ARIN

American Registry for Internet Numbers

ANNUAL REPORT

2016

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ABOUT **ARIN**

ARIN provides services related to the technical coordination and management of Internet number resources in accordance with its mission statement:

ARIN, a nonprofit member-based organization, supports the operation of the Internet through the management of Internet number resources throughout its service region; coordinates the development of policies by the community for the management of Internet Protocol number resources; and advances the Internet through informational outreach.

Services are grouped into four areas:

Registration Services

These include the allocations, assignments, and transfers of all Internet number resources (IPv4 and IPv6 addresses and Autonomous System Numbers), help desk operations, reverse delegation registration, and maintenance of ARIN's Whois service, the WhoWas historical registration database, and an Internet Routing Registry service within the ARIN service region.

Organization Services

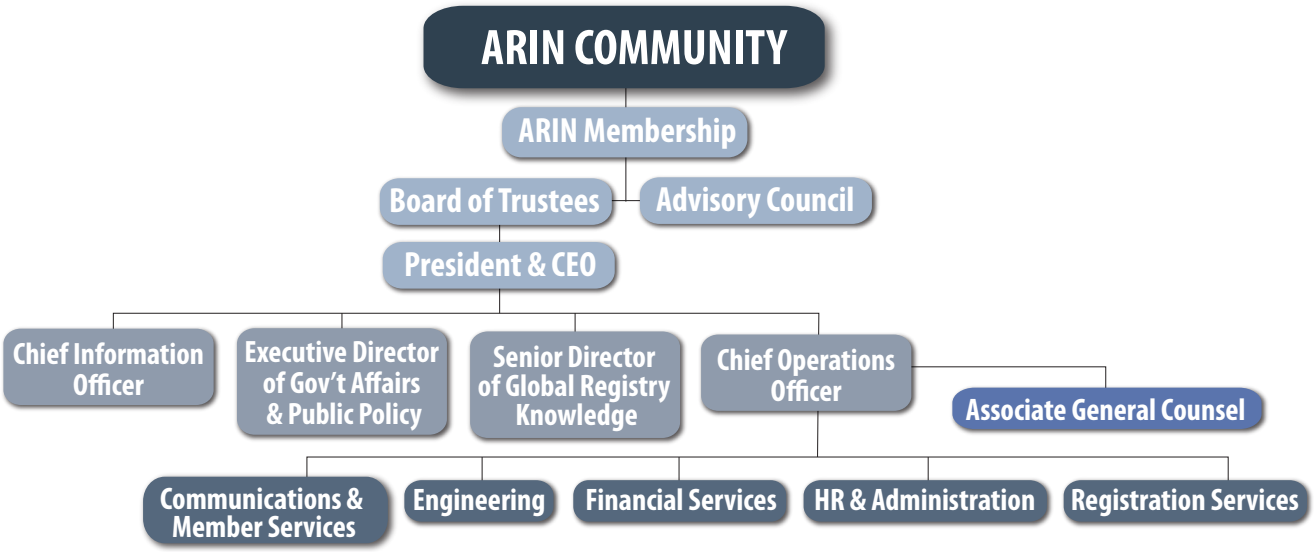
These pertain to interaction between ARIN Members and stakeholders and ARIN. They include annual Board of Trustees and Advisory Council elections, Public Policy and Members Meetings, public relations, education, outreach, and training services.

Policy Development Services

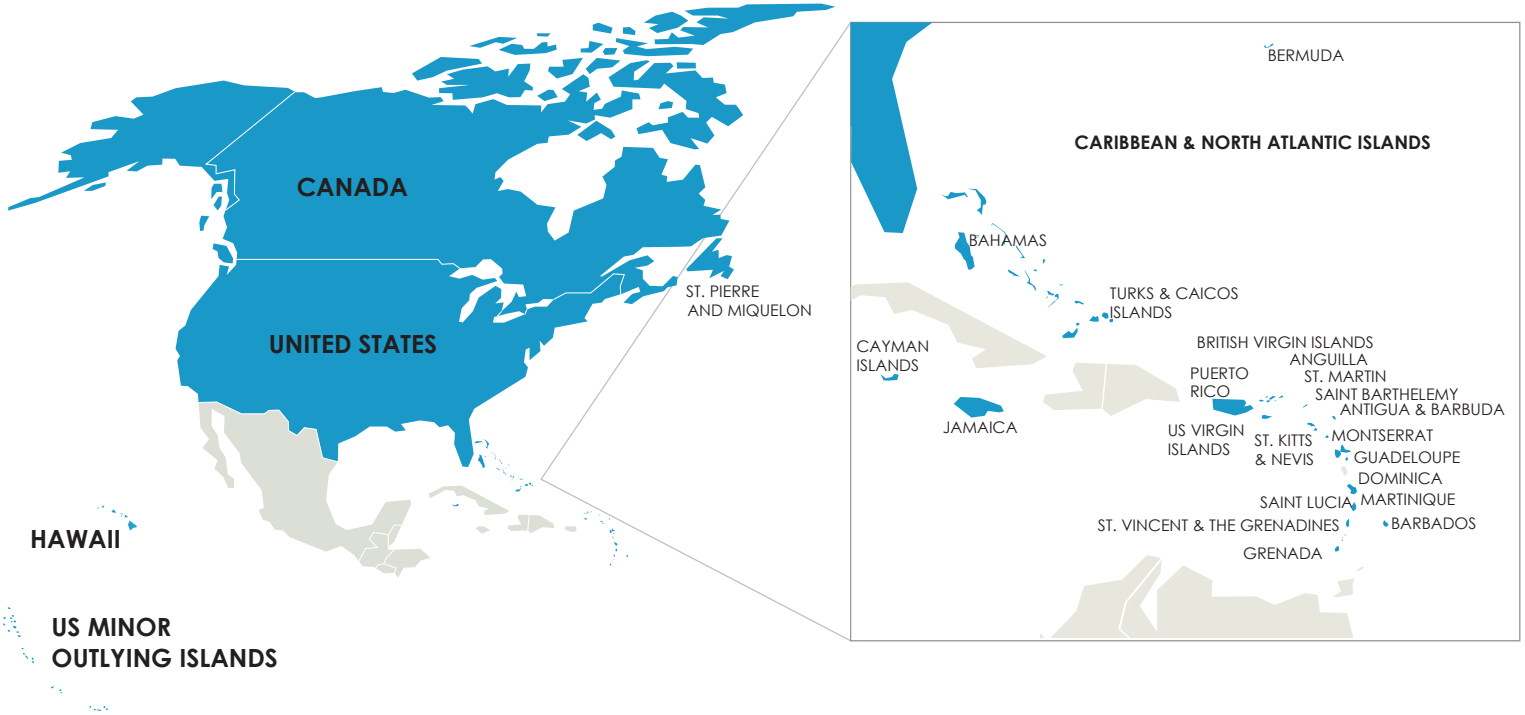
These include the support and administration of ARIN's Policy Development Process (PDP), conducting Public Policy Consultations and Public Policy and Members Meetings, maintaining discussion email lists, and publishing policy documents like the Number Resource Policy Manual (NRPM).

Technical Services

These include the development, implementation, and support of ARIN's internal systems, as well as community services like ARIN Online, Cryptographic Authentication, DNS Security (DNSSEC), RESTful Provisioning (Reg-RWS), Resource Public Key Infrastructure (RPKI), Registry Data Access Protocol (RDAP), and a community software repository.



ARIN REGION



ARIN serves the following economies: Anguilla, Antarctica, Antigua and Barbuda, Bahamas, Barbados, Bermuda, Bouvet Island, Canada, Cayman Islands, Dominica, Grenada, Guadeloupe, Heard and McDonald Islands, Jamaica, Martinique, Montserrat, Saint Barthelemy, Saint Kitts and Nevis, Saint Lucia, St. Pierre and Miquelon, Saint Vincent and the Grenadines, St. Martin, St. Helena, Turks and Caicos Islands, Virgin Islands (British), United States (including Puerto Rico, Virgin Islands (US), and Minor Outlying Islands).

