

Routing Security Update

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Agenda

- Global Resource Public Key Infrastructure (RPKI) Activity
- RPKI Adoption at ARIN
- New Features and Upcoming Development



The State of RPKI By the Numbers

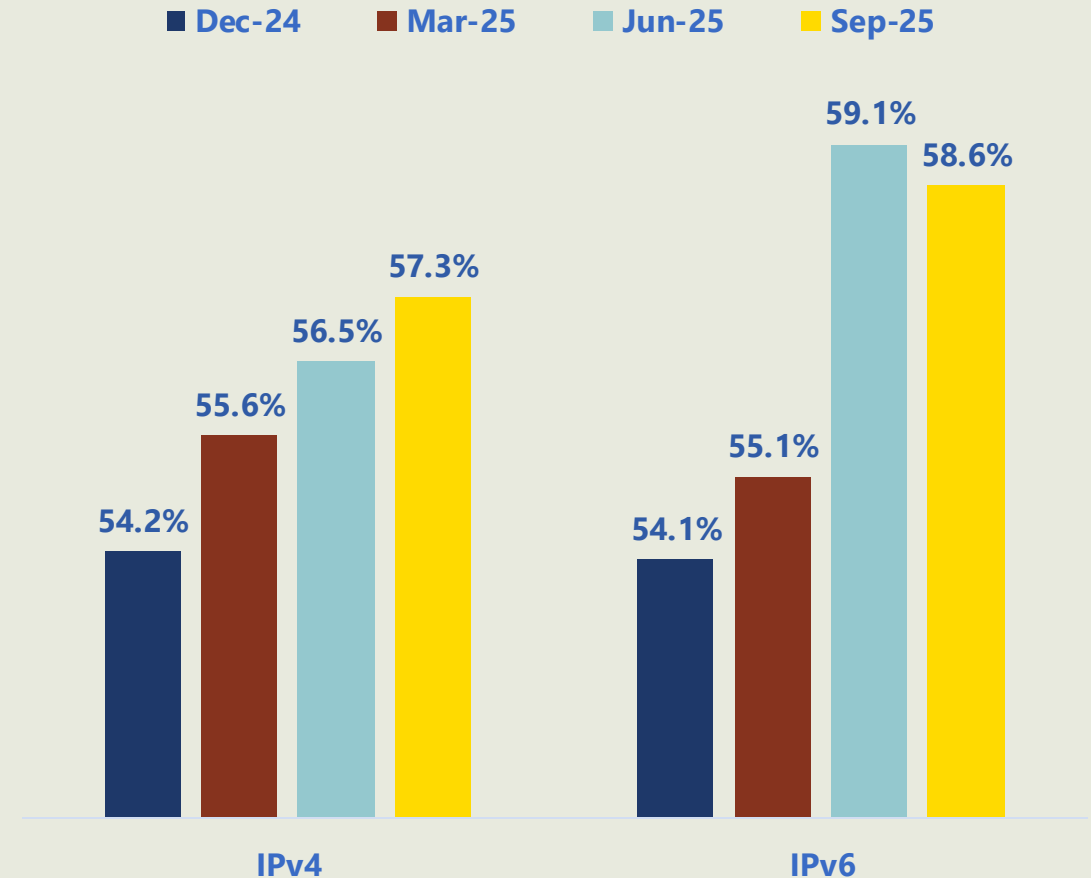


Global RPKI Validity

Parity in IPv4 and IPv6 resource coverage in Route Origin Authorizations (ROAs)

- RPKI community credits continued education and outreach
- Service provider requirements
- Is there a plateau on the horizon?

