

# Engineering Report

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# Agenda

- Services the Engineering Department supports
- Statistics
- Software releases and improvements
- Challenges and what's next

# Services ARIN Engineering supports

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## Core Services

- ARIN Online
  - Restful provisioning API
  - Email templates
  - Reports
    - Whois
    - Bulkwhois
    - Etc..
- Resource Public Key Infrastructure (RPKI)
- Internet Routing Registry (IRR)
- Domain Name System (DNS)
- Directory services
  - Whois
  - Whois-RWS
  - Registration Data Access Protocol (RDAP)
- Email
  - Hostmaster
  - Billing

# Services ARIN Engineering supports

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## Other Services

- ARIN Mailing Lists
- ARIN website
  - ARIN Online
  - The Vault
- Operational Test and Evaluation Environment
- FTP

## Internal Support

- ARIN Online (staff interface)
- Infrastructure tools
- Security and performance monitoring
- Cloud-based tools
- Email
- Various environments, including development, daily testing/regression tests, long-running tests, current release, staging, and branch environments
- Analytics

# Statistics



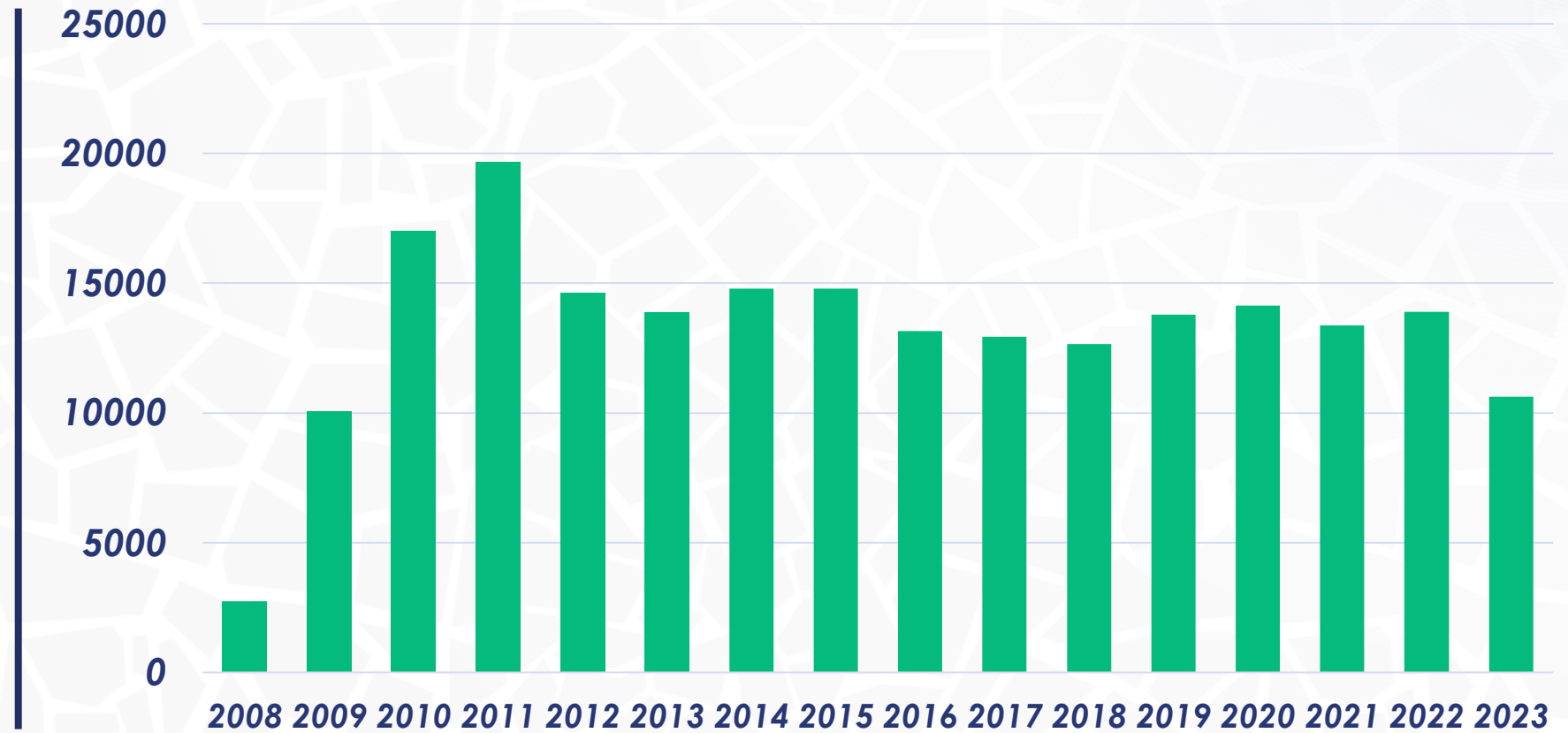


# ARIN Online



**212,037**

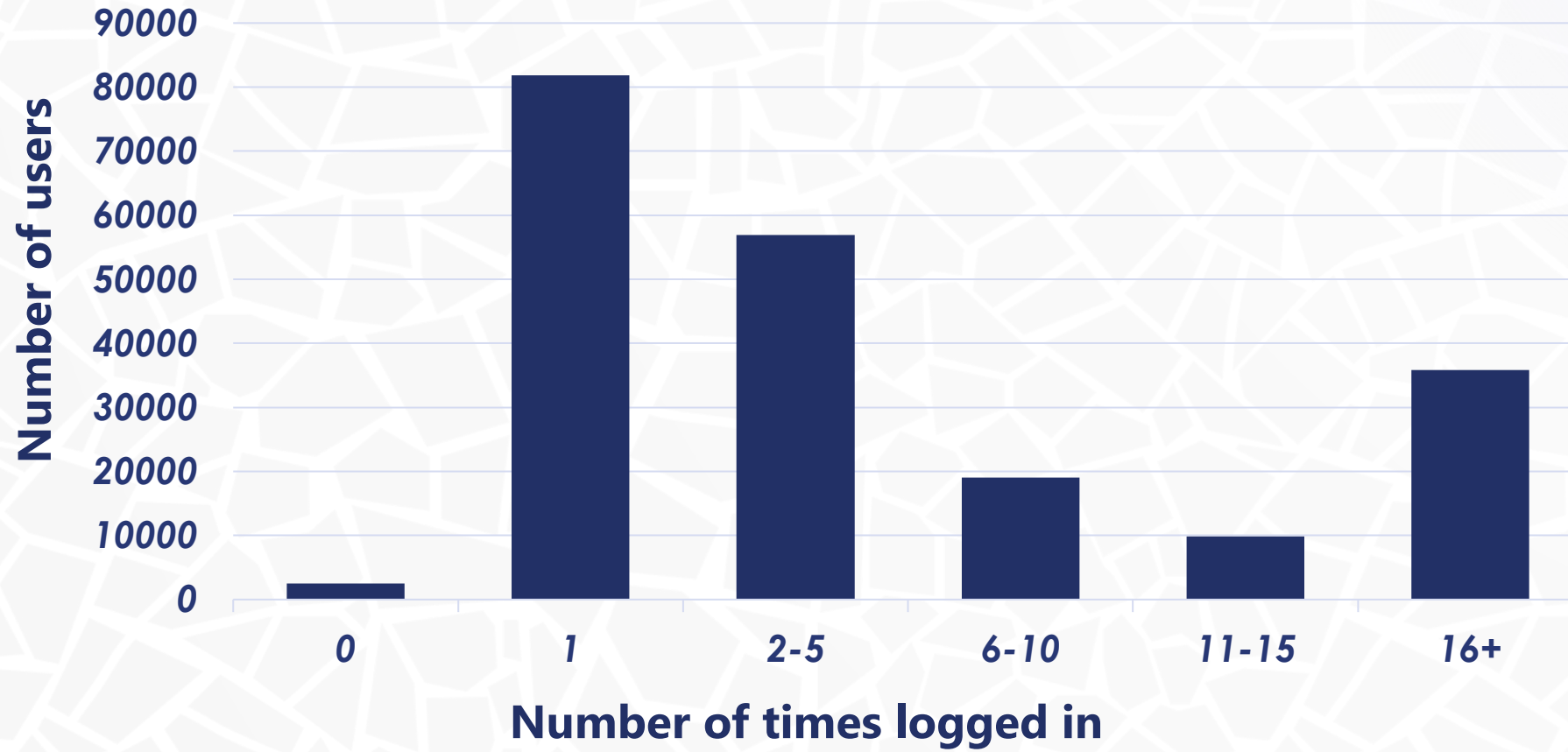
accounts activated  
since inception through  
Q1 of 2023