PRESIDENT'S LETTER

Supporting our community and its members via high quality registry and educational services remained ARIN's top priority in 2016.

Perhaps one of the most notable ways we've supported our community over the past year has been the creation of many new educational resources, including new educational videos and new webpages focused on popular topics. We created three new educational videos in 2016: "Introduction to ARIN," "ARIN's Policy Development Process," and "The Importance of Validating Your POC Information." We also published three new webpages, including how to use ARIN's Whois, legacy number resource information, and how ARIN and law enforcement agencies interact. We are constantly striving to improve the resources we provide to our community as well as address some common pain points we see, and we will continue to do this in the coming year.

Additionally, in the year since IPv4 exhaustion was reached, ARIN has been focused on helping its customers make a smooth transition to the IPv6 world. We increased the educational content about IPv6 on our website and at member meetings and events, and also reached out to multiple industries to talk about the importance of preparing public-facing services for IPv6. We kicked off the year with a panel presentation at CES, asking the question, "Your customers are on the new Internet, are you?" Throughout the rest of the year, we participated in events in the healthcare, education, and IT sectors, emphasizing that the need to transition to IPv6 affects all organizations that rely on the Internet to succeed.

We've also been making improvements to ARIN Online. We've simplified search and request transfers of number resources, and we've improved the ease of submitting inter-RIR transfers. We also started a long-term project to update the ARIN Online interface to provide a better user experience for you, and we will continue making improvements throughout 2017. Many of the changes that we've implemented are a direct result of your input, and we urge you to keep submitting your suggestions, comments, and questions.

Your participation and input continue to drive our mission. We invite you to work with us by participating in policy development, voting in ARIN Elections, attending our meetings and events, and giving us feedback on how we can help you.

On behalf of the entire ARIN staff and myself, I wish to thank the community for your support leading up to this new chapter, and look forward to working with all of you in 2017.

John Curran

President and CEO

ARIN

BOARD OF TRUSTEES REPORT

The Board establishes and maintains authority over ARIN's scope, mission, and strategic and fiscal direction. The Board also oversees committee nominations, appointments, elections, and votes on community-developed draft policies in accordance with the Policy Development Process (PDP).

https://www.arin.net/policy/pdp.html

The Board of Trustees consists of seven members. Six members are elected by ARIN's membership, and the President and CEO of ARIN serves as the seventh member.

2016 MEMBERS

Paul Andersen, *Vice Chair / Chair**

Vinton G. Cerf, *Chair / Vice Chair**

John Curran, *President and CEO*

Timothy Denton, *Secretary*

Aaron Hughes

Bill Sandiford, *Treasurer*

Bill Woodcock

*Effective 1 July 2016, Vint Cerf stepped down from the role of Chairman to allow for a leadership transition period prior to the end of his term, which concluded on 31 December 2016. At this time Paul Andersen became the Chair, and Vint assumed the role of Vice Chair for the remainder of his term.

Each year the Board holds approximately four in-person meetings and between five and 10 teleconferences. View meeting minutes at: https://www.arin.net/about_us/bot/index.html

In October, Bill Sandiford was re-elected and Patrick Gilmore was elected to the ARIN Board of Trustees, with both terms beginning 1 January 2017. In November, the Board agreed to appoint Merike Kaeo to serve a one-year term on the Board beginning on 1 January 2017 to provide diversity to the Board's membership. Read ARIN's election guidelines at: https://www.arin.net/participate/elections/elec_procedures.html

CHAIRMAN'S LETTER

As we look back on 2016, I'm filled with immense pride for all that we've accomplished over the past year. It is a great honor to serve as the Chairman of the ARIN Board of Trustees, a position that was passed to me from Dr. Vint Cerf last year to facilitate a planned leadership transition prior to the end of his term. His guidance and expertise were invaluable in this transition period, and I am very thankful to him for all that he's done over the years to support ARIN and the Internet community overall.

Although 2016 was a busy year for all of us in many different ways, I want to take this opportunity to highlight some of ARIN's major moments from the past year.

In August of 2016, ARIN was pleased to welcome John Sweeting as the new head of the Registration Services Department. With his joining the ARIN staff, the Board appointed Kevin Blumberg to the fill the remainder of John's term on the NRO Number Council from the ARIN region.

In October, another successful ARIN Election was held, with many new faces coming aboard both the Board and the Advisory Council. Our newest Board members include Patrick Gilmore and Merike Kaeo. We also welcomed Alyssa Moore, Joe Provo, and Alison Wood to the Advisory Council. In addition, Chris Woodfield was elected to serve a one-year term on the Advisory Council to fill a vacant seat.

At the end of 2016, the Advisory Council saw the departure of three strong community members, with Kevin Blumberg, Dr. Milton Mueller, and Cathy Aronson all stepping down. On behalf of ARIN and the Board of Trustees, I thank them all for their dedication. I particularly want to express my gratitude to Cathy Aronson, who departed after 18 exemplary years of service.

And last, but surely not least, we continue to evolve in the face of IPv4 runout. As many of you know, on 24 September 2015, the free pool of IPv4 address space for the ARIN region was officially depleted. Over the course of 2016, we have begun to see exactly how IPv4 depletion would affect the day-to-day workings of ARIN, mainly through a significant increase in the number of IPv4 transfer requests. ARIN staff continues to work diligently to complete these requests. ARIN has also made a great effort to increase its education and outreach about transfers over the past year to meet this growing demand. In fact, the Board has made it a strategic direction to ensure we continue to enhance the functionality of ARIN services sought by users, and this includes the transfer of Internet number resources.

I would like to express my gratitude to the members of the Board of Trustees, Advisory Council, and those serving on the Number Resource Organization Number Council. These volunteers put forth such an incredible effort to help ensure ARIN serves the community and remains as dependable and stable as always, and I look forward to working with these colleagues in the coming year.

And to the greater community, I thank you for the trust placed in the Board and for the great privilege of serving as your Chairman. I look forward to working with all of you in 2017.

