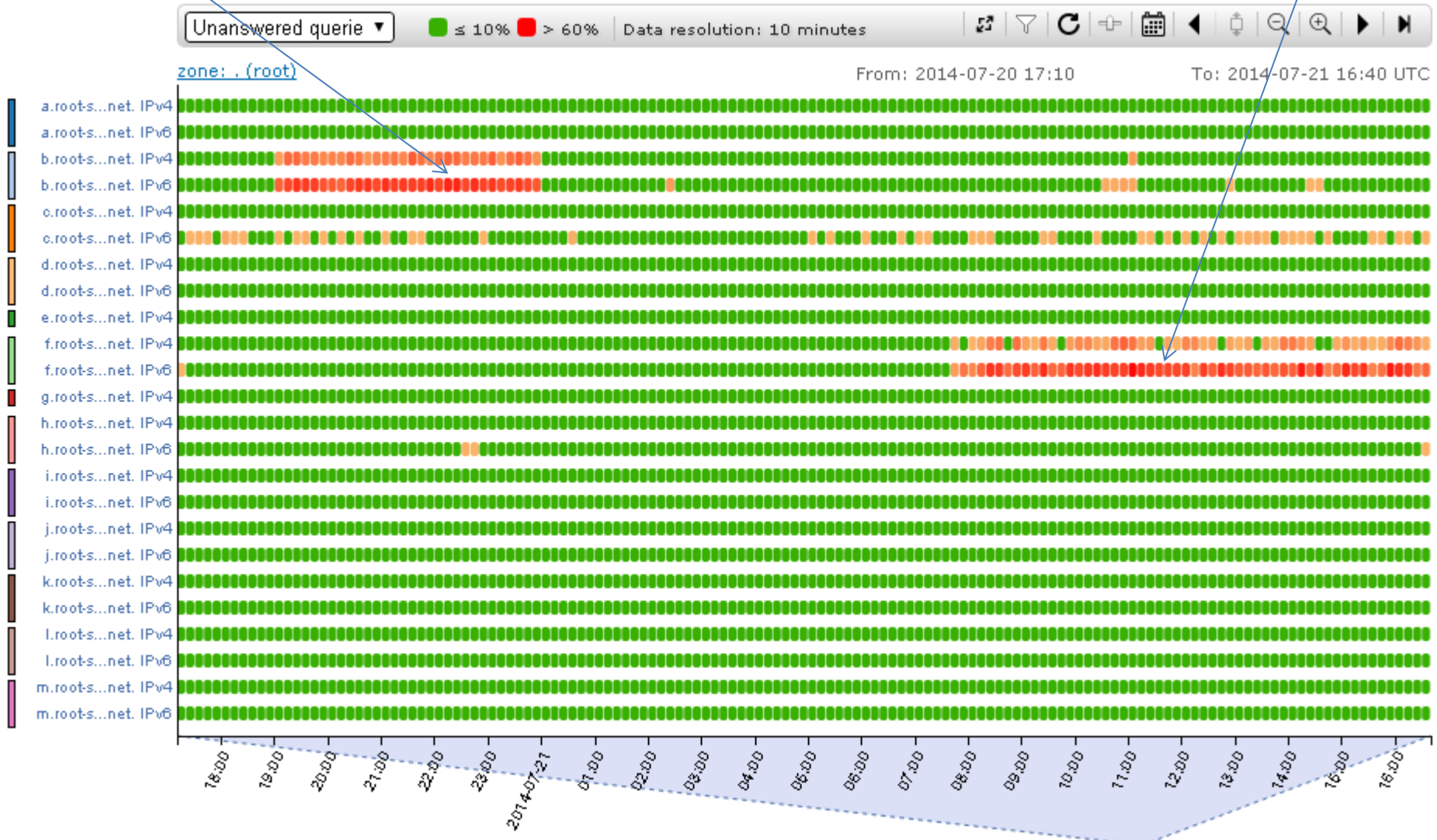
- Unanswered queries
- Response time
- Relative response time
- *Map of anycast instances (later)*
- *In real-time*

