Engineering Report

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Engineering Maintaining Momentum

- **Lots of hiring last year**
- **We have filled all of our open positions but were challenged finding qualified/interested candidates**
- **Converting a contractor slot into two entry-level FTE's**
- **Challenges**
  - **Upcoming move**
  - **Issues dealing with working in extremely close proximity to others**

Staffing Summary

- Operations
  - **Thirteen engineers + two managers (+2 since last meeting)**
  - **FULL**
- Development
  - **Twelve engineers + UX expert + manager**
  - **One opening**
- Software Integration
  - **Nine engineers + manager**
  - **One opening**
- Project Management
  - **One PM and one PT PM**
  - **FULL**
- CTO
  - **FULL**

Open Positions

- **Entry-level Software Test Engineer**
- **Entry-level Developer**

Accomplishments since ARIN 36

- ## Transfers
  - ### 8.4 (Inter-RIR) released

- ## Fee Schedule

- ## UI work
  - ### Feedback from UX (User Experience)
  - ### User-friendly left hand navigation within ARIN Online

ARIN Online User Interface Work

- New ARIN Online welcome screen/dashboard
- ARIN Online main navigation updated
- Necessary for SWIP-EZ
- Usability tests with the community
  - **Volunteers at ARIN On The Road events**
  - **Local volunteers**
  - **Remote testing soon**
  - **Testing of new dashboard, new left navigation and other aspects of ARIN Online**
  - **Interested in helping? Send email to usability@arin.net**

Welcome Screen/Dashboard

- **Dashboard is dynamic**

- **Shows various alerts (and prompts) as necessary including all the ones you are used to seeing about unresponsive POCs and unpaid invoices.**

Note the badge in the left nav – it indicates the number of unread messages in your Message Center

- ⚙️ Dashboard
- Tickets & Messages **1** ▾
- Your Account ▾
- IP Addresses ▾
- ASNs ▾
- Transfer Resources
- Payments & Billing
- Downloads & Services
- **Ask ARIN**
  Create a help desk ticket

log out

Dashboard

Alerts

✉️ You have an **unread message.**

🔓 Your account is not currently protected by two factor authentication. **Learn more** or **enroll today**!

Associations

3
Point of Contact records (POCs)

ARINOPS
Organization Identifier (Org ID)

17 Direct Networks (NETs)
├ **28** /24 IPv4 Address Blocks
└ **7** /48 IPv6 Address Blocks

5
Autonomous System Numbers (ASNs)

💵 Unpaid Invoices

Invoice #	Org ID	Amount	Due Date
SI253422	ARINOPS	$175.00	Feb 12, 2016

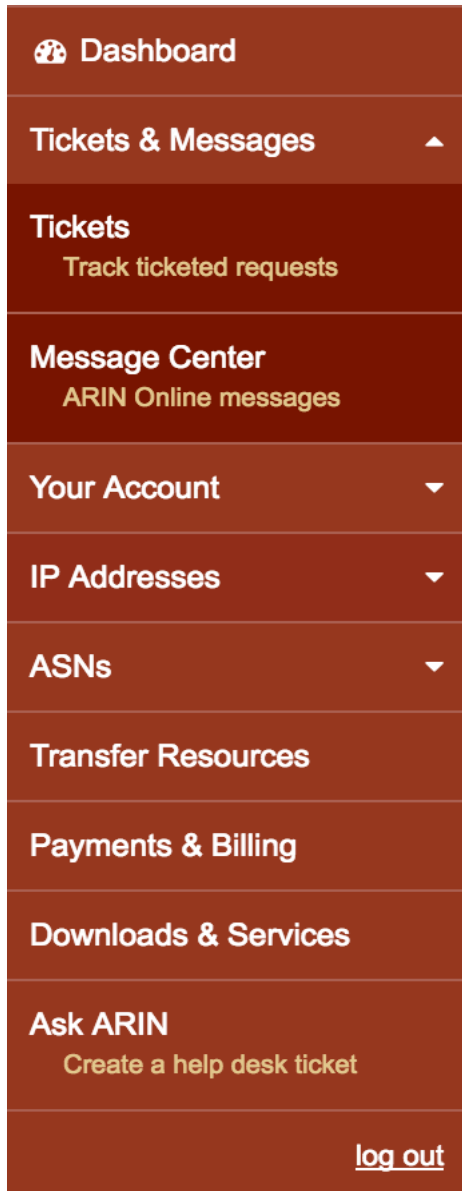### 👥 Unvalidated Point of Contact Records

Handle	Name
ALN1-ARIN	Andrew Newton

❓ What's New With ARIN Online

Visit ARIN Online Functionality for an overview of all the functionality currently available within ARIN Online.

8

Main Navigation

ARIN 37
JAMAICA | 17-20 APRIL 2016

Dashboard

Tickets & Messages ▲

Tickets
Track ticketed requests

Message Center
ARIN Online messages

Your Account ▼

IP Addresses ▼

ASNs ▼

Transfer Resources

Payments & Billing

Downloads & Services

Ask ARIN
Create a help desk ticket

log out

- **Added click-to-expand sub-navigation**

- **Grouped related items**

- **IP Addresses and ASNs are now top-level items**

- **Added help text to items**

Create Reassignment

Reassignment Details

Please enter the network details.

*denotes required field

*IP Address Range

Please enter an IP address range, for example 192.0.0.0-192.255.255.255 or 192.0.0.0/8.