Paul Andersen, P. Eng

Chairman

ARIN Board of Trustees

BOARD OF TRUSTEES ACTIONS

- Elected Officers:
  - Vint Cerf, Chairman
  - Paul Andersen, Vice Chair
  - Tim Denton, Secretary
  - Bill Sandiford, Treasurer
- Adopted ARIN Board Standing Rules
- Authorized the Treasurer to approve Future Commitments
- Established ARIN Compensation Committee and appointed Vint Cerf (Committee Chair), Aaron Hughes, and Bill Sandiford
- Established ARIN Finance Committee and appointed Bill Sandiford (Committee Chair), Bill Woodcock, and Paul Andersen. Noted John Curran as ex-officio
- Established ARIN Audit Committee and appointed Aaron Hughes (Committee Chair), Vint Cerf, and Tim Denton. Noted John Curran as ex-officio
- Established ARIN Board Governance Committee and appointed Paul Andersen (Committee Chair), Vint Cerf, and Tim Denton.
- Established ARIN Mailing List Acceptable Use Policy (AUP) Committee and appointed Vint Cerf (Committee Chair), Amy Potter, and Jim Dolan
- Appointed John Curran to serve on the 2016 Postel Network Operator's Scholarship Program
- Appointed Paul Andersen to serve as the ARIN Board Observer to the NRO EC
- Reviewed Directors and Officers Fiduciary Duty, presented by ARIN's General Counsel
- Approved changes to the RPKI Relying Party Agreement
- Accepted the 2016 Nominating Committee Charter and appointed Aaron Hughes (Committee Chair), Vint Cerf, Dmitry Kohmanyuk, Carl Williams, Charles Gucker, Aaron Sawchuk, and Nathan Newman
- Accepted the 2016 Fellowship Selection Committee Charter and appointed Bill Sandiford (Committee Chair), Tina Morris, L. Sean Kennedy, and Paul Emmons
- Accepted the ARIN Services Working Group Charter and appointed Aaron Hughes (Chair), Paul Andersen, Martin Hannigan, David Huberman, L. Sean Kennedy, Dmitry Kohmanyuk, and Matt Peterson
- Adopted a single-track proposal for ARIN Bylaws changes and sent it for Community Consultation; following consultation, this bylaws change was adopted as written
- Appointed Louie Lee, Jason Schiller, and Nate Davis (non-voting, staff representative) to the IANA Number Services Review Committee
- Approved the proposal submitted to the ICANN CCWG in response to the IANA Stewardship Transition
- Adopted ARIN-2015-5: Out of region use
- Adopted ARIN-2015-11: Remove transfer language which only applied pre-exhaustion of IPv4 pool
- Reviewed and accepted ARIN IRS Form 990 for filing with the Internal Revenue Service
- Accepted the 2015 Financial Audit Report
- Adopted the Revised ARIN Policy and Development Process (PDP) Standards of Behavior
- Appointed Cathy Aronson as ARIN's IETF Reporter for 2017
- Adopted ARIN-2015-3: Remove 30 day utilization requirement in end-user IPv4 policy
- Adopted clarifying editorial changes to the ARIN Number Resource Policy Manual (NRPM)
- Adopted a Phase-In for the higher tiers of the new ARIN Fee Schedule
- Adopted External Grant Program
- Authorized the President to execute, in coordination with the other RIRs, the "Service Level Agreement for IANA Numbering Services" with ICANN
- Approved changing the Chair, seating Paul Andersen as Chair and Vint Cerf as Vice Chair on 1 July
- Appointed Vint Cerf to confirm the President's list of eligible voters for the 2016 Elections
- Appointed Vint Cerf as Election Vote Counter for the 2016 Elections
- Appointed Kevin Blumberg to fill the remainder of the term left by the resignation of John Sweeting on the ARIN-Region NRO Number Council through 31 December 2016
- Recognized and appreciated Vint Cerf's service to ARIN and his contribution to the community and the ARIN Board of Trustees
- Confirmed the results of the ARIN 2016 Election process
- Appointed Kevin Blumberg to fill the remainder of the term on the ARIN-Region NRO Number Council left by the resignation of John Sweeting through 31 December 2017
- Adopted the 2017-2018 ARIN Strategic Plan
- Appointed Merike Kaeo as a voting member of the ARIN Board of Trustees for a one-year term, beginning 1 January 2017

Nate Davis
Chief Operating Officer

CHIEF OPERATING OFFICER'S REPORT

2016 proved to be another productive and successful year for ARIN, and our commitment to serving the community is exhibited through our accomplishments. Staff efforts focused on projects and activities in support of ARIN's Strategic Plan, which embodies ARIN's mission as well as operating and financial goals. The completed key objectives in support of ARIN's Strategic Plan were:

- Conducted eight ARIN on the Road events, one Public Policy Consultation, and two ARIN Public Policy and Members Meetings
- Completed Number Resource Policy Manual (NRPM) section 8.4 transfer functionality within ARIN Online
- Reviewed nine suggestions from the ARIN Suggestion and Consultation Process requests, including proceeding with improvements to the netmod template and how it is processed, as well as the introduction of a Women's Networking Lunch at Public Policy and Members Meetings
- Deployed the following ARIN Online enhancements:
    - NRPM section 8.4 Inter-RIR transfer improvements
    - Revisions to Point of Contact (POC) record validation emails for clarity
    - Fee calculator modification to incorporate the 1 July 2016 Fee Schedule updates, enabling the community to review fee changes that would affect their organization in advance
    - Enabling users to delete Network (NETS) records and/or child networks for which they are authoritative
    - ARIN Online left menu updates and user interface improvements
    - Resource management improvements for POCs linked to IP addresses and/or Autonomous System Numbers (ASNs) but not to organizational identifiers
    - Network summary information on the IP address search page
    - Phone numbers were incorporated into user profiles
    - Ability to create and remove assignments and reallocations within ARIN Online
    - Ability to view free block of IP addresses
    - Simplified navigation for requesting IP address and ASNs
    - Ability to modify and reassign networks and delete reassignments from search results page
- Migrated to using ARIN Online as a single validated point of entry into the ARIN Election System
- Completed the 2016 annual independent financial audit
- Conducted educational outreach regarding the depletion of the regional IPv4 free pool, IPv6 deployment, and the community-based model of Internet number resource policy development
- Participated in key Internet Governance forums

SERVICE LEVEL REPORT

ARIN periodically reports service level commitments and performance against those commitments for community-provided services. This report contains stated service level commitments and associated performance for community-provided services.

FINANCIAL SERVICES

Provide Customer Support from 9:00 AM to 5:00 PM, Eastern Time, Monday through Friday, excluding holidays

Respond to phone and email messages from ARIN customers within two business days

Billing schedule commitment:

Send invoices for new registrations within three (3) business days following the approval announcement sent by Registration Services

Send invoices for renewal IP allocations forty-five (45) days in advance of the beginning of the anniversary month

Send invoices for maintenance thirty (30) days prior to the beginning of the anniversary month

COMMUNICATIONS & MEMBER SERVICES

Provide Customer Support from 9:00 AM to 5:00 PM, Eastern Time, Monday through Friday, excluding holidays	99%
Publish ARIN's Annual Report by the first Public Policy and Members Meeting of the year	100%
Conduct two Public Policy and Members Meetings each year	100%
Publish meeting minutes and presentations online within seven (7) business days of meeting conclusion	100%
Conduct annual elections for the ARIN Board of Trustees, ARIN Advisory Council, and the Number Resource Organization Number Council (NRO NC)	100%

REGISTRATION SERVICES

Provide Customer Support from 7:00 AM to 7:00 PM Eastern Time, Monday through Friday, excluding holidays

Respond to all email within two (2) business days at the latest, with the intended goal being a same day response

Provide issue escalation services from 10:00 AM to 4:00 PM Eastern time, Monday through Friday, excluding holidays

Response time by staff to ARIN Online web tickets

ENGINEERING

Auto Reply for Registration	100%
Auto Reply for Routing Registry	100%
DNS Reverse Master Zones	100%
DNS Provided by ARIN	100%
FTP Data	100%
RESTful (Reg-RWS) Services	100%
Routing Registry	100%
RWhois	100%
Web Whois	100%
Webserver (http)	100%
Webserver (https)	100%
ARIN Online	100%
RPKI Repository	100%
RPKI Provisioning	100%
Whois	100%
Whois-RWS	100%
RDAP	100%

ENGINEERING

Mark Kosters
Chief Technology Officer

In 2016, the ARIN Engineering team focused heavily on ARIN Online improvements, community-suggested improvements fielded through ARIN's Suggestion and Consultation Process (ACSP), and overall service availability.

The two main focus points within ARIN Online have been the integration of Inter-RIR transfers and a new way of managing network resources called "SWIP-EZ." Regarding transfers, users can now submit three types of transfers (Number Resource Policy Manual sections 8.2, 8.3, and 8.4) on the web within ARIN Online and no longer need to use templates. For "SWIP-EZ," ARIN is in the process of making the dynamic portion of its website both more functional and more user friendly. If desired, users can now make changes to assignments and reassignments via the web. There is no longer a need to send custom-crafted templates via email to hostmaster@arin.net. This new SWIP-EZ method is a much more secure and interactive way to ensure users' data is registered as intended via ARIN Online.

ARIN also moved into a new office space this year. As part of the exercise, Operations helped assist in design and deployment of a new datacenter within the new ARIN HQ. This was performed with no interruption of publicly available services before, during, and after the move. This new datacenter serves as the secondary provisioning site and is a much-improved environment over ARIN's old facility.

Over the past year, ARIN has had to confront multiple Distributed Denial of Service (DDoS) attacks. This was detected early by ARIN's newly-installed network security devices. All of the attacks were quickly extinguished utilizing the existing DDoS mitigation providers.

REGISTRATION SERVICES

John Sweeting
Senior Director

2016 was the first year in ARIN's history that started without an IPv4 free pool. IPv4 depletion had already passed, and there was a strong focus on IPv4 transfer processing at the beginning of the year. This focus continued throughout the year, with the Registration Services Department's (RSD) practices of due diligence constantly being evaluated for improvements based on the knowledge gained through the high volume of transfer work.

