



Registration Services Update

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Current RSD Staff

- Total of 8 analysts currently
 - **Cathy Clements, Principal Resource Analyst**
 - **Jon Worley, Principal Technical Analyst**
 - **Lisa Liedel, Senior Resource Analyst**
 - **Doreen Maraffa, Resource Analyst**
 - **Mike Pappano, Resource Analyst**
 - **Eddie Diego, Resource Analyst**
 - **Misuk Kwon, Resource Analyst**
 - **Shawn Sullivan, Resource Analyst**
 - **Sue Dobert, Resource Analyst (out indefinitely)**
- No change in staffing levels for past 3.5 years

RSD Core Functions

- **IPv4, IPv6, and ASN** requests (including vetting, fraud reports, etc.)
- Transfer requests and related services
 - **STLS, transfer pre-approvals**
- Database Record Maintenance
 - **Org IDs, POC handles, reassignments, etc**
- Customer support
 - **Ask ARIN**
 - **Telephone helpdesk (60 hours per week)**
 - **hostmaster@arin.net email**

RSD Support Functions

- Policy development & implementation
 - **Staff assessments, implementation plans, etc.**
- Software development
 - **Requirements, testing**
- Communications
 - **Guidelines, documentation, announcements, ACSP implementation, etc.**
- Outreach
 - **ARIN On The Road, trade shows, presentations, etc.**
- Statistics and database analysis
 - **Monthly stats, community requests for data, etc.**

Changing Dynamics

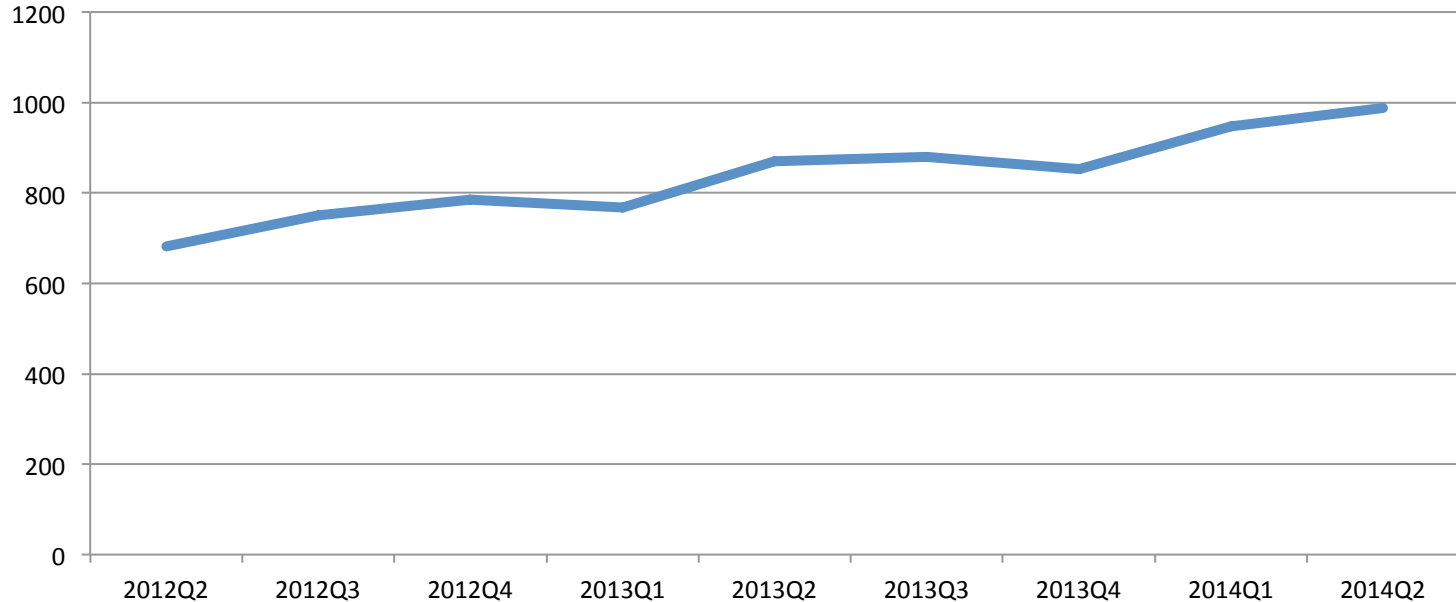
- IPv4 Depletion
 - ***Changes due to Depletion plan/Team Review***
 - ***More out of region requests***
 - ***More requests involving new technologies and services***
- New Customer Profile
 - ***ISPs directing downstream customers to ARIN for IPv4 addresses***
 - *More education required for newcomers*
- Expected Workload Increase
 - ***Will see more legacy holders become active in 8.3 transfers post-depletion***
 - *Increase in vetting and chain of custody workload*
 - ***Many 8.3 transfers will be preceded by 8.2 transfers to bring registrations current***