*Network Type

▾ **Help me choose**

Will the network you are creating be able to create its own reassignments?

🔘 Yes　　⚪ No

⚪ **Simple Reassignment** ℹ️
⚪ **Detailed Reassignment** ℹ️
🔘 **Reallocation** ℹ️

Use this for a downstream organization that will further reassign IP addresses to its own customers.

*Network Name

Use the network name as an identifier. Letters, numbers and dashes (-) are allowed, up to 50 characters.
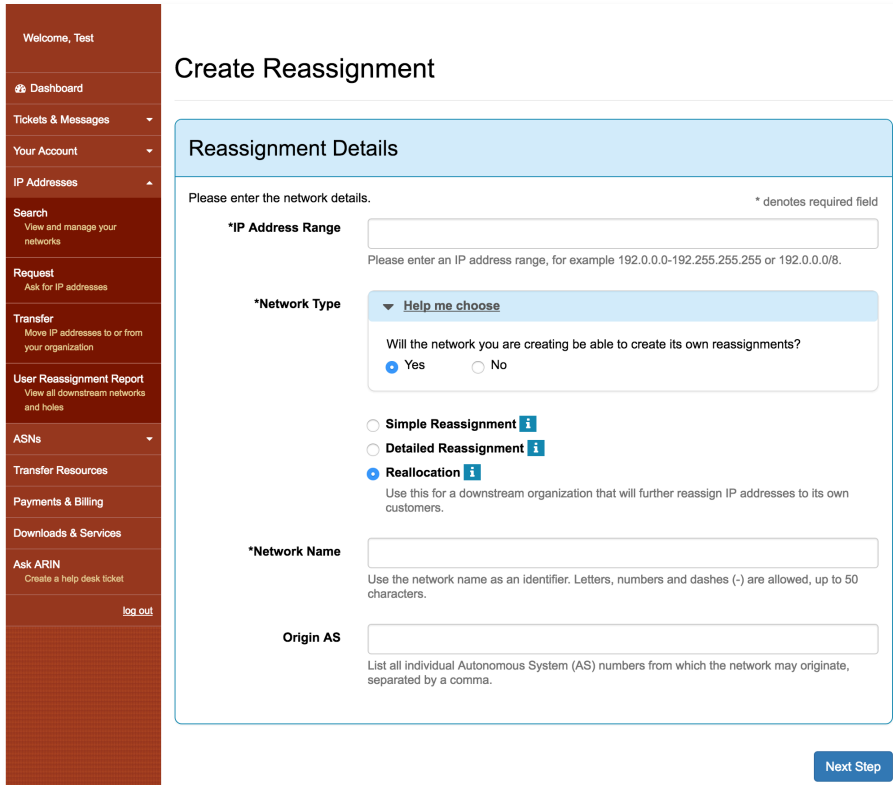
Origin AS

List all individual Autonomous System (AS) numbers from which the network may originate, separated by a comma.

Next Step

10

SWIP EZ
Create Reassignment

- Has a short quiz that chooses the SWIP type based on your answer

- Provides the details about each SWIP type on demand (click the "i" icon)

Operational Achievements

- DDOS mitigation service
  - **Setup for provisioning and major public facing sites**
  - **Sadly, we have had to use it**
- Better Security Posture
  - **Following security audit recommendations**
  - **Better view on catching "interesting" traffic within our networks**
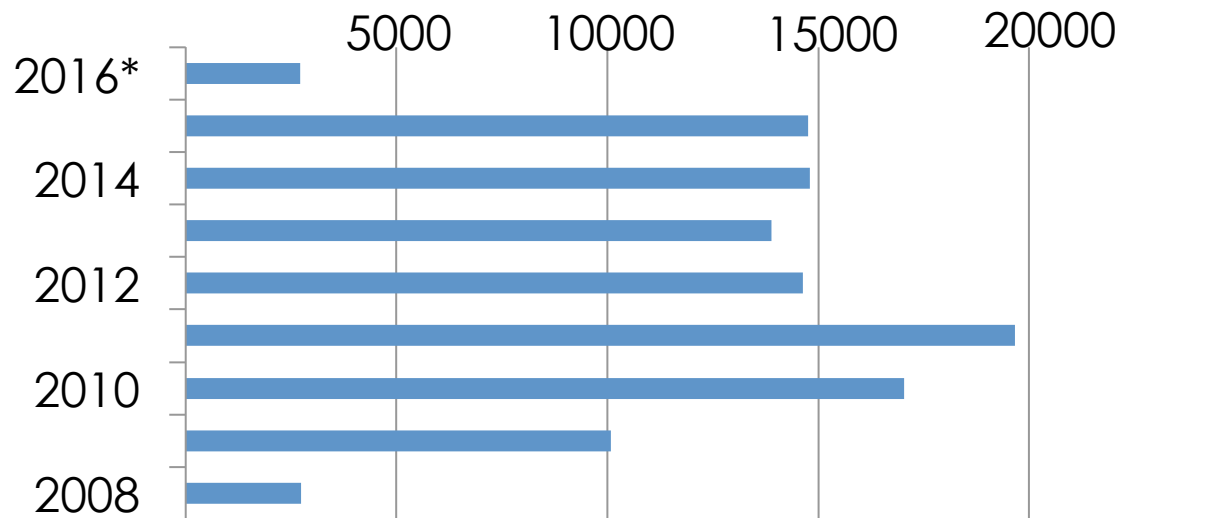
Operational Challenges

