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RIPE NCC Technical Services

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- DNS services
- RIPEstat
- Research
- RIPE Atlas
- K-root expansion

Mostly global services, accessible by everyone

- In many cases, RIPE NCC members have an advantage



DNS Services



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- Authoritative DNS service for in-addr.arpa and ip6.arpa for resources in RIPE NCC service region
- Secondary services for 77 ccTLDs
 - Selection criteria being discussed in DNS Working Group
- Two provisioning sites
- Three anycast locations
 - Working on ideas to extend service locations
- Three different name server set-ups

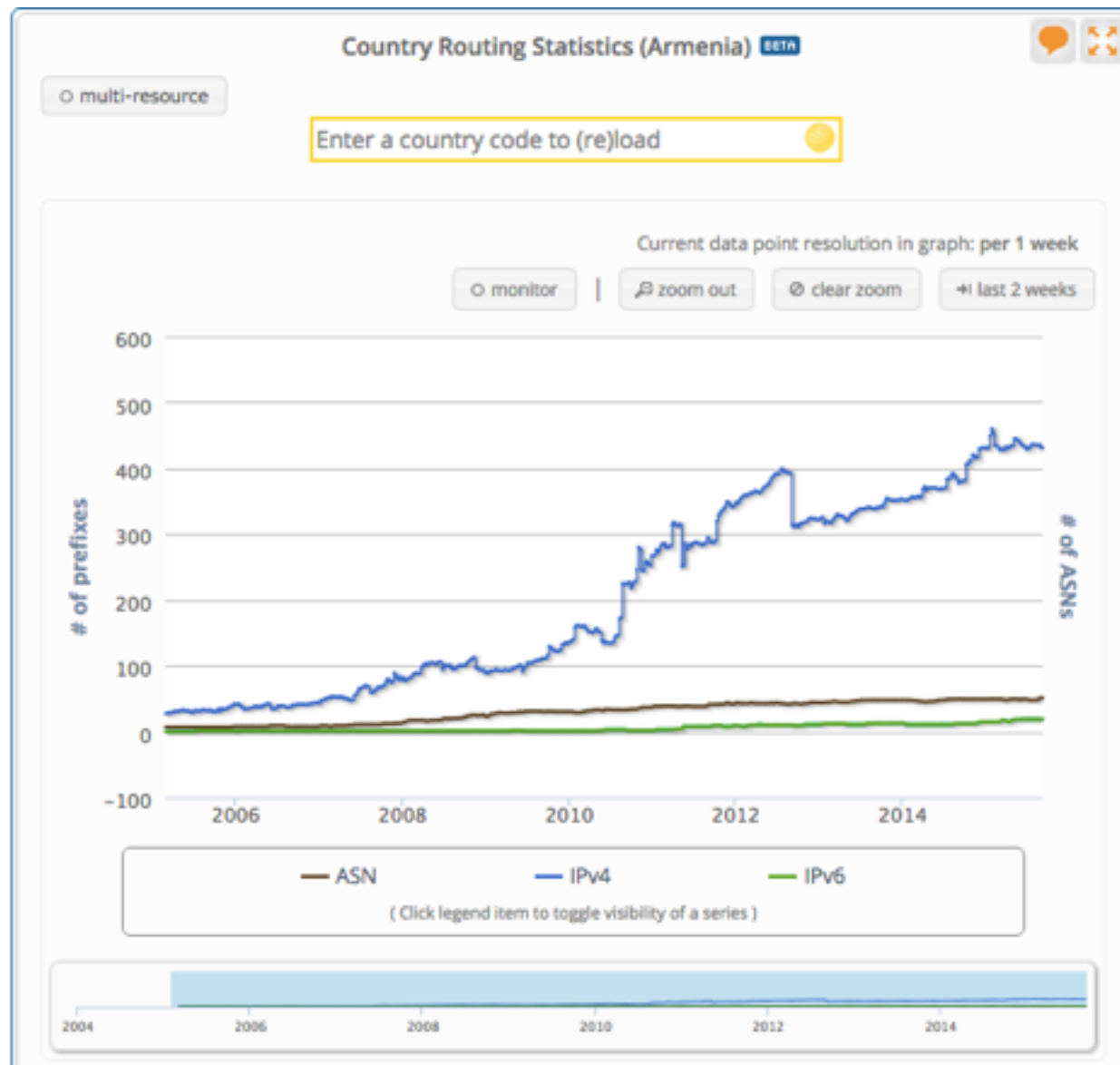


RIPEstat, Diagnostics & Research



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- RIPEstat
 - Routing, registry, abuse, bandwidth, geolocation and RIPE Atlas data
 - Unique aggregation of information, including history
 - Web-based interface and API
 - Data grouped based on prefixes, ASNs, countries, hostnames
 - Regions, operators and other groupings being considered
 - ~135M data requests/month
- Services based on RIPE Atlas
 - Global network monitoring and alerting
 - DNSMON as widely used TLD monitoring system