# ARIN Online Logins (Cumulative)



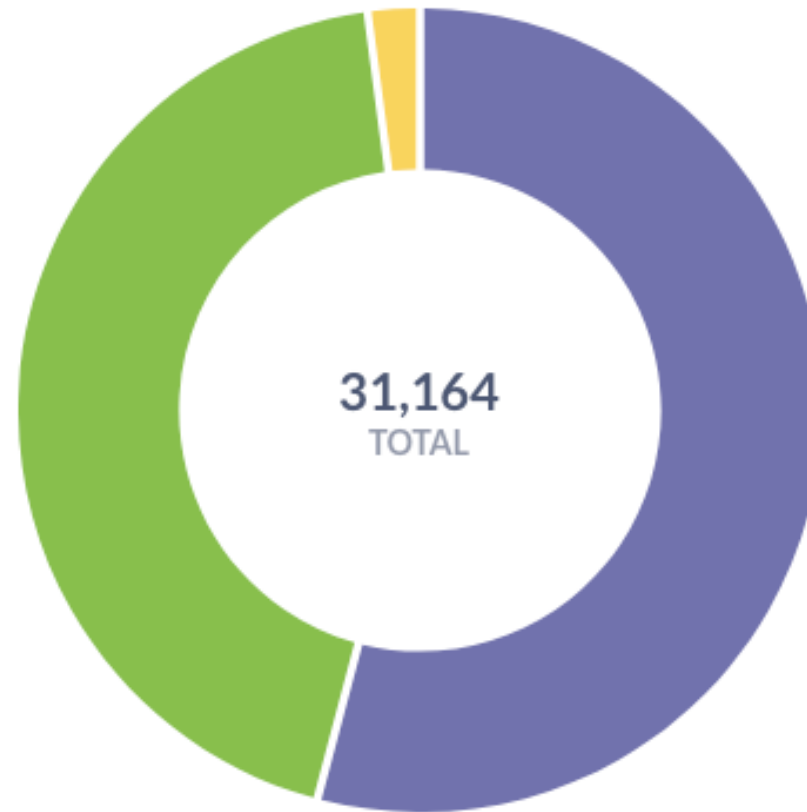
Logins from inception through Q3 of 2023



