



# Engineering Report

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## Agenda

- Services the Engineering Department supports
- Statistics
- Software releases and improvements
- Focus points in each Engineering area

# Services ARIN Engineering Supports

## **Core Services** include:

- Resource Public Key Infrastructure (RPKI)
- ARIN Online
- Internet Routing Registry (IRR)
- Domain Name System (DNS)
- Directory services (Whois/Whois-RWS/RDAP)
- Email
- ARIN Mailing Lists
- ARIN website
- The Vault
- Operational Test and Evaluation Environment (OT&E)
- File Transfer Protocol (FTP)

# Services ARIN Engineering Supports

## **Internal Support** included:

- ARIN Online (staff interface)
- Security and performance monitoring
- Cloud-based tools
- Various development/testing environments
- Email
- Analytics
- Infrastructure tools like Jira / Confluence, build agents, etc.
- Financial systems

Statistics

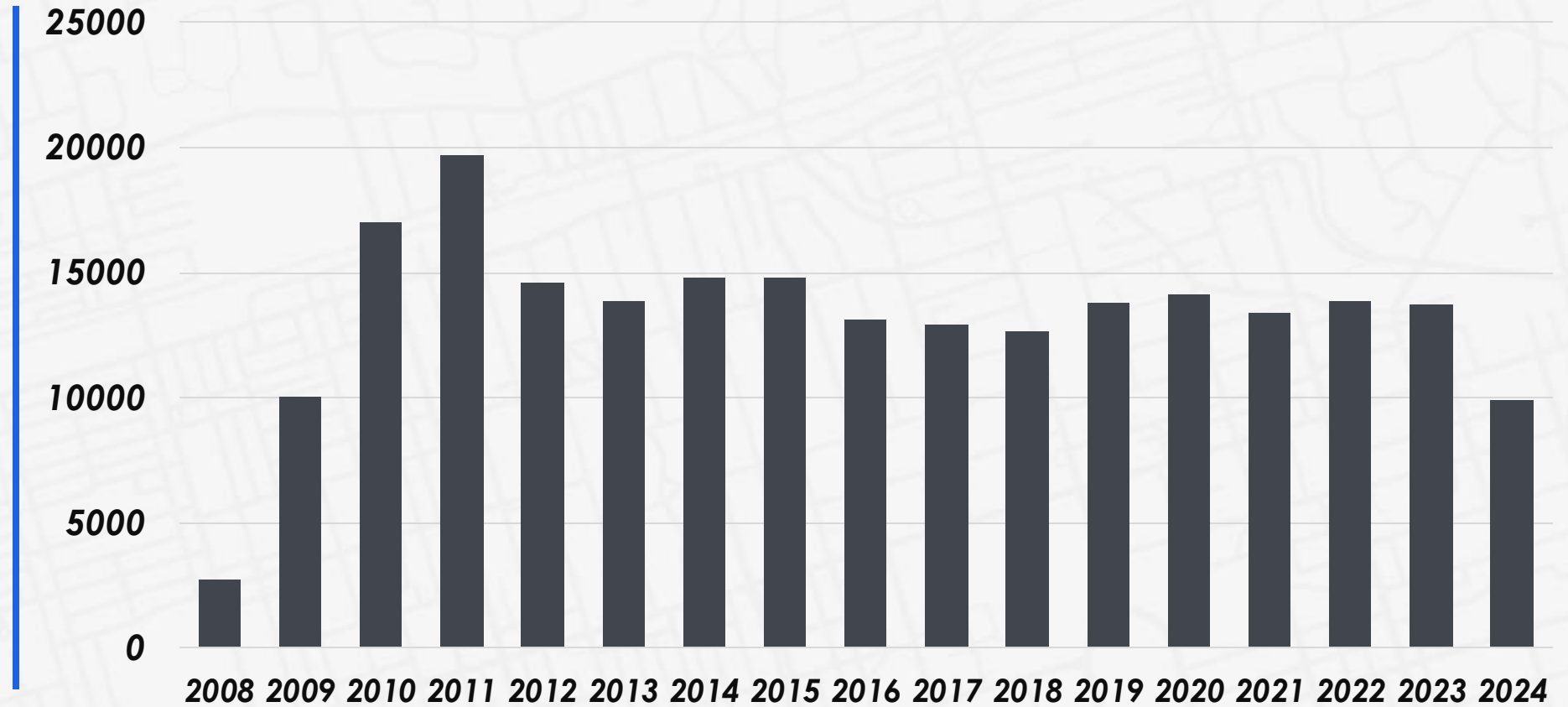