Country Resource List (am)

Date: 2015-09-13

ASN IPv4 IPv6

Show 10 entries Search:

AS12297
AS12304
AS16190
AS196709
AS197497
AS197805
AS197834
AS198174
AS198519
AS199062

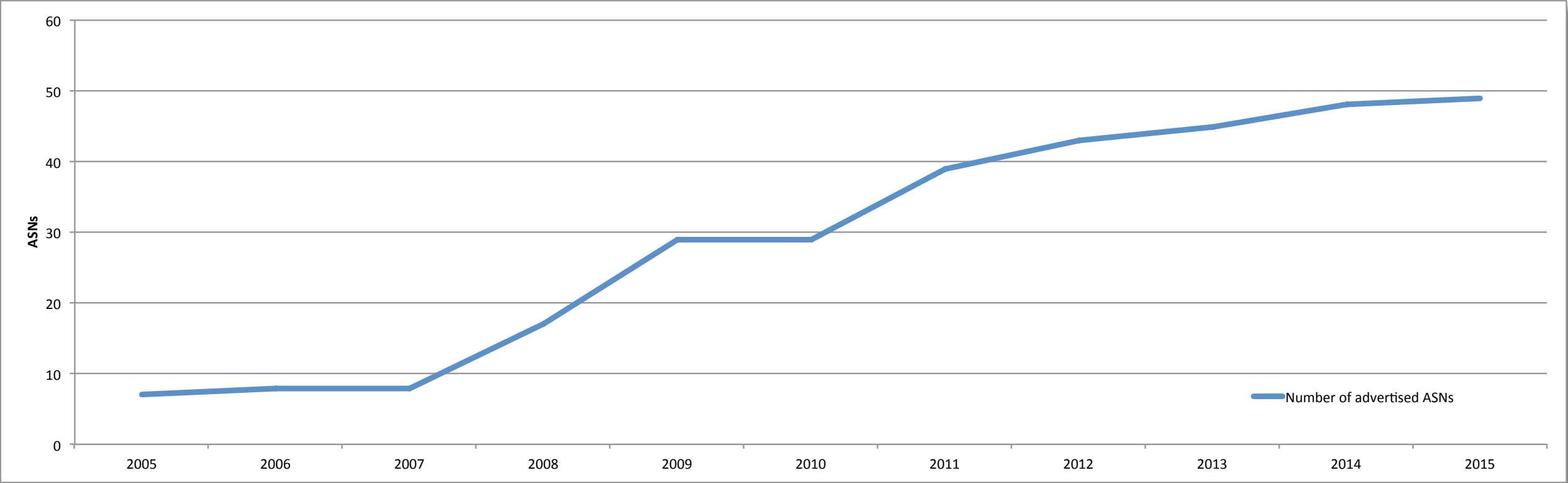
Showing 1 to 10 of 70 entries

Showing results as of 2015-09-13 00:00:00 UTC

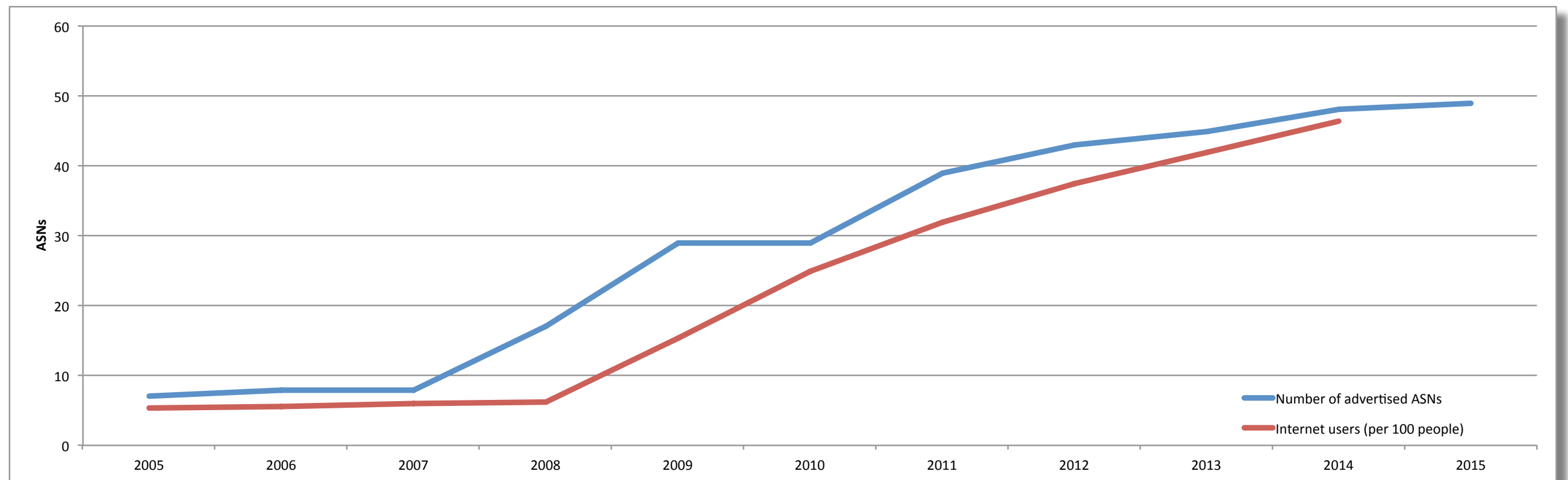
[source data](#) [embed code](#) [permalink](#) [info](#)