# 2FA Adoption



- TOTP 54.29%
- SMS 43.88%
- FIDO2 1.83%



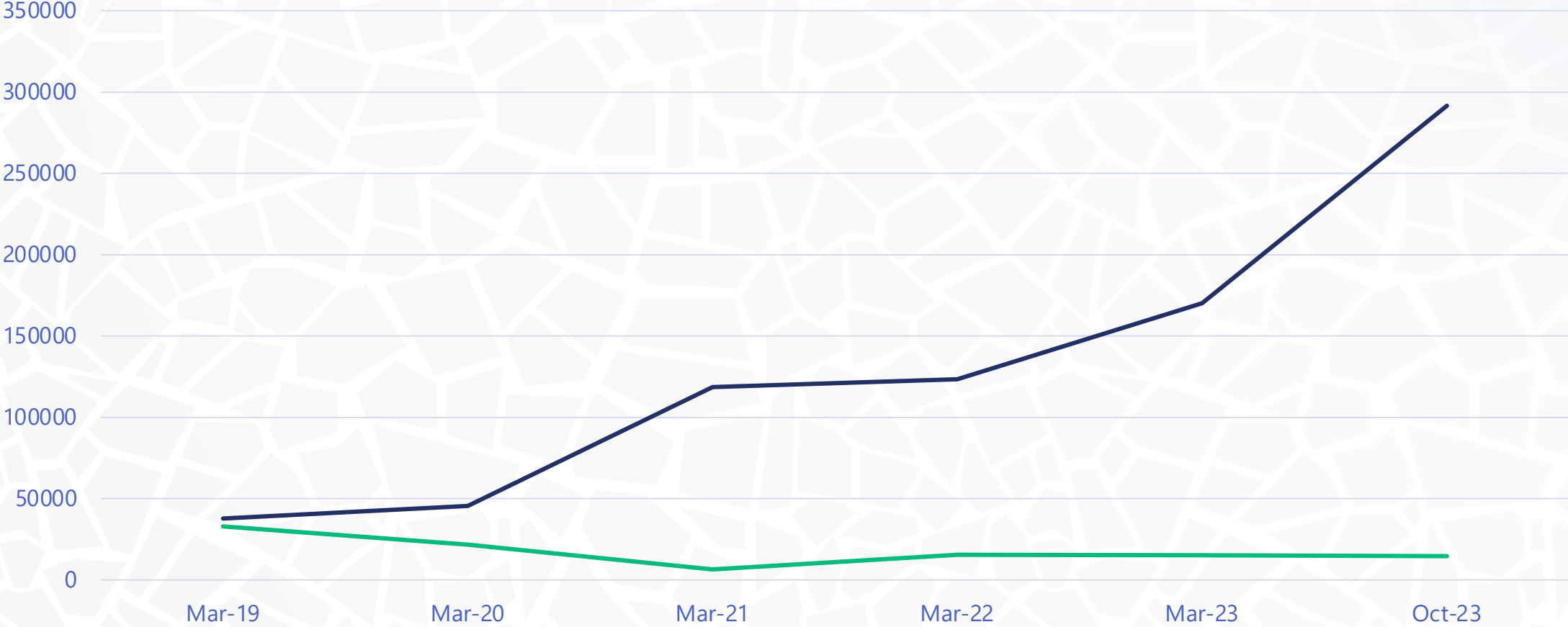
20,280 new 2FA users since 2FA has become mandatory for ARIN Online