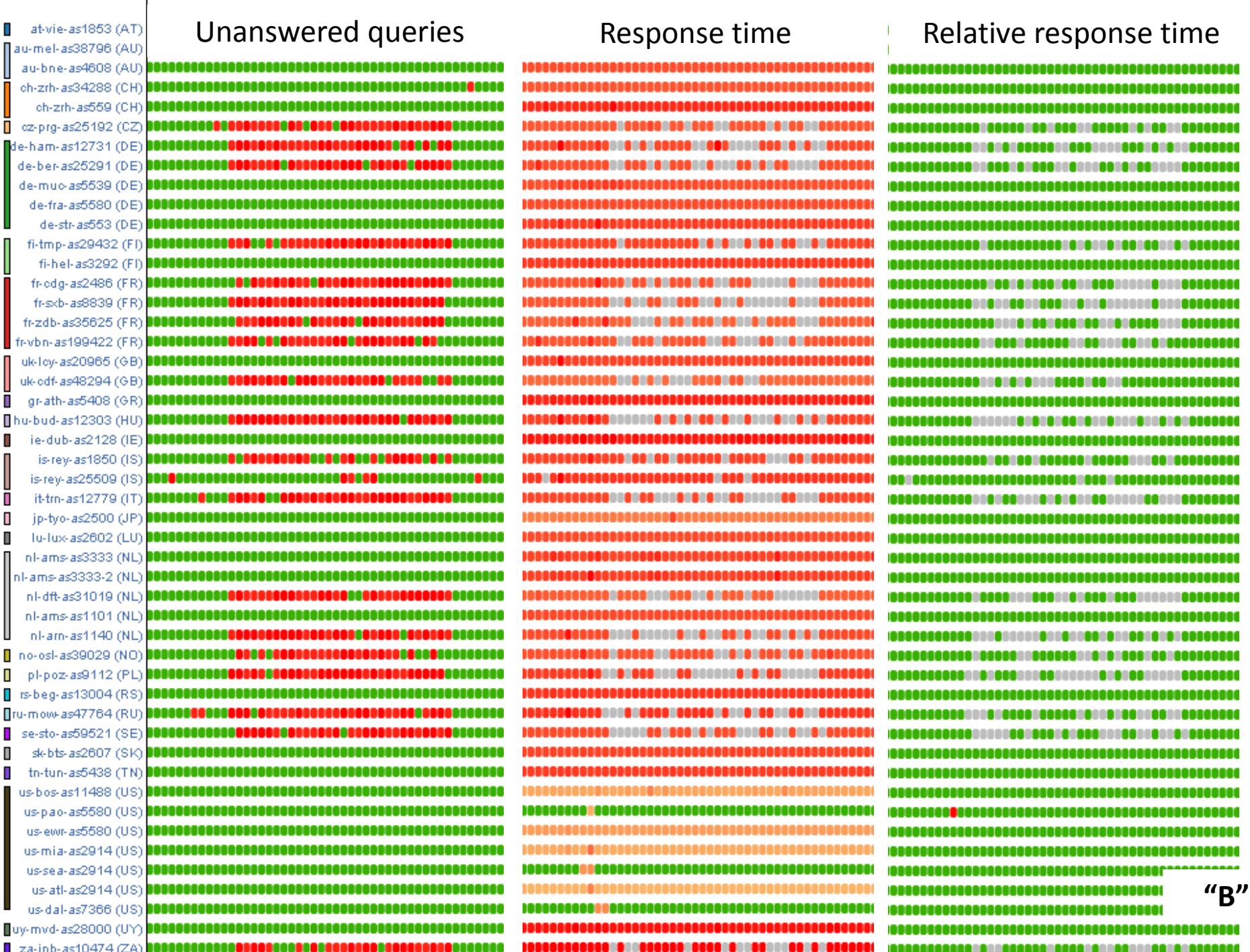


2014.08.20: root servers unanswered queries (>10%)

