



Engineering Report

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Big changes with Engineering



- Lots of requests for development/operations support
- The Board heard you
- Engineering growing by 12.5 FTEs
 - **5 operations**
 - **3 developers**
 - **4 SI**
 - **1/2 PM**

Staffing



- **Operations**
 - Seven engineers + two managers (0)
 - Five slots open
- **Development**
 - Ten engineers + manager (+2)
 - One slot open
- **Software Integration**
 - Nine engineers + manager (+4)
 - One slot open
- **Project Management**
 - One PM
 - One part-time slot open
- **CTO**
 - One

Accomplishments since ARIN 34



- Pre-approval support added in ARIN Online
- Transfers
 - 8.3 Released
 - 8.2 and 8.4 are underway
- Various improvements to STLS in ARIN Online
- Upgraded PGP to support RFC 3156
 - All POC validation messages are PGP-signed from hostmaster
- Improved membership support added in ARIN Online
- Moved ARIN Online and mail from ARIN HQ to colo
- Migration of NetApp from EMC SAN completed

Accomplishments Cont...



- **Fault tolerance improvements**
 - Redundancy/failover for internal network
- **Corporate help desk and IT support**
- **ARIN member meeting support**
- **Care and feeding of servers & network**
- **OT&E**

OT&E



- **Operational Test & Evaluation**
 - Place to test code
 - Place to test process
 - All services now under ote.arin.net
 - Was used in the RPKI demo on Sunday
 - Need to register to participate: ~161 networks have access today
 - <https://www.arin.net/resources/ote.html>
- **Core services in OT&E**
 - Reg-RWS (provisioning API)
 - Whois-RWS (directory API)
 - Web interface
 - RPKI suite (up/down and hosted)
 - Soon - RDAP

YTD Efforts Cont...



- **IETF Participation**
 - SIDR (RPKI), WEIRDS (RDAP)
- **ICANN Participation**
 - SSAC
 - RSSAC
 - Technical Advisory Group

Operational Concerns



- Much quieter period than last report
- ISP Availability
 - **Connectivity outages with ARIN HQ**
 - Improved visibility on planned outages with Cox Management
 - Adding 2nd vendor – fiber now “close” to facility
 - **Issues with west coast PFS site**
 - RFP issued for a new vendor
 - Good set of responses so far