# ARIN Online

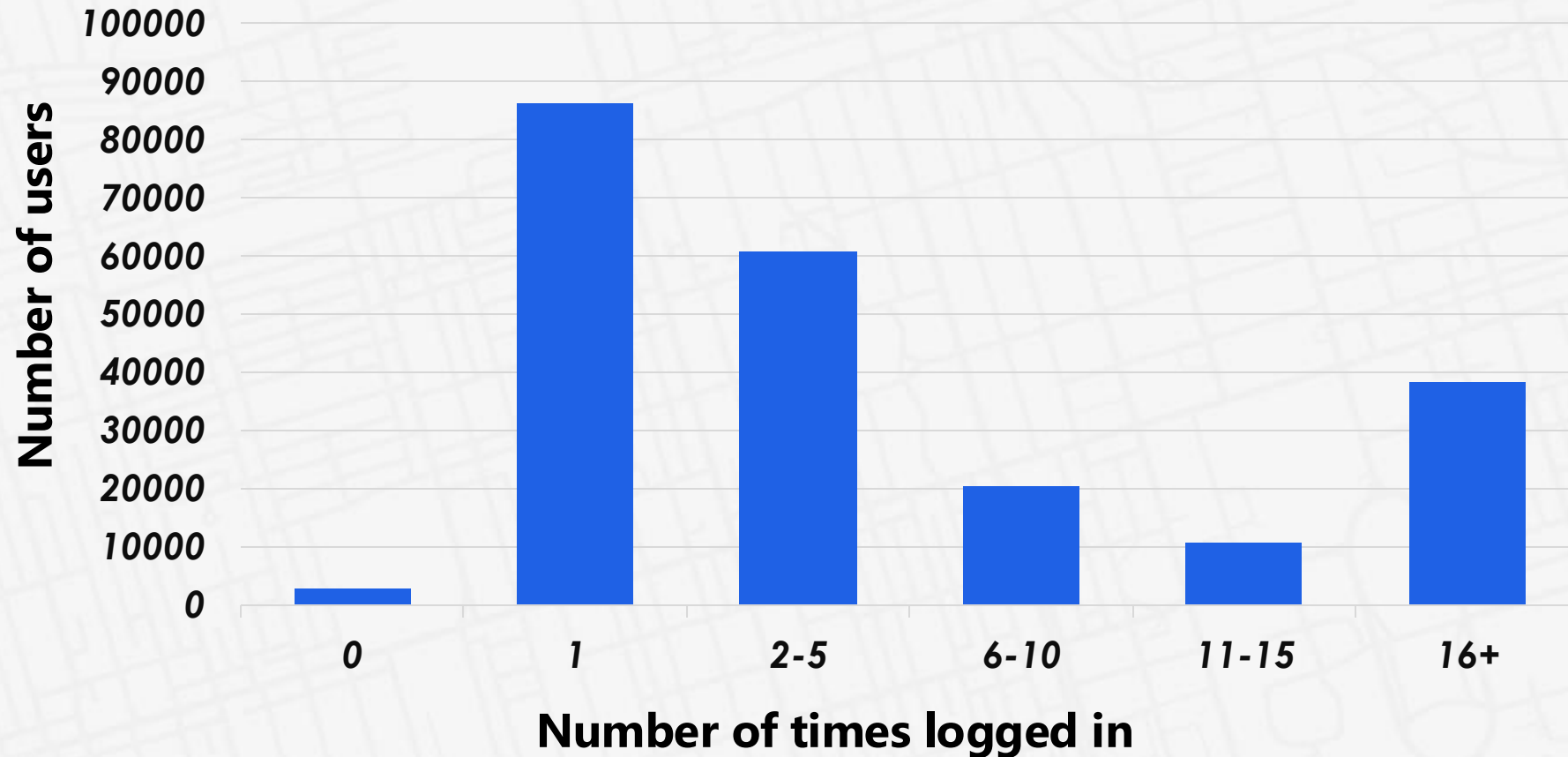
**225,046**

Accounts activated  
since inception  
through  
Q3 of 2024

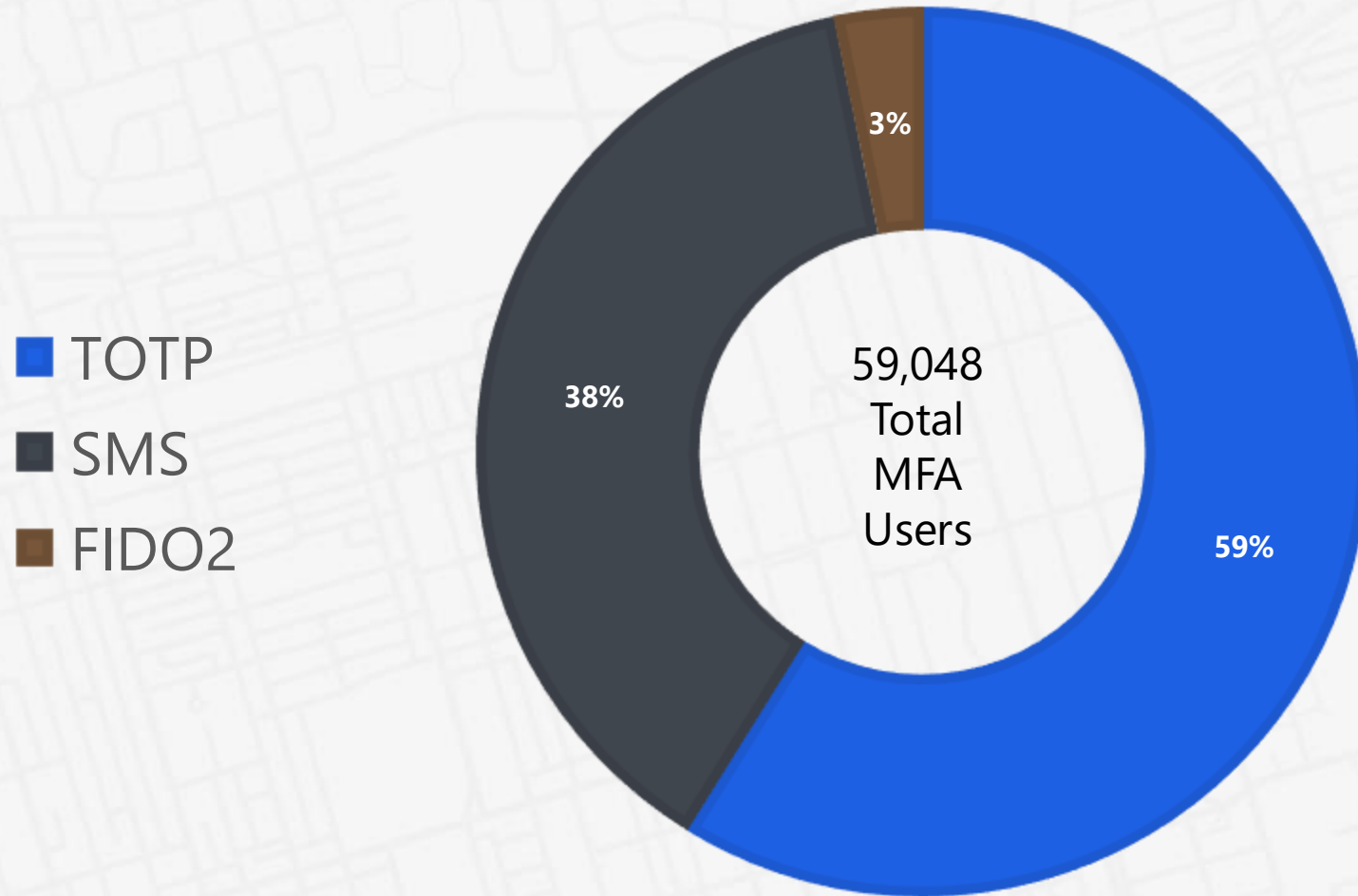


# ARIN Online Logins (Cumulative)

Logins from inception through Q3 of 2024



