L-Root

September, 2014
ICANN DNS Operations

ICANN

What is L-Root?

+ "L" is one of 13 independently operated root servers serving the DNS root zone

+ The ICANN DNS OPS team operates L under the autonomous system number AS20144 using the following addresses

    + 199.7.83.42

    + 2001:500:3::42

+ Anycasted since 2007

+ Uses the Name Server Daemon (NSD) from NLnetLabs

ICANN

# L-Root Geographical diversity (via Anycast)

+ Anycast allow multiple copies of a server to be on multiple places, allowing us to:

    + Take the service closer to the user

        + Lower RTT (Round trip)

        + Improve user experience

    + Increase query capacity

    + Reduces the likelihood that some types of attack traffic would affect the rest of the internet by keeping it closer to the source

    + Flexibility to add/remove instances

ICANN

L-Root locations

+ Today L has presence on every continent with over 150 instances

  + Added in August 2014:

    + Chicago, US (ord02.l.root-servers.org)

      + Team Cymru

    + San Juan, PR (sju01.l.root-servers.org)

      + Gauss Research Laboratory Inc.

    + Yekaterinburg, Russia (svx01.l.root-servers.org)

      + Yandex LLC.

ICANN

L-Root locations
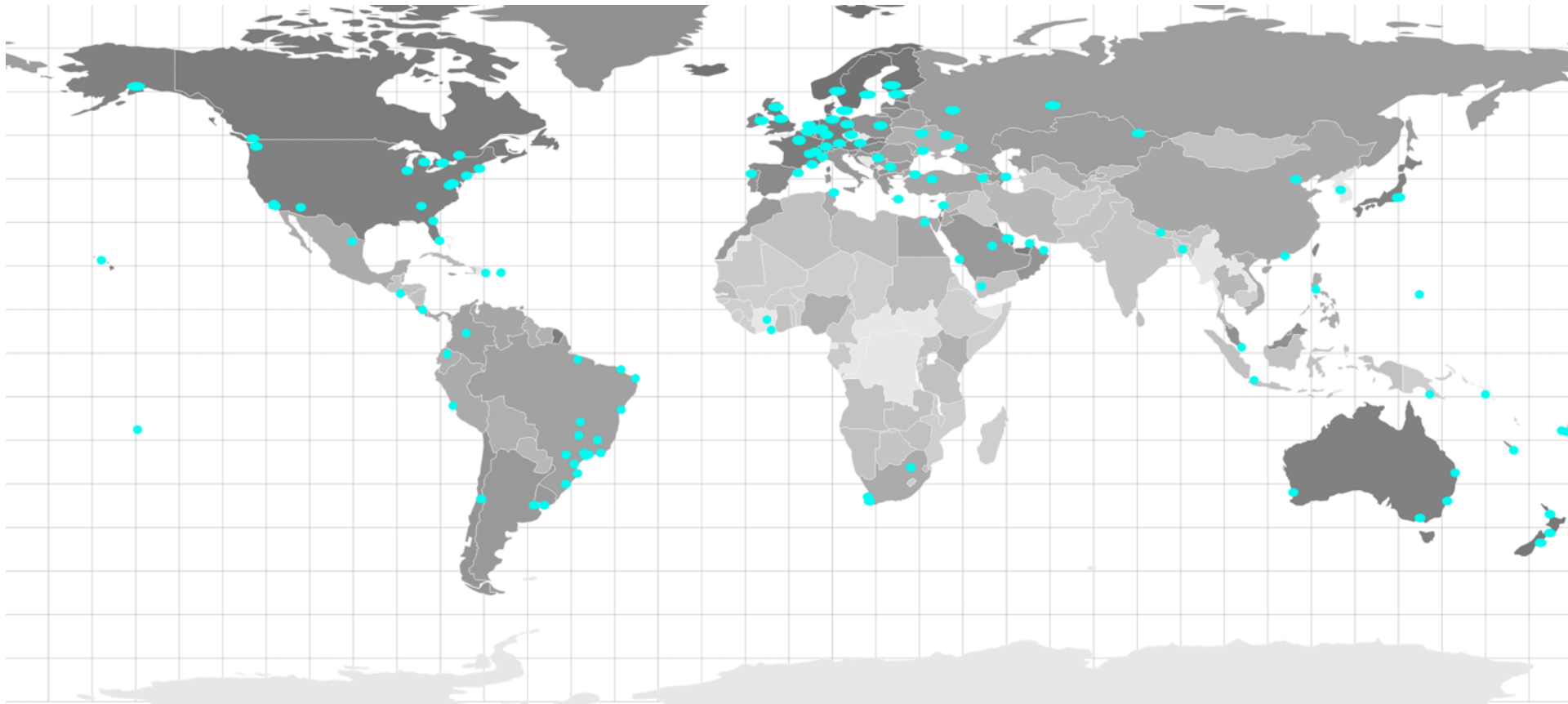
Want to host an L-Root instance on you network?