Source: RIPEstat, <https://stat.ripe.net/am#tabId=routing>

- Statistics are important
 - They help shape informed business decisions, set regulatory policies, etc.
- We provide a large measurement platform
 - RIPE Atlas
 - Routing Information Service (RIS)
- We generate statistics based on those measurements
 - RIPEstat
- All data is publicly available

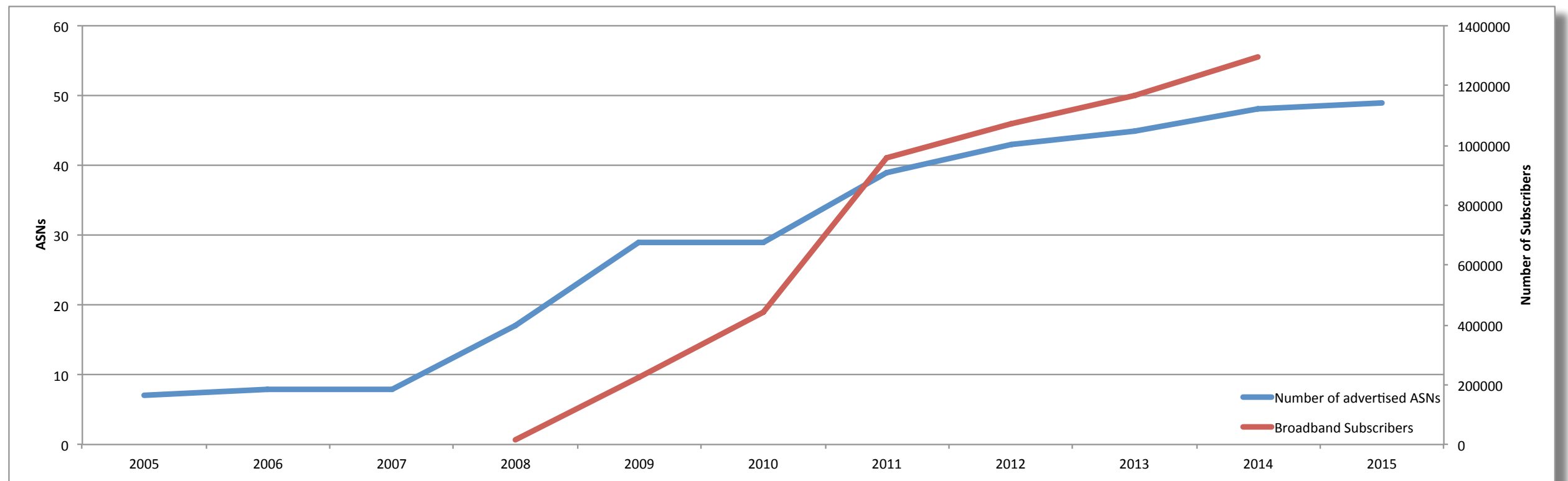


Source: RIPEstat, <https://stat.ripe.net/am#tabId=routing>

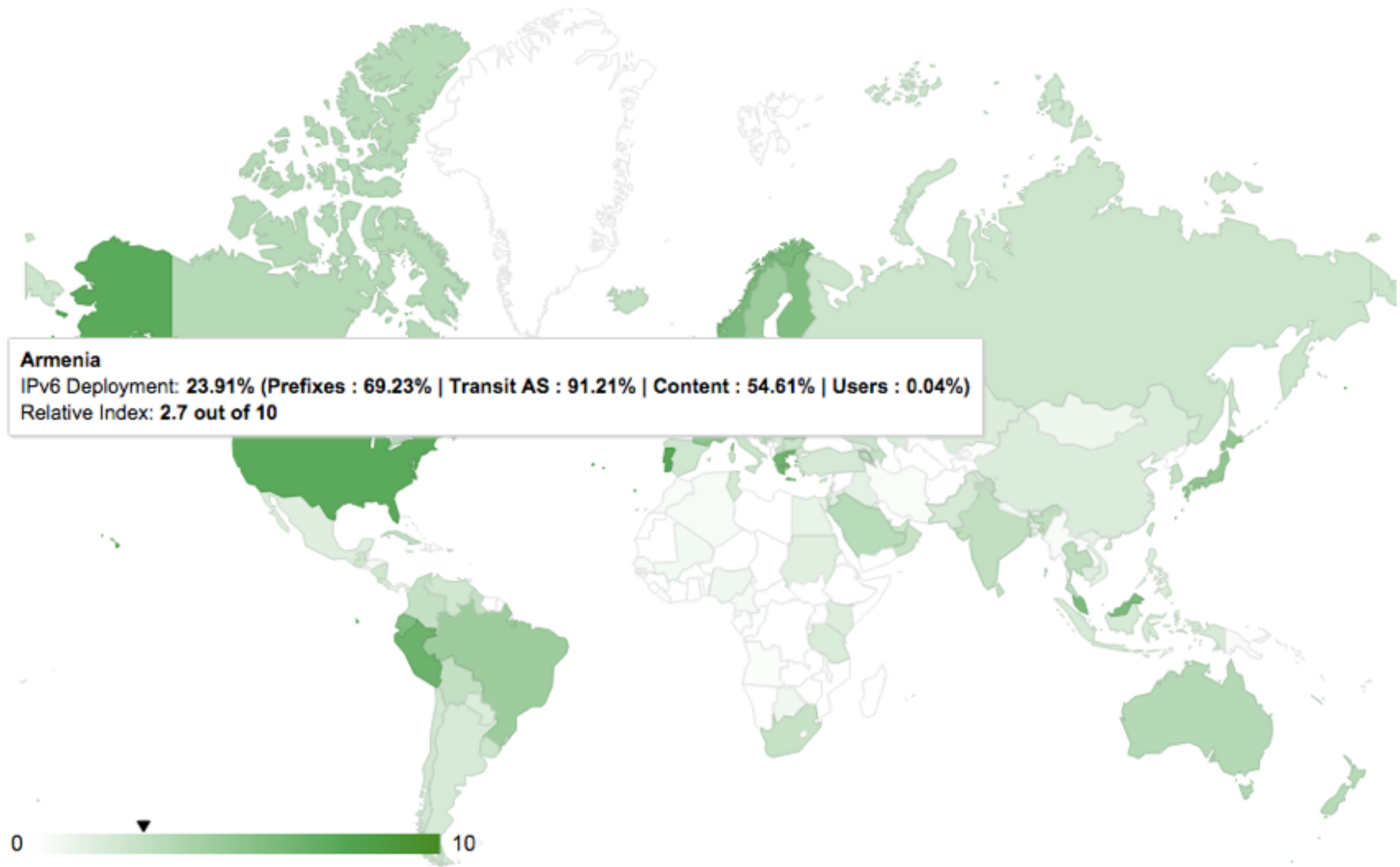


Sources: RIPEstat, <https://stat.ripe.net/am#tabId=routing>

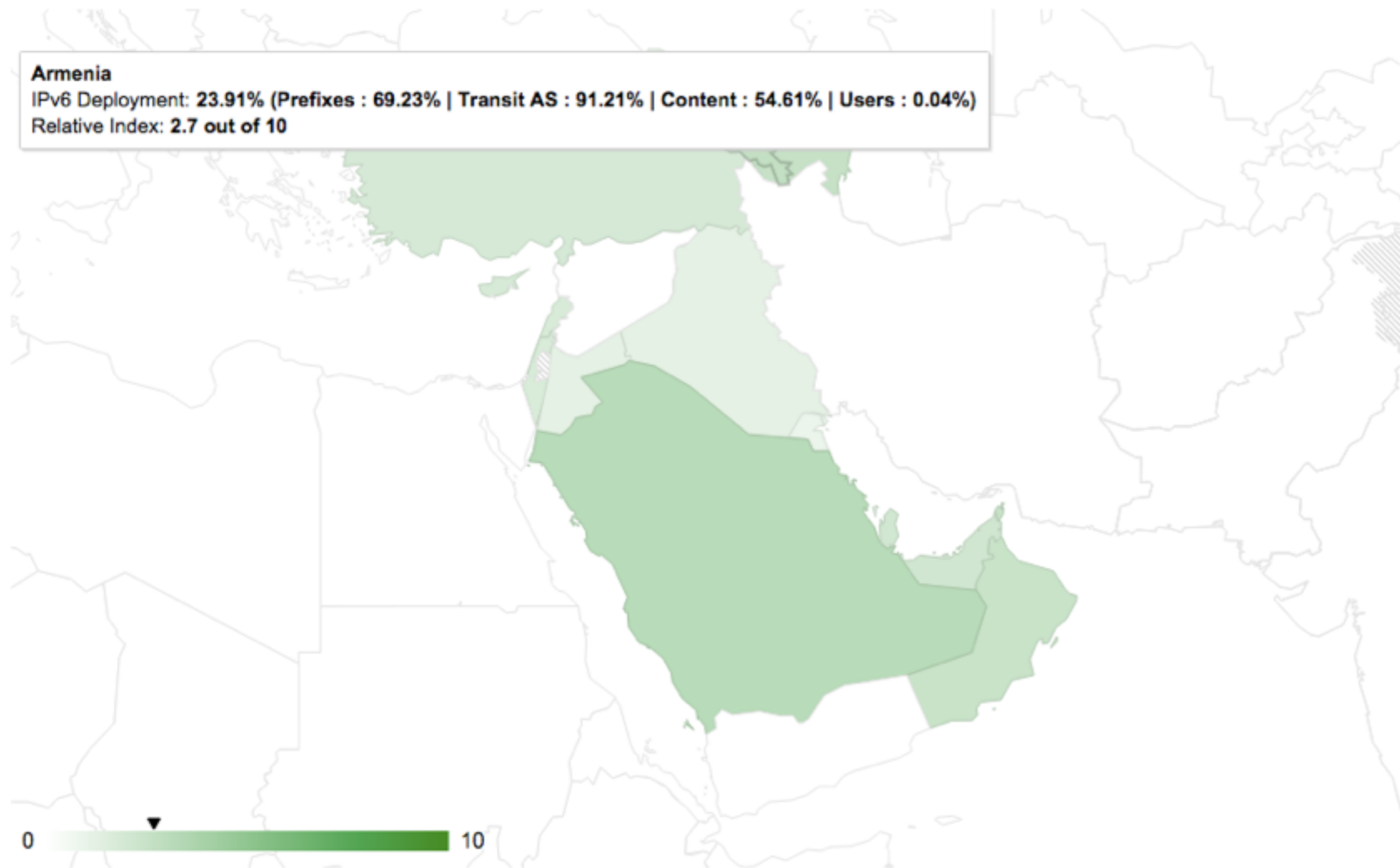
World Bank, <http://www.worldbank.org/en/country/armenia>