- DDOS attacks
  - **Started Friday afternoon 3 out of 5 weeks**
  - **Typically ended by 1:00AM**
  - **Targeted our provisioning networks**
  - **Determined attacker**
  - **Multiple waves**
  - **70GB was largest attack**

ARIN Online Usage

- **110290 accounts activated since inception through Q1 of 2016**
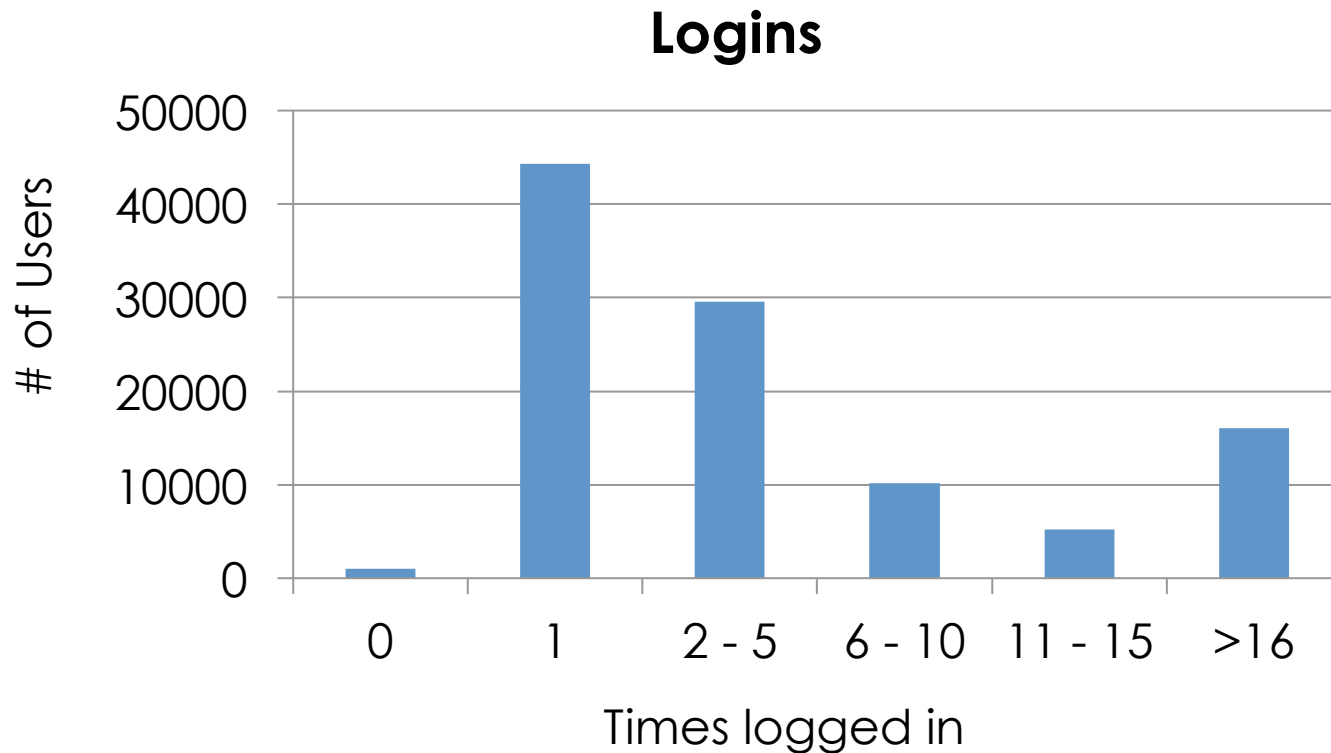
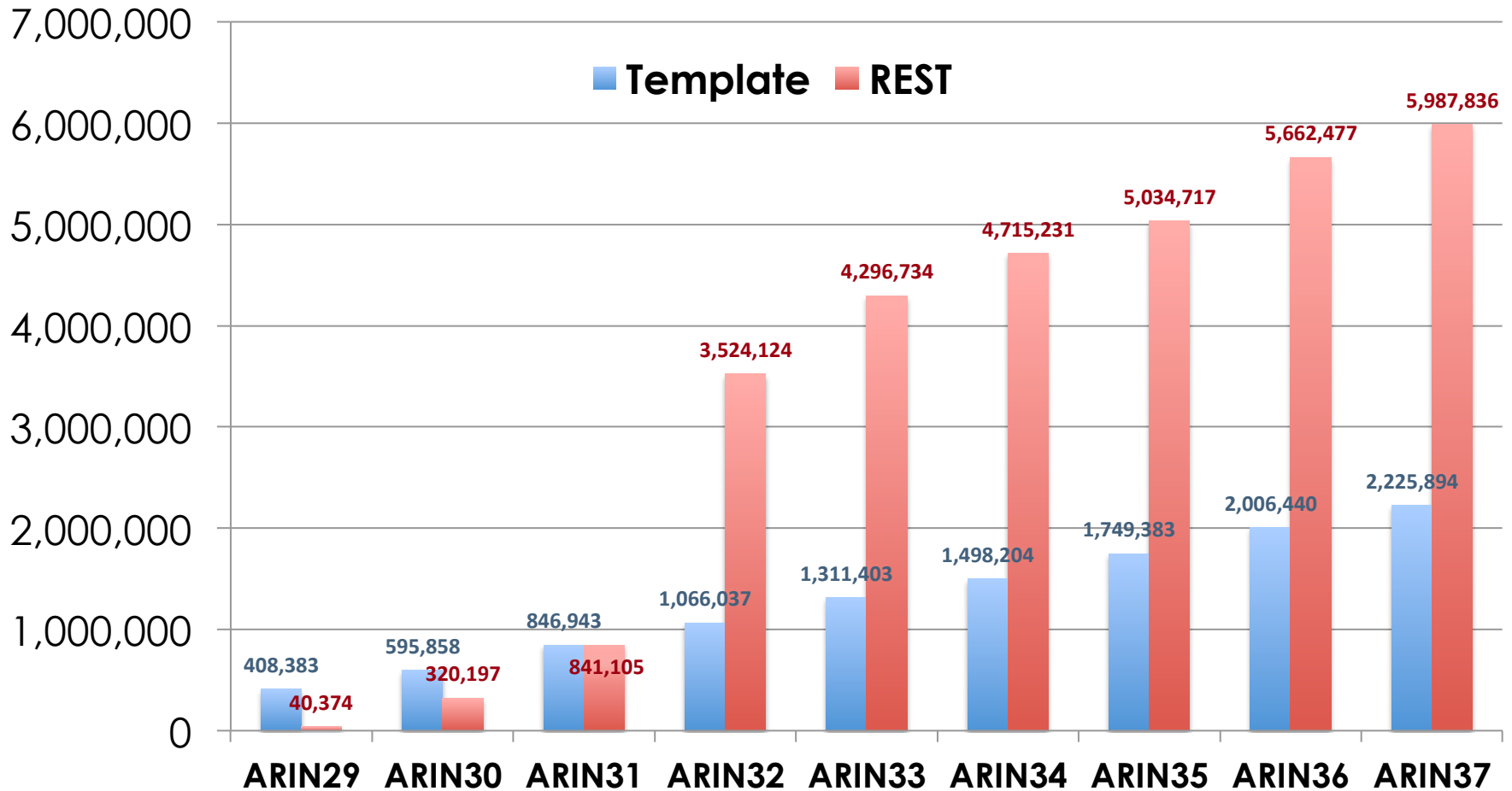**Number of Accounts Activated**