Operational Highlights

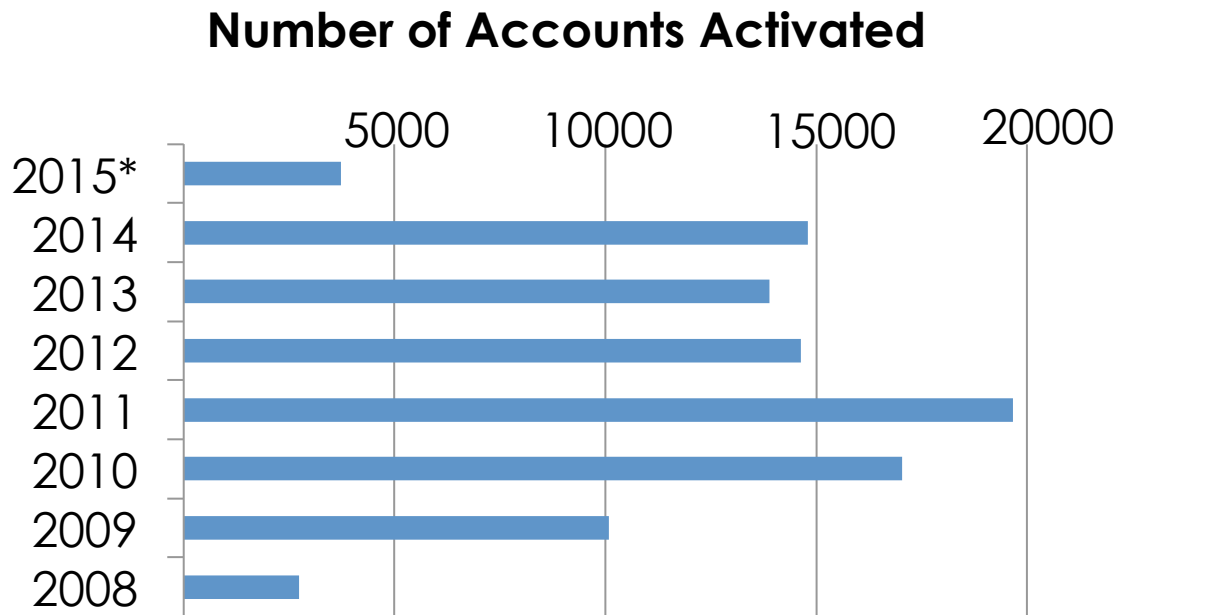


- 100% uptime on our public-facing sites over the past 6 years
- Services include
 - **Whois**
 - **Whois-RWS**
 - **DNS**
 - **Mailing lists**
 - **FTP**
- Will do the same with RPKI

