



ARIN Update

Caribnog 5

Mark Kusters
CTO, ARIN

What does an Regional Registry do

- **Allocate resources**
 - IPv4, IPv6
 - 2-byte and 4-byte ASNs
- **Promote IPv6**
- **Participate in internet governance**
- **Provide directory services**
- **Provide certification services**

2013 Focus

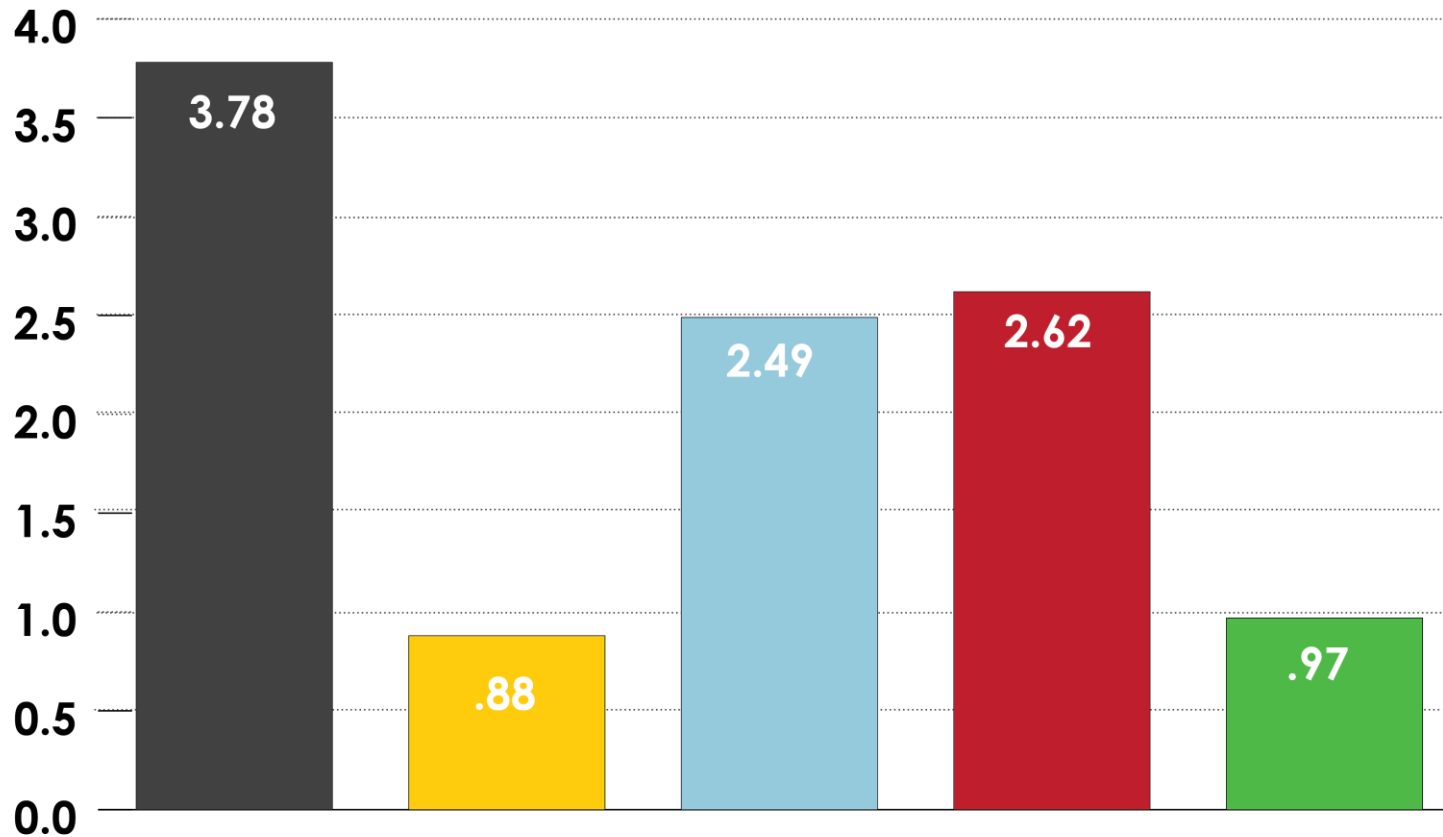
- **IPv4 Depletion & IPv6 Uptake**
 - Developing, adapting, and enhancing processes and procedures
 - IPv4 Depletion Plan
 - Continuing IPv6 outreach
 - IPv4 Transfers
- **Continued development and integration of web-based system (ARIN Online)**
- **Continuing migration from legacy systems by deploying new functionality**
- **RPKI deployment**
- **Continued participation in Internet Governance forums**