B: 48%

F: 58%





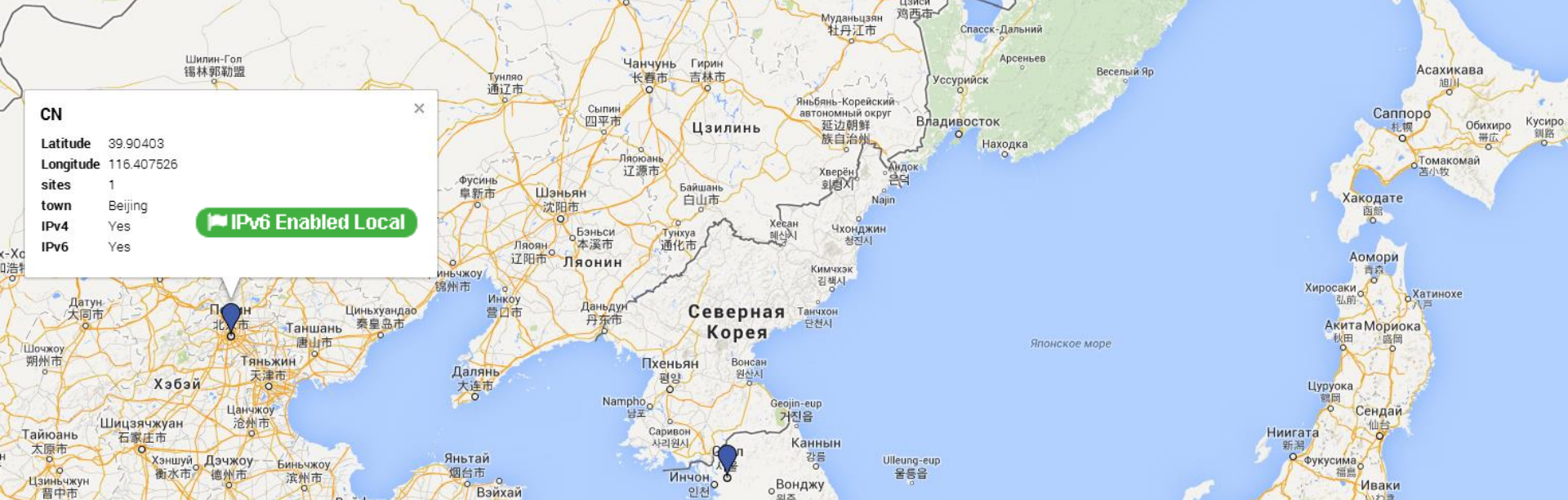


Relative RTT baseline: ☒ per measurement ☐ per rowRelative RTT colour range: ≤ 125% 125% - 200% > 200%Show hostsSearch:

Zone	Hostname	IPv4 UDP SOA										IPv4 TCP SOA										IPv6 UDP SOA										IPv6 TCP SOA										
. (root)	a.root-servers.net.	50	50	50	50	50	50	50	50	50	50	100	100	33	33	33	100	100	100	33	33	33	50	50	50	50	50	50	50	50	50	150	148	151	151	150	148	145	150	145	151	
. (root)	b.root-servers.net.	134	132	134	134	134	132	132	134	132	132	327	324	324	321	320	320	320	319	320	320	111	110	111	110	110	111	110	111	110	111	110	353	352	353	354	353	352	350	351	350	350
. (root)	c.root-servers.net.	44	44	45	44	44	45	45	44	44	44	101	104	101	102	111	111	101	103	103	103	55	54	56	55	55	54	55	55	54	56	128	125	125	128	125	128	120	125	122	124	
. (root)	d.root-servers.net.	50	50	54	51	50	50	50	50	50	50	105	104	105	105	105	105	120	105	105	105	51	51	52	51	51	52	51	51	52	52	102	102	102	102	102	102	102	100	102	102	
. (root)	e.root-servers.net.	50	50	50	50	50	50	50	50	50	50	104	105	104	105	104	105	104	104	104	105	N/A										N/A										
. (root)	f.root-servers.net.	5	5	5	5	5	4	5	5	5	4	7	5	4	5	4	8	5	7	5	5	5	5	5	4	5	5	4	5	5	4	8	5	5	4	8	8	5	5	8	5	
. (root)	g.root-servers.net.	52	52	51	50	51	52	51	51	51	51	347	351	349	33	110	350	350	103	349	33	N/A										N/A										
. (root)	h.root-servers.net.	120	120	120	120	120	120	120	120	120	120	323	322	323	323	323	323	323	324	324	251	121	120	120	120	120	120	120	120	120	120	251	247	252	248	248	247	252	252	251	252	
. (root)	i.root-servers.net.	40	44	40	40	40	40	40	40	40	40	25	19	25	25	30	30	19	30	34	34	40	40	40	40	40	44	40	40	44	40	25	19	19	34	25	30	34	19	30	35	
. (root)	j.root-servers.net.	4	4	4	4	4	5	4	4	5	4	10	7	8	7	7	7	8	7	7	10	40	40	41	40	41	40	40	40	41	40	140	110	110	140	110	140	110	140	110	110	
. (root)	k.root-servers.net.	40	40	40	42	40	44	42	42	42	40	10	104	104	104	34	30	104	19	34	19	44	40	40	40	40	40	40	44	40	40	34	X	X	X	X	30	19	35	19	19	
. (root)	l.root-servers.net.	21	21	20	21	20	20	20	21	20	20	52	52	52	52	52	52	52	52	52	52	40	47	47	47	47	47	40	47	47	47	25	30	30	30	30	34	30	30	30	30	
. (root)	m.root-servers.net.	50	50	50	50	50	50	50	50	50	50	104	104	104	102	104	102	102	102	102	104	51	50	50	50	50	50	50	50	50	50	121	110	110	110	110	122	122	121	121	110	
3.4.e164.arpa.	a.enum.at.	40	42	40	40	42	40	40	40	40	40	34	34	34	30	30	34	34	34	34	34	80	80	80	81	80	80	80	80	80	80	120	100	100	100	120	100	120	120	120	120	
3.4.e164.arpa.	b.enum.at.	50	50	50	54	50	50	50	50	50	50	105	105	100	105	105	105	105	105	105	105	N/A										N/A										
3.4.e164.arpa.	d.e164.at.	50	54	54	50	50	54	50	50	54	54	101	104	104	105	104	104	104	105	104	100	N/A										N/A										
4.4.e164.arpa.	ns3.nic.uk.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A										N/A										
9.4.e164.arpa.	enum1.denic.de.	50	50	50	50	50	50	50	50	50	50	100	101	100	104	104	104	104	105	104	105	40	40	40	40	40	40	40	40	40	40	112	111	112	91	30	112	91	112	91	91	
9.4.e164.arpa.	enum2.denic.de.	51	50	51	51	51	51	51	51	51	51	19	30	100	30	31	31	31	100	31	30	N/A										N/A										
9.4.e164.arpa.	enum3.denic.de.	2	2	9	2	2	2	2	2	2	9	5	8	9	8	9	4	9	10	5	8	N/A										N/A										
aq.	fork.sth.dnsnode.net.	21	21	21	21	21	21	21	21	21	21	34	34	30	30	30	30	30	30	32	34	32	52	52	52	52	52	52	52	52	52	100	102	100	100	100	102	100	100	100	102	
aq.	ns1.dns.aq.	910	910	910	910	910	910	910	910	910	924	894	893	894	894	893	894	893	893	844	840	N/A										N/A										
aq.	ns99.dns.net.nz.	304	303	304	304	304	303	303	304	314	319	100	112	112	100	111	100	112	112	111	120	323	323	323	323	323	323	323	323	323	323	323	323	323	323	323	323	323	323	323	324	
at.	d.ns.at.	54	50	50	50	50	50	54	50	54	50	104	105	105	104	101	104	101	100	104	104	40	40	40	40	40	40	40	40	40	40	91	92	111	92	111	91	91	92	111	91	
at.	j.ns.at.	40	44	40	40	40	40	40	40	40	40	25	19	25	25	19	25	19	19	19	25	40	40	40	40	40	40	40	40	40	40	30	19	19	34	25	30	19	19	19	19	