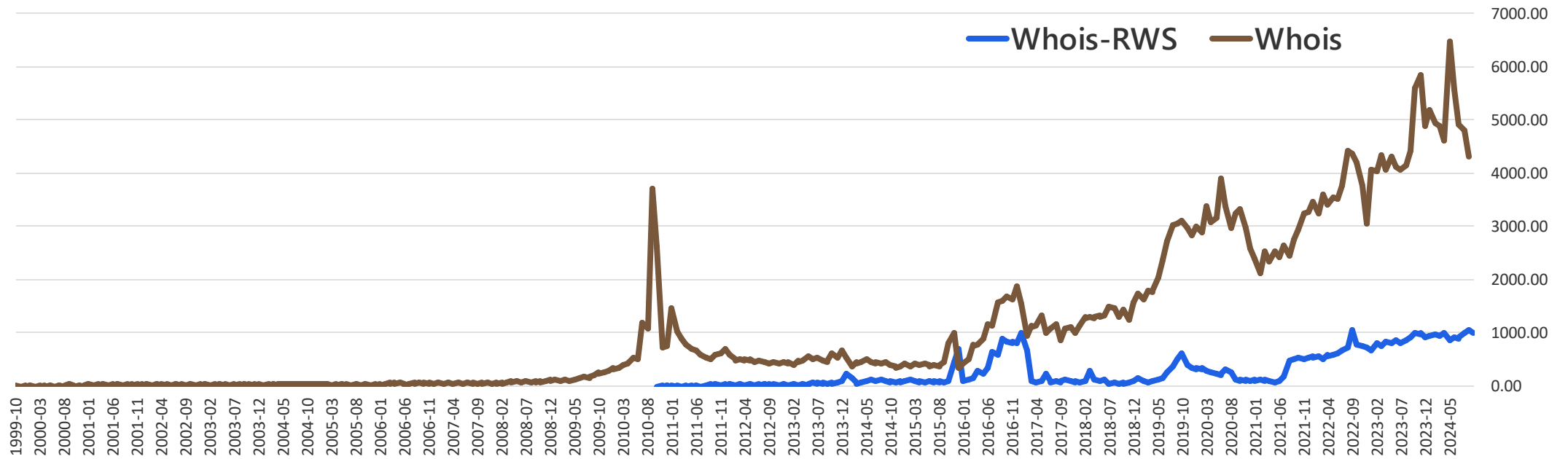
# Multifactor Authentication Adoption



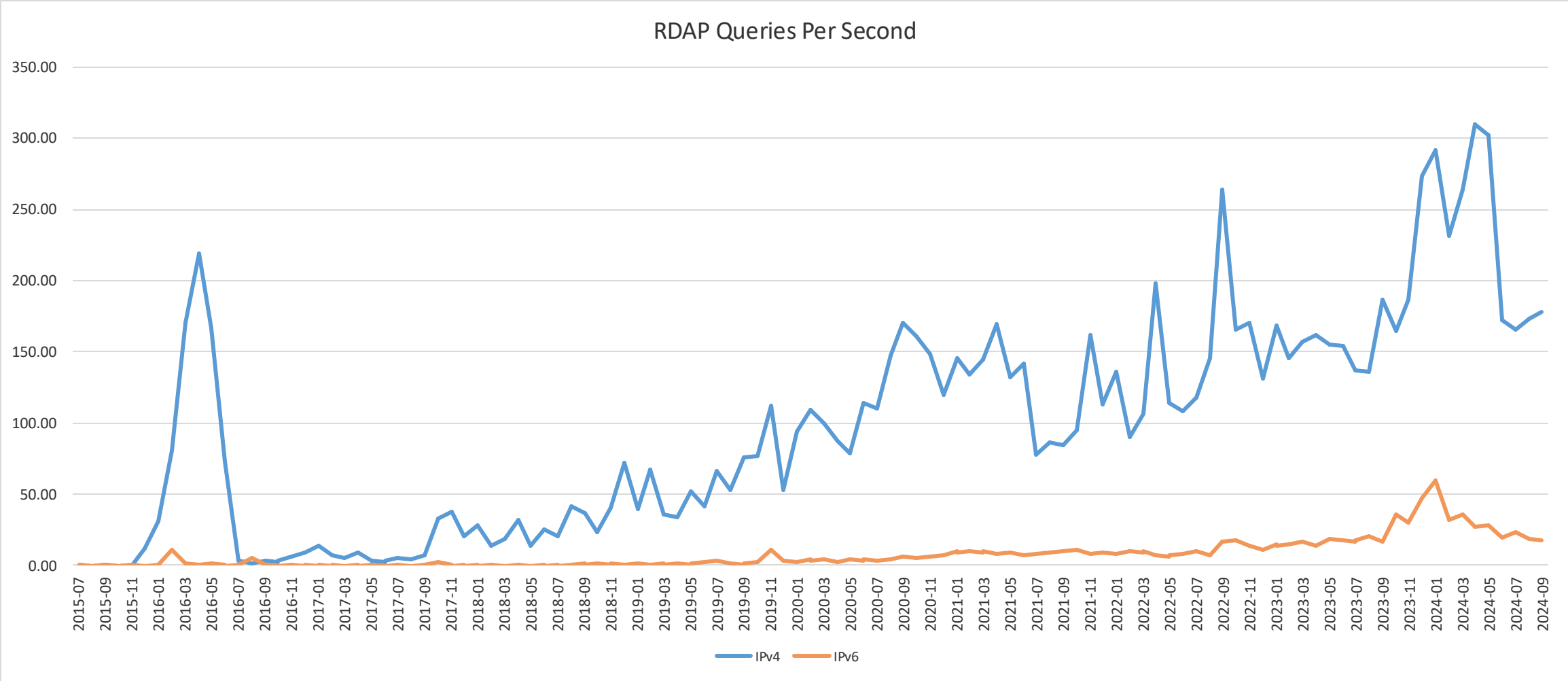


# Whois and Whois-RWS

Queries Per Second

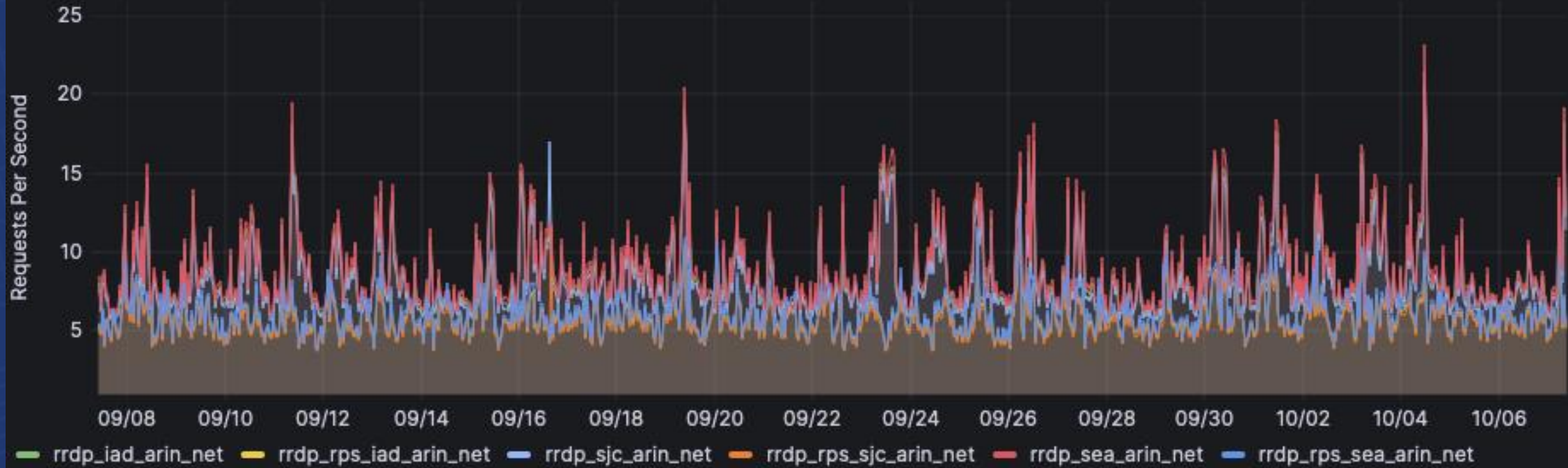