* Through Q1 of 2016

Active Usage of ARIN Online

- **Logins from inception through Q1 of 2016**

Reg-RWS Transactions
(cumulative)

Chart showing Template and REST transactions (cumulative):

	ARIN29	ARIN30	ARIN31	ARIN32	ARIN33	ARIN34	ARIN35	ARIN36	ARIN37
Template	408,383	595,858	846,943	1,066,037	1,311,403	1,498,204	1,749,383	2,006,440	2,225,894
REST	40,374	320,197	841,105	3,524,124	4,296,734	4,715,231	5,034,717	5,662,477	5,987,836

DNSSEC

	ARIN 37
Number of Orgs with DNSSEC	134
Total Number of Delegations	593,946
DNSSEC Secured Zones	619
Percentage Secured	0.1 %

RPKI Usage

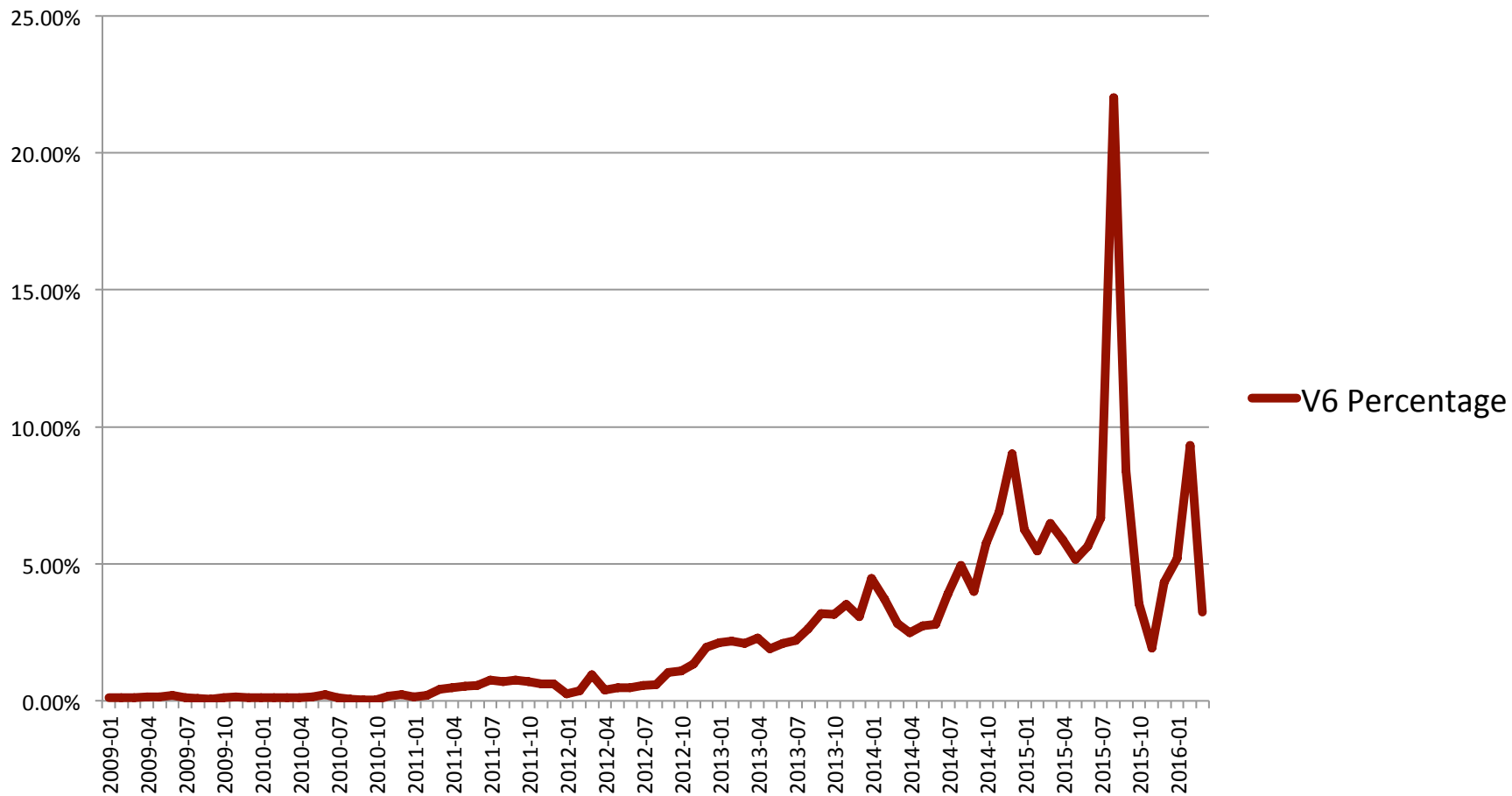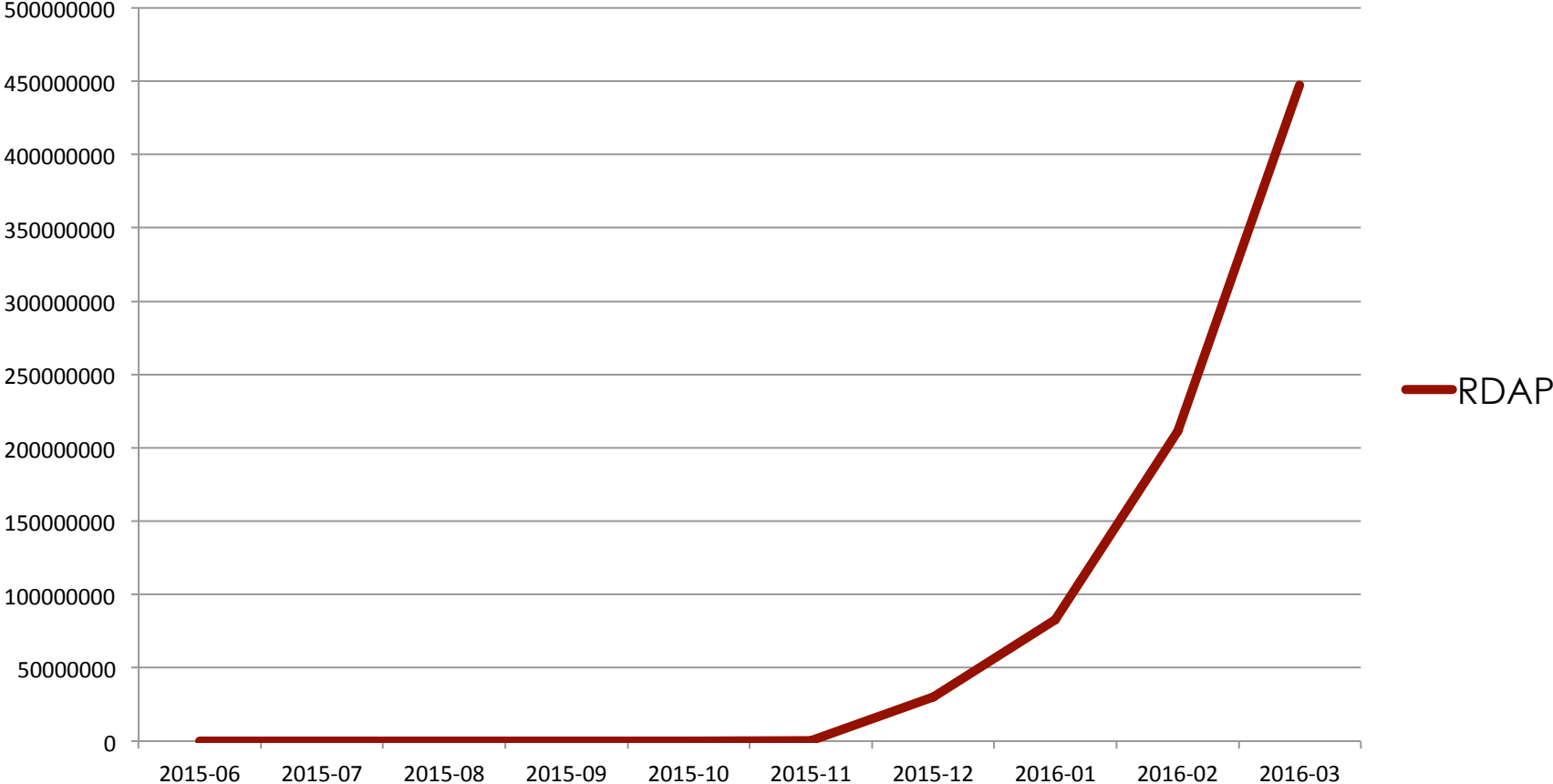|	Oct 2012	Apr 2013	Oct 2013	Apr 2014	Oct 2014	Apr 2015	Oct 2015	Apr 2016
Certified Orgs		47	68	108	153	187	220	250
ROAs	19	60	106	162	239	308	338	370
Covered Resources	30	82	147	258	332	430	482	528
Up/Down Delegated			0	0	0	1	2	1