+ Prerequisites:

  + Your organization is willing to host a L-Root server instance (L-Single)

  + Your organization can provide all the following:

    + Sign a Non-Disclosure-Agreement and an ICANN L-Single Agreement

    + Provided a server (as spec'd by ICANN)

    + Provide housing for the server (hosting/power/connectivity)

   + Ability to establish a BGP peering session to propagate L-Root AS20144 prefixes

ICANN

Hosting an L-Root Workflow:

+ If the pre-requisites are completely satisfied

    + Your organization will need to contact your ICANN GSE local representative and complete a contact information document

    + Your organization will then need to sign a NDA and then the provided L-Single contract

    + ICANN will return the documents executed

    + Your organization will need to complete a technical form with the server details

    + ICANN DNSOPS team installs and commissions the servers.
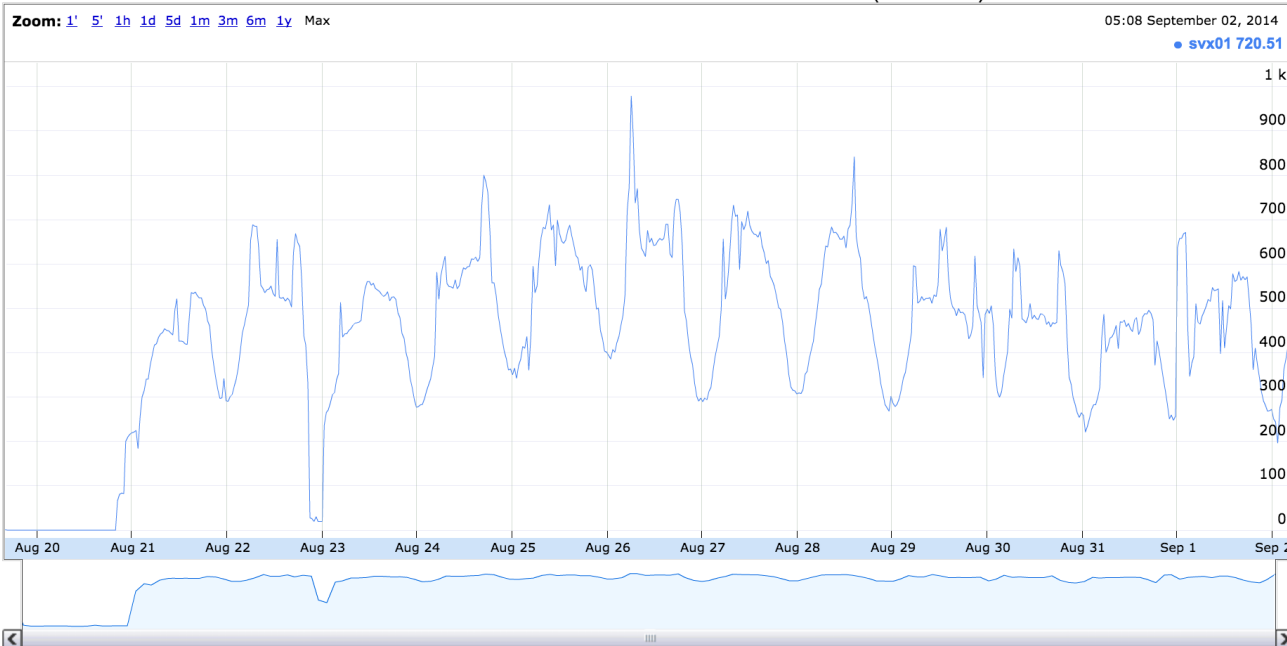
ICANN