Sources: RIPEstat, <https://stat.ripe.net/am#tabId=routing>
PSRC, <http://www.psrc.am/images/docs/reports/2014.pdf>



Source: Cisco, <http://6lab.cisco.com/stats/cible.php?country=AM&option=all>



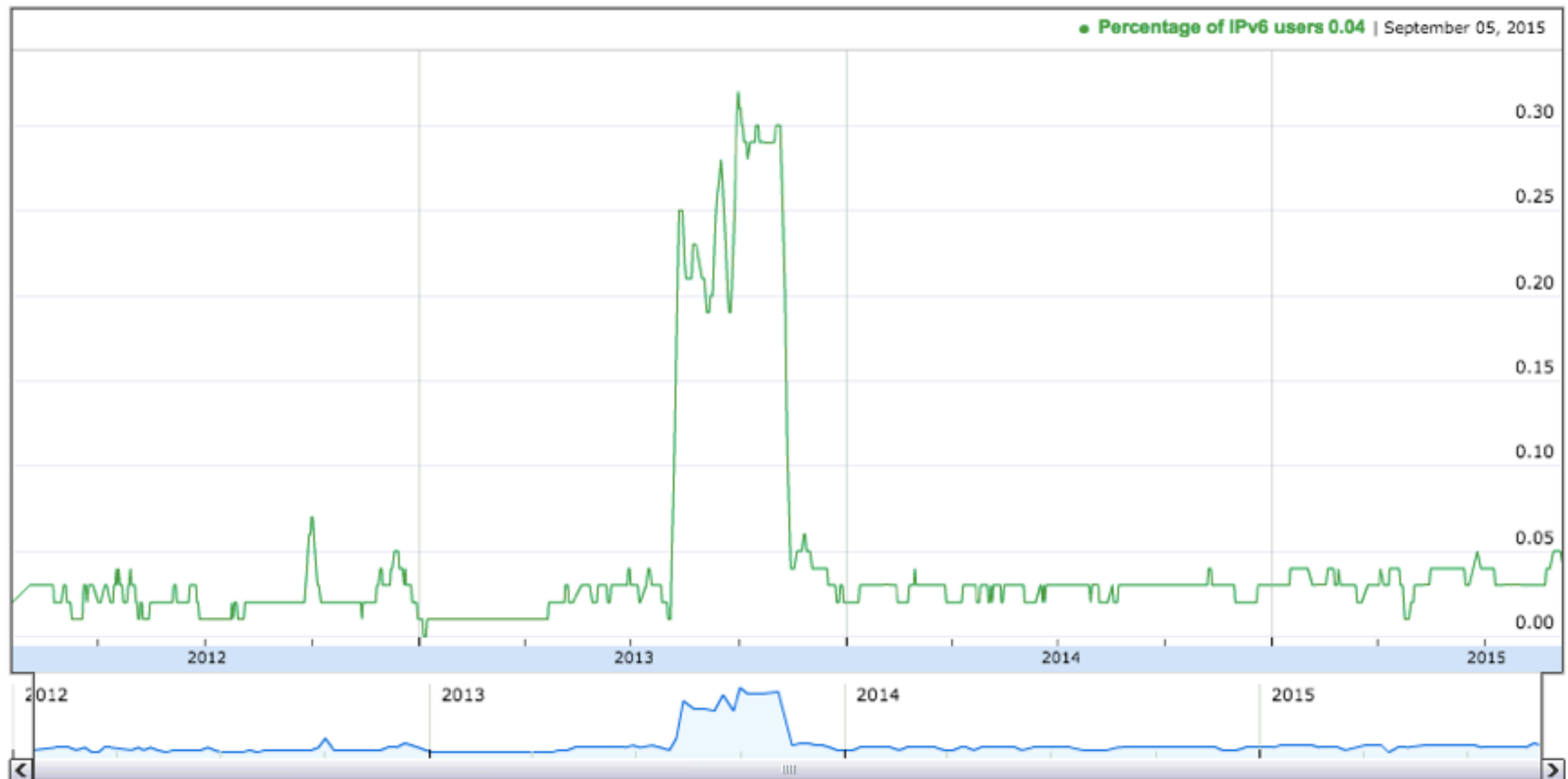
Source: Cisco, <http://6lab.cisco.com/stats/cible.php?country=AM&option=all>