Whois Queries Per Second
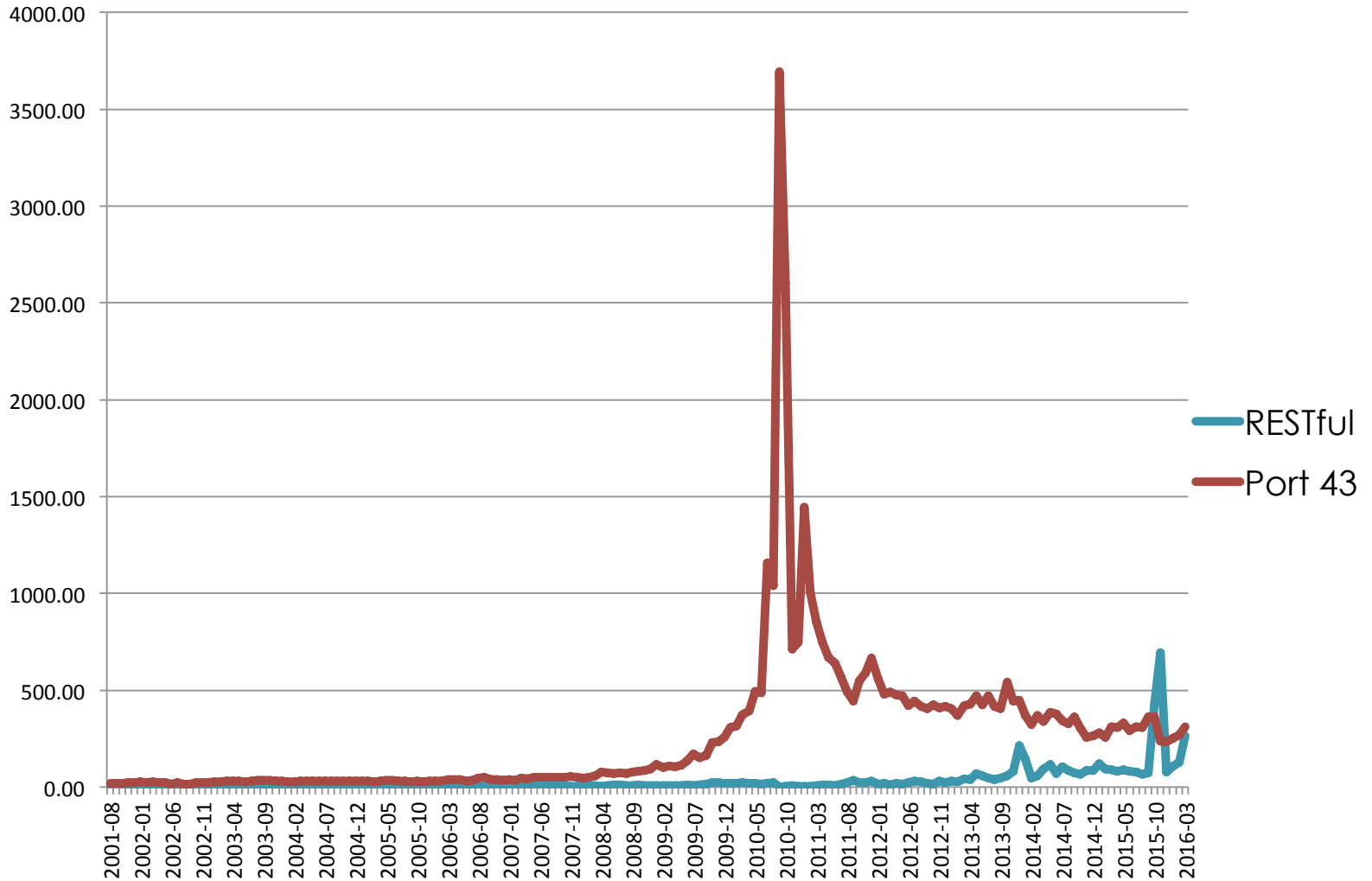
Whois via IPv6

Percentage Traffic over IPv6

RDAP