After completed the process, the result is a new instance

svx01.l.root-servers.org

Thanks Yandex LLC!
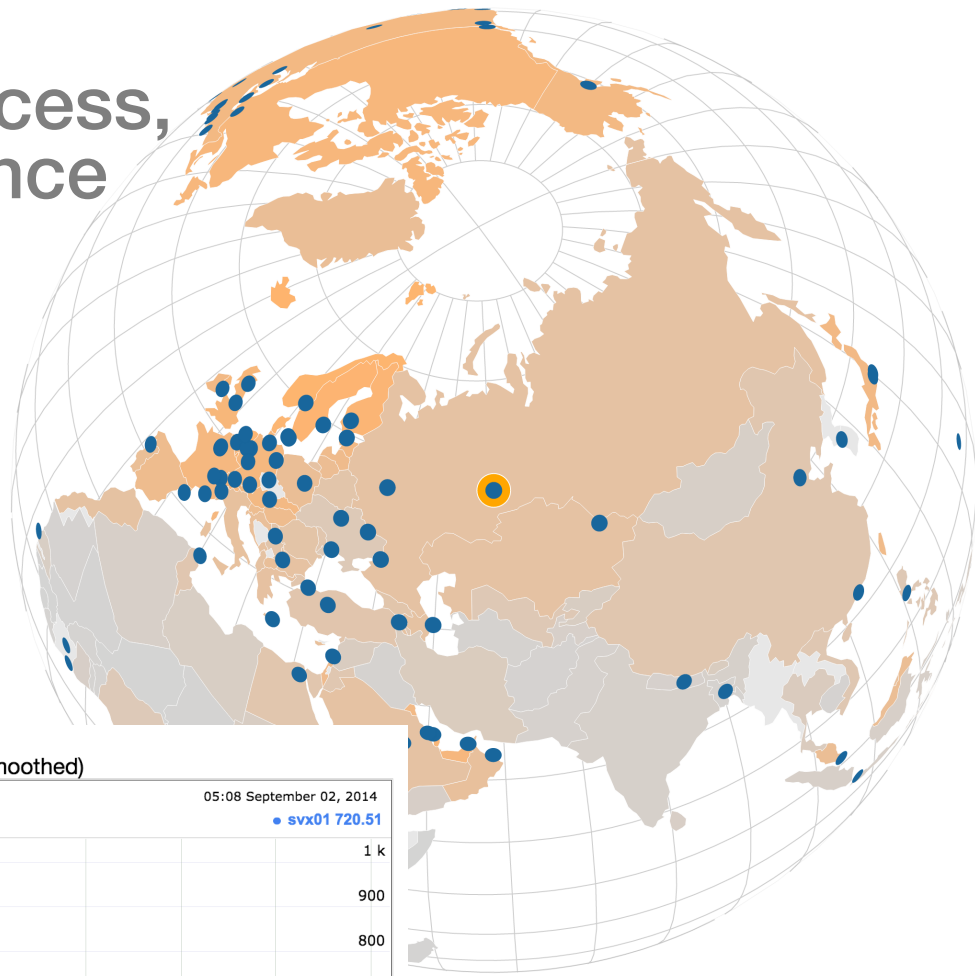
Queries by node
from 2014-08-02 05:38 UTC to 2014-09-02 05:37 UTC (smoothed)

L Instance Statistics

+ Hedgehog

    + http://hedgehog.dns.icann.org

    + Provides near real-time statistics for L-Root instances

    + Some of the features available are:

        + Per instance:

            + Query and type per second

            + IP Protocol and Transport Protocol

            + Query type and attributes

    + Released to the community with a open license in August 2014. More information on http://www.dns-stats.org

ICANN

Hedgehog

Version 1.1.1 ❓

Basic Time | Advanced time   [Today]