# Provisioning Transactions



*(RESTful + Templates)*

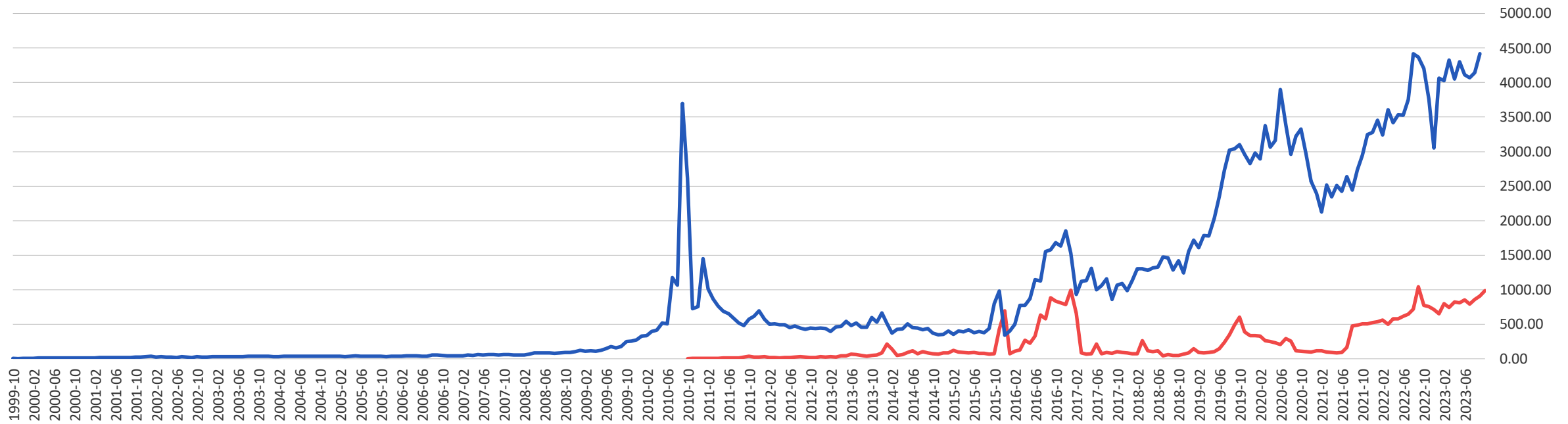


# Whois and Whois-RWS



## Queries Per Second

Whois-RWS Whois

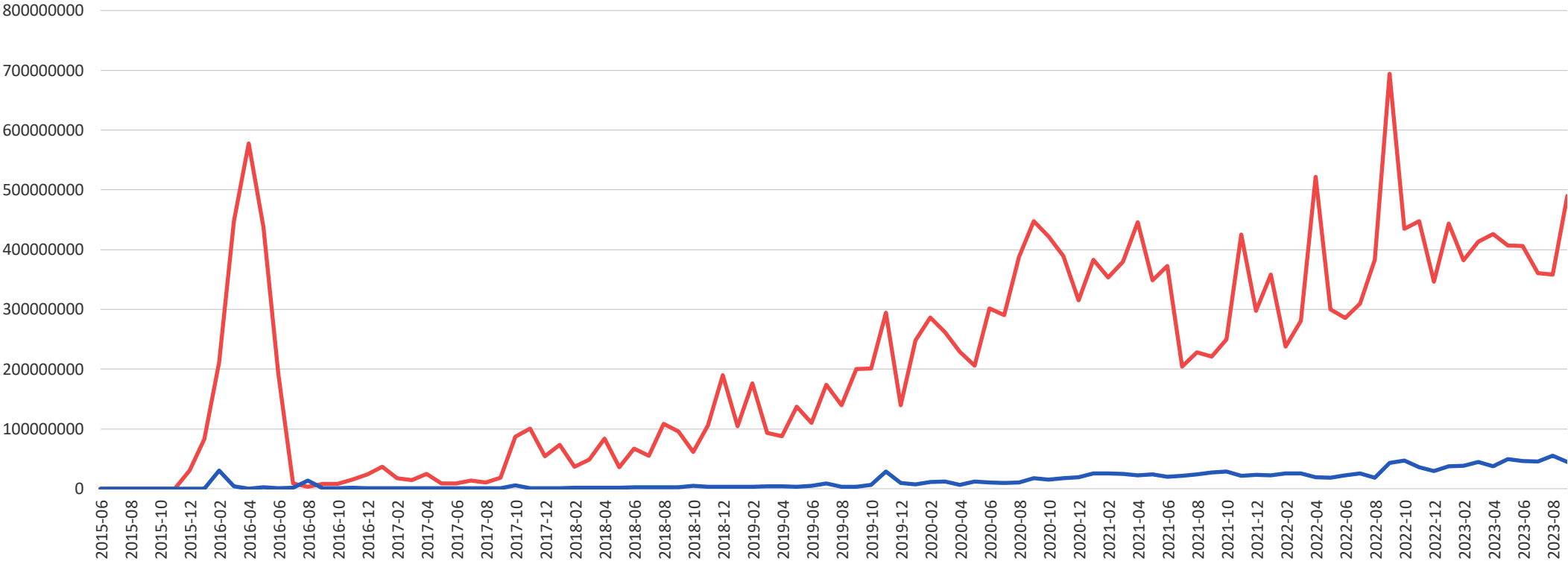


# Registration Data Access Protocol (RDAP)

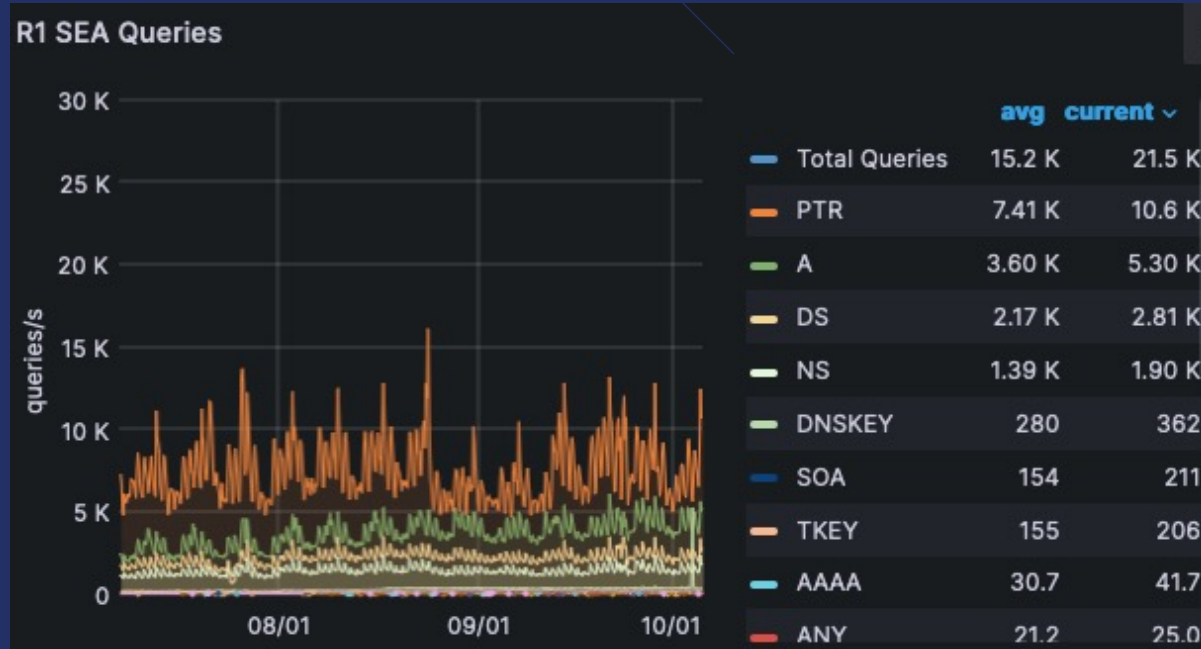
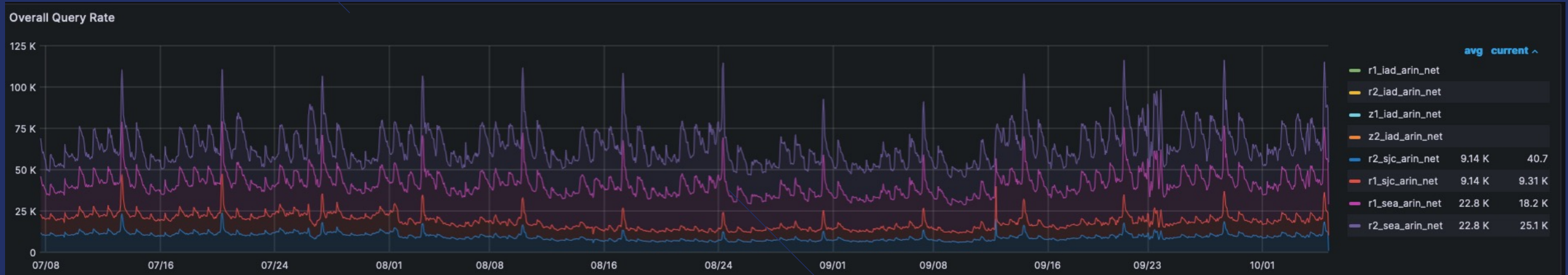


### RDAP Queries Per Month

— IPv4 — IPv6



# DNS – ARIN-Managed /8s



# Releases and Improvements





# Releases Since ARIN 51

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## Secure Routing Enhancements

- RPKI Integration with IRR (Preliminary Work Complete – Updates Coming Based on Consultation)
- Notification to admin/tech/routing contracts within ARIN Online when a ROA is deleted
- RRDP notification file optimization
- UI navigation improvements
- RPKI autorenewal
- RPKI actions no longer ticketed

## Template/ARIN Online feature parity

- Update organization info for simple reassignments

## Qualified Facilitator Program

- Improved process flow

## New Fee Calculator

Reflects ASN fee harmonization changes starting 2024

## New Daily Resources Under Agreement Report

- Denotes basic/full registry services per internet resource

## Ongoing:

- Audit System and Organization Controls (SOC) 2 Type 2 audit
- PCI Audit
- Reduction of technical debt

# System Improvements Since ARIN 51



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

Preparing to roll out new hardware for PFS sites

Third-party security audit completed for 2023

# What's Next and Challenges



# Open-Source Template Processor

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ARIN has developed a tool to help facilitate the transition from email templates to Reg-RWS (the RESTful interface for provisioning)

- A tool that takes incoming templates and translates to Reg-RWS calls within ARIN
- Code will be available on GitHub
- Intended to be a temporary measure until organizations can make the transition from templates to Reg-RWS

## Why is this important

- Reg-RWS is much more secure than templates for users to update their network resources
- Allows ARIN to retire a legacy service more quickly for those who need to line up development services to move to Reg-RWS and use this tool in the interim