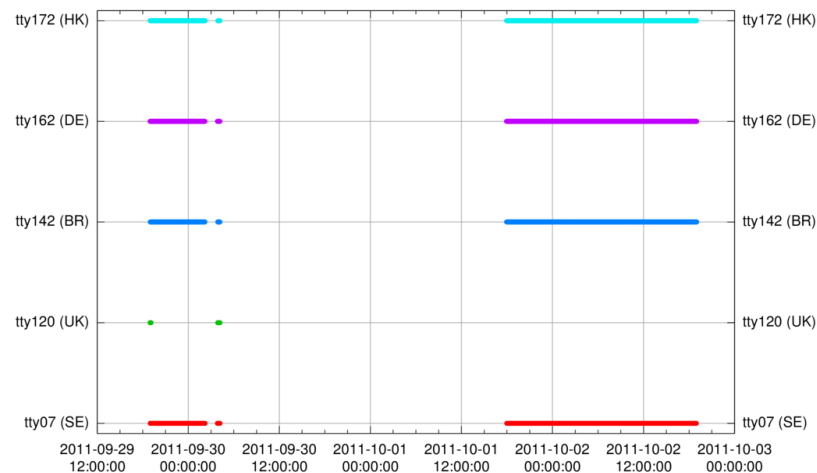
Showing 1 to 25 of 282 hosts

◀ Previous page Next page ▶



October 2011: F-root IPv6 route leak

- Hierarchical anycast – local site advertised with NO_EXPORT BGP attribute
- Affected 5 of 29 IPv6 enabled monitoring points: Stockholm (SE), London (GB), Sao Paulo (BR), Hamburg (DE) and Hong Kong (HK)

