

# Engineering Update

---

Mark Kusters  
Chief Technology Officer





# Agenda

- Services ARIN Engineering Supports
- Statistics
- Software Releases and Improvements

# Services ARIN Engineering Supports



## Core Services include:

- Resource Public Key Infrastructure (RPKI)
- ARIN Online
- Reg-RWS
- Internet Routing Registry (IRR)
- Domain Name System (DNS)
- Directory services (Whois/RWhois/Whois-RWS/RDAP)
- Email
- ARIN mailing lists
- ARIN website
- The Vault
- Operational Test and Evaluation Environment (OT&E)
- ~~File Transfer Protocol (FTP)~~ **RETIRED 31 March**

# Services ARIN Engineering Supports



## **Internal Support** includes:

- 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



# Services We Can Simplify

Four different ways to get directory service information

- Whois
- RWhois
- Whois-RWS
- RDAP

We are planning a consultation later this year to consider the retirement of RWhois and Whois-RWS.

Stay tuned to participate in that discussion when the consultation opens!



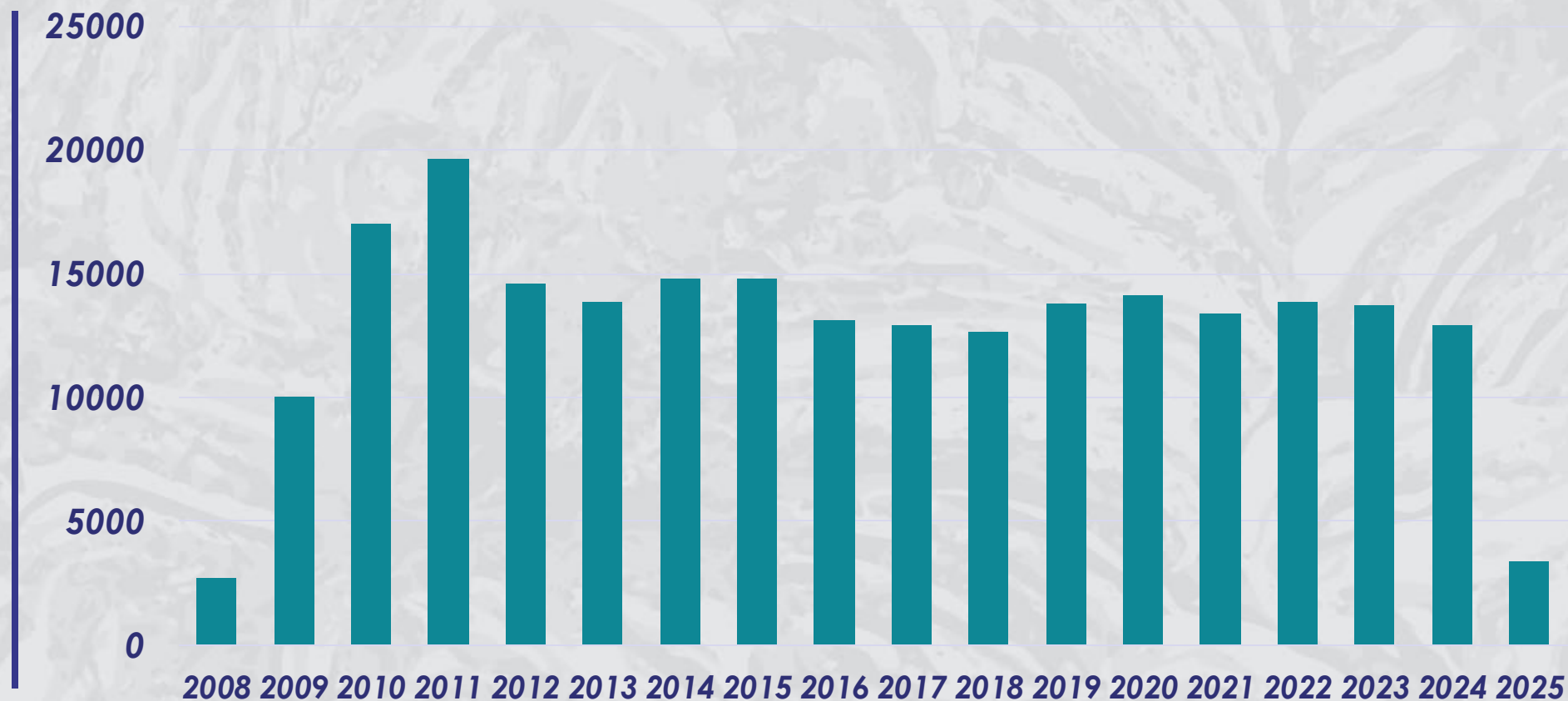


# Statistics

# ARIN Online

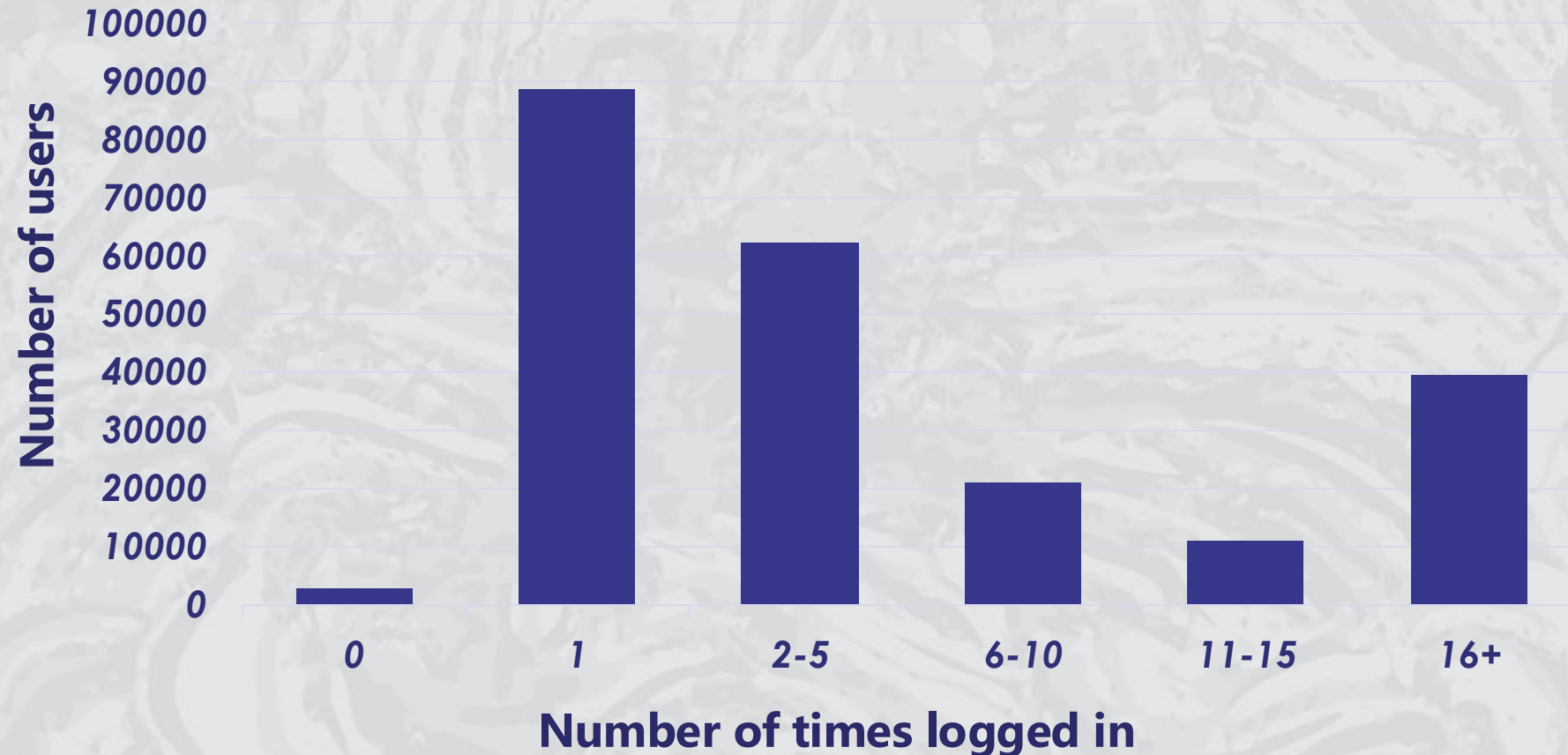
**231,399**

Accounts activated  
since inception  
through  
Q1 of 2025



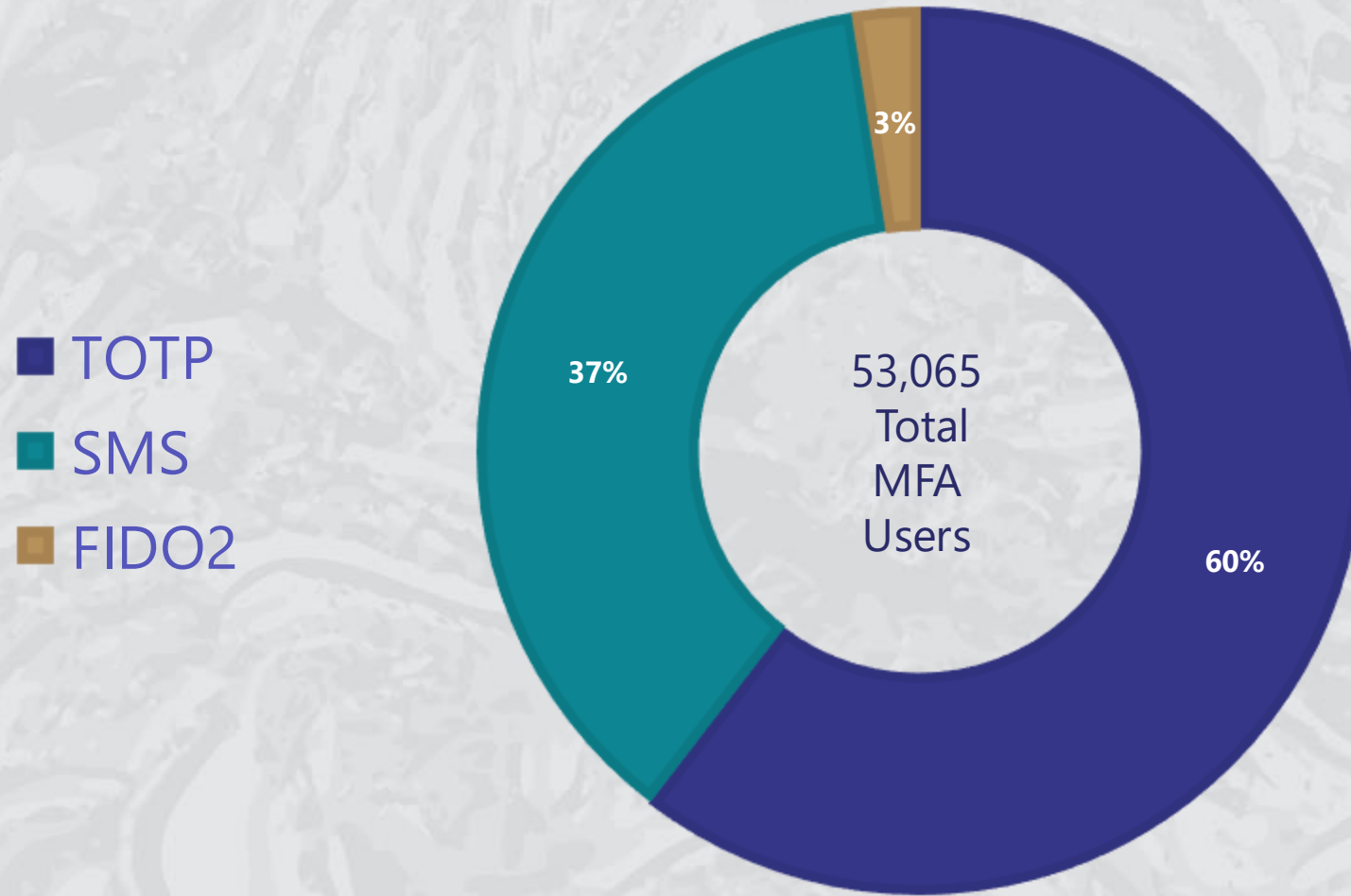
# ARIN Online Logins (Cumulative)