CC	Country	IPv6 Capable	IPv6 Preferred	Samples
LI	Liechtenstein, Western Europe, Europe	0.07%	0.04%	4488
ID	Indonesia, South-Eastern Asia, Asia	0.06%	0.03%	4354566
GU	Guam, Micronesia, Oceania	0.06%	0.00%	87886
RW	Rwanda, Eastern Africa, Africa	0.06%	0.06%	21557
LK	Sri Lanka, Southern Asia, Asia	0.06%	0.05%	1355824
TZ	United Republic of Tanzania, Eastern Africa, Africa	0.06%	0.05%	60449
PR	Puerto Rico, Caribbean, Americas	0.06%	0.00%	289469
IM	Isle of Man, Northern Europe, Europe	0.06%	0.06%	5259
KW	Kuwait, Western Asia, Asia	0.05%	0.00%	237051
GG	Guernsey, Northern Europe, Europe	0.05%	0.00%	1944
UG	Uganda, Eastern Africa, Africa	0.05%	0.04%	46194
CL	Chile, South America, Americas	0.05%	0.04%	4286744
KH	Cambodia, South-Eastern Asia, Asia	0.04%	0.04%	466012
GN	Guinea, Western Africa, Africa	0.04%	0.00%	20949
AM	Armenia, Western Asia, Asia	0.04%	0.02%	407742
MG	Madagascar, Eastern Africa, Africa	0.04%	0.00%	41789
MQ	Martinique, Caribbean, Americas	0.04%	0.00%	20518
AF	Afghanistan, Southern Asia, Asia	0.04%	0.01%	59722
BQ	Bonaire, Saint Eustatius and Saba, Caribbean, Americas	0.04%	0.00%	7831
DO	Dominican Republic, Caribbean, Americas	0.04%	0.00%	809070
LS	Lesotho, Southern Africa, Africa	0.04%	0.00%	2856
PH	Philippines, South-Eastern Asia, Asia	0.03%	0.02%	5703340
LC	Saint Lucia, Caribbean, Americas	0.03%	0.00%	15746
VN	Vietnam, South-Eastern Asia, Asia	0.03%	0.00%	15050281
ZM	Zambia, Eastern Africa, Africa	0.03%	0.02%	26606
UZ	Uzbekistan, Central Asia, Asia	0.03%	0.00%	83785