Factors Affecting IPv4 Requests

- Phase 4 Team Review has slowed IPv4 request process
 - ***IPv4 requests and responses are serialized (first in, first out)***
 - ***Involves a second team member for each customer interaction***
- Customer Depletion Concerns
 - ***Many concerns about IPv4 unavailability later, frustration with policies***
- Increased Fraudulent Activity
 - ***More due diligence and staff time required to deal with increase in potentially fraudulent requests and fraud reports***

Increase In IPv4 Workload

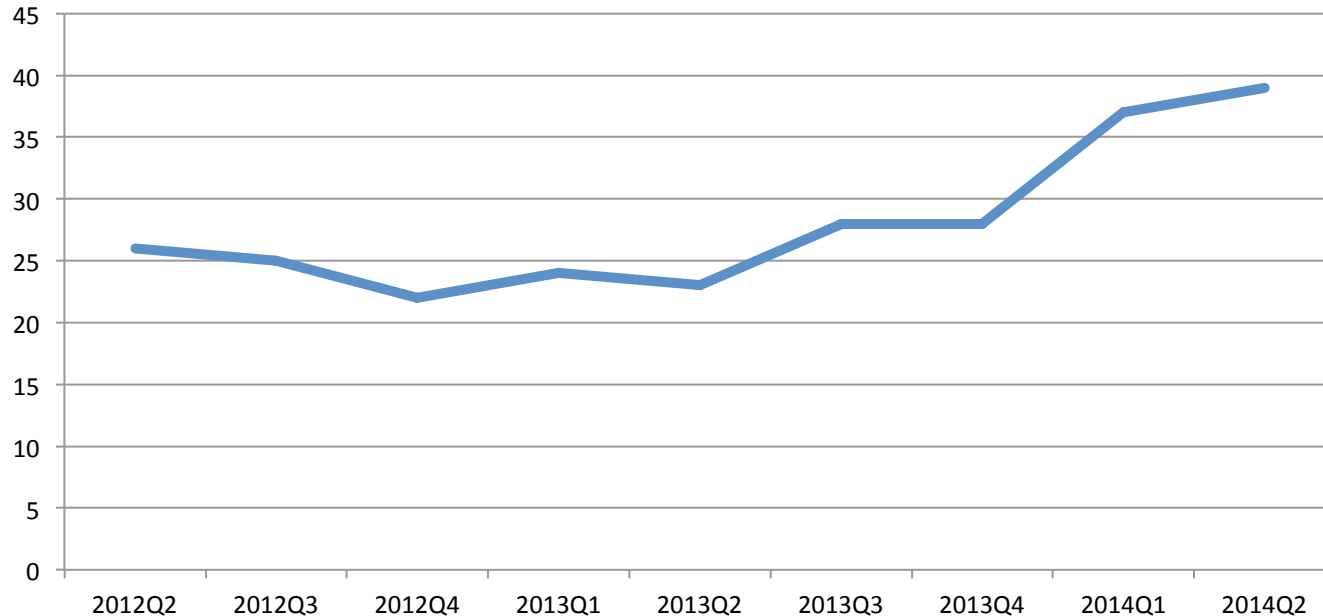
IPv4 Requests



- **~45% increase in IPv4 requests from 2012Q2 to 2014Q2**
- **More work on each ticket due to increased complexity, fraud evaluation, team review, etc.**

IPv4 Approved Ticket Length

Average Approved IPv4 Ticket Length



- **Average number of days it takes to move request from receipt to final approval**
- **Need for stronger scrutiny and the team review requirement of Phases 3 & 4 have lengthened processing time**
- **Response times (per interaction) at 3-5 business days**

Why IPv4 Team Review?

- IPv4 requests and responses reviewed on first in, first out basis
 - **Multiple parties vying for limited inventory**
 - **Need for fair and equitable distribution of this limited resource**
- IPv4 requests reviewed by minimum of 2 analysts
 - **Need to ensure consistent application of policies and procedures**

Daily IPv4 Team Review Process

- 3 analysts assigned ~30 tickets each to review (oldest first)
 - **Preliminary review conducted and conclusions, action items, etc. noted**
- 1 senior analyst dedicated to reviewing initial assessment and responding
 - **Since prep work has already been done, responses can be done more quickly**
- More time-efficient than multiple analysts meeting, reviewing, then responding

Clarification on Other Request Types

- Specific analysts are assigned to all other tasks
 - **IPv4 team review does not delay these**
 - **All are still within 2 day response time per SLA**
- Transfers involve review by multiple analysts
 - **Analysts consult with senior staff or Director on all transfers and must receive sign off before approving**