ARIN Online Usage



- **96,512 accounts activated since inception through Q1 of 2015**

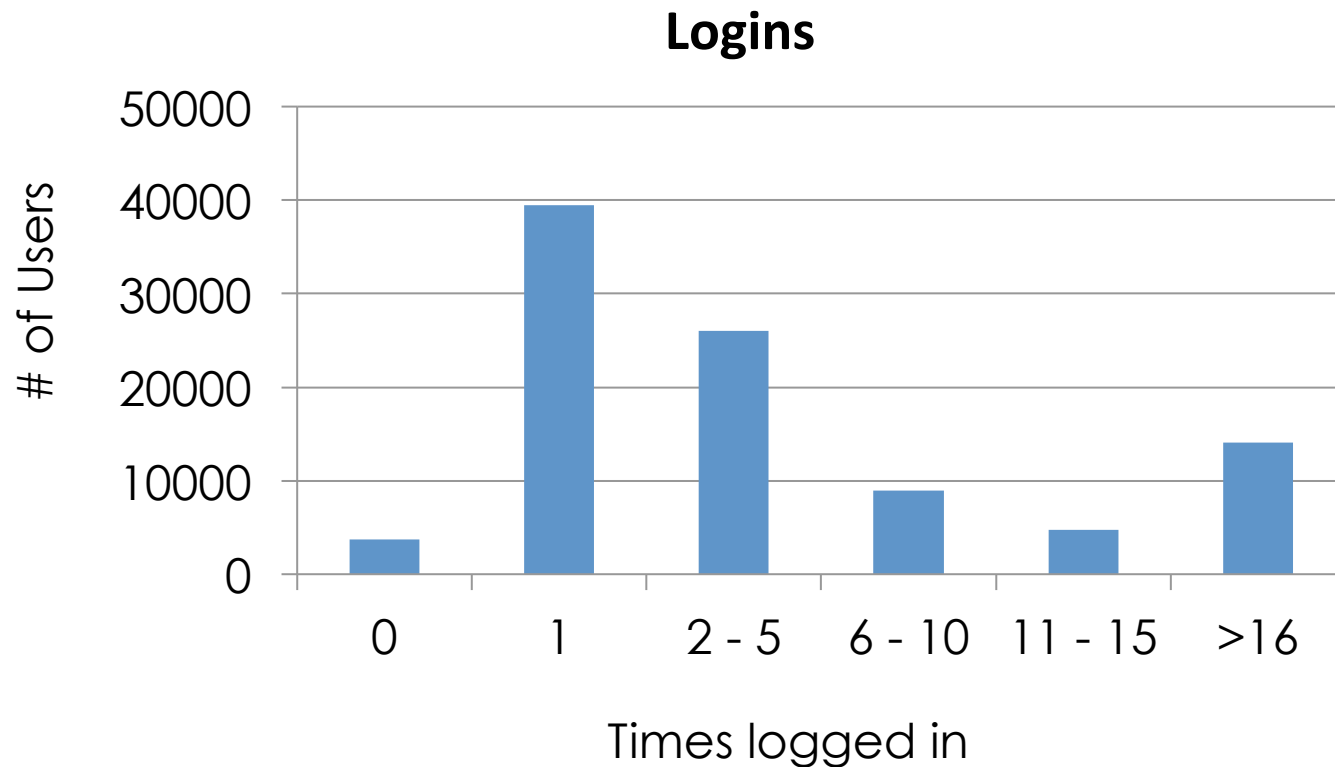


* Through Q1 of 2015

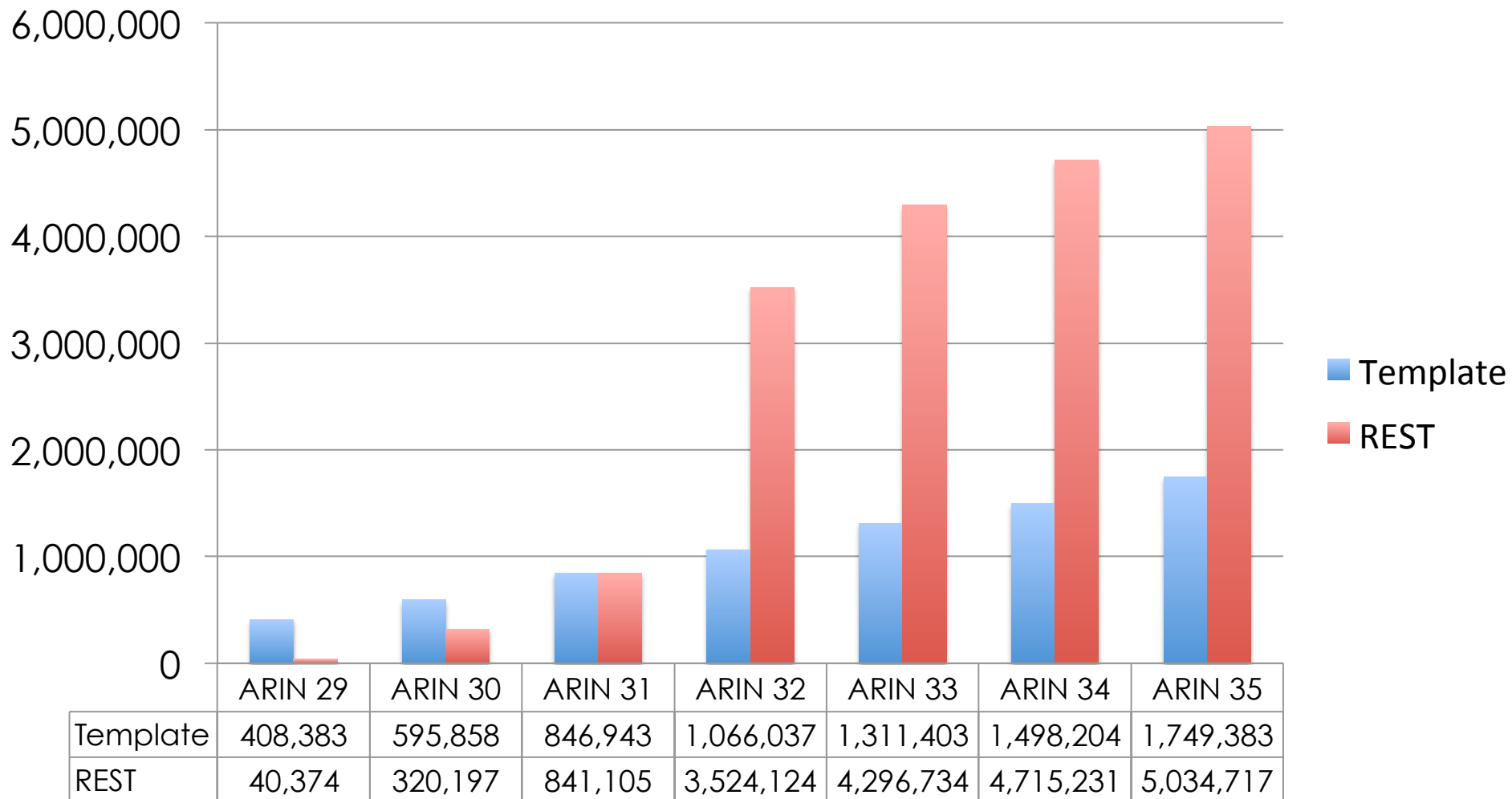
Active Usage of ARIN Online



- Logins from inception through Q1 of 2015



Reg-RWS Transactions (cumulative)