Logins from inception through Q1 of 2025





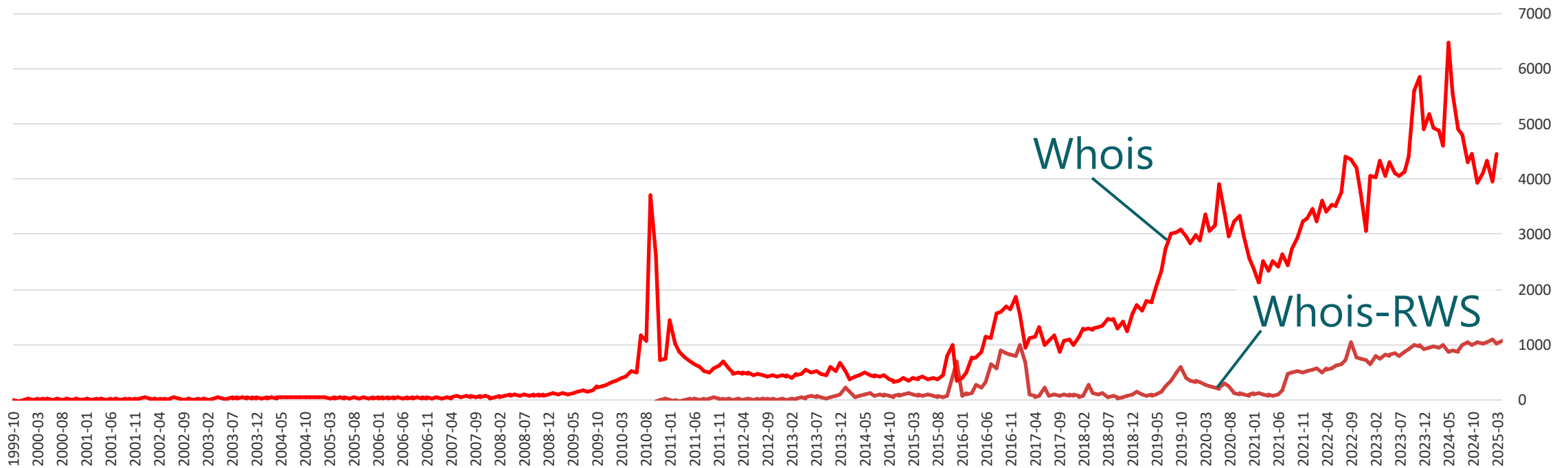
# Multifactor Authentication