Source: APNIC, <http://stats.labs.apnic.net/ipv6>

Armenia

Display Users Data ⓘ

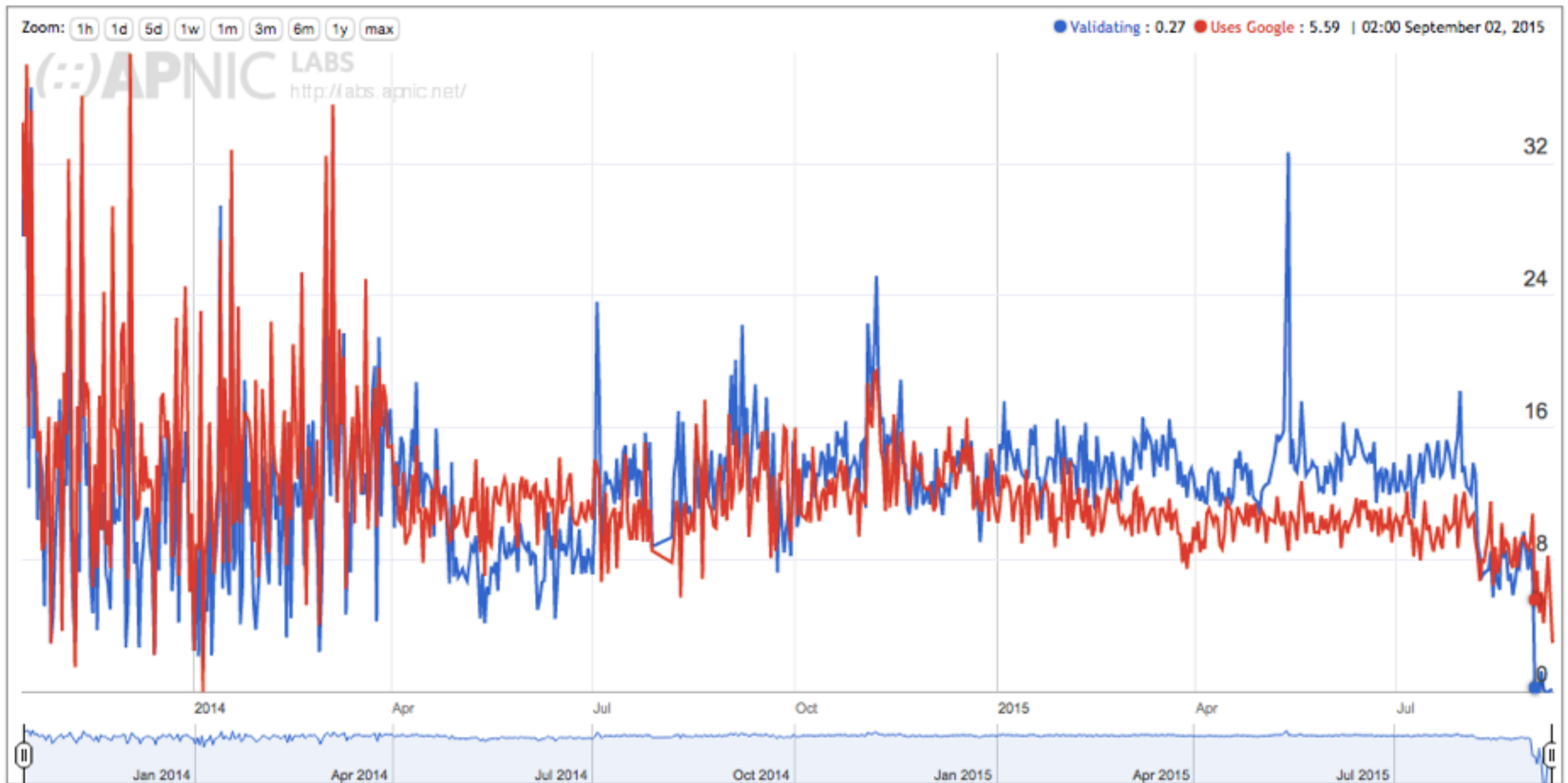


Source: Cisco, <http://6lab.cisco.com/stats/cible.php?country=AM&option=all>

<i>URL</i>	<i>AAAA Record</i>
<u>news.am</u>	No
<u>list.am</u>	No (Cloudflare based)
<u>1in.am</u>	No (Cloudflare based)
<u>tert.am</u>	No (Cloudflare based)
<u>Blognews.am</u>	No (Cloudflare based)
<u>Rate.am</u>	No
<u>Spyur.am</u>	No
<u>Auto.am</u>	No
<u>Menu.am</u>	No (Cloudflare based)
<u>Azatutyun.am</u>	No (Akami based)
<u>Asekose.am</u>	No (Akami based)

Source: Alexa, <http://www.alexa.com/topsites/countries;1/AM>

Use of DNSSEC Validation for Armenia (AM)



Source: APNIC, <http://stats.labs.apnic.net/dnssec/am>

- Looking into interesting **events** and how they affect the Internet
 - BGP leaks
 - IPv4 runout and related policies
 - Massive power cuts, earthquakes, World Cup
- Looking into interesting **trends** and how they affect the Internet
 - IPv6 and DNSSEC uptake
 - Aggregation in routing table
- Working closely with researchers around the globe