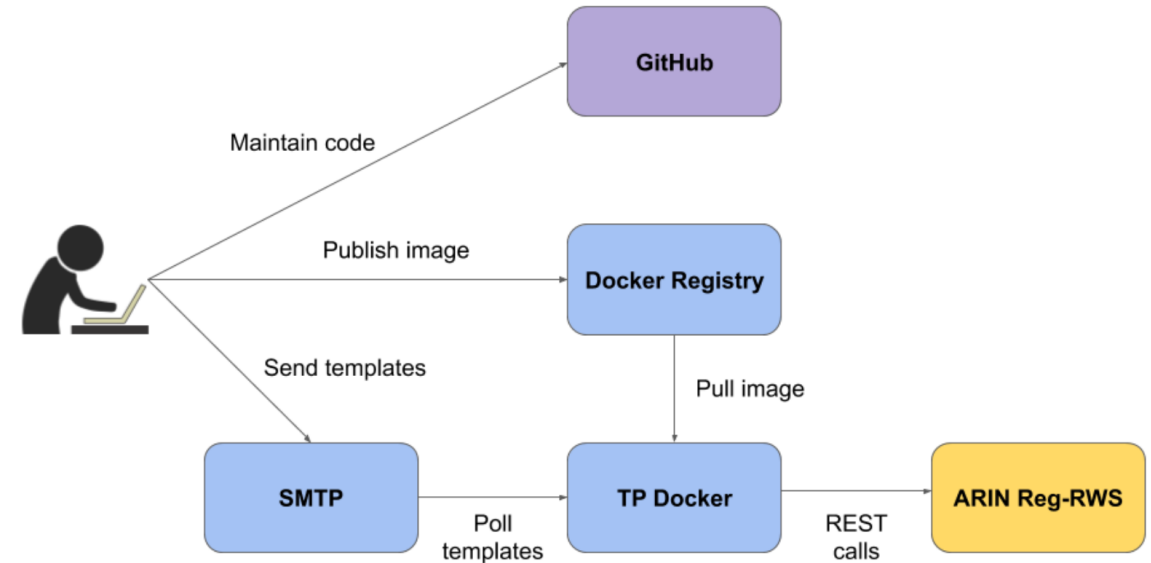
**Availability of the Template Processor will be announced later in Q4 of 2023**

# Template Processor

Readme of the Template Processor project in GitHub

## Introduction [↗](#)

ARIN's open-source Template Processor (TP) allows you to process various ARIN email templates yourself while interacting with the Simple Mail Transfer Protocol (SMTP) service you operate and with the Registration RESTful Service ([Reg-RWS](#)) that ARIN operates. This system is shown in the following figure.



**Open-Source ARIN Template Processor**

To use the TP, you send an email message containing a completed, supported ARIN template (see **Appendix A: Supported Templates**) to a configured mailbox. The TP polls that mailbox every minute for new messages and then interacts with Reg-RWS to process those messages. The TP then sends success/failure email messages to your mailbox. For email messages that contain unsupported templates or are malformed (for example, that contain a bad `From` address), the TP simply logs the details of those messages for you to review.

This document next describes how to build, run, and further develop the TP software.



# Geolocation within RDAP

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## Background

- Many calls to add a normalized way to find geolocation data through directory services
- RIPE and APNIC are open to the idea and having conversations within their communities
- RDAP is a common uniform directory service interface that is used by every Regional Internet Registry (RIR)
- ICANN is mandating the movement to RDAP and making Whois services optional for domain registries/registrar

## Work in this area

- RFC 9092 describes local management of geolocation data within an ISP
- A draft that describes how this can be linked with RDAP (<https://www.ietf.org/archive/id/draft-jasdips-regext-rdap-geofeed-00.html>)
- Working with other RIRs and their communities on this common interface

# Challenges Over Time

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## SOC 2 Audit Preparation (ARIN 50)

- Policy development
- Process checking and evidence collection



## Balance of Urgent Needs (ARIN 51)

- ARIN Online enhancements
- Internal tools for customer-facing teams
- Technical debt



## Balance of Urgent Needs (ARIN 52)

- ARIN Online enhancements
- Internal tools for customer-facing teams
- SOC 2 and PCI Audit logging and remediation
- Technical debt

# Thank You



**Questions or Comments?**