RSD's due diligence practices on all requests that change resource authority were a strong focus the entire year. These change of authority requests include Organization recoveries, Point of Contact recoveries, Organization name changes, and registration transfers of all types. Together with the important work of strengthening its due diligence practices, RSD also placed significant effort behind fraud detection. All of this combined work has increased the security of ARIN's resource holders and has actively thwarted a large number of known attempts by bad actors to hijack network registrations.

RSD's active work to strengthen due diligence and fraud detection had a direct impact on its hiring decisions in 2016. The team hired a paralegal specifically to work on transfer requests early in the year and added a new attorney late in the year to strengthen its due diligence and fraud prevention practices.

At the beginning of 2016, Chief Information Officer Richard Jimmerson served as the interim leader of the Registration Services operation as the team conducted a search for new department leadership. In the third quarter of the year, RSD completed that search and welcomed John Sweeting as ARIN's new Senior Director of Registration Services.

It wasn't only about transfers and staffing changes in 2016, however. RSD continued to grow the IPv4 waiting list for unmet requests in addition to processing requests for Autonomous System Numbers and IPv6 address space. The 12-person team provided support to customers on thousands of telephone calls to the ARIN help desk and serviced tens of thousands of request tickets throughout the year. RSD remains committed to providing the best possible service with the highest levels of care and attention to the integrity of customers' registration records.

HUMAN RESOURCES & ADMINISTRATION

Erin Alligood
Director

In 2016, the Human Resources and Administration team was the project lead for the overall construction and move into a beautiful new ARIN office space. This project was a success and, most importantly, was maintained under budget as approved by the ARIN Board of Trustees. ARIN employees have settled in nicely to the new office and have been enjoying the space. The new office provides the means to accommodate increased staff levels over the last year, delivers improved office security, and offers flexibility for the future.

Given the employee growth in 2015, ARIN's onboarding of new staff steadied at eight new hires in 2016, bringing the total number of employees to 82. ARIN prides itself on consistently high retention and employee tenure. In 2016, the trend continues with ARIN's retention rate at 94% and the average employee tenure at over five years.

In 2016, the Human Resources and Administration team, comprised of four employees, continued to provide administrative and travel support to the ARIN staff. Additional efforts this past year included general office management and facility-related contract management, while continuing to provide travel, meeting, and administrative support to the ARIN Board of Trustees, Advisory Council, and Address Supporting Organization (ASO).

The Human Resources and Administration team is looking forward to another great year in 2017.

COMMUNICATIONS & MEMBER SERVICES

Susan Hamlin
Director

Communications and Member Services Department (CMSD) activities in 2016 focused on informing the community about ARIN activities and new services, bringing the IPv6 deployment message to new audiences, holding meetings and educational outreach events to engage the community in dialogue and determine their needs, and supporting ARIN governance through facilitation of both a transparent Policy Development Process and valid elections.

ARIN's Public Policy and Members Meetings traveled to Montego Bay, Jamaica and Dallas in 2016, where in addition to policy discussions and panels on the IANA transition and IPv6 operational successes, ARIN welcomed a total of 26 Fellows to its community. The popular one-day ARIN on the Road events saw ARIN on the move from coast-to-coast, concluding in Oklahoma City in December. Several staff members also traveled to participate in Caribbean events, and ARIN was fortunate to have the Caribbean Network Operators Group (CaribNOG) co-locate one of their meetings with ARIN 37 in Jamaica.

Get6 messaging continued to evolve as IPv6 implementation rates increased. ARIN reached out to the education and health communities this year in an effort to widen the call for enabling public-facing services over IPv6. ARIN also participated in a Digital Health Summit and further pursued contacts in this industry at a conference in early January 2017. The IPv6 wiki also became a popular source for information as the ability for IPv6 trainers and consultants to list their services there was added.

Notable communications efforts this year included work on announcing the new fee schedule in July, production of three video additions to ARIN's YouTube channel (Introduction to ARIN, ARIN's Policy Development Process, and Point of Contact Validation), and a facelift to the blog and IPv6 resource: the TeamARIN website.

And finally, the CMSD team moved most of the static website's historical information into the ARIN Vault, an easily searchable, accessible repository for historical documents. Navigation between the Vault and www.arin.net is seamless, plus the Vault also takes advantage of responsive design, making it easily accessible on both phones and tablets.

FINANCIAL SERVICES

Val Winkelman
Director

This year the Financial Services Department (FSD) was involved in the implementation of the new fee schedule, which included the creation of new service categories in ARIN's accounting system for invoicing, realignment of the IPv4 and IPv6 resource holdings for each service category, and enabling end user organizations with the ability to optionally receive ARIN services via a Registration Services Plan. It took a great deal of analysis and discussion involving the community, ARIN staff, and the Board of Trustees to finalize the new fee schedule that was implemented 1 July 2016. The new fee schedule involved working closely with the software development team to make changes to the organization's accounting software and integration with ARIN Online along with significant hours of testing.

ARIN's office moved in August, and that required that FSD notify all clients of the change of address by email. The team also had the task of notifying all vendors of the new mailing address.

FSD has continued to focus on the accounts receivable collection process, resulting in less than 1% of bad debt accounts as compared to sales. As confirmed by the independent financial audit conducted in early 2016, ARIN's accounting practices remain consistent with Generally Acceptable Accounting Principles (GAAP) and ARIN remains financially sound heading into 2017.

The FSD group remains at six employees and the team receives thousands of emails, phone calls, and tickets each year. FSD remains focused on providing the best service possible to ARIN's membership and to the other departments in the organization. As always, FSD welcomes feedback and suggestions for improvements.

FROM THE SENIOR DIRECTOR OF GLOBAL REGISTRY KNOWLEDGE

Leslie Nobile
Senior Director

2016 provided opportunities to take on a wide variety of projects that included developing a better understanding of practices across the Regional Internet Registries (RIRs), leading the improvement of ARIN services, and proposing numerous enhancements to customer communication and outreach.

ARIN made some progress in enhancements to its annual Point of Contact (POC) validation process and is now using more detailed and informative POC validation messaging and customer reassignment responses. ARIN will continue to focus efforts in this area and seek new ways of providing current information to customers so they can more readily maintain accurate data.

In order to meet the goal of improving Whois accuracy, ARIN worked with colleagues from the other RIRs to develop a comprehensive outline of Whois accuracy practices across the RIRs. Increased understanding of how each RIR manages issues and serves its community allows all five RIRs to better coordinate where needed. Along these same lines, a document was produced that outlines current Inter-RIR transfer policies, procedures, and coordination requirements as well as recommendations for process improvements.

There was much collaboration with the Communications and Member Services department to develop new content for the ARIN website. This included a "Legacy Resource Information" page for the website that provides more information about how ARIN defines legacy resource and what services it provides to legacy resource holders. ARIN also produced a comprehensive, detailed Whois Quick Guide to help customers gain a better understanding of Whois and how to use it effectively. As part of ARIN's Law Enforcement Agency (LEA) liaison work, a new webpage dedicated to law enforcement was developed that outlines the type of information that ARIN can provide publicly as well as privately, but with a subpoena.

The LEA page was just the tip of the iceberg with the liaison work for the year. ARIN participated in and presented at several of the ICANN Governmental Advisory Committee's Public Safety Working Group meetings, and organized a panel session during the ICANN Marrakech meeting, which included presentations on RIR 101 and Whois accuracy across the RIRs. There was additional coordination with law enforcement globally on Whois accuracy issues.

While ARIN has made great strides, there is still much to do. ARIN looks forward to building off the accomplishments of the past few years and continuing to work to implement changes that will benefit the ARIN and global registry communities.

GOVERNMENT AFFAIRS & PUBLIC POLICY

Cathy Handley
Executive Director

2016 raced to the finish line with news on the IANA stewardship transition, as well as the World Telecommunication Standardization Assembly (WTSA) and the Internet Governance Forum (IGF).