DNSSEC



ARIN 35

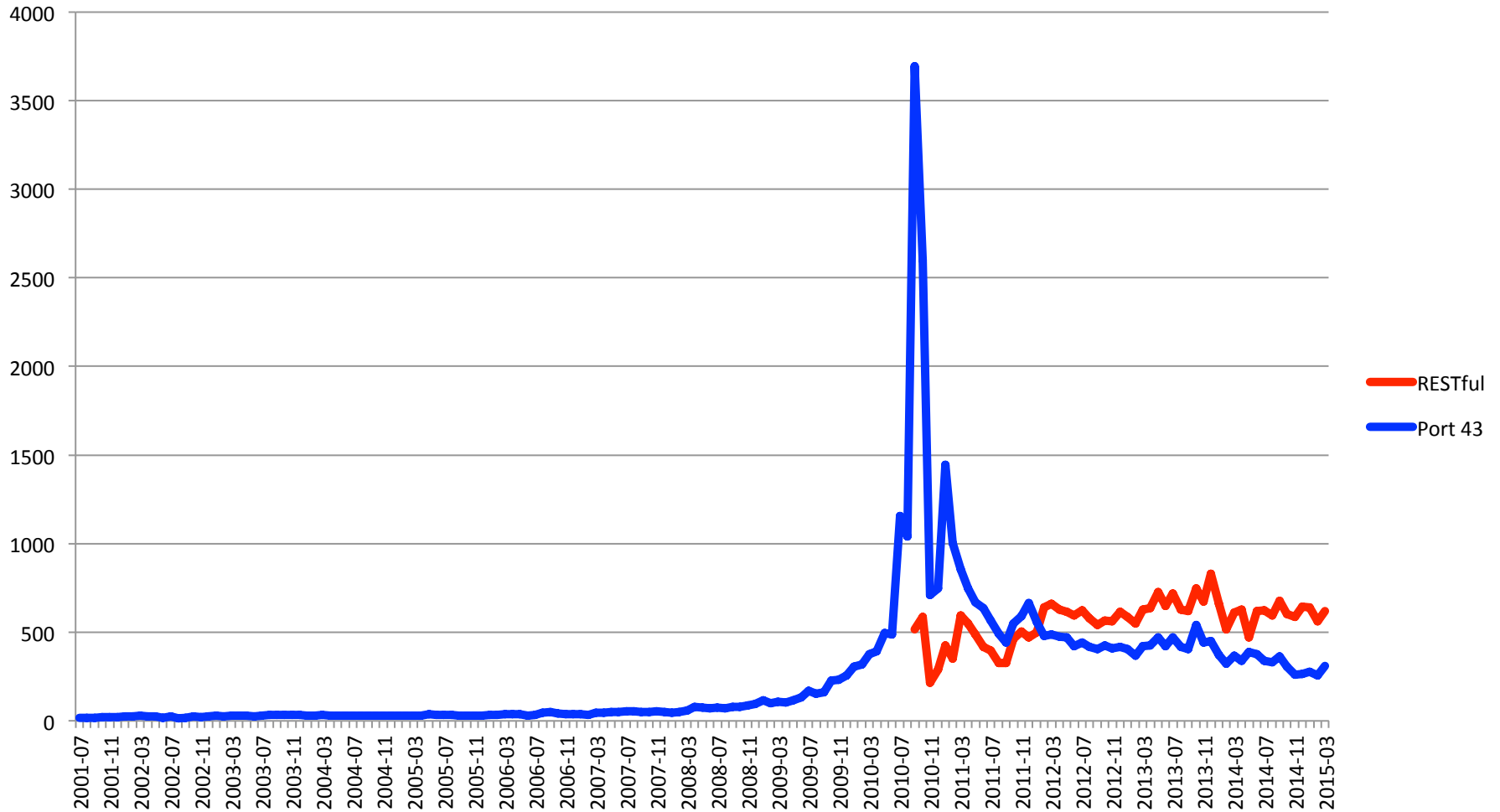
DNSSEC Secured Zones	512
Number of Orgs with DNSSEC	107
Total Number of Delegations	569,917