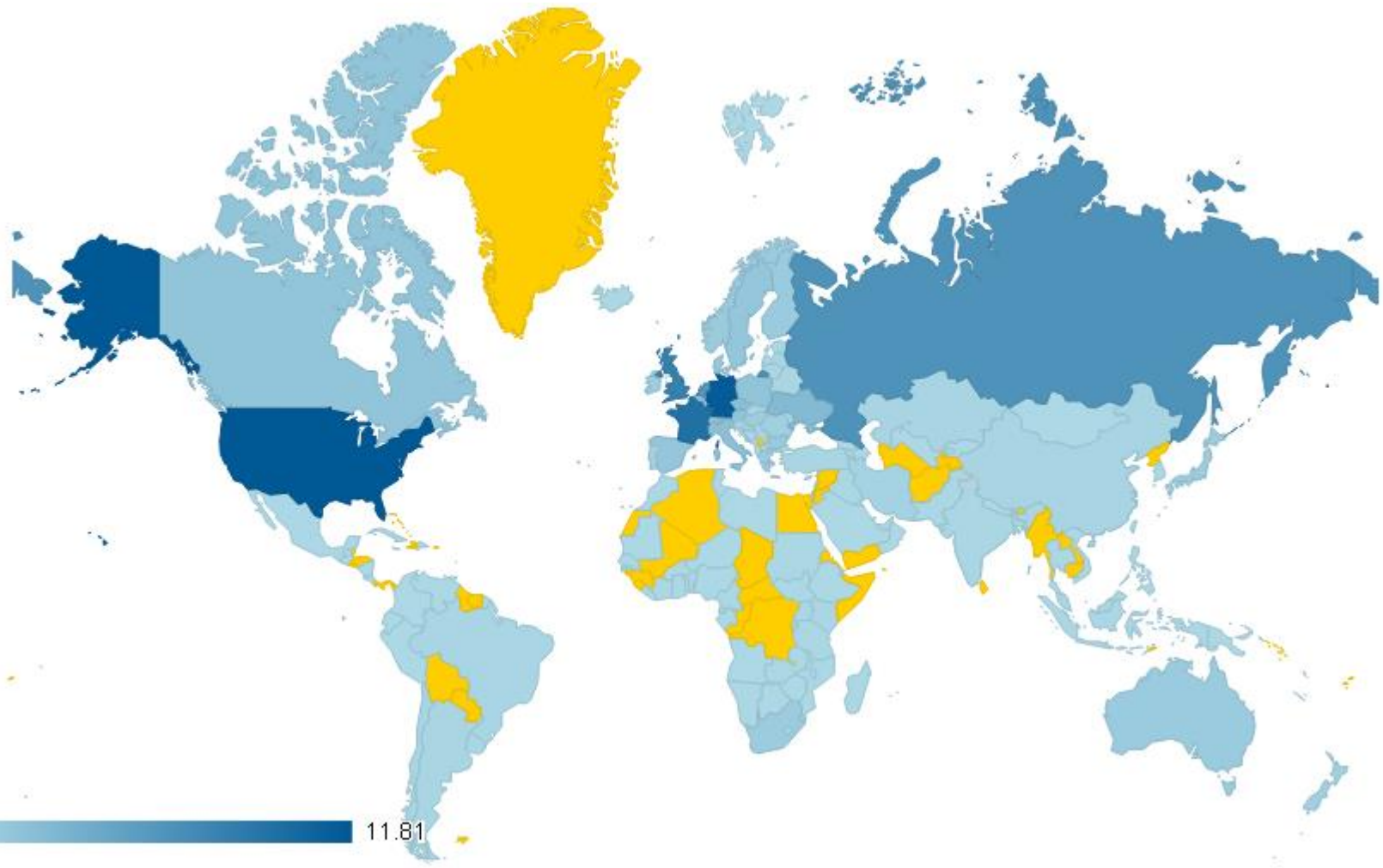


Criteria for adding new zones

1. Requested by TLD operator themselves
2. ccTLD in RIPE NCC service region operated by RIPE NCC member
3. Up to five gTLD under the control of RIPE NCC member

→ DNS Working Group mailing list

RIPE Atlas



Anton Baskov <anton.baskov@ripe.net>

What is a RIPE Atlas?

- A global network of probes that measure connectivity and reachability of Internet resources
 - Monitoring critical internet infrastructure like a root DNS servers
 - Possibility to make measurements from everywhere – any country, any network
- More than 6'400 probes – small devices hosted around the world
 - there are no probes in Antarctica yet