Years of effort on the behalf of the Numbers, Names, and Protocols communities culminated on 1 October 2016 when the contract between ICANN and the National Telecommunications and Information Administration (NTIA) agency of the United States Department of Commerce to perform the IANA functions was allowed to expire. This contract was replaced by service level agreements between ICANN and these individual communities to provide the IANA services. The Service Level Agreement between ICANN and the five RIRs for the administration of the IANA Numbering Services came into effect on 3 October 2016. The SLA is available at:

http://www.nro.net/sla

ARIN President and CEO John Curran stated, "The realization of the IANA stewardship transition is an important milestone in Internet coordination activities, and all members of the global multistakeholder community should be proud of their efforts in making this happen."

Next, two Internet Governance events closed out the year, beginning with the WTSA. The WTSA is held every four years and defines the next period of study for the ITU-T (Telecommunication Standardization Sector). WTSA-16 took place in Yasmine Hammamet, Tunisia, from 25 October to 3 November 2016. To summarize, "Several resolutions - the Digital Object Architecture (DOA), Internet services such as OTT, the role of the Internet of Things and privacy and trust - were among the more contentious issues debated at-length. . . . some of the policy issues discussed at WTSA-16, including privacy and trust, the economic impacts of Internet services, and spam will continue into the Plenipotentiary (Plenipot) conference in 2018 where we can expect governments will try to exert increased regulatory jurisdiction over these matters." This is from a report by the Internet Society called, "ITU WTSA 2016 Outcomes: An Internet Society Perspective," available at:

https://www.internetsociety.org/doc/itu-wtsa-2016-outcomes-internet-society-perspective

Secondly, IGF took place in Guadalajara, Mexico in early December 2016. The IGF is an open, non-decisional forum for discussion of just about anything connected to the use of the Internet. That's one of its biggest strengths: one cannot attend an IGF and not learn something. One of the more interesting sessions was, "Can Law enforcement catch bad actors online anymore?" Law enforcement expressed concerns about keeping up with the acceleration of the adoption of IPv6.

Overall, the IGF is organized by the UN and it had a UN theme, "Using information and Communications Technologies to Meet the Sustainable Development Goals (SDGs)." Most of the sessions, of course, dealt with this topic. For information about the UN's Sustainable Development Goals, see:

https://sustainabledevelopment.un.org/?menu=1300

In 2017, the World Telecommunication Development Conference takes place in October in Buenos Aires, and potentially there will be a late December IGF in Geneva.

2016 OUTREACH EVENTS

CES
6-9 January
Las Vegas, NV
Speaker: John Curran, President and CEO
Session: Your Customers are on the New Internet - Are You?

PTC 16
17-20 January
Honolulu, HI
Speaker: John Curran, President and CEO
Session: Internet Futures with Billions of Connected Things

ARIN on the Road: Seattle
20 January
Seattle, WA

NANOG 66
8-10 February
San Diego, CA

APNIC 41
15-26 February
New Zealand
Speaker: John Curran, President and CEO
Session: Making Ends Meet: IPv4 Exhaustion and the Transfer Market

ARIN on the Road: Tampa
18 February
Tampa, FL

ARIN on the Road: Austin
22 March
Austin, TX

8th Edition South School on Internet Governance
29 March – 1 April
Washington, DC
Speaker: John Curran, President and CEO
Panel: Standards for ISPs and the Internet: Challenges and Opportunities

NANOG on the Road: Raleigh
12 April
Raleigh, NC

ARIN 37
17-20 April
Montego Bay, Jamaica

CaribNOG 11
20-22 April
Montego Bay, Jamaica

LACNIC 25
2-6 May
Havana, Cuba

ARIN on the Road: Edmonton
3 May
Edmonton, Alberta, Canada

NANOG on the Road: Denver
10 May
Denver, CO

RIPE 72
23-27 May
Copenhagen, Denmark

AFRINIC 24
29 May - 10 June
Gaborone, Botswana

ARIN on the Road: Pittsburgh
2 June
Pittsburgh, PA

Digital Health Summit
6-8 June
San Francisco, CA

Caribbean Peering and Interconnection Forum (CarPIF)
8-9 June
Willemstad, Curacao
Speaker: Mark Kosters, CTO

NANOG 67
13-15 June
Chicago, IL
Speaker: Leslie Nobile, Senior Director of Global Registry Knowledge
Session: Post IPv4 Depletion Trends

Clearcable Technology Summit
23 June
Hamilton, Ontario, Canada
Speaker: John Curran, President and CEO
Session: Out of IPv4! What that means for ISPs

ICANN 56
27-30 June
Helskinki, Finland

IGF USA
14 July
Washington, DC

IETF 96
17-22 July
Berlin, Germany

NANOG on the Road: NY
21 July
New York, NY
Speaker: Leslie Nobile, Senior Director of Global Registry Knowledge

HostingCon
24-27 July
New Orleans, LA
Speaker: John Curran, President and CEO
Panel Session: Why Is No One Implementing DNSSEC or IPv6?

CANTO
31 July - 5 August
San Juan, Puerto Rico
Speaker: Leslie Nobile, Senior Director of Global Registry Knowledge
Session: Life after IPv4 Depletion

Caribbean Internet Governance Forum (CIGF) 12
10-12 August
Belize City, Belize
Speaker: John Curran, President and CEO

ARIN + NANOG on the Road: Waterloo
13 September
Waterloo, Ontario Canada

ICT Week Barbados
19-23 September
Barbados
Speaker: John Curran, President and CEO

2016 Technology Exchange
25-28 September
Miami, FL
Speaker: John Curran, President and CEO
Session: Managing IP Address Blocks for Better Organizational Security

LACNIC 26
26-30 September
San José, Costa Rica

APNIC 42
28 September – 5 October
Colombo, Sri Lanka

WISPAPALOOZA
11-13 October
Las Vegas, NV

NANOG 68
17-19 October
Dallas, TX

ARIN 38
20-21 October
Dallas, TX

RIPE 73
24-28 October
Madrid, Spain

CaribNOG 12
24-26 October
St Maarten

ICANN 57
3-9 November
Hyderabad, India

Canadian ISP Summit
7-9 November
Toronto, Ontario Canada

ARIN on the Road: Nashville
10 November
Nashville, TN

IETF 97
13-18 November
Seoul, South Korea

AFRINIC 25
25-30 November
Mauritius

IGF 2016
6-9 December
Guadalajara, Jalisco, Mexico

ARIN on the Road: Oklahoma City
8 December
Oklahoma City, OK

POLICY DEVELOPMENT

The ARIN community engages in a Policy Development Process (PDP) to define how ARIN will manage and administer Internet number resources (IP addresses and Autonomous System Numbers). Community decisions are recorded as polices and published in the Number Resource Policy Manual (NRPM).

https://www.arin.net/policy/nrpm.html

In 2016, nine policy proposals were submitted, all of which were promoted to Draft Policies and discussed by the community on the Public Policy Mailing List. Six of these Draft Policies were discussed at Public Policy and Members Meetings. All six Draft Policies were promoted to Recommended Draft Policies as a result of those discussions. Of those six, five were recommended to the Board of Trustees for adoption. In December, the Board of Trustees ratified all five, and they will be implemented in 2017. Four Draft Policies remain under discussion heading into 2017.

VIEW POLICY PROPOSALS

Information about current draft policies and past policy proposals is available at:
https://www.arin.net/policy/proposals/

HOW TO PARTICIPATE

Subscribe to the Public Policy Mailing List (PPML) and discuss ideas for new policies, pending proposals, and draft policies:

https://www.arin.net/participate/mailing_lists/index.html

Participate in biannual Public Policy and Members Meetings or other Public Policy Consultations in person or remotely.

https://www.arin.net/participate/meetings/index.html

Submit a proposal to create a new policy or to revise current policy. Read and follow the instructions in the PDP and submit your proposal.

https://www.arin.net/policy/pdp.html

ARIN PUBLIC POLICY DISCUSSIONS IN 2016

One of the features of the Policy Development Process (PDP) is the opportunity to discuss policy proposals and changes at not only ARIN's biannual Public Policy and Members Meetings (PPMMs), but also Public Policy Consultations (PPCs), which are held at other forums approved by the Board of Trustees. In 2016, two PPMMs and one PPC were held.