Adoption



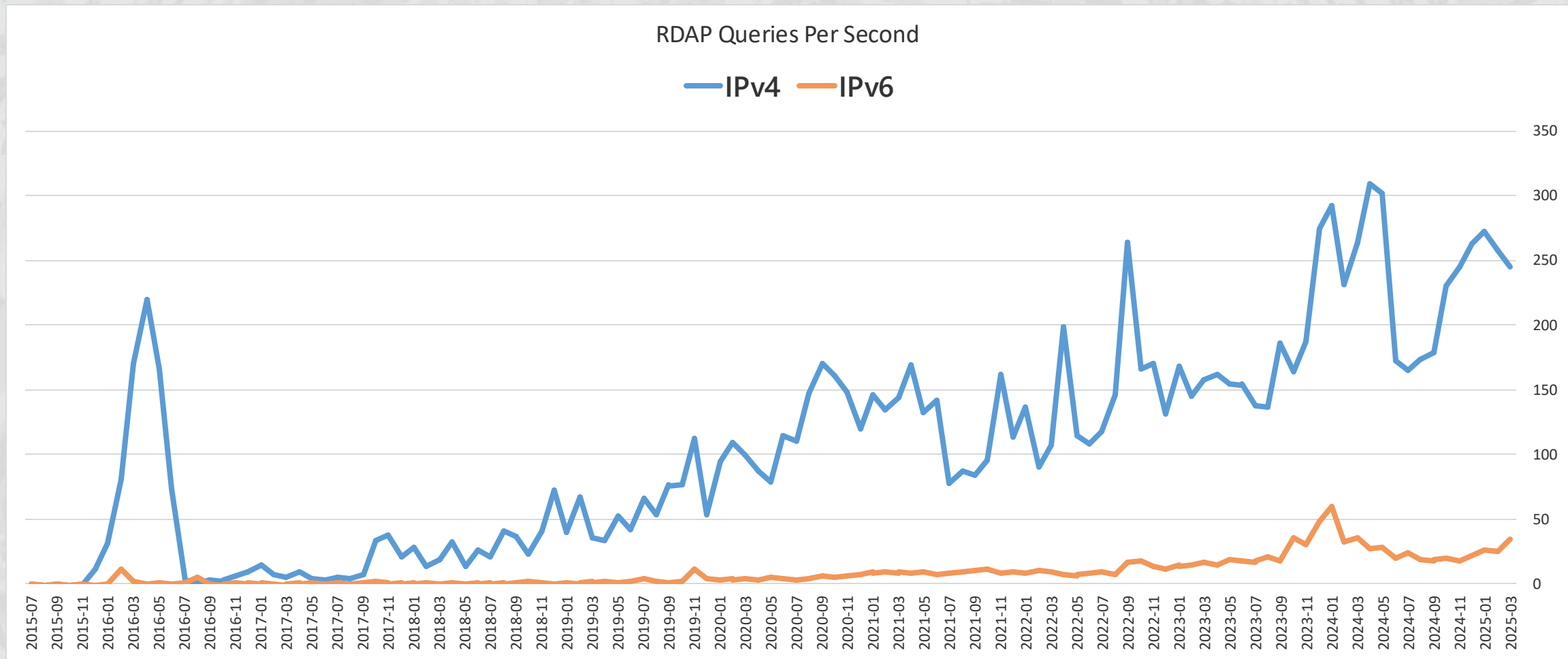
# Whois and Whois-RWS

Queries Per Second