IPv4 Global Depletion

- **Allocation Process**
 - IANA -> RIR -> ISP
- **IANA IPv4 Address Depletion Date**
 - Feb 3, 2011
- **Regional Registry Status**

AVAILABLE IPv4 /8s IN EACH RIR

■ AfriNIC ■ APNIC ■ ARIN ■ LACNIC ■ RIPE NCC



Internet Number Resource Report

Current IPv4 Inventory



2.43 /8 equivalents
in the pool of
“available addresses”

6.43 /16 equivalents in the “RRH” bucket
(RRH = returned, revoked, held)

1 /10 reserved

- For NRPM 4.10 “Dedicated IPv4 block to facilitate IPv6 Deployment”

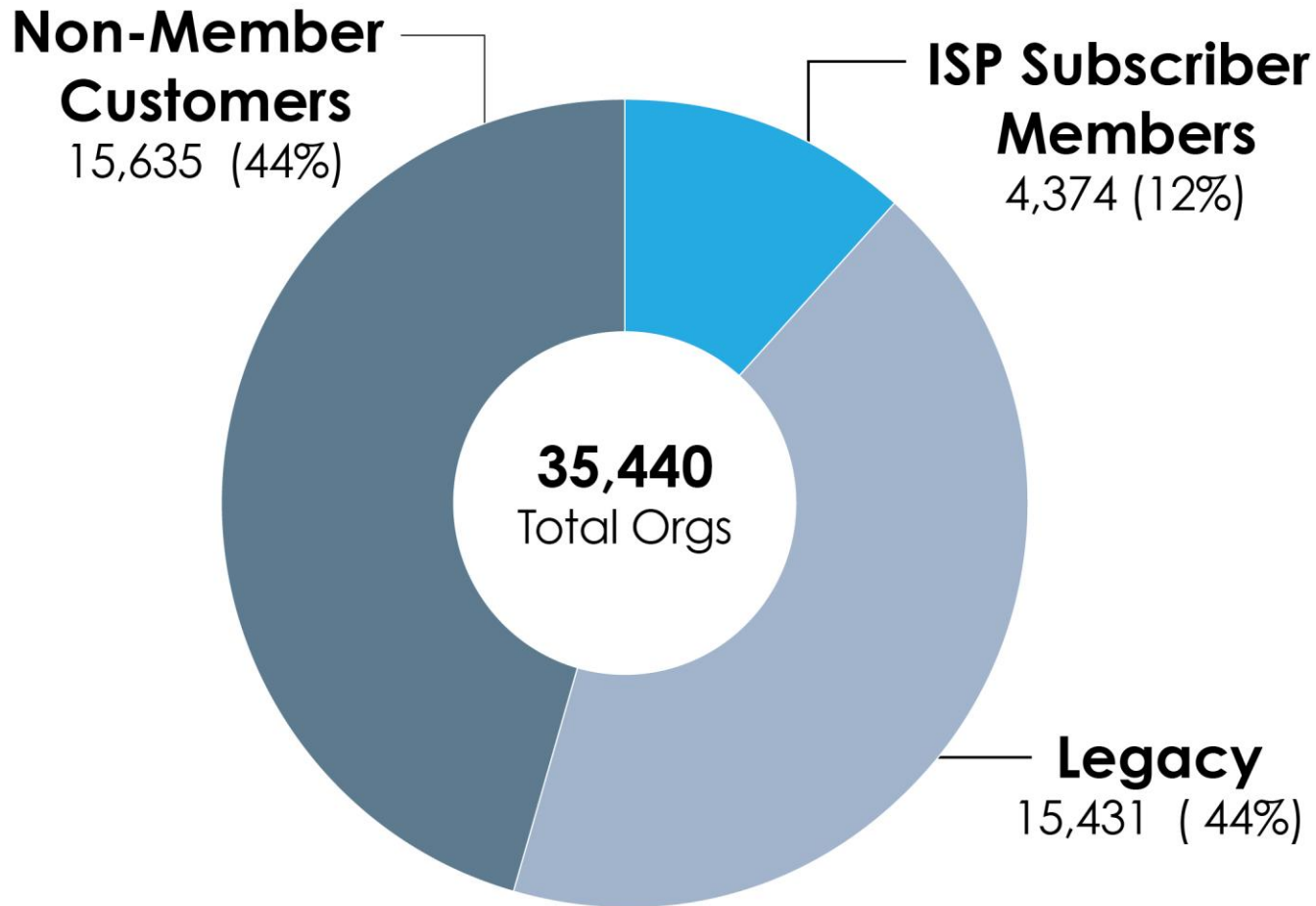
Burn Rate vs. Churn Rate- IPv4



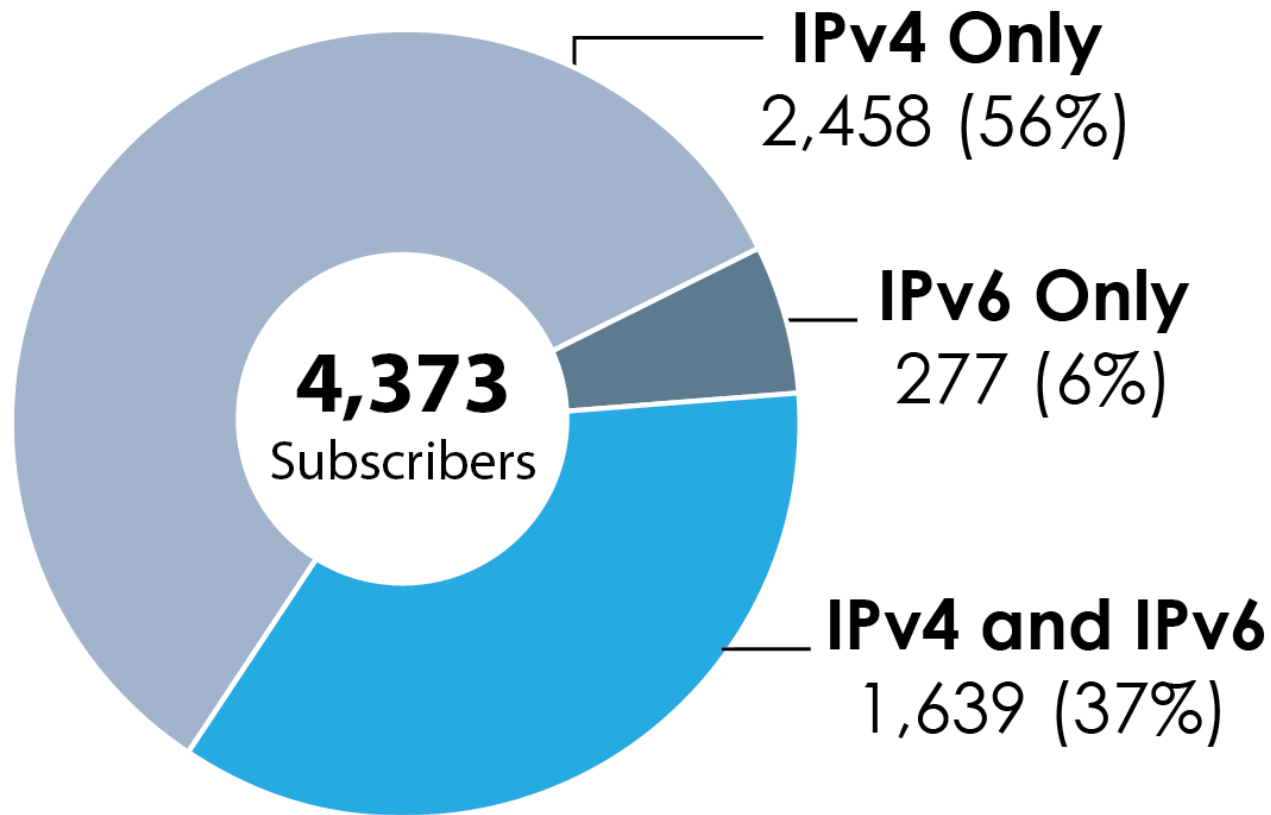