View the reports for each meeting:

ARIN PPC at NANOG 66:
https://www.arin.net/ppcnanog66

ARIN 37 in Montego Bay, Jamaica:
https://www.arin.net/ARIN37

ARIN 38 in Dallas, Texas:
https://www.arin.net/ARIN38

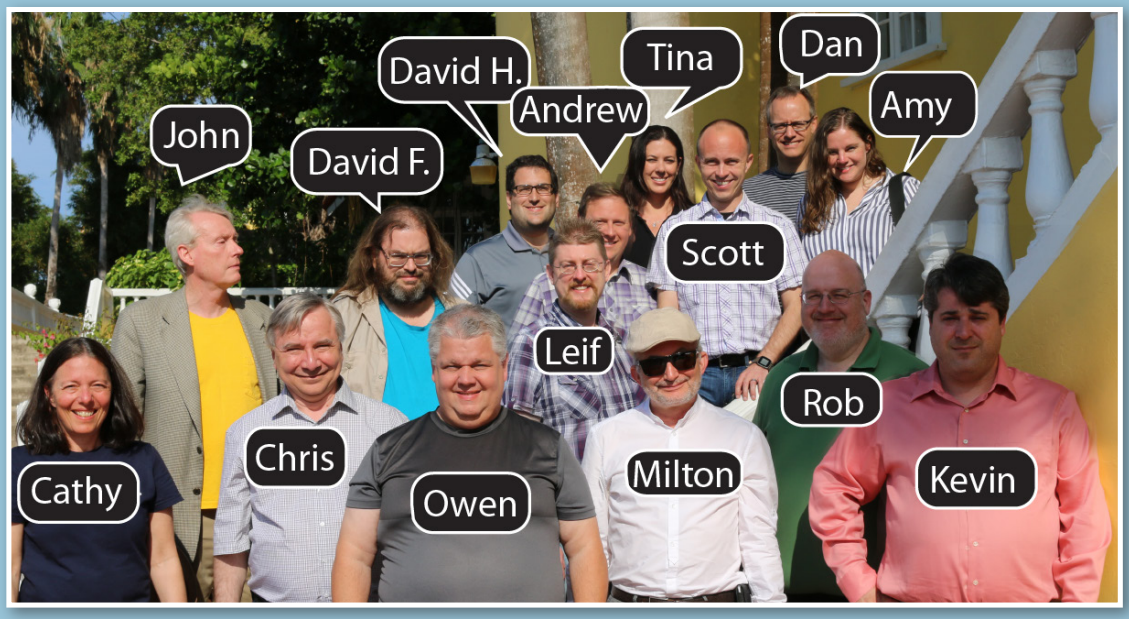
ADVISORY COUNCIL REPORT

The Advisory Council (AC) advises the Board of Trustees on Internet number resource policy and related matters and forwards Recommended Draft Policies to the Board for ratification, in adherence with the Policy Development Process (PDP).

The AC consists of 15 elected members and ARIN's President and CEO, who serves as an ex-officio member and AC-Board liaison.

2016 MEMBERS:

Dan Alexander, *Chair*
Cathy Aronson
Kevin Blumberg*
Owen DeLong
Andrew Dul
David Farmer
David Huberman
Scott Leibrand
Tina Morris, *Vice Chair*
Milton Mueller
Amy Potter
Leif Sawyer
Robert Seastrom
John Springer
Chris Tacit



**On 23 August 2016, Kevin Blumberg (former Vice Chair) resigned in order to accept an appointment to the NRO Number Council, and Tina Morris became Vice Chair. Kevin's seat remained open for the rest of 2016, and was reseated 1 January 2017 based on the results of the 2016 ARIN Elections.*

Each year the AC holds three in-person meetings and approximately nine teleconferences. View meeting minutes at:

https://www.arin.net/about_us/ac/index.html

2016 Election Results

In October, Owen DeLong and Tina Morris were re-elected and Alyssa Moore, Joe Provo, and Alison Wood were elected to serve three-year terms on the AC beginning 1 January 2017. Chris Woodfield was elected to serve a one-year term on the ARIN Advisory Council beginning 1 January 2017 to carry out Kevin Blumberg's original three-year term that concludes on 31 December 2017. Read ARIN's election guidelines at:

https://www.arin.net/participate/elections/elec_procedures.html

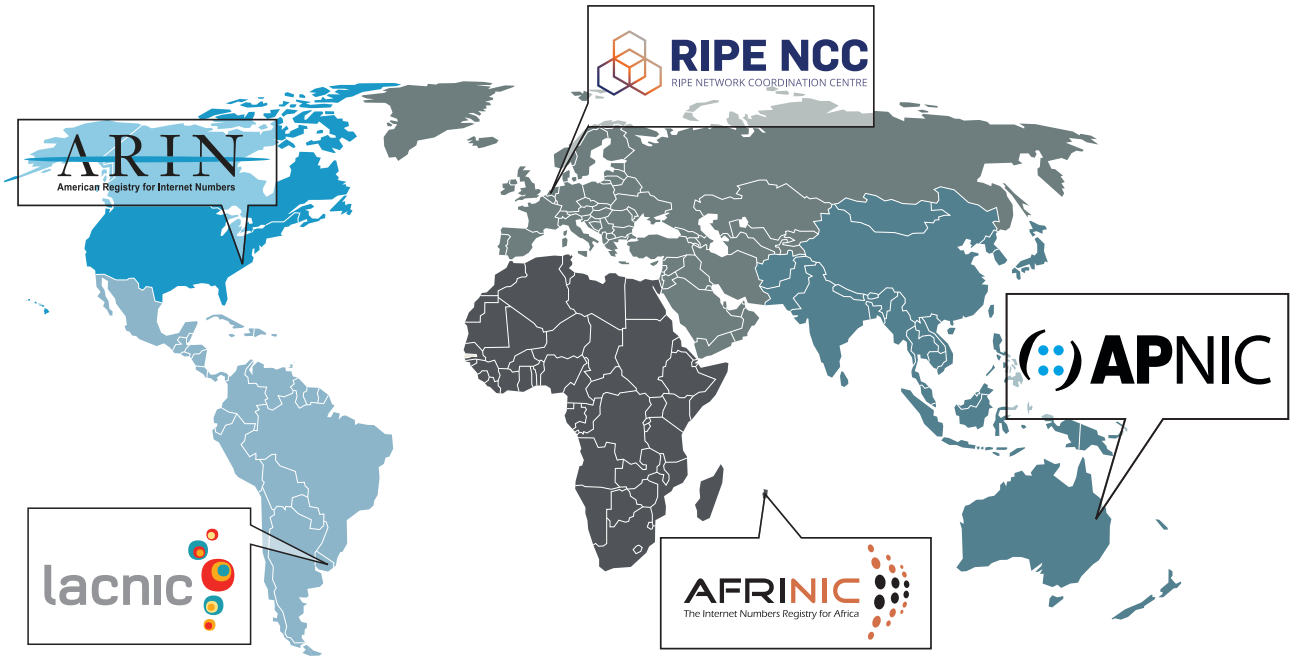
GLOBAL POLICY AND THE NRO NUMBER COUNCIL

The Number Resource Organization (NRO), **http://www.nro.net**, is a coordinating body for the five Regional Internet Registries (RIRs) – AFRINIC, APNIC, ARIN, LACNIC, and RIPE NCC.

The NRO Number Council (NRO NC) fulfills the role of the Internet Corporation of Assigned Names and Numbers (ICANN) Address Supporting Organization Address Council (ASO AC) (**http://aso.icann.org/**), providing advice to the Board of ICANN on Internet number resource policy, in conjunction with the RIRs.

There are three NRO NC representatives from each RIR region. The members from the ARIN region for 2016 were Louie Lee, Jason Schiller, and John Sweeting (replaced by Kevin Blumberg on 23 August*). We thank all of them for their service and commitment to the global Internet community.