Current IPv4 Inventory

- **Available Inventory**
 - **.63 /8 equivalents**
- **Reserved Inventory***
 - **14.9 /16 equivalents** in the “RRH” bucket (number fluctuates)
 - (RRH = returned, revoked, held)
 - **/10 reserved for NRPM 4.10 “Dedicated IPv4 block to facilitate IPv6 Deployment”**
 - **225 /24s reserved for micro allocations**

***As of September 29, 2014**

REMAINING IPV4 INVENTORY	
Discrete Block Size (CIDR)	Number of Blocks Available
/10	1
/11	1
/12	2
/13	1
/15	1
/16	8
/17	4
/18	7
/19	6
/20	10
/21	87
/22	93
/23	411
/24	1010

Per policy, a /10 was reserved out of the last /8 to facilitate IPv6 deployment and that space is not included in our inventory count.

Block Size Distribution of ARIN's Remaining IPv4 Inventory

*https://www.arin.net/resources/request/ipv4_countdown.html

Global Policy for Post Exhaustion IPv4 Allocation Mechanisms by the IANA

- RIRs may return IPv4 space of any prefix size to IANA
- IANA will issue this returned space in equal allocation sizes to the 5 RIRs twice per year (March & Sept)
- Policy activated when first RIR reaches /9 in its IPv4 inventory (LACNIC in May 2014)
- IANA started with ~1.21 /8s
 - **10 /12s issued to date (2 to each RIR) under this policy**

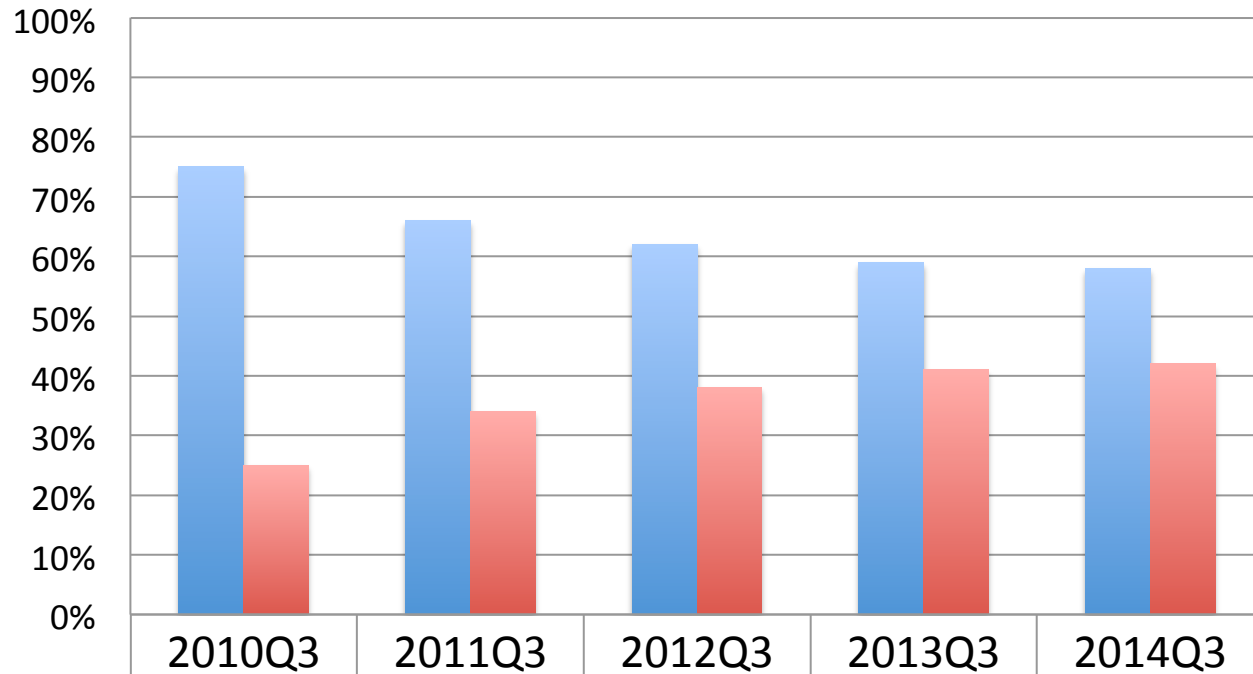
Completed IPv4 Market Transfers (NRPM 8.3 & 8.4)



- NRPM 8.3 - Transfers to Specified Recipients
 - **91 transfers completed (53,628 /24s and 15 ASNs)***
- NRPM 8.4 - Inter-RIR Transfers
 - **42 transfers completed (5,048 /24s total)***

***As of August 31, 2014**

ISP Members with IPv4 and IPv6

IPv4-only and IPv4+v6 ISPs



 % IPv4 Only	75%	66%	62%	59%	58%
 % IPv4 and IPv6	25%	34%	38%	41%	42%

***4,818 total members**

Questions?