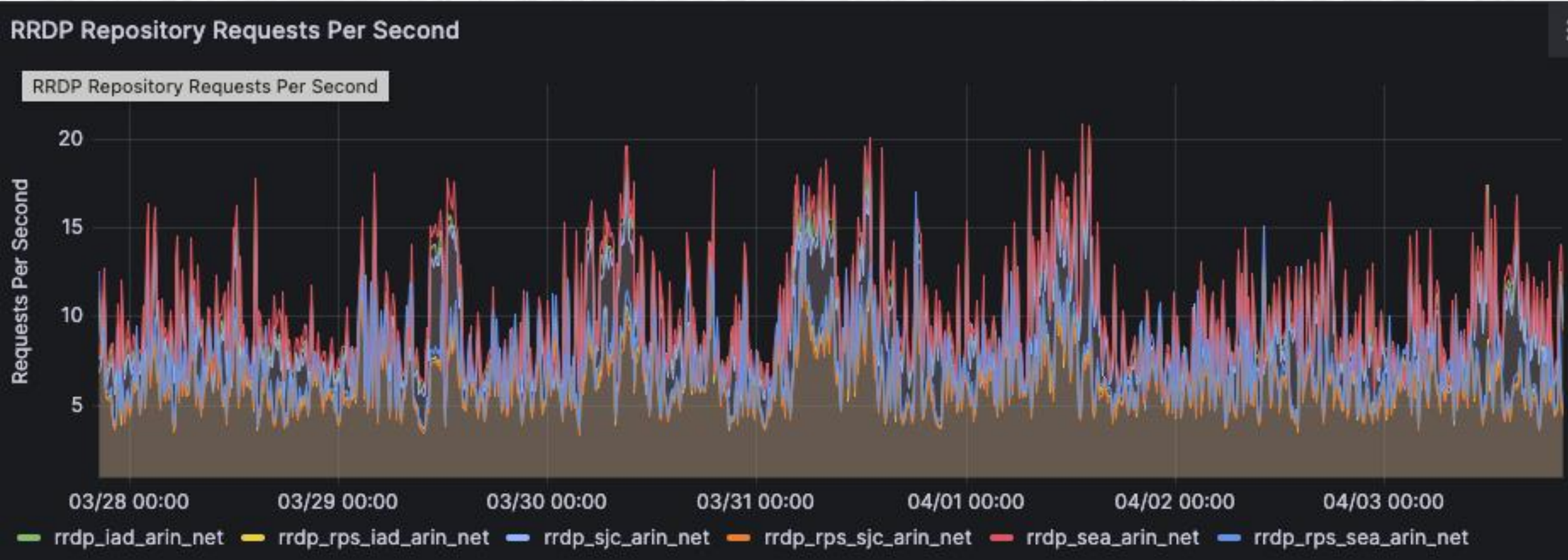
Whois-RWS Whois



# Registration Data Access Protocol (RDAP)

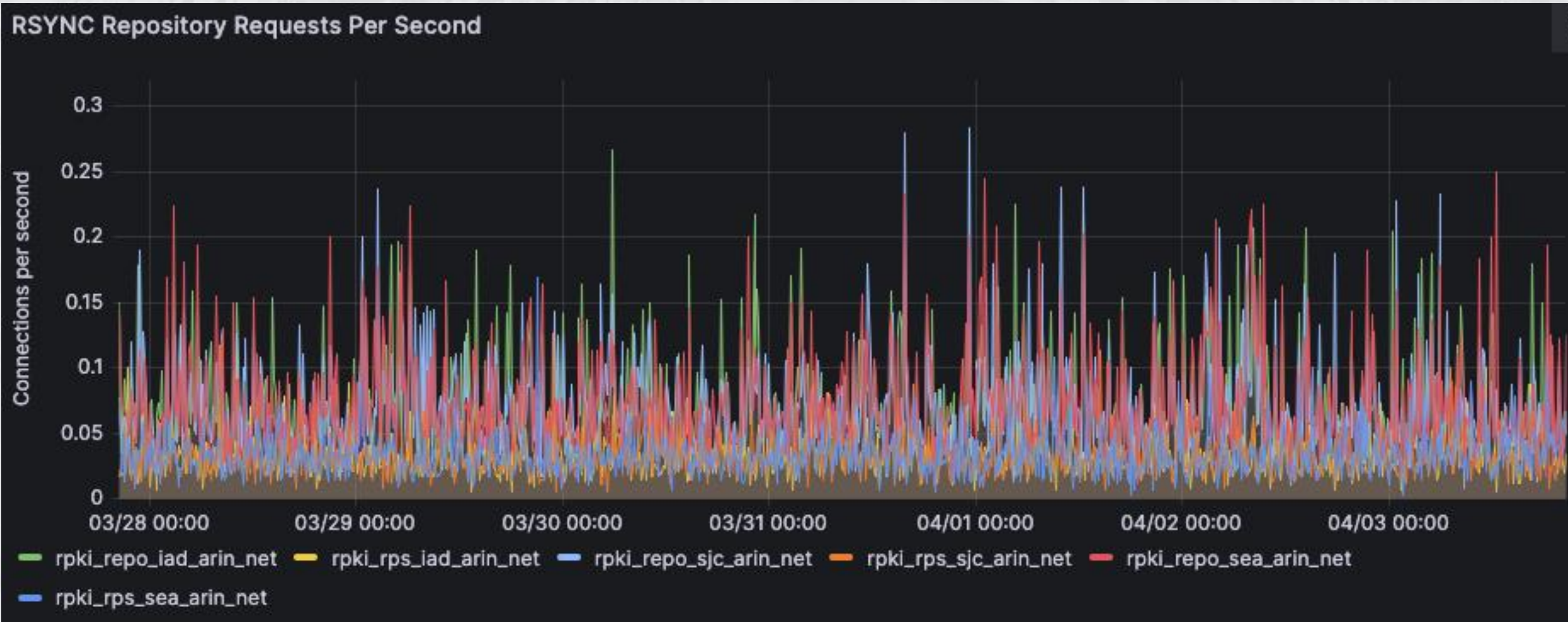