# Registration Data Access Protocol (RDAP)



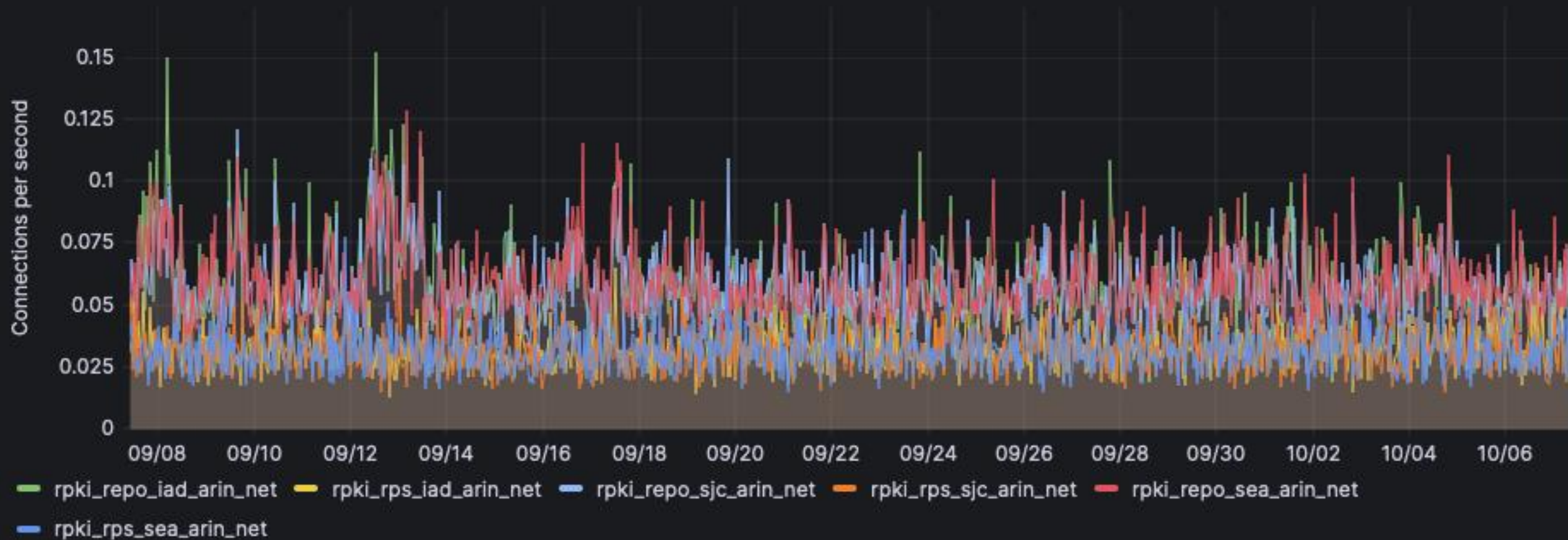
# RPKI – RRDP

RRDP Repository Requests Per Second



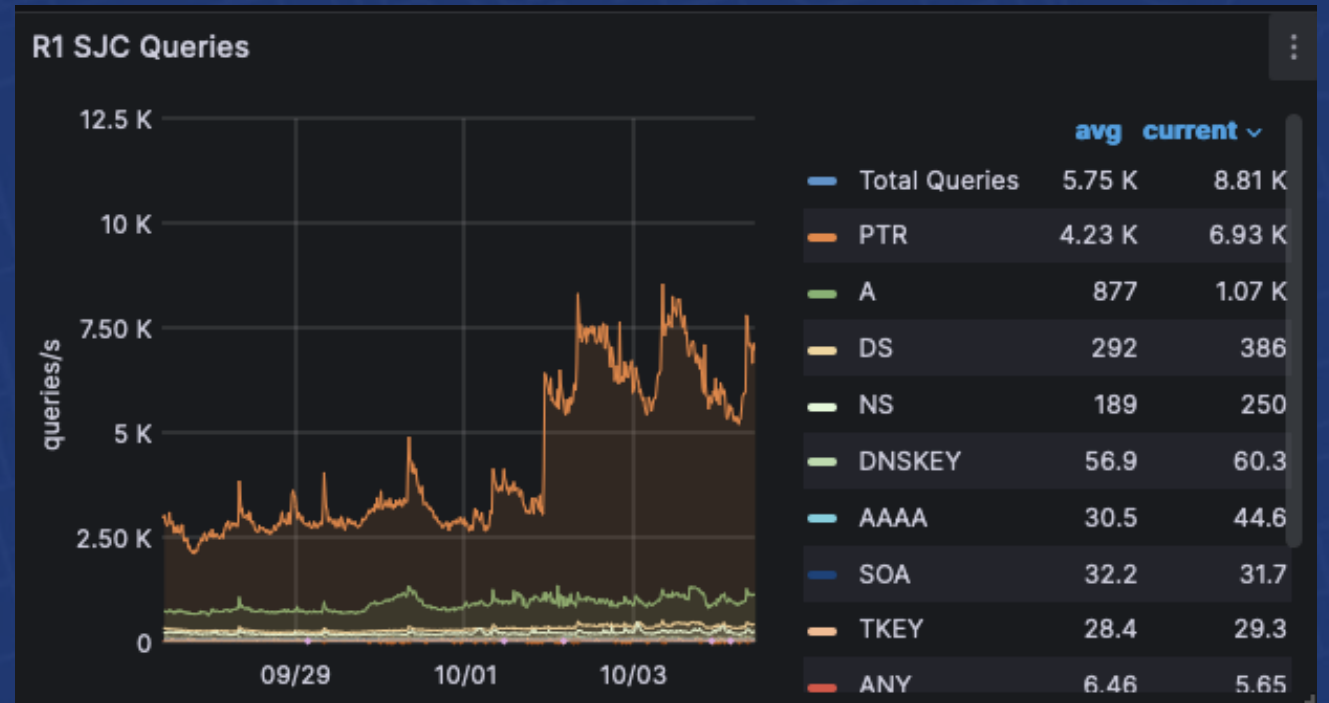
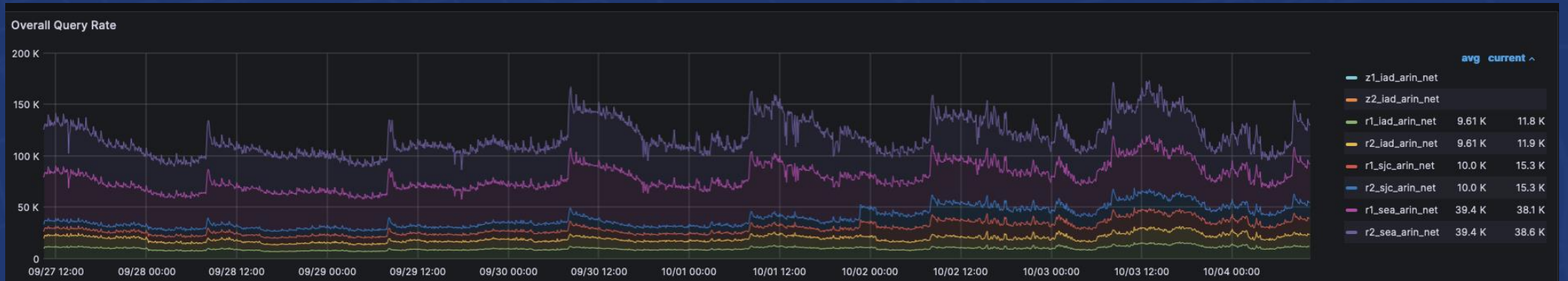
# RPKI – RSYNC