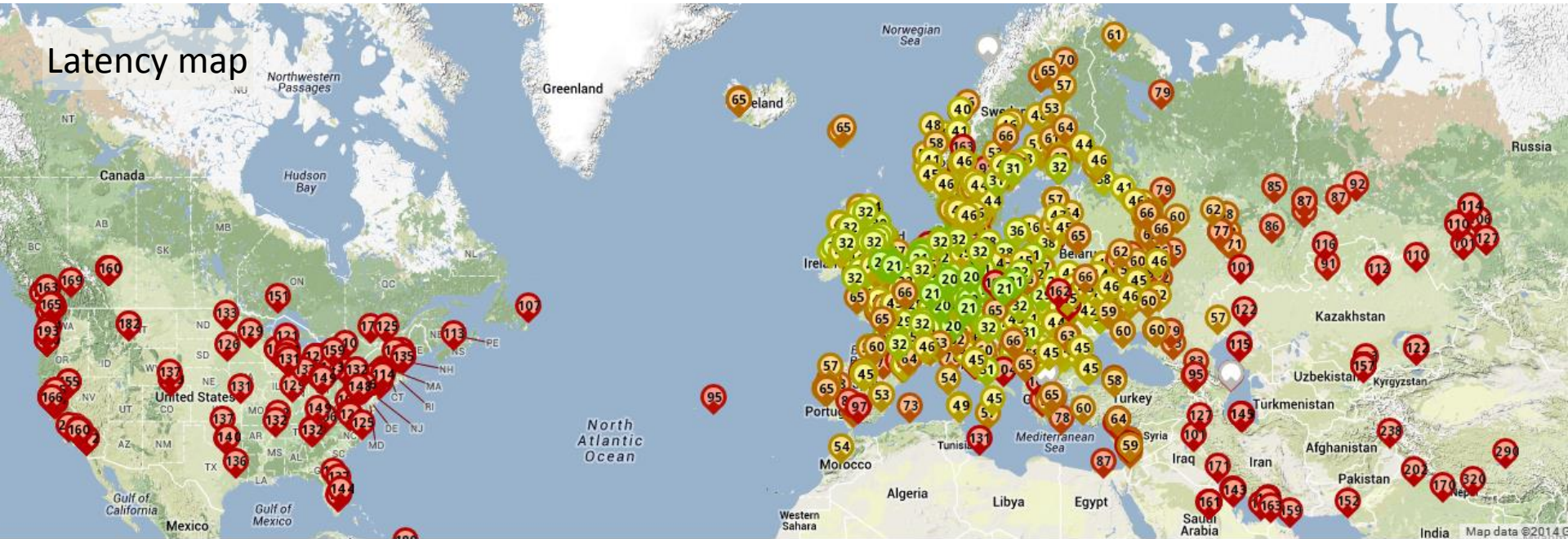
Custom measurements

- Ability to see your resources from any place of the world
- Four type of user-defined measurements available:
 - *ping, traceroute, DNS measurements, SSL checks*
 - Your choose type, target, frequency, number of probes and region!
- Can be integrated in your monitoring tool via API

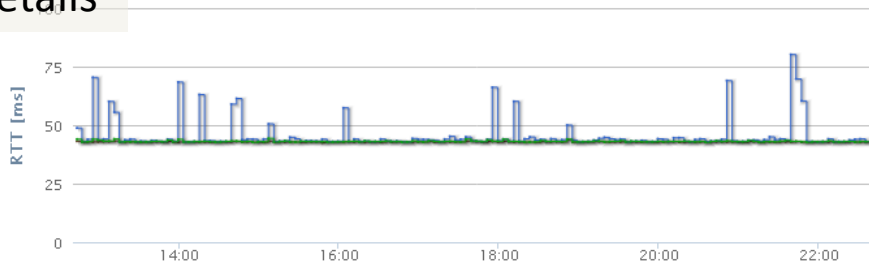


Ping

Latency map

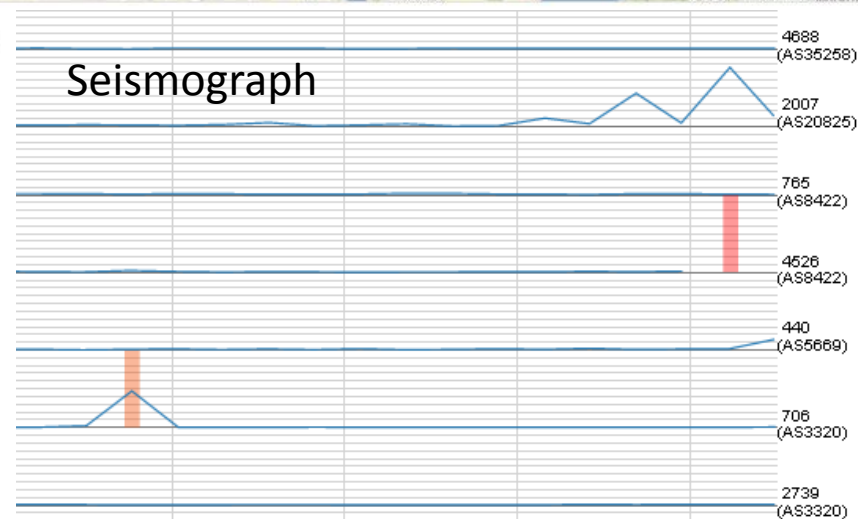


Details



	Minimum	Average	Maximum	95th percentile
RTT Min	42.492ms	42.88ms	43.796ms	43.119ms
RTT Med	42.658ms	43.06ms	44.327ms	43.929ms
RTT Max	42.825ms	45.57ms	80.177ms	61.396ms