# RPKI – RRD

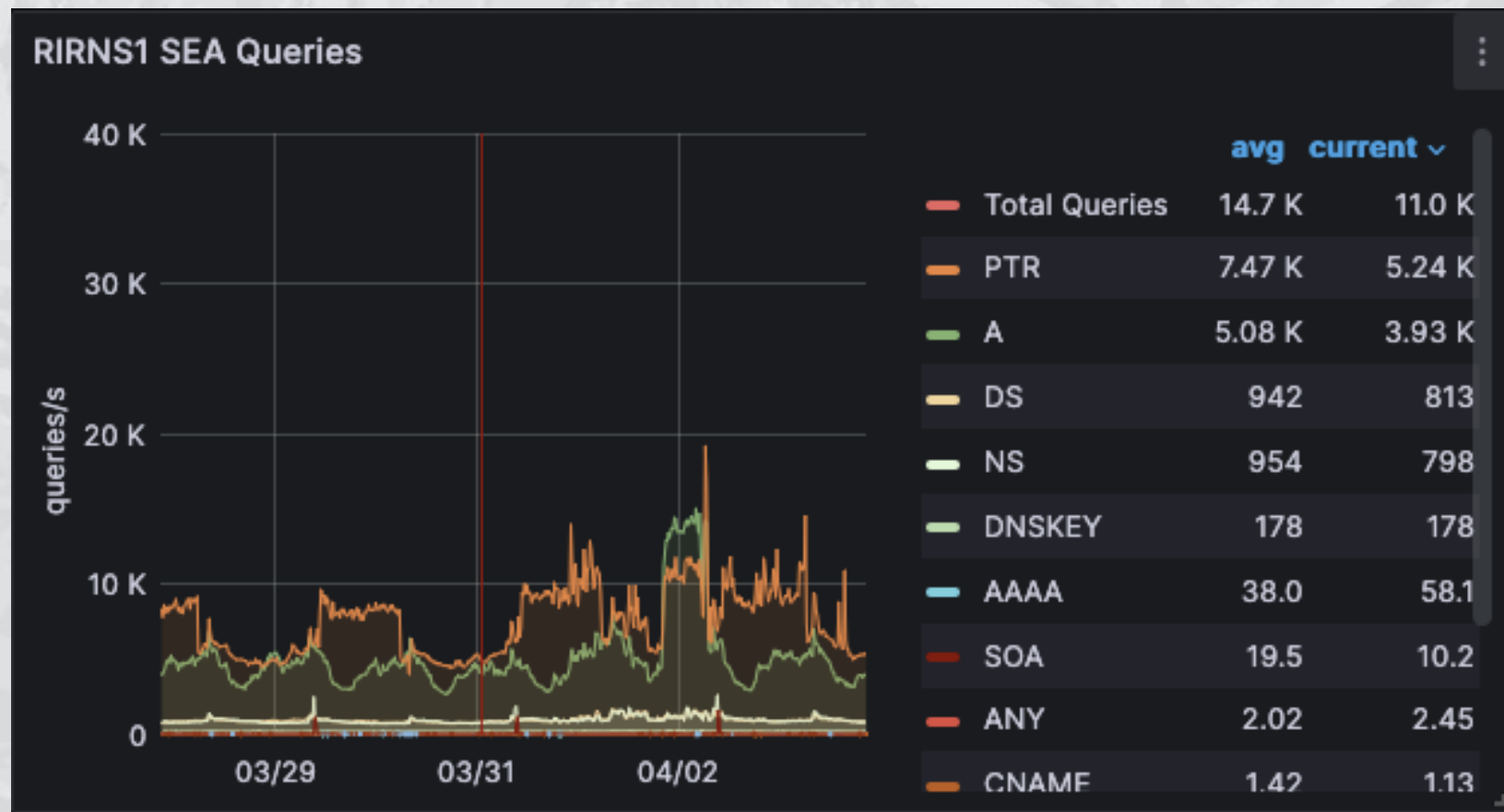
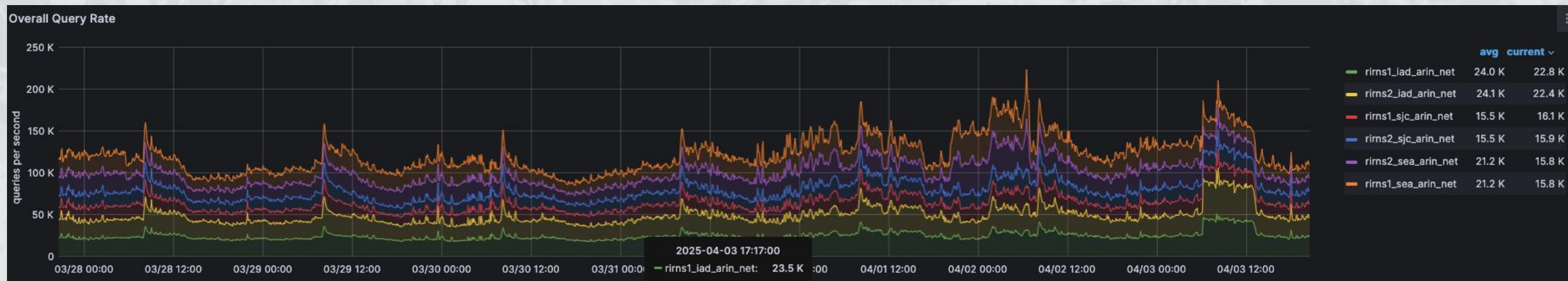