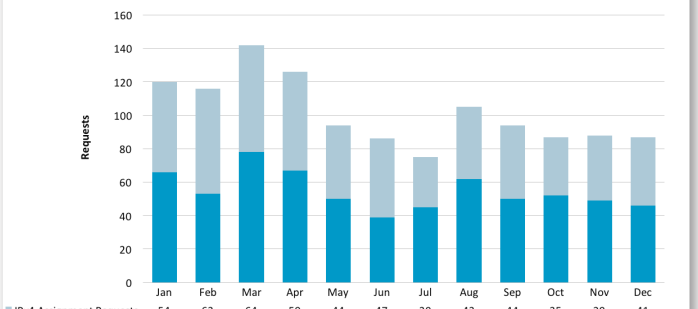
**On 23 August, the ARIN Board of Trustees appointed Kevin Blumberg to serve on the NRO NC, filling the vacancy created by John Sweeting's resignation.*



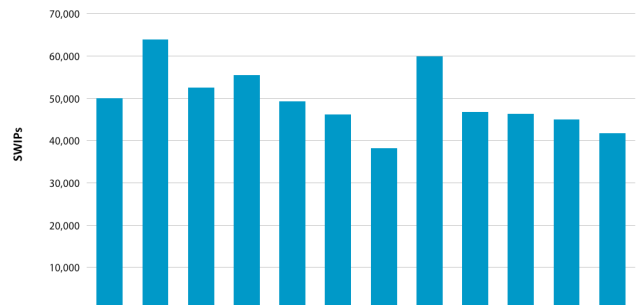
STATISTICS AND REPORTS

FOR MORE STATISTICAL REPORTS, VISIT: **https://www.arin.net/knowledge/statistics/**

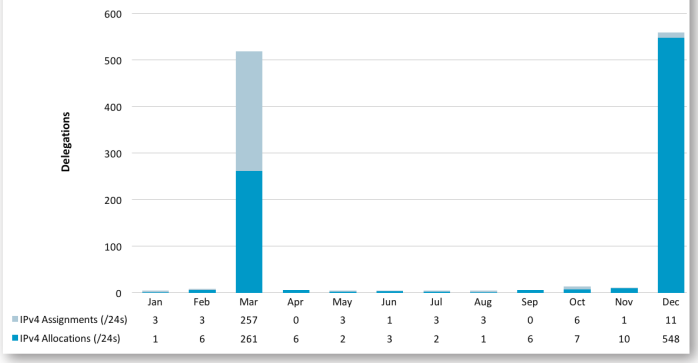
2016 IPv4 Address Requests



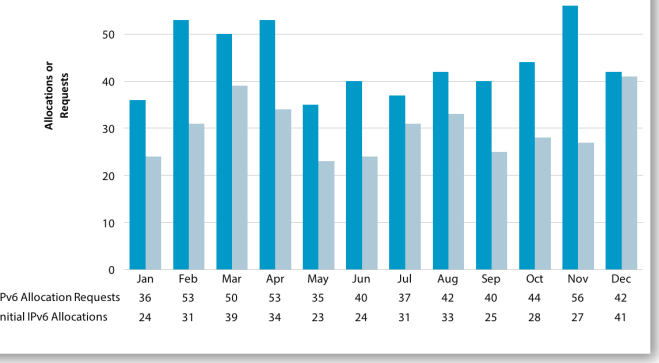
2016 SWIP Templates Processed by ARIN



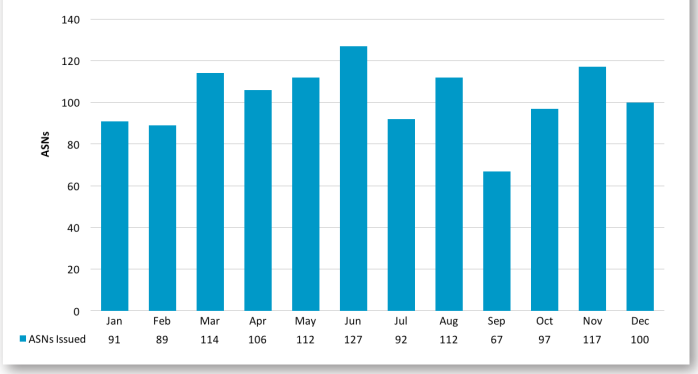
2016 IPv4 Address Delegations Issued by ARIN



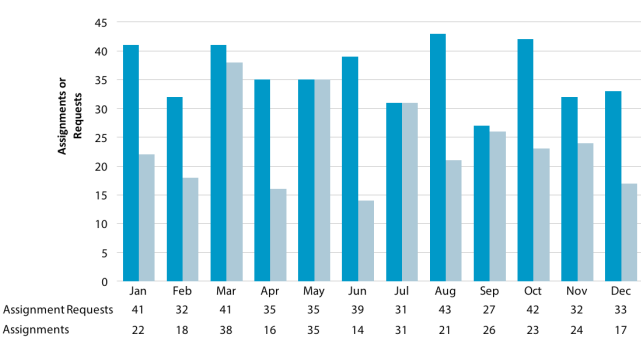
2016 IPv6 Address Allocations and Requests



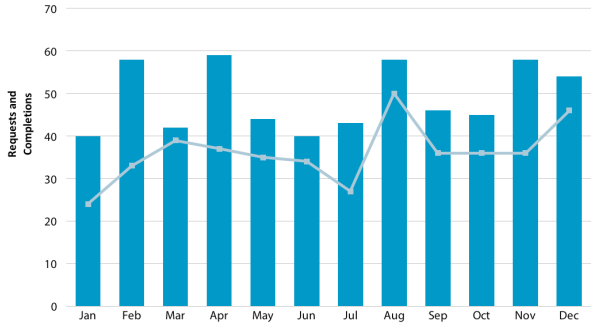
2016 Autonomous System Numbers Issued by ARIN



2016 IPv6 Address Assignments and Requests

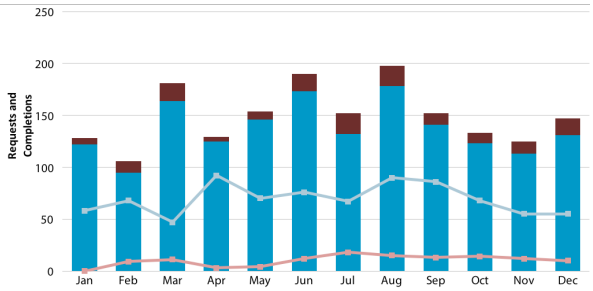


2016 8.2 Transfers Requested and Completed



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
8.2 Transfers Requested	40	58	42	59	44	40	43	58	46	45	58	54
8.2 Transfers Completed	24	33	39	37	35	34	27	50	36	36	36	46

2016 8.3 & 8.4 Transfers Requested and Completed

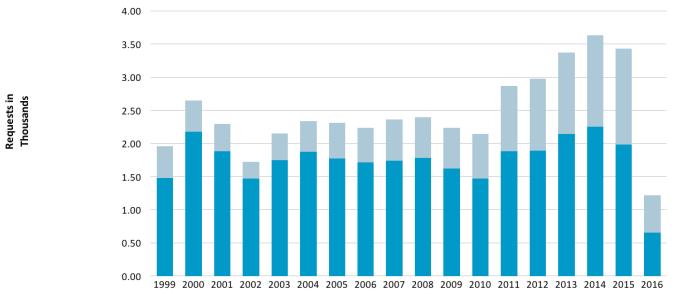


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
8.4 Transfers Requested	6	11	17	4	8	17	20	20	11	10	12	16
8.3 Transfers Requested	122	95	164	125	146	173	132	178	141	123	113	131
8.3 Transfers Completed	58	68	47	92	70	76	67	90	86	68	55	55
8.4 Transfers Completed	0	9	11	3	4	12	18	15	13	14	12	10