Seismograph



Traceroute















Number of hops



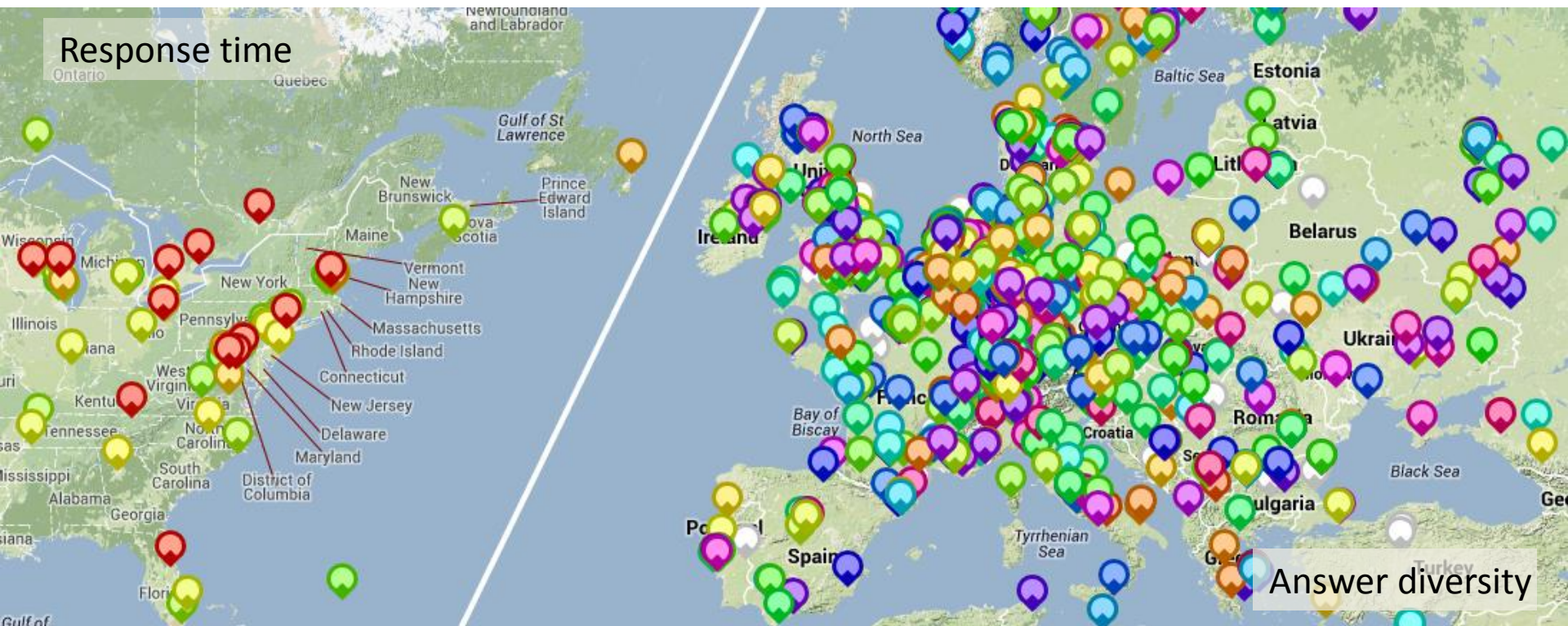
Details

Key (number of hops):



Probe	ASN (v4)	ASN (v6)		Time	RTT	Hops
2503	174		 	2013-01-27 13:47	193.694	15
2504	198420		 	2013-01-27 13:47	56.400	18
2506	31334	31334	 	2013-01-27 13:46	61.851	10
2510	28773		 	2013-01-27 13:46	74.473	8
2511	12322	12322	 	2013-01-27 13:48	92.323	11
2515	6830		 	2013-01-27 13:46	74.866	11
2518	2200	2200	 	2013-01-27 13:48	45.041	20

