

American Registry for Internet Numbers, Ltd.

Summary Results of Registration Services Department Audit

December 2013

Mike Cullen, Senior Manager
Baker Tilly
mike.cullen@bakertilly.com
703-923-8339

Raina Rose Tagle, Partner
Baker Tilly
raina.rosetagle@bakertilly.com
703-923-8251

www.bakertilly.com



Table of Contents

Audit Overview 2

Summary Results..... 2

Strengths 3

Themes 3

Appendix A: Documentation Reviewed 5

Audit Overview

The accounting and advisory firm of Baker Tilly was engaged by the American Registry for Internet Numbers (ARIN) to:

- > Assess ARIN's current Registration Services Department (RSD) processes against ARIN's Number Resource Policy Manual (NRPM) in the following areas:
 - o Internet Protocol (IP) address space allocation, transfer, and database record maintenance (both public and internal) for version 4 (IPv4) and version 6 (IPv6)
 - o Fraud detection, prevention, and follow-up
 - o Autonomous system number (ASN) allocation, transfer, and record maintenance
- > Review ARIN's Countdown Plan and procedures in anticipation of exhaustion of IPv4 resources
- > Follow-up on prior recommendations made during the 2011 audit
- > Test specific tickets, on a sample basis, from all types of customer requests to validate that NRPM requirements and internal procedures are consistently followed

Baker Tilly performed the following activities to meet the objectives of this audit:

- > Reviewed relevant documentation (e.g., NRPM, internal procedures, presentations, checklists, worksheets) to gain an understanding of ARIN's current registration processes (for a list of all documents reviewed, please see Appendix A)
- > Conducted interviews with key RSD personnel to understand RSD's policy and procedure governance processes
- > Sampled tickets from each request type, and compared current practices against the NRPM to identify potential gaps between practices and policies, as well as opportunities for process improvement
- > Reviewed the registration practices documented in the policy manuals of the four other Regional Internet Registries to identify industry best practices and assess their applicability to ARIN's registration processes

Summary Results

During the course of the audit and based on the specific procedures performed, Baker Tilly did not identify any people, processes, or technology that were out of compliance with the NRPM. RSD has worked to maintain ARIN's compliance with the continually changing, community-based NRPM with dedicated people, formal processes, and technology. The department's collaborative and cross-trained management and staff understand, value, and support ARIN's mission. They have implemented and maintained formal processes, including documented procedures, for the various IP resource management tasks required by the NRPM. In addition, RSD has built an informative website that enhances community awareness and supports electronic allocation requests, organization record updates, and community correspondence.

Baker Tilly identified potential enhancements to improve RSD process consistency and efficiency, as well as the information provided to customers related to the IPv4 Countdown Plan. The following were the opportunities identified:

- > Enhance RSD's internal procedures to include specific criteria used by RSD for decision making and assure the consistency of analysts' processing of requests
- > Continue to increase efficiency by implementing automated transfer request processes to replace the current work conducted manually and in a different system
- > Adjust the IPv4 Countdown Plan to clarify that the process follows a "first approved, first awarded" practice

Strengths

During the audit, we noted the following strengths:

- > Established IPv4 Countdown Plan explaining how remaining IPv4 address pool is distributed
 - Detailed plan identifies actions to take depending on the current state of the IPv4 environment
 - Operational plans already in development for when Phase 4 and run-out occur
- > Process framework to ensure compliance with the NRPM
 - Documented internal procedures that continually evolve as RSD management and staff identify process enhancements, including updates based on recommendations made in the past review
 - Dedicated procedure owner, who ensures that all procedures are consistent with the NRPM
- > Informative website that contains ARIN's current NRPM, policies, and materials to enhance community awareness, and a member portal, ARIN Online, which supports electronic allocation requests, organization record updates, and community correspondence
 - Expanded use of ARIN online to allow for improved customer support, including billing and ease of communication between RSD and Financial Services Department (FSD)
 - Set of standardized (i.e., canned) messages to allow for consistent communication with the community
- > Dedicated RSD management (i.e., Director of Registration Services, Principal Resource Analyst, and two Senior Resource Analysts) and staff who understand, value, and support ARIN's mission
 - Collaborative team environment and decision-making structure, focused on ensuring compliance with the NRPM

Themes

The overarching themes that were observed during the audit are presented below along with related recommendations:

#	Themes	Current State	Recommendations for ARIN's Consideration
1	RSD Quality Assurance	While the Director of Registration Services performs frequent reviews of analyst tickets, the reviews are not documented.	<ul style="list-style-type: none"> • The Director of Registration Services should document the existing quality assurance reviews performed, indicating which tickets were reviewed and the date of the review.
2	IPv4 Countdown Plan	<p>Although the IPv4 resource waitlist is not yet necessary and ARIN is still in Phase 3 of the IPv4 Countdown Plan, the process for handling the address run out notes the process to be followed as: "...first in, first out" basis (chronologically)...".</p> <p>However, RSD's actual method is more accurately a "first-approved, first-awarded" process. In addition, the plan notes that once IPv4 requests are made within Phase 4 of the Countdown Plan, all requests will be subject to an RSD team review.</p>	<ul style="list-style-type: none"> • Adjust Phase 4 of the Countdown Plan and all community communications to clearly describe the "first-approved, first-awarded" process that will be followed. • Analyze the level of effort required to perform team reviews for all future IPv4 requests to determine if this is feasible.

#	Themes	Current State	Recommendations for ARIN's Consideration
3	Internal Procedures	<p>Certain RSD practices have yet to be formally documented in the department's internal procedures, including:</p> <ul style="list-style-type: none"> • Peer reviews for all IPv4 and IPv6 requests • Sum file reconciliations, which compare the number of IP addresses issued to the approved requests • Customer utilization acceleration or deceleration • Discovered fraud communications 	<ul style="list-style-type: none"> • Internal procedures should be updated related to: <ul style="list-style-type: none"> ○ Peer review process ○ Monthly reconciliation of sum files ○ Utilization reviews ○ Fraud communication
4	Request Processing	<p>RSD processes approximately 1,000 requests from customers each month. The department has also made many improvements to the processing of customer requests. Baker Tilly noted opportunities for potential enhancement to the handling of these requests related to:</p> <ul style="list-style-type: none"> • Ticket response times • Documentation of verification of customer information • NRPM references in RSD responses • Transfer request tracking 	<ul style="list-style-type: none"> • Documentation on the ARIN website should be updated to clarify the possible response time/SLA based on the type of request. • RSD should update internal procedures to include: <ul style="list-style-type: none"> ○ Guidance for the independent verification of customer information ○ Requirements for consistent policy references so that all customers are provided the same amount of detail and information necessary to complete their request • ARIN should continue with plans to expand ARIN Online to include transfer requests in the next calendar year.

Appendix A: Documentation Reviewed

We reviewed the following documentation:

- > ARIN Fee Schedule
- > ARIN Online Canned Messages
- > ARIN Organization Chart
- > ARIN Policy Development Process
- > Assigned RSD Task List
- > Billing Forms
- > Countdown Plan
- > Fraud Detection Presentation
- > Job Description – Principal Technical Analyst
- > Job Description – Senior Resource Analyst
- > 2013 ARIN Online Tickets [on a sample basis]
- > 2013 Transfer Tickets [on a sample basis]
- > Number Resource Policy Manual (NRPM)
- > Recent Developments in the ARIN Region – Presentation
- > RSD Internal Procedures Service Plan
- > Transfer Template
- > Whois Questionnaire