HISTORICAL REPORTS

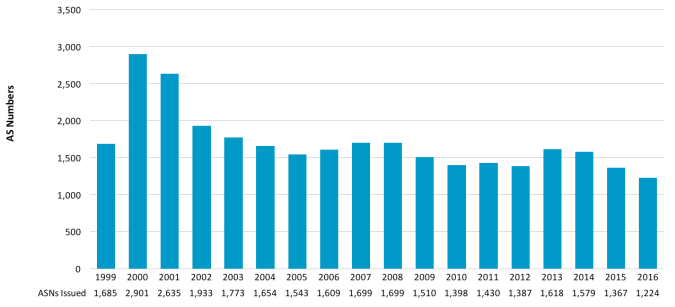
FOR MORE STATISTICAL REPORTS, VISIT: **https://www.arin.net/knowledge/statistics/**

IPv4 Address Requests by Category 1999-2016



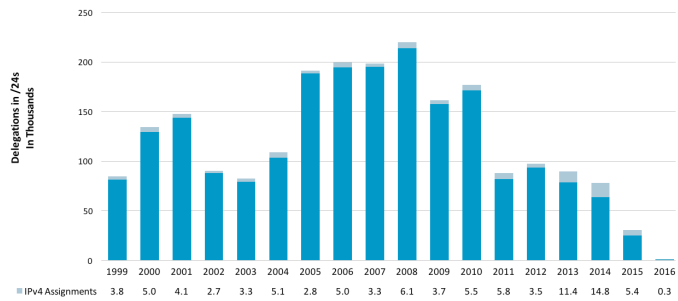
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
IPv4 Assignment Requests	0.48	0.47	0.42	0.25	0.40	0.46	0.54	0.53	0.62	0.61	0.61	0.67	0.98	1.08	1.23	1.38	1.45	0.56
IPv4 Allocation Requests	1.48	2.17	1.88	1.47	1.75	1.88	1.77	1.71	1.74	1.78	1.62	1.47	1.88	1.89	2.15	2.25	1.98	0.66

Autonomous System Numbers Issued by ARIN 1999-2016



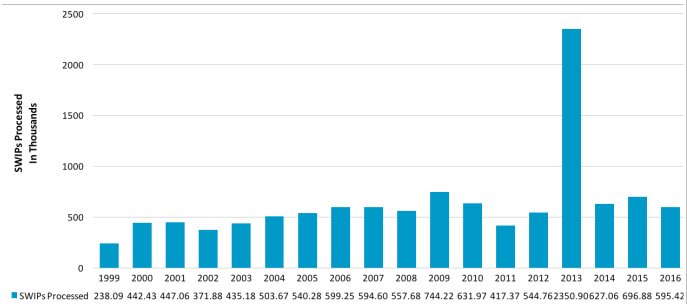
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ASNs Issued	1,685	2,901	2,635	1,933	1,773	1,654	1,543	1,609	1,699	1,699	1,510	1,398	1,430	1,387	1,618	1,579	1,367	1,224

ARIN IPv4 Address Delegations by Category 1999-2016



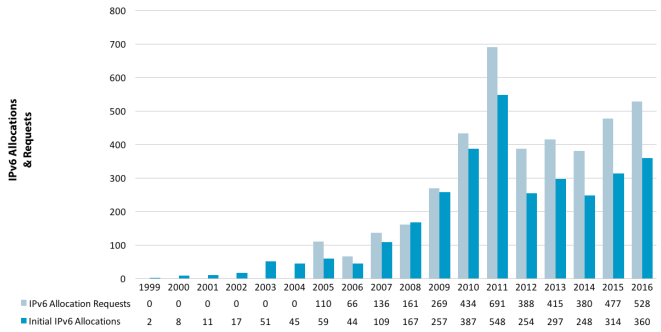
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
IPv4 Assignments	3.8	5.0	4.1	2.7	3.3	5.1	2.8	5.0	3.3	6.1	3.7	5.5	5.8	3.5	11.4	14.8	5.4	0.3
IPv4 Allocations	81.0	129.3	143.7	87.7	79.2	103.5	188.2	194.6	195.1	214.0	157.7	171.3	82.0	93.6	78.4	63.3	25.0	0.9

SWIP Templates Processed by ARIN 1999-2016



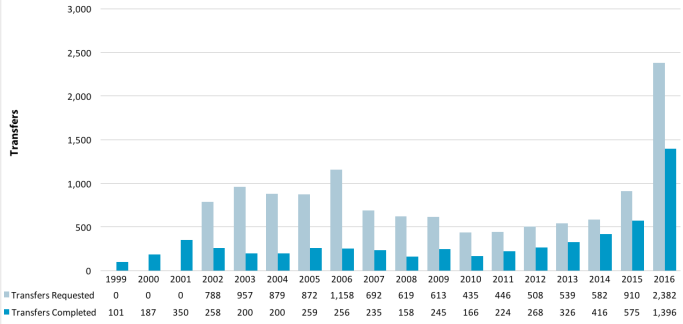
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
SWIPs Processed	238.09	442.43	447.06	371.88	435.18	503.67	540.28	599.25	594.60	557.68	744.22	631.97	417.37	544.76	2350.90	627.06	696.88	595.42

IPv6 Address Allocations and Requests 1999-2016



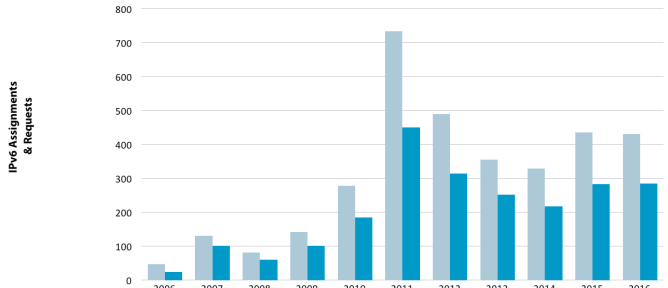
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
IPv6 Allocation Requests	0	0	0	0	0	0	110	66	136	161	269	434	691	388	415	380	477	528
Initial IPv6 Allocations	2	8	11	17	51	45	59	44	109	167	257	387	548	254	297	248	314	360

New Transfer Requests and Completed Transfers 1999-2016



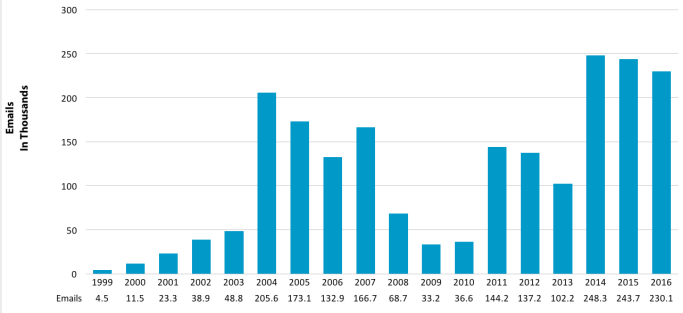
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Transfers Requested	0	0	0	788	957	879	872	1,158	692	619	613	435	446	508	539	582	910	2,382
Transfers Completed	101	187	350	258	200	200	259	256	235	158	245	166	224	268	326	416	575	1,396

ARIN IPv6 Address Assignments and Requests 2006-2016



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
IPv6 Assignment Requests	47	131	82	142	278	734	490	356	330	436	431
IPv6 Assignments	24	101	61	101	185	450	315	253	218	283	285

Email Received at hostmaster@arin.net 1999-2016



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Emails	4.5	11.5	23.3	38.9	48.8	205.6	173.1	132.9	166.7	68.7	33.2	36.6	144.2	137.2	102.2	248.3	243.7	230.1

AUDITOR'S REPORT

ARIN operates as a nonprofit 501(c) 6. Federal guidelines do not require nonprofit organizations to undergo an annual financial audit. However, the ARIN Board of Trustees believes a financial audit is the best tool for oversight of financial management.

ARIN has an annual financial audit performed by an independent outside firm to fulfill the Board's fiduciary responsibility to the community, and the audited financial statements are included in the Annual Report.

The Financial Statements for the year ending 31 December 2016 will be made available for community review upon completion.