RSYNC Repository Requests Per Second





# DNS – ARIN-Managed /8s



# Releases and Improvements







## Releases Since ARIN 53

### **Public:**

- Bug fixes

### **Internal:**

- Tech debt
- Financial controls

### **Ongoing:**

- System and Organization Controls (SOC) 2 Type 2 audit
- Payment Card Industry (PCI) audit
- Reduction of technical debt – continued LARGE focus here
- Availability enhancements to the provisioning systems

# System Improvements Since ARIN 53

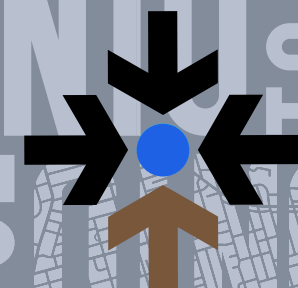
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End-of-life box replacements are now concurrent with a steady transitioning to Kubernetes

Rolled out new hardware for public-facing sites running Red Hat OpenShift (OKE) with services running under oVirt (VMs)

Prometheus monitoring operational in all sites running on Red Hat OpenShift with applications being migrated away from Sensu

# Focus Points in Each Engineering Area



# Program Management

## Key Areas of Support

- Long-term vision roadmap planning
- Release planning and scheduling to align with long-term goals
- Sprint and team management
- Planning for data center move from ARIN HQ to a colocation facility (AKA "New Data Center")
- Engineering contracts management

# Development/ Software Integration

## FIVE DEVELOPMENT TEAMS

For the coming year, each team will work on one of these core subject areas:

- RPKI/IRR/routing security
- ARIN Consultation and Suggestion Process (ACSP) and Community Suggestions
- Improving internal tooling and workflows
- Elimination of technical debt within our various applications
- Containerization and moving us toward a new deployment model



# Development/ Software Integration

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We also have a team that helps steer UI, USABILITY, and ACCESSIBILITY across our public-facing applications.



# Development/ Software Integration

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We strive for a balance of **three developers and two testers** per team.

The Software Integration Team continues to ensure software quality by validating that it meets established quality standards and requirements.

- Manual testers concentrate on various testing methods, including accessibility, black-box, white-box, integration, system, and usability testing.
- Software Development Engineers in Test (SDETs) primarily focus on automated testing, which enables the team to quickly verify that existing functionalities continue to work after modifications or updates.

# Information Systems and Security

- Business Central (financial software) upgrade work with ARIN Financial Services Department and other Engineering teams
- Security monitoring
- SOC 2 and PCI compliance work with the Chief Information Security Officer team
- Exchange Online and other Microsoft tools
- Employee IT support



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# System and Network Operations

## Major activities

- Converting provisioning automation to support Kubernetes
- Enabling Kubernetes solutions for ARIN applications
- Hardening our database infrastructure
- Improving DNS support for our Caribbean region
- New Data Center environment preparation
- Server, storage, network and support application updates
  - (apps: Atlassian, BIND, Metabase, OpenSearch, OKE, Prometheus)

# Upcoming Planned Public Enhancements

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## Secure Routing Enhancements

- RPKI Integration with IRR
- Routing Intelligence for RPKI

## New Fee Calculator

Future fee changes based on Board action

## RDAP Enhancements

Parity with Whois/Whois-RWS

- RIR Search
- Reverse Search

## Standards Work

Depends when the standard is finalized within the Internet Engineering Task Force (IETF)

### **RDAP**

- RIR Search
- Geofeed

### **RPKI**

- Autonomous System Provider Authorization (ASPA)



# Thank you

Questions and Comments?