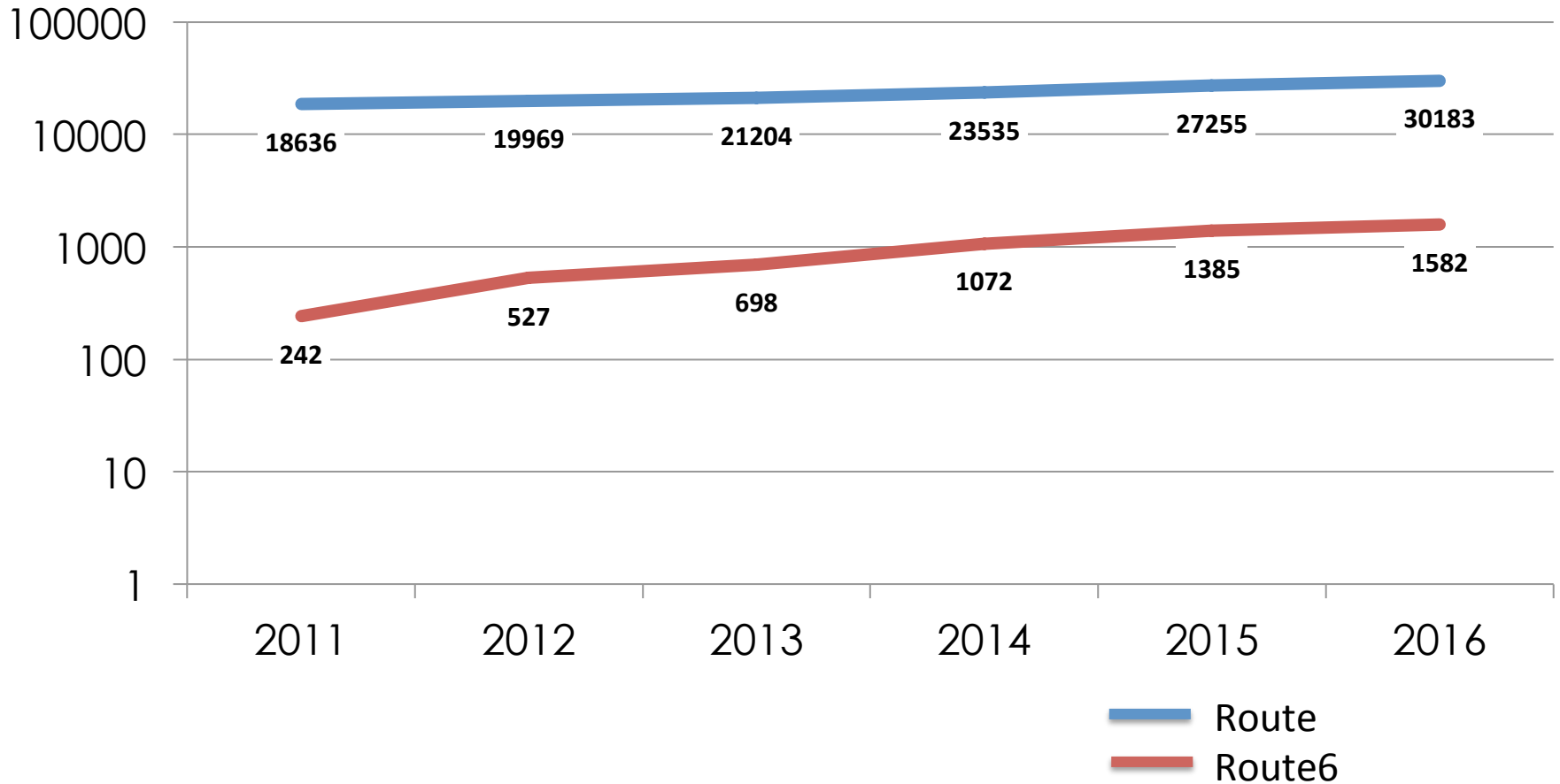## Total Queries
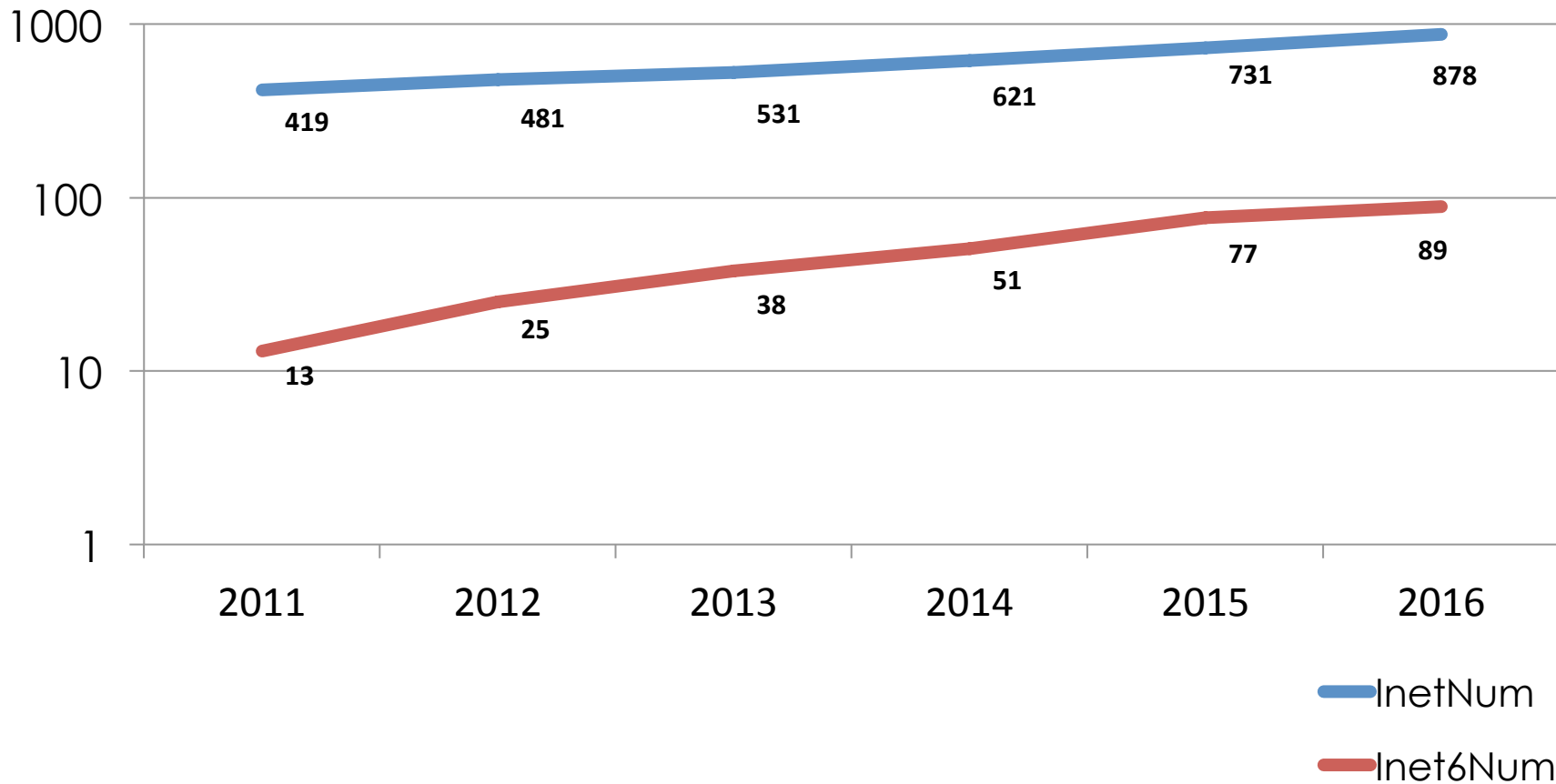
IRR Maintainers