# RPKI – RSYNC



# DNS – ARIN-Managed /8s





# Releases and Improvements





## Releases Since ARIN 54

### **Public:**

- RPKI/IRR Integration
- ASPA preparation
- 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 54

---

End-of-life box replacements are now concurrent with a steady transition of applications to Kubernetes. Required as we are moving to a new datacenter

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

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

# Move to New Data Center

ARIN HQ is running two of these environments

- Provisioning and internal support
- ARIN HQ equipment room is substandard
  - Roof leaks
  - Lots of HVAC issues





# Move to New Data Center

Moving ARIN HQ to a new data center in Northern Virginia

## Two objectives

- Removing technical debt
- Becoming more highly available

## Improvement objectives being solved by

- New hardware for network, servers, and storage
- Moving to hosted Kubernetes clusters and current Linux platforms

# Database Update

## Running PostgreSQL for a long time

- Very reliable and excellent failover with synchronous and asynchronous nodes across two provisioning sites
- Uses a technology that is going using a “watcher” node that would vote for quorum when a failover happened
- Leveraged the iDRAC to power off the troublesome node

## Moved to Crunchy PostgreSQL for Kubernetes (PostgreSQL 17) running on-prem OpenShift Kubernetes Engine – again with synchronous and asynchronous instances at both provisioning sites

- Uses “modern” means of detecting nodes being down with automatic failover
- Well tested solution with middleware from our support vendor
- Quite innovative and will be presenting this solution at a Red Hat Summit in Boston in May 2025





# Upcoming Planned Public Enhancements

---

## Secure Routing Enhancements

- ROA aggregation
- Routing Intelligence for RPKI

## Internal Improvements

Create staff efficiencies

## RDAP Enhancements

Parity with Whois/Whois-RWS

- Regional Internet Registry (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)



Questions and Comments?  
Thank you