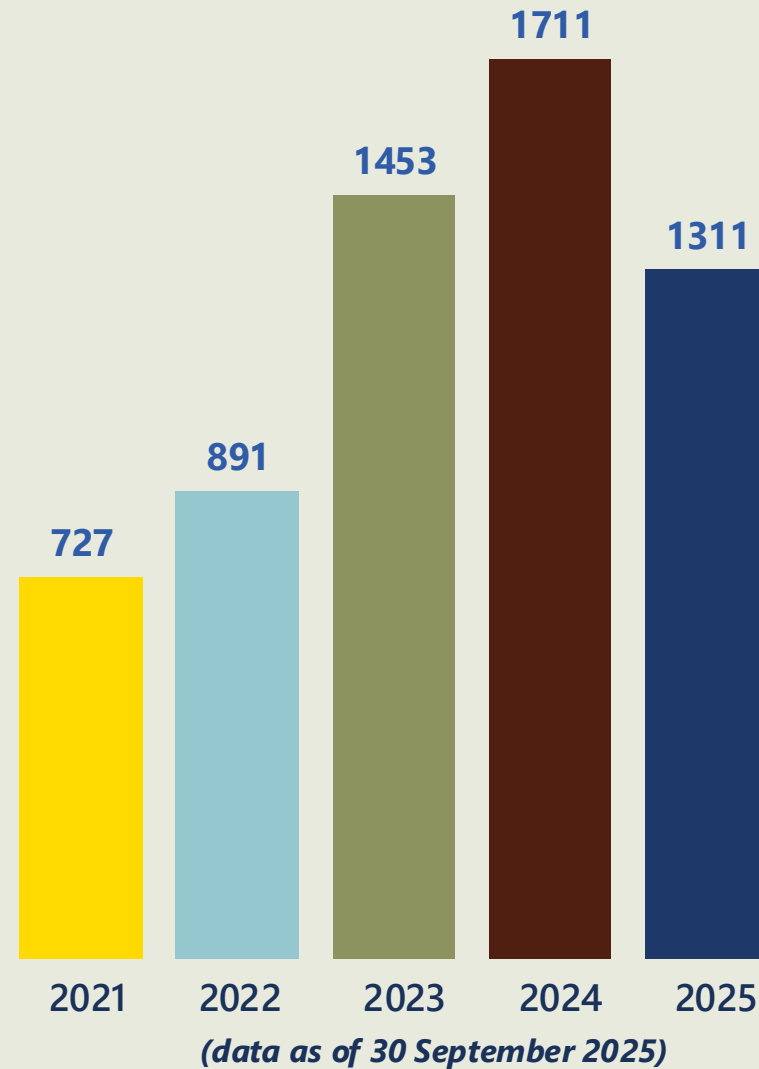
Data collected from NIST RPKI monitor
<https://rpki-monitor.antd.nist.gov/ROV>





New RPKI Registrations

- Continued growth in organizations who have signed up for RPKI services
- Community evangelization of RPKI's benefits
- Service provider requirement to create ROAs
- Ongoing training and education



Three RPKI Services to Choose From

1

Hosted RPKI

Suggested for organizations that would prefer ease of use and the least responsibility. ARIN runs the certificate authority, maintains and publishes the RPKI repository to the global networking community.

ARIN also develops RPKI tools for use by hosted RPKI customers.

2

Delegated RPKI

Suggested for organizations that want cryptographic control of RPKI certificates; the organization should have a deeper understanding of routing security and RPKI along with a technical staff and resources to run and support the high availability repository.

3

Repository Publication Service

Suggested for organizations that wish to retain cryptographic control, but do not want to maintain the high availability RPKI repository and publication requirements.