Burn Rate vs. Churn Rate - ASNs



Total Organizations Served by ARIN

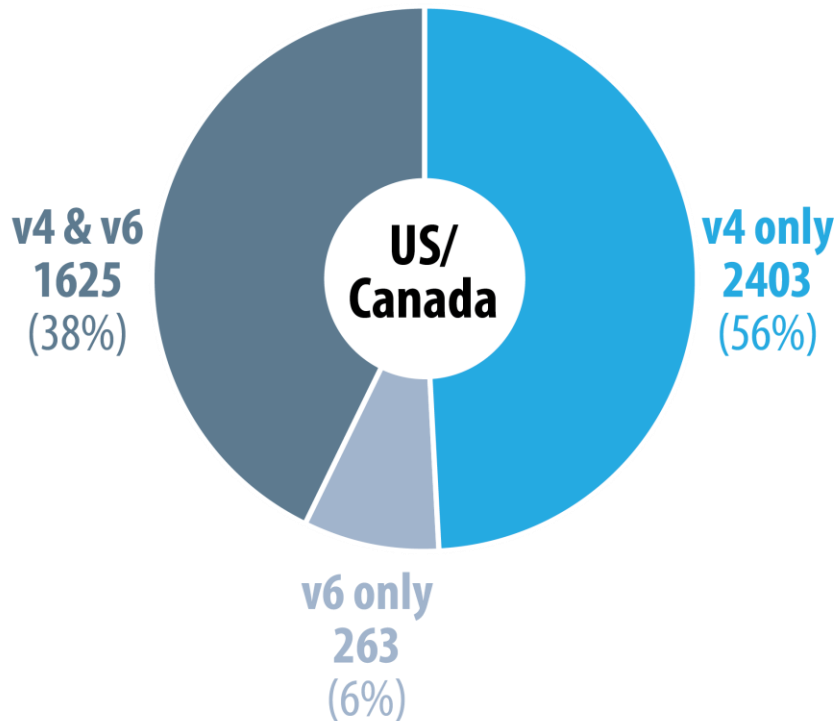


IPv4 vs IPv6 Subscribers

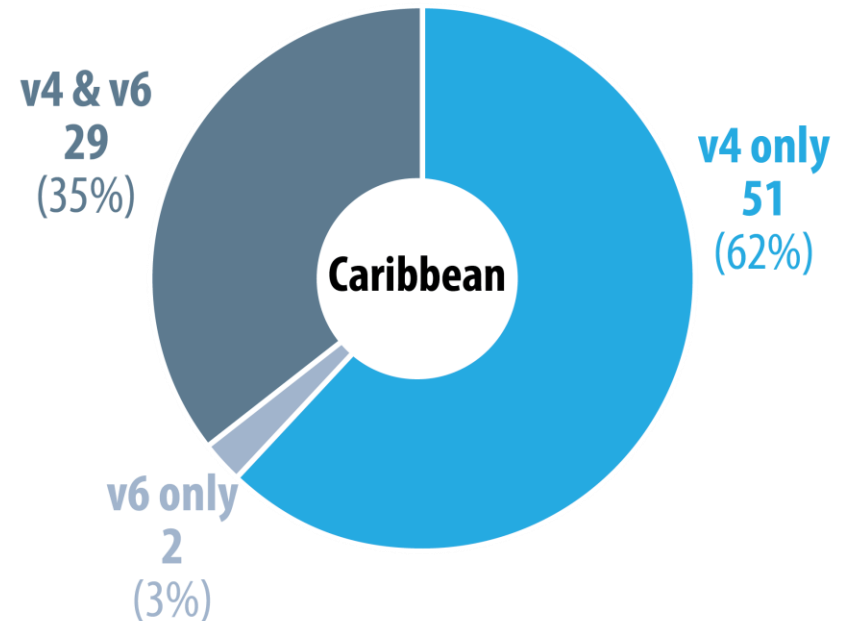


Regional ISP IPv6 Adoption

4,300 ISP Subscribers

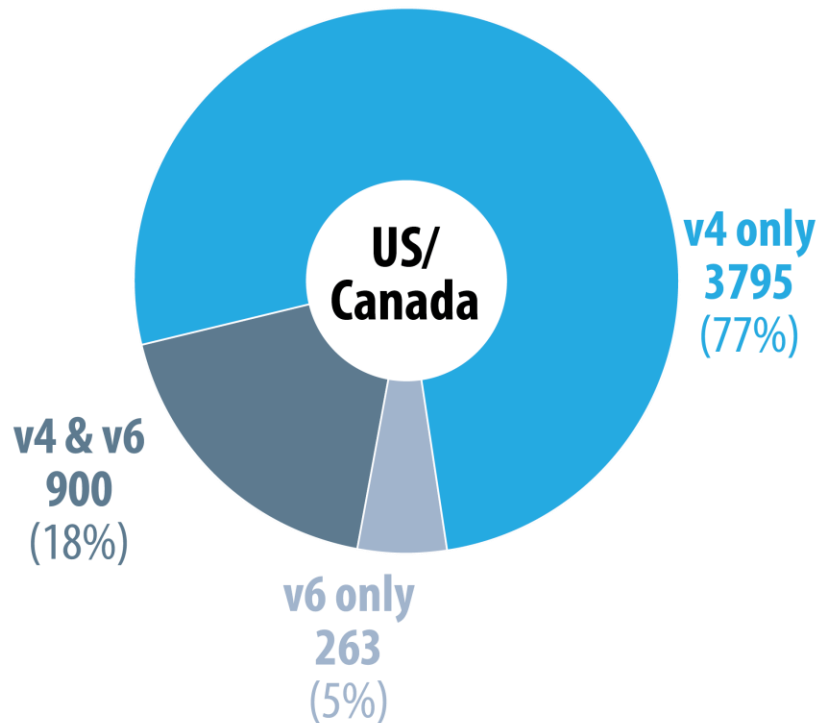


82 ISP Subscribers