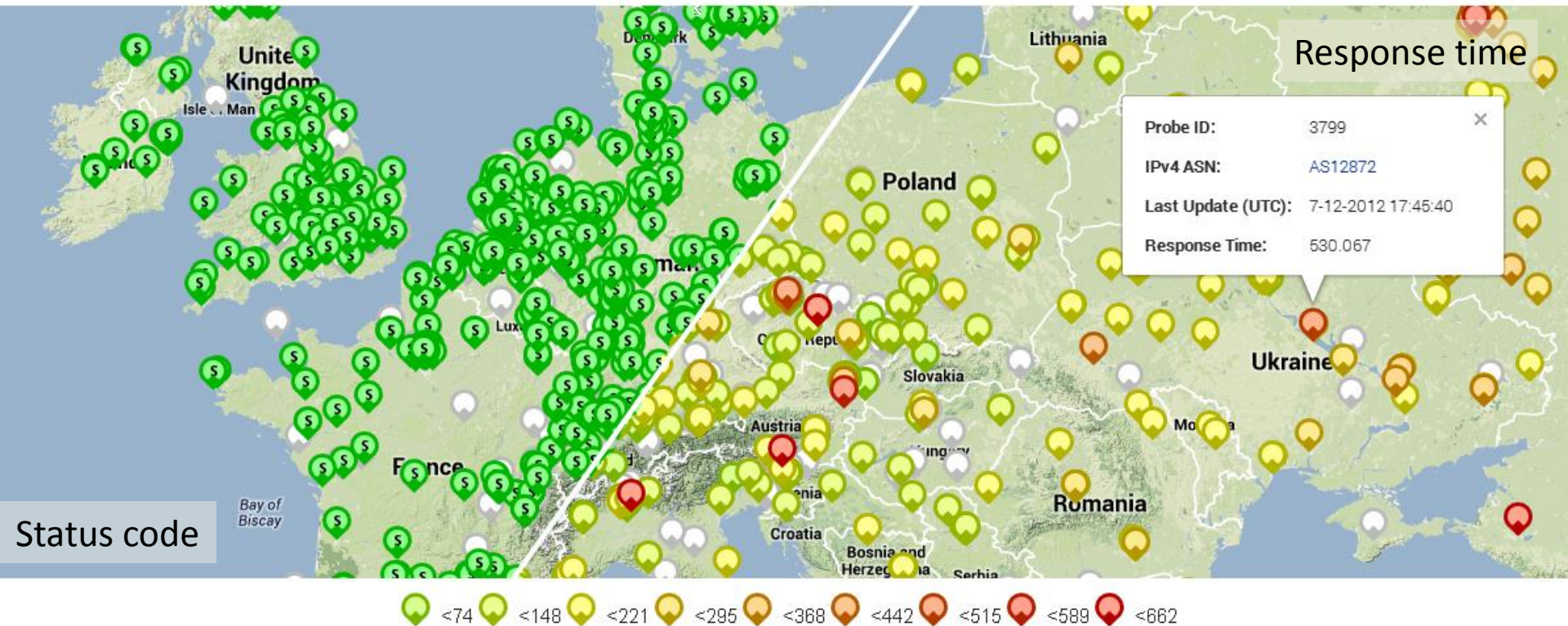
DNS



> *dig www.bing.com AAAA*

HTTP*

 Informational (1xx)  Success (2xx)  Redirection (3xx)  Client error (4xx)  Server error (5xx)  Missing data



SSL Certificate



Probe	ASN (v4)	ASN (v6)		Time	Consistency	Validity	Self Signed
38	3265	3265		✓ 2014-07-25 11:13	Pass	Pass	<input type="checkbox"/>
73	41682	6939		✓ 2014-07-25 11:13	Pass	Pass	<input type="checkbox"/>
169	34244	34244		✓ 2014-07-25 11:13	Pass	Pass	<input type="checkbox"/>

Majority Record

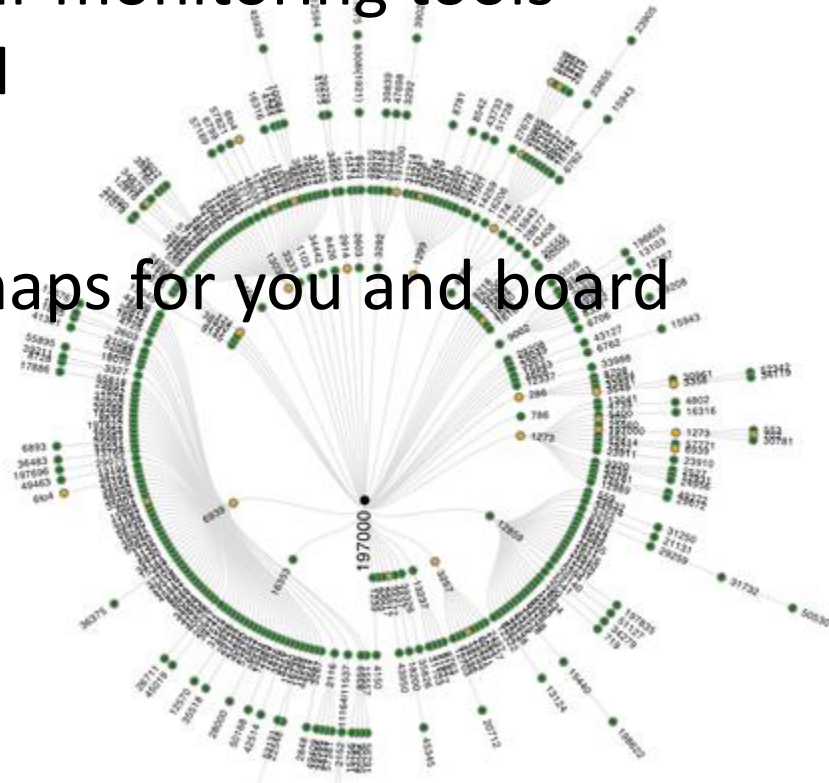
CN	*.ripe.net
O	RIPE NCC
C	NL
Not Before	2014-04-15 00:00:00 (Z)
Not After	2015-07-15 12:00:00 (Z)
SHA1	B7:C7:A5:C6:00:9F:19:5A:06:CF:46:07:91:D7:62:16:7F:8E:A1:C1

This Record

CN	*.ripe.net
O	RIPE NCC
C	NL
Not Before	2014-04-15 00:00:00 (Z)
Not After	2015-07-15 12:00:00 (Z)
SHA1	B7:C7:A5:C6:00:9F:19:5A:06:CF:46:07:91:D7:62:16:7F:8E:A1:C1

What you can get?

- Look at your network from outside!
 - Tool that monitoring your resources around the world, integrated with your monitoring tools (nagios, icinga) though API
 - Trusted source of data
 - Well looking graphs and maps for you and board of directors



Host your own probe!

- By hosting a probe at your home, office or network you earn credits, that you can spend to own measurements
 - Order your own probe at <https://atlas.ripe.net/>
 - RIPE NCC members and Atlas sponsors have additional benefits



USB powered probe – plug in and forget!