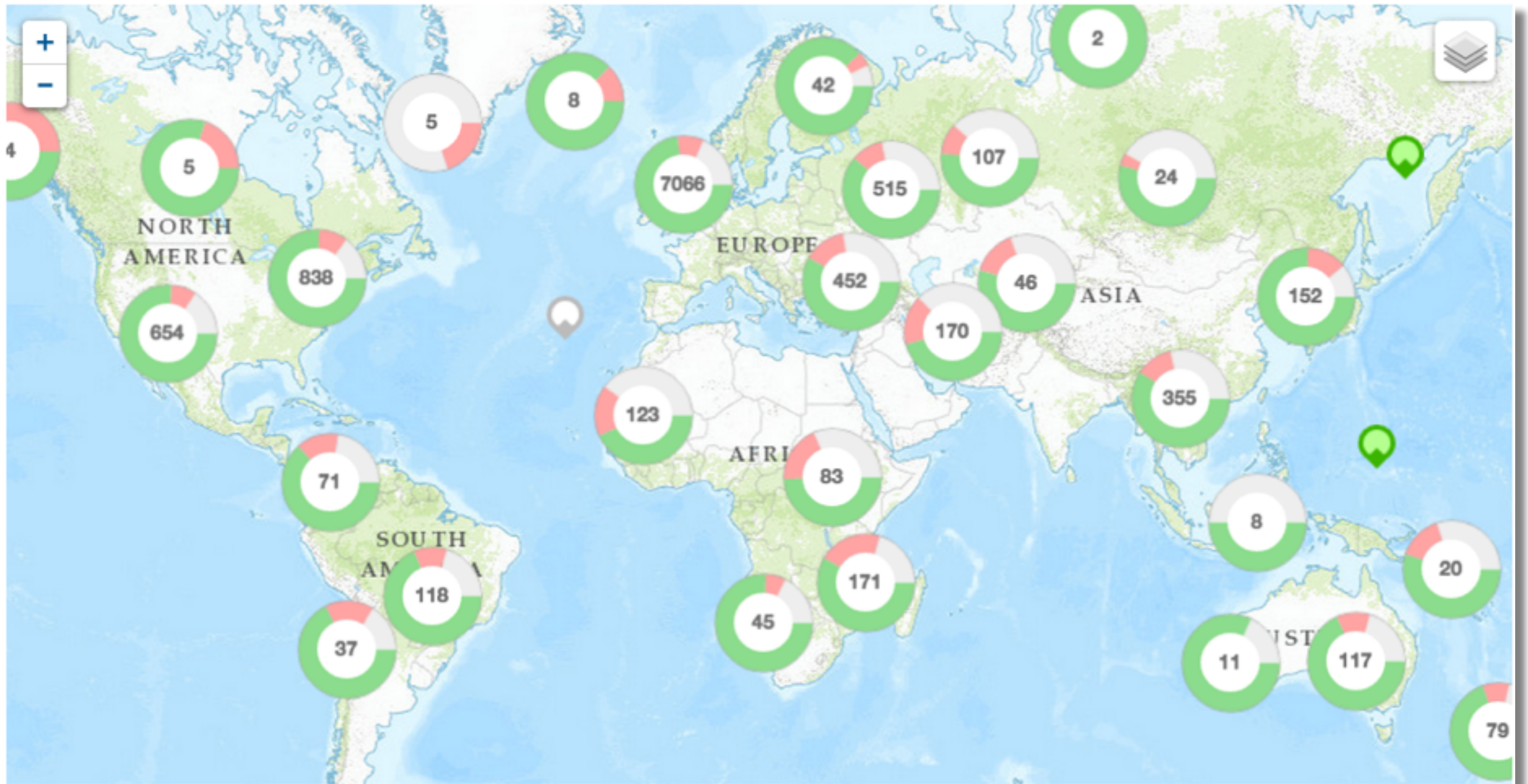


RIPE Atlas



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Where we are: probes



Where we are: anchors



- ~8,600 active probes and growing
- 145 active RIPE Atlas anchors
- Millions of measurements everyday
- ~76 billion measurements last year
 - Preserved history
- Measurements: ping, traceroute, DNS, SSL, HTTP(S)
 - Working on WiFi measurements
- Data streaming
- Open APIs, many useful tools built on top of RIPE Atlas

- Aim to reach more active probes this year
 - Want to provide a statistically relevant sample of the Internet
- New generation of probes
 - Support for optional WiFi measurements
- 20% reduction in 2015 budget; will continue same trend in 2016 and 2017
- But the project is not downsizing
 - More operational efficiency
 - Assistance from interested parties

K-root Expansion



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- Five “core” nodes: Miami, Amsterdam, Frankfurt, Tokyo, London
- 24 “hosted” (local) nodes around the globe
 - High maintenance, mostly caused by peering management resource requirements
 - One operating in Armenia, another one in the pipeline
- In the past, adding new nodes involved a lot of arrangements, with high demand on hosting and connectivity requirements

- Hosted nodes based on single-box solution
- Easy to set up, peering with one organisation
 - Host is free to decide on anycast announcing policies
- Full automation
 - Nodes will be taken out of the anycast network automatically if something is wrong, and only three out of five core nodes are needed to handle peak K-root traffic
 - Almost all technical set-up and monitoring systems are automatically added on our side
- No expensive resource requirements for hosts
- Much less resource intensive on our side

- We will consider every request
 - Technical requirements published on k.root-servers.org
- We are particularly interested in:
 - Hosts that can improve K-root access globally, based on our measurements
 - Hosts in the RIPE NCC service region
- We don't expect a huge number of requests
 - But will consult membership about any potential changes to resources or budget should that happen