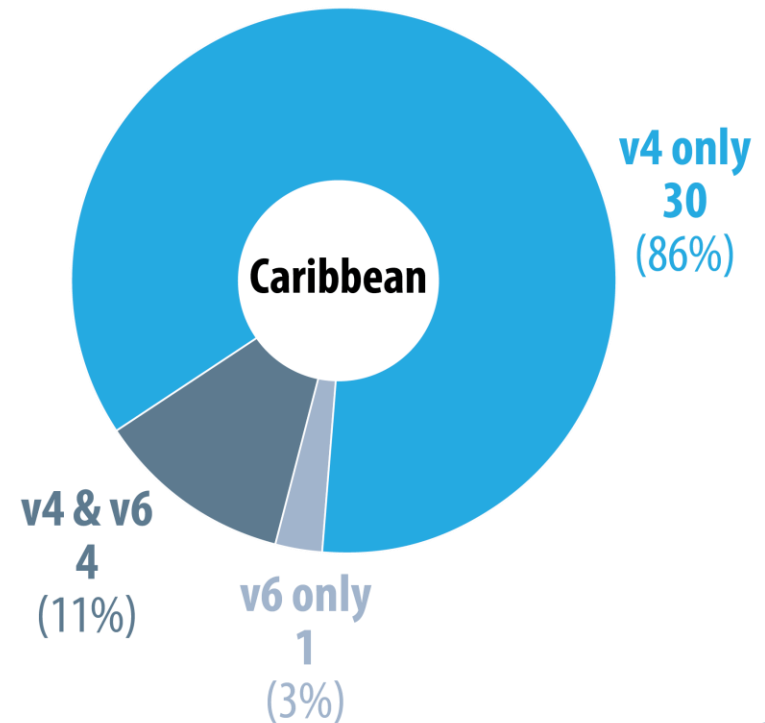


Caribbean End User Stats

4993 total non-legacy end users
4958 of them are in the US/Canada



35 of them are in the Caribbean



How do I get IPv4 Space

- You can still get space from ARIN
- You can also get space from the transfers
 - Transfer within region
 - Transfers between region