From Thu, 21 Aug 2014 04:53:00 UTC
To Fri, 22 Aug 2014 04:52:00 UTC

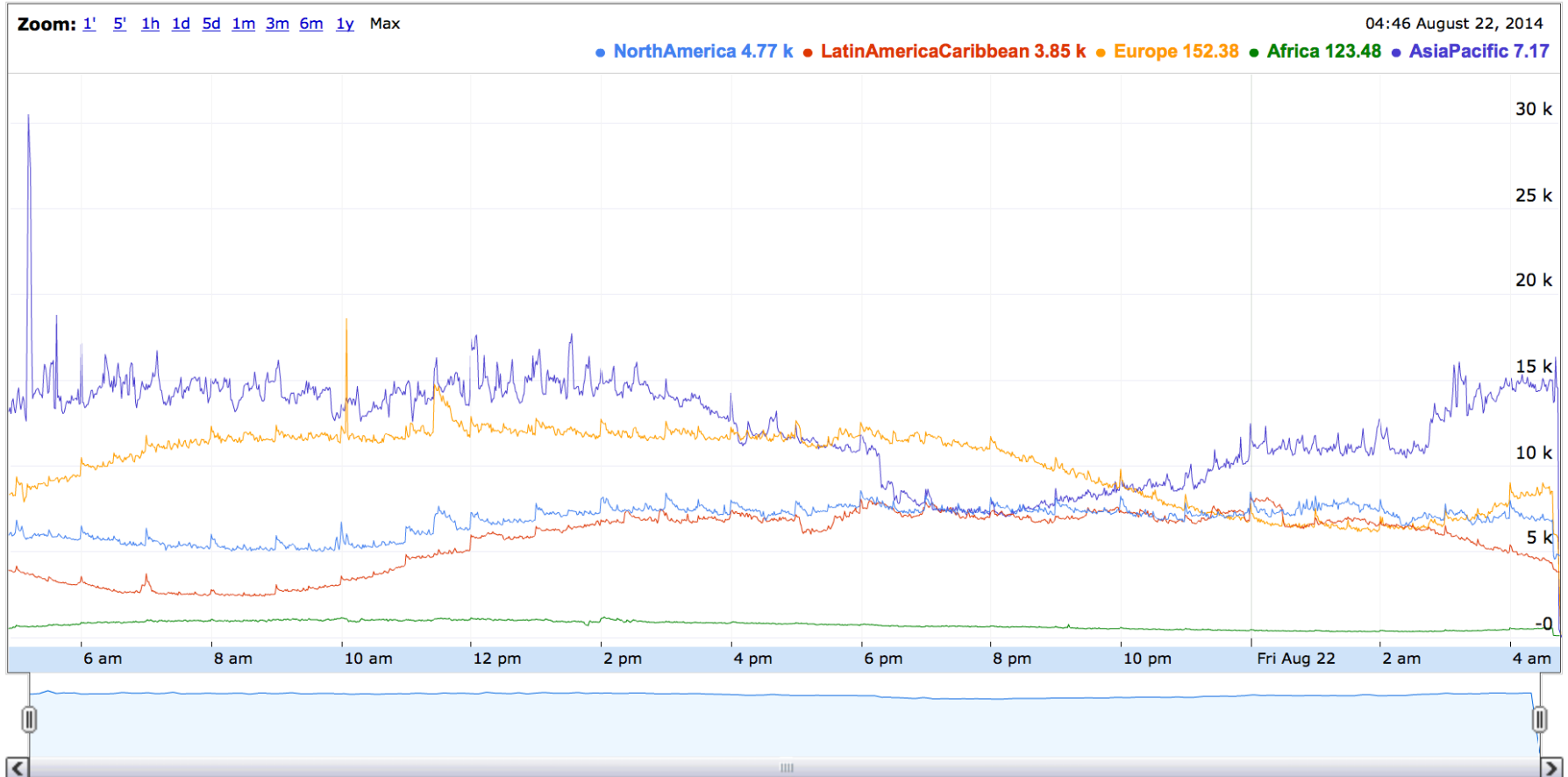| +< | < | **1 hr** | **4 hrs** | **12 hrs** | > | >+ |
| | | **day** | **week** | **month** | | |

○ Static plot   ● Interactive plot

Plot [By node ▾]

[Generate Plot!]

Queries by node
from 2014-08-21 04:53 UTC to 2014-08-22 04:52 UTC

Zoom: 1' 5' 1h 1d 5d 1m 3m 6m 1y Max

04:46 August 22, 2014

● NorthAmerica 4.77 k ● LatinAmericaCaribbean 3.85 k ● Europe 152.38 ● Africa 123.48 ● AsiaPacific 7.17

30 k
25 k
20 k
15 k
10 k
5 k
-0

6 am 8 am 10 am 12 pm 2 pm 4 pm 6 pm 8 pm 10 pm Fri Aug 22 2 am 4 am

ICANN

The team behind L-Root

+ John Bond

+ David Soltero

+ Mauricio Vergara

+ Terry Manderson, Director

ICANN

Our team goals

+ DNS expertise and excellence

+ Strengthen, diversity and growth of L-Root worldwide

+ Collaboration within our peers

+ Best engineering process

+ Transparency and documented process

ICANN

How to engage us?

- +Research bodies (DNS-OARC)

- +Network Operations (NANOG, LACNOG, AUSNOG, CENTR)

- +Standard bodies (IETF)

- +Participation on many different mailing lists

- +Social media (Website, Twitter)

ICANN

How to contact us

+ http://www.dns.icann.org

+ noc@dns.icann.org

+ Phone +1 (424) 217-1313

ICANN

Thank You & Questions?