Maintainers
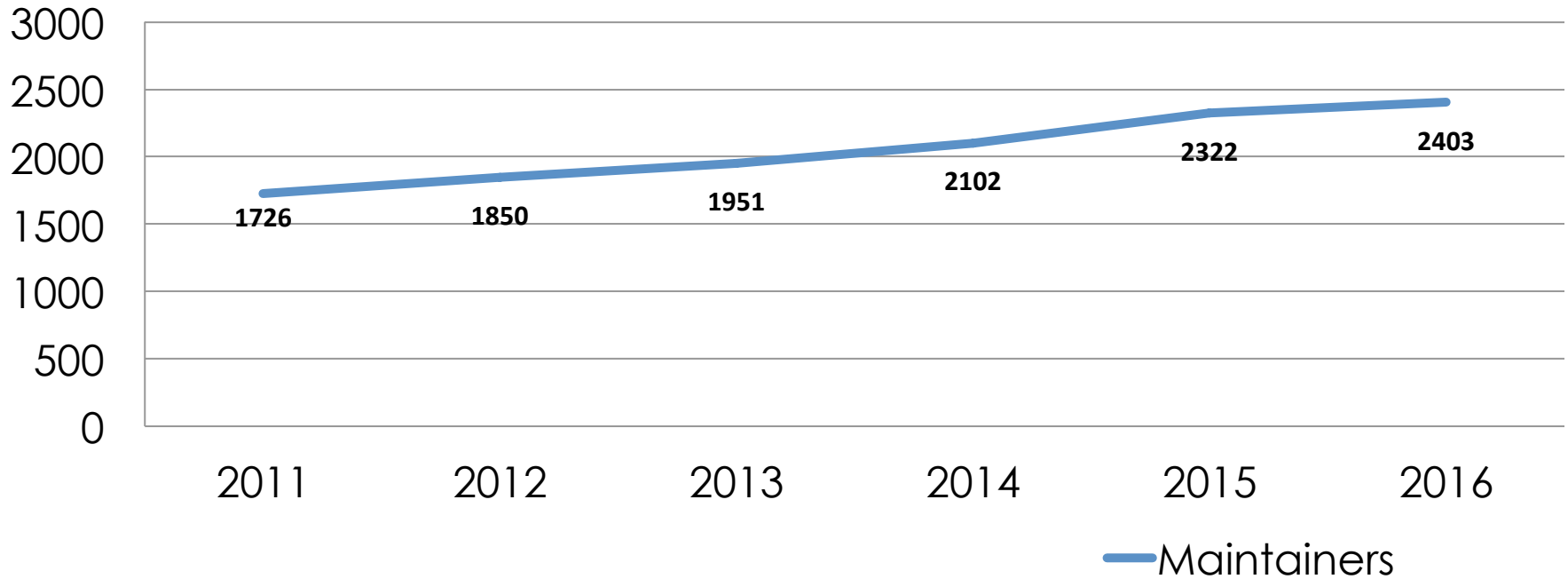
2016 Data through Q1

IRR Route / Route6

2016 data through Q1

IRR InetNum / Inet6Num

2016 data through Q1

IRR object breakout by Organization

Number of Organizations	Number of Objects
40	100-1000
3	90-99
4	80-89
5	70-79
17	60-69
11	50-59
386	10-49
537	5-9

What we are working on through 2016 Q3

- **Moving – include rolling out a new network with better security controls**
- **Rollout "SWIP Easy" – a web-based tool to send in reassignment information**
- **Work on various ACSPs**
- **Work on fully redundant services (like Reg-RWS) to allow for rolling deployments**
- **Technical backlog**
  - **Moving from Java6 to Java8**
  - **Integrating puppet throughout the development cycle**
  - **Improved monitoring, logging, etc**

Comments?