Update on Resource Transfers

- **Continued IPv4 transfers**
 - Some Bankruptcy-related
 - Some larger underutilized blocks
- **Inter-RIR IPv4 transfers**
 - APNIC (8 completed)
 - RIPE (tbd?)
- **ASN Transfers**
- **Legacy Resources**

Completed IPv4 Address Space Transfers (NRPM 8.3)

204.16.240.0/21	198.32.182.0/23	67.215.108.0/22	131.253.62.0/23	192.84.161.0/24	47.16.0.0/14	47.72.0.0/15
216.243.96.0/20	198.32.190.0/23	69.55.32.0/20	131.253.64.0/18	198.49.8.0/24	47.20.0.0/14	131.150.144.0/20
198.32.99.0/24	198.32.192.0/24	131.253.1.0/24	131.253.128.0/17	198.200.130.0/24	64.72.208.0/20	199.15.232.0/21
198.32.100.0/22	198.32.241.0/24	131.253.3.0/24	132.245.0.0/16	198.206.164.0/24	128.136.0.0/16	35.248.0.0/13
198.32.104.0/21	198.32.242.0/23	131.253.5.0/24	134.170.0.0/16	199.30.16.0/20	136.146.0.0/16	158.106.64.0/18
198.32.112.0/21	66.128.0.0/20	131.253.6.0/24	134.177.0.0/16	199.74.210.0/24	136.147.0.0/16	136.179.0.0/16
198.32.120.0/22	69.164.128.0/20	131.253.8.0/24	137.116.0.0/16	199.242.32.0/20	165.225.128.0/18	157.250.0.0/18
198.32.124.0/23	198.32.195.0/24	131.253.12.0/22	137.117.0.0/16	199.242.48.0/21	170.71.0.0/16	40.128.0.0/12
198.32.128.0/24	198.32.196.0/24	131.253.16.0/23	137.135.0.0/16	204.152.140.0/23	54.224.0.0/12	206.190.128.0/19
198.32.129.0/24	130.167.0.0/16	131.253.18.0/24	138.91.0.0/16	160.153.0.0/16	65.22.0.0/16	209.95.32.0/19
198.32.133.0/24	198.32.144.0/24	131.253.21.0/24	141.251.0.0/16	216.71.224.0/20	208.67.120.0/21	159.118.0.0/16
198.32.134.0/23	199.7.82.0/24	131.253.22.0/23	192.32.0.0/16	54.240.0.0/12	47.54.0.0/15	209.71.128.0/19
198.32.175.0/24	198.32.132.0/24	131.253.24.0/21	192.48.225.0/24	174.44.0.0/16	199.254.238.0/24	54.208.0.0/13
198.32.176.0/23	198.32.186.0/24	131.253.32.0/20	192.84.159.0/24	208.83.128.0/22	47.53.0.0/16	54.216.0.0/14
198.32.181.0/24	216.139.64.0/19	131.253.61.0/24	192.84.160.0/24		47.58.0.0/15	54.220.0.0/15
					47.60.0.0/14	192.64.205.0/24
					47.64.0.0/13	198.32.224.0/20

<https://www.arin.net/knowledge/statistics/transfers>

Resources Transferred under NRPM 8.3

- Total IPv4 blocks transferred: 30,540 /24s
- Total ASNs transferred: 7
 - Covered under RSA prior to transfer
 - 4638 /24s, 6 ASNs
 - Covered under LRSA prior to transfer
 - 2156 /24s, 0 ASNs
 - Not covered prior to transfer (legacy)
 - 23,746 /24s, 1 ASN