RPKI Usage



	ARIN XXX	ARIN XXXI	ARIN XXXII	ARIN33	ARIN34	ARIN 35
RPAs Signed	27	72	130	162	208	289
Certified Orgs		47	68	108	153	187
ROAs	19	60	106	162	239	308
Covered Resources	30	82	147	258	332	430
Up/Down Delegated			0	0	0	1

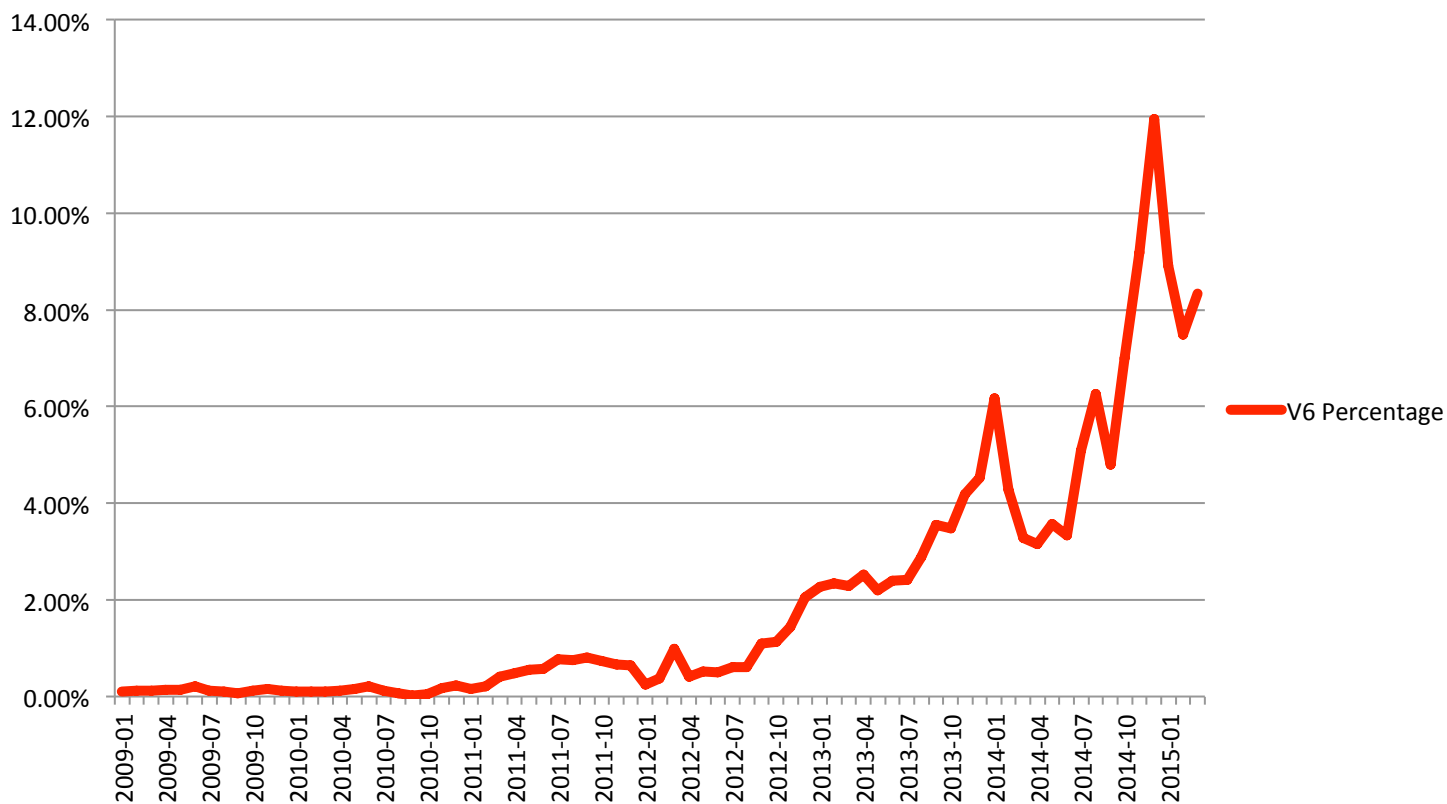
Whois Queries Per Second



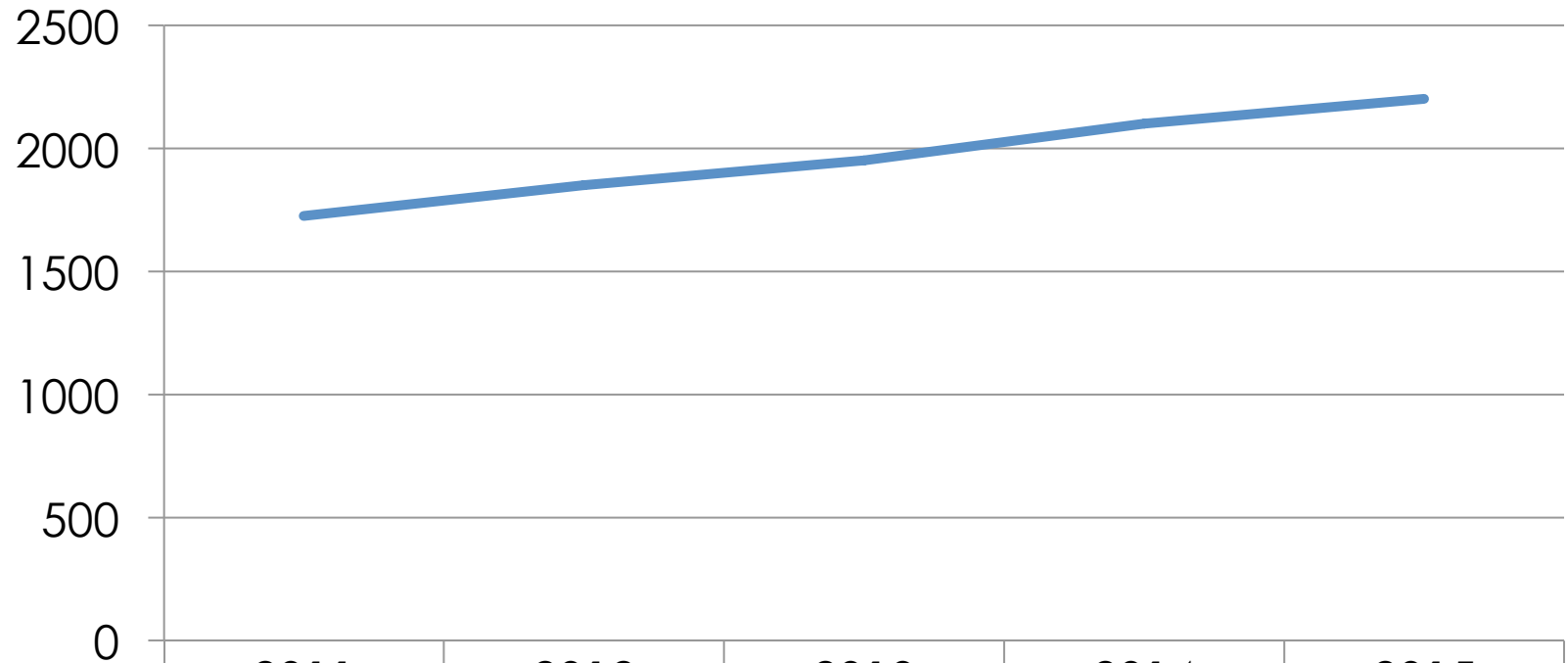
Whois via IPv6



Percentage of traffic over IPv6

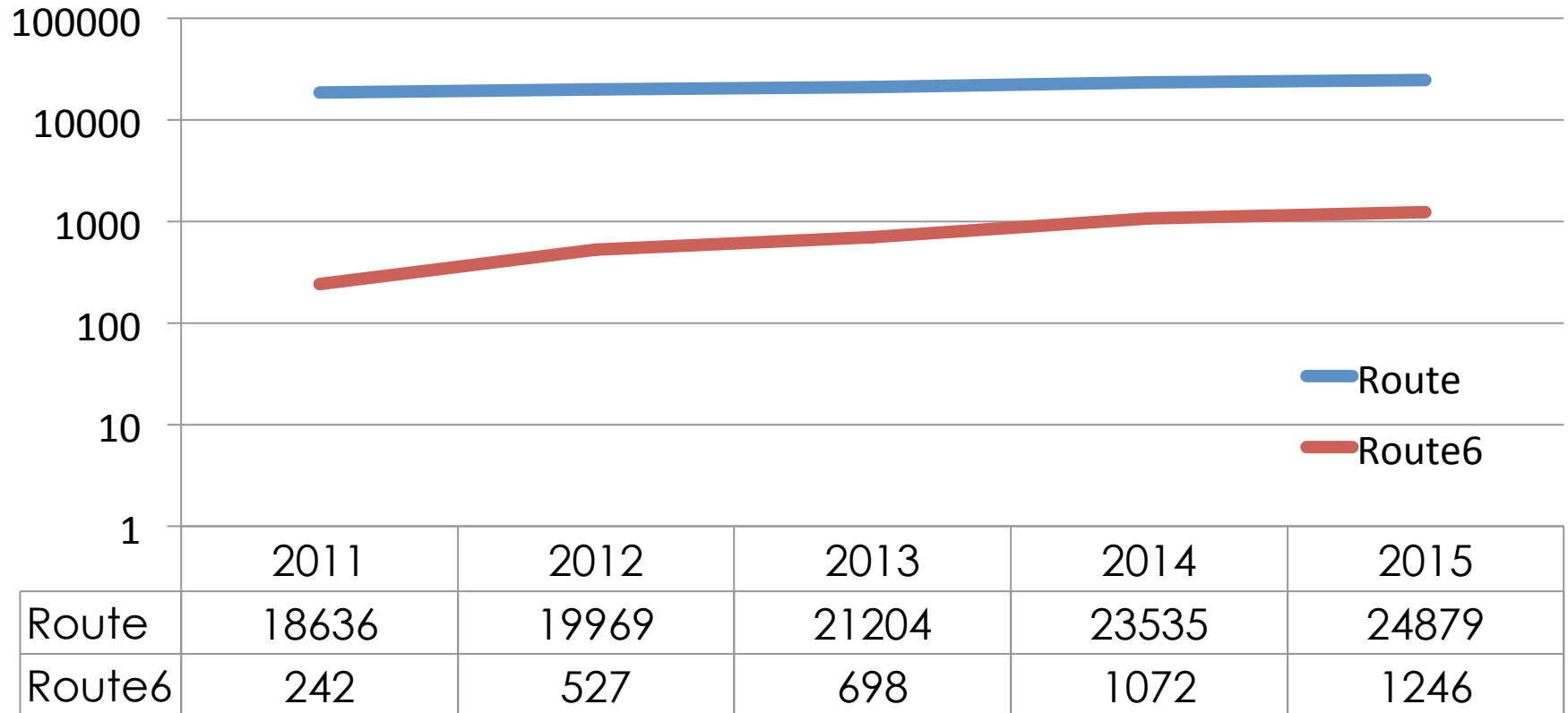


IRR Maintainers

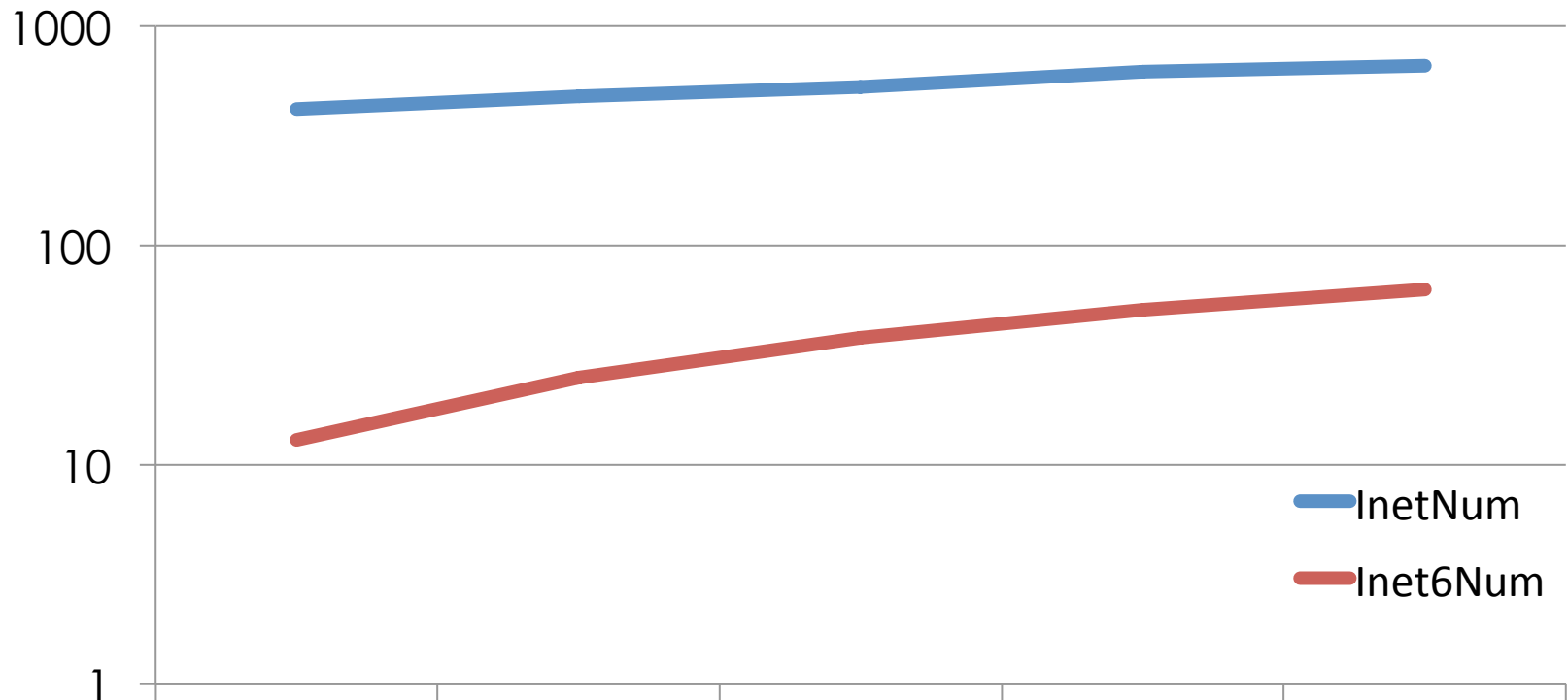


	2011	2012	2013	2014	2015
Maintainers	1726	1850	1951	2102	2203