RPKI Adoption – Service Type

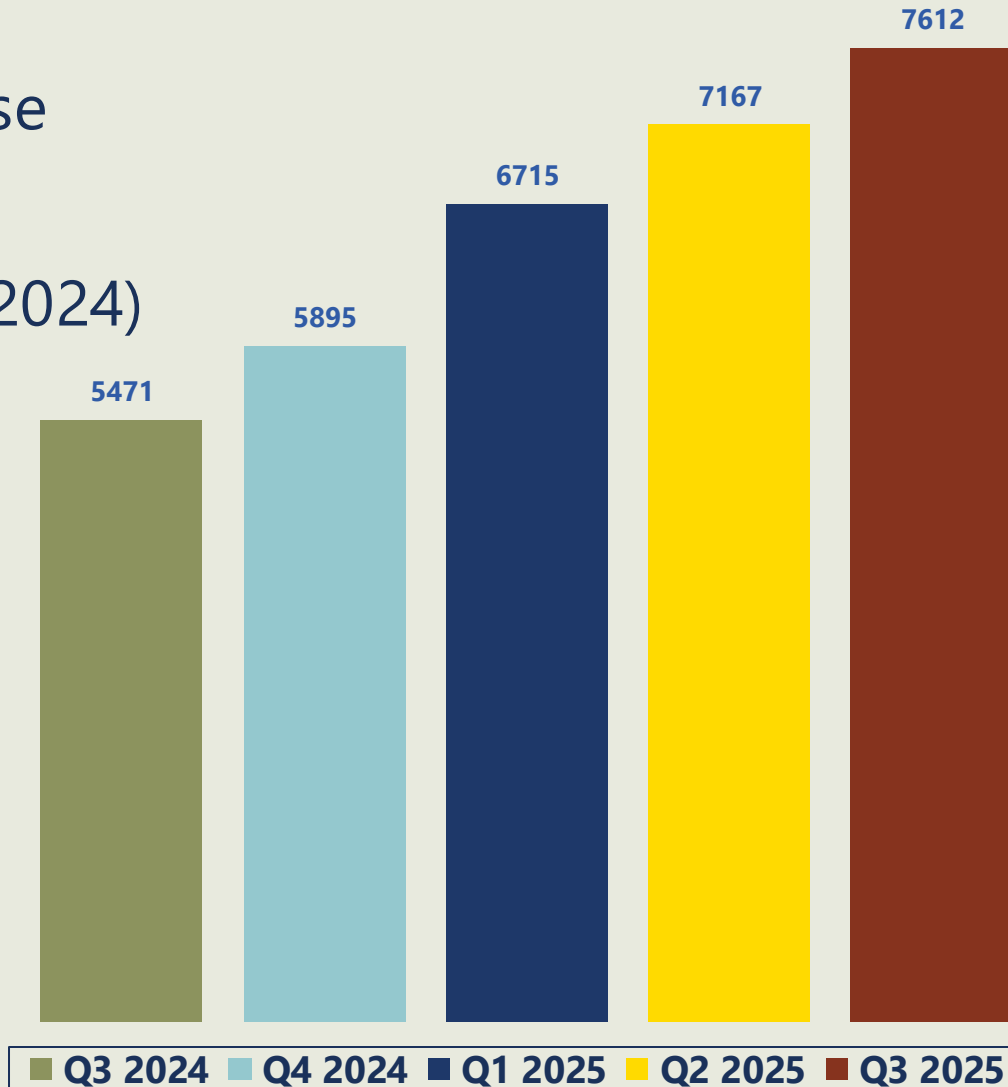
RPKI Adoption Update

- **7,612 organizations** are signed up to use ARIN's RPKI services
- **39% growth year-over-year** (since Q3 2024)

Deployment Breakdown

Hosted RPKI: 97.8% (7,451 orgs)
the clear majority prefer ARIN-managed hosting

Delegated RPKI: 2.1% (161 orgs)
with 88 using ARIN's Repository Publication Service (RPS)