Transfers Between Specified Recipients (NRPM 8.3) Requests

8.3 Transfer Requests (Jan 1, 2011 through Mar 31, 2013)	Totals	Percentage
Requested	84	
Completed	47	56%
Denied	16	19%
Pending	12	14%
Abandoned	9	11%

NRPM 8.3 Transfers – Reasons for Denial

- Requests to transfer to a party without any operational need
- Requests to transfer blocks by other than actual registrant
- Requests to transfer block sizes smaller than minimum
- Requests to transfer blocks larger than needed by recipient

Completed Inter-RIR Transfers (NRPM 8.4)

IPv4 Address Range	Region of the Recipient of the Transfer	Effective Date
205.166.177.0/24	APNIC	October 2012
198.180.142.0/24	APNIC	December 2012
199.43.18.0/23	APNIC	December 2012
199.43.45.0/24	APNIC	December 2012
199.43.63.0/24	APNIC	December 2012
204.75.142.0/24	APNIC	December 2012
157.250.64.0/18	APNIC	January 2013
132.147.64.0/18	APNIC	January 2013

<https://www.arin.net/knowledge/statistics/transfers.html>

Resources Transferred under NRPM 8.4

- **Total IPv4 blocks transferred: 135 /24s**
 - Covered under RSA prior to transfer
 - 68 /24s
 - Covered under LRSA prior to transfer
 - 2 /24s
 - Not covered prior to transfer (legacy)
 - 65 /24s

Inter-RIR Transfers to/from RIPE Region

- **RIPE Policy Proposal 2012-02: “Policy for Inter-RIR Transfers of IPv4 Address Space”**
 - If adopted, would be compatible with ARIN’s Inter-RIR transfer policy, thus opening up transfers to/from parties in RIPE region
- **RIPE Policy Proposal 2013-03: “No Need - Post-Depletion Reality Adjustment and Cleanup”**
 - If adopted, would prevent transfers to/from RIPE region, until such time as RIPE or ARIN xfer policy were aligned by further change

Completed AS Transfers (NRPM 8.3)

Autonomous System Number	Effective Date
AS3943	August 2012
AS62	August 2012
AS19996	December 2012
AS4557	February 2013
AS4555	March 2013
AS12189	March 2013
AS22557	March 2013

Draft Policy ARIN-2013-1

“Section 8.4 Inter-RIR Transfers of ASNs”

- Recommend by ARIN AC
- To be discussed at ARIN 31 (onsite and remote participants)
- If supported by the community, could be advanced to last call then ARIN Board for adoption by early summer 2013

<https://www.arin.net/knowledge/statistics/transfers.html>

ARIN-Registered Transfer Facilitators

IPtrading.com

Kalorama Group

Berkeley Research Group

Hilco Streambank

ThinkFire Services USA

IPV4 Brokerage Services

IPv4 Market Group

Voxel Dot Net

NCS-147

KGL-14

BRGL

HISL-5

TSUL-2

IBSL-5

IMGL-3

VDN-1

Mike Burns

Josh Bourne

Adam Carroll

Jack Hazan

W. Drew Kastner

Kim Larrabee

Jeff Mehlenbacher

Adam Rothschild

*Contact information available on ARIN's web site under
"Registered STLS Facilitators"*