IRR Route / Route6



IRR InetNum / Inet6Num



	2011	2012	2013	2014	2015
InetNum	419	481	531	621	661
Inet6Num	13	25	38	51	63

Systems at the forefront



- **RPKI**

- Up/Down available – two takers so far – one removed themselves
- **One side effect of Up/Down so far**
 - Validator reporting needs to be fixed
 - If a delegated repository goes down, it looks like the whole RIR goes bad

- **RDAP (IETF WEIRDS)**

- Became a set of RFCs during IETF 92
- Code written and being tested – will be deployed in Q3 at the latest
- ARIN has open source software at <http://projects.arin.net>
- Other RIRs and Domain registries are also deploying RDAP

Systems (cont..)



- **Creating APIs to core services**
 - Allows YOU to create tools
 - Allows YOU to follow your timeline
- **projects.arin.net** (ACSP completed years ago)
 - If you find your tool is cool ... publish it on our site
 - Way to allow others to come find and use it
 - We had two takers so far since ARIN 33 with new tools
 - Whois-stats - Daily Whois Statistics Parser for JSON.
 - ArinWhois.net - A .NET client for ARIN's Whois-RWS.



What we are working on through 2015 Q3

- Further automation on transfers
- Add Links to Whois Query Responses (ACSP 2011.29)
- Change Whois Output for Certain /8 Records (ACSP 2013.4)
- Two-Factor Authentication (ACSP 2013.8)
- Moving RDAP pilot into production
- Start “SWIP Easy” – a web-based tool to send in reassignment information
- Work on various other ACSPs
- Multiple transit links per Public Facing Site (PFS) with DDoS mitigation
- New load balancers for https support
- New west coast PFS site
- Security audit
- Technical backlog (example: moving from Java6 to Java8)



Comments?