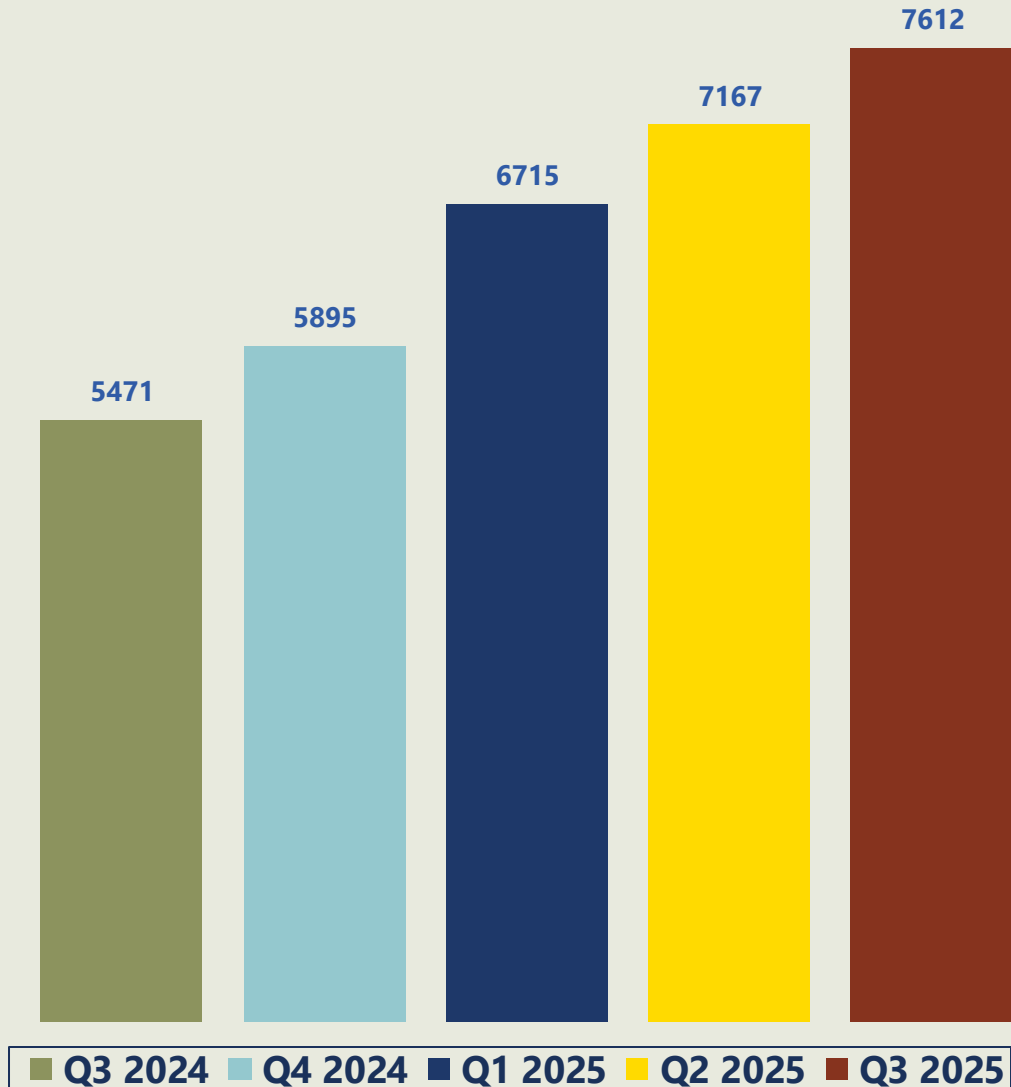




RPKI Adoption – Service Type

Key Takeaway: Adoption continues to grow rapidly, with hosted RPKI remaining the dominant choice while delegated users increasingly leverage ARIN's RPS for support.

Data as of 29 September 2025





RPKI Adoption – Entity Type

Q3 2025 vs (Q1 2025)

Percent of RPKI Adoption:

Government Organizations

18.4% of 842 (**7.6%** of 804)

Educational Institutions

19.9% of 2,183 (**14.6%** of 2,196)

Commercial/ISPs/ Enterprises/Individuals

18.9% of 39,122 (**14.4%** of 39,734)

Percent of allocated

IP prefixes (/24s) in RPKI ROAs:

Government Organizations

6.7% of 902.6k (**4.9%** of 925.8k)

Educational Institutions

14.5% of 1,278k (**14.6%** of 1,236k)

Commercial/ISPs/Enterprises/ Individuals