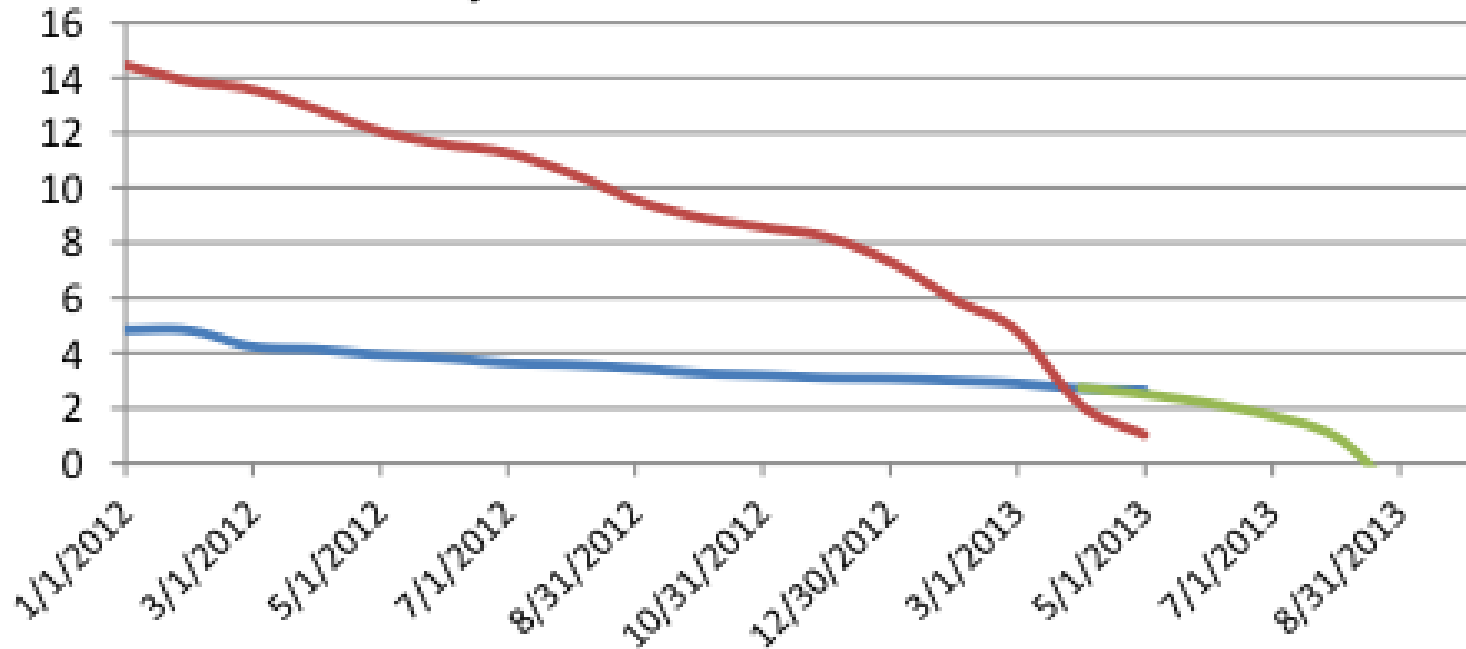
https://www.arin.net/resources/transfer_listing/facilitator_list.html

IPv4 Runout

Arin projected

(heavy weight more recent events)

overlayed with APnic final months



Policy Proposals

ARIN-2012-2: IPv6 Subsequent Allocations Utilization Requirement

Would allow ISPs to request IPv6 address space when their plans have changed and they need more.

ARIN-2013-1: Section 8.4 Transfer Enhancement

Would allow inter-RIR transfer of ASNs to RIRs that have a similar policy.

ARIN-2013-2: 3GPP Network IP Resource Policy

3GPP architecture's failover and capacity planning requirements leading to network utilization requirements.

ARIN-2013-3: Tiny IPv6 Allocations for ISPs

Would allow a /40 to be given to an ISP to match ARIN's fee structure

Text available at: <https://www.arin.net/policy/proposals/>

Public Facing Development Efforts

- **Accomplishments**

- Hosted RPKI since Sep 2012
 - 47 Organizations with Certified Resources as of 4/19/13
 - 21 Organizations with ROA's
 - 60 ROA's as of 4/19/13
 - 72 Relying Parties as of 4/19/13
- Web-based Delegated RPKI as of 2/16/2013
 - 0 Participants as of 4/19/13
- Integrated Payments
- Extended Statistics Reports that are now consistent with other RIR's
- Invoice calculator and automated invoicing

- **Upcoming Near-term Work**

- Up/Down work on Delegated RPKI
- Oracle to PostgreSQL Conversion

Upcoming ARIN Meetings



New Orleans, LA June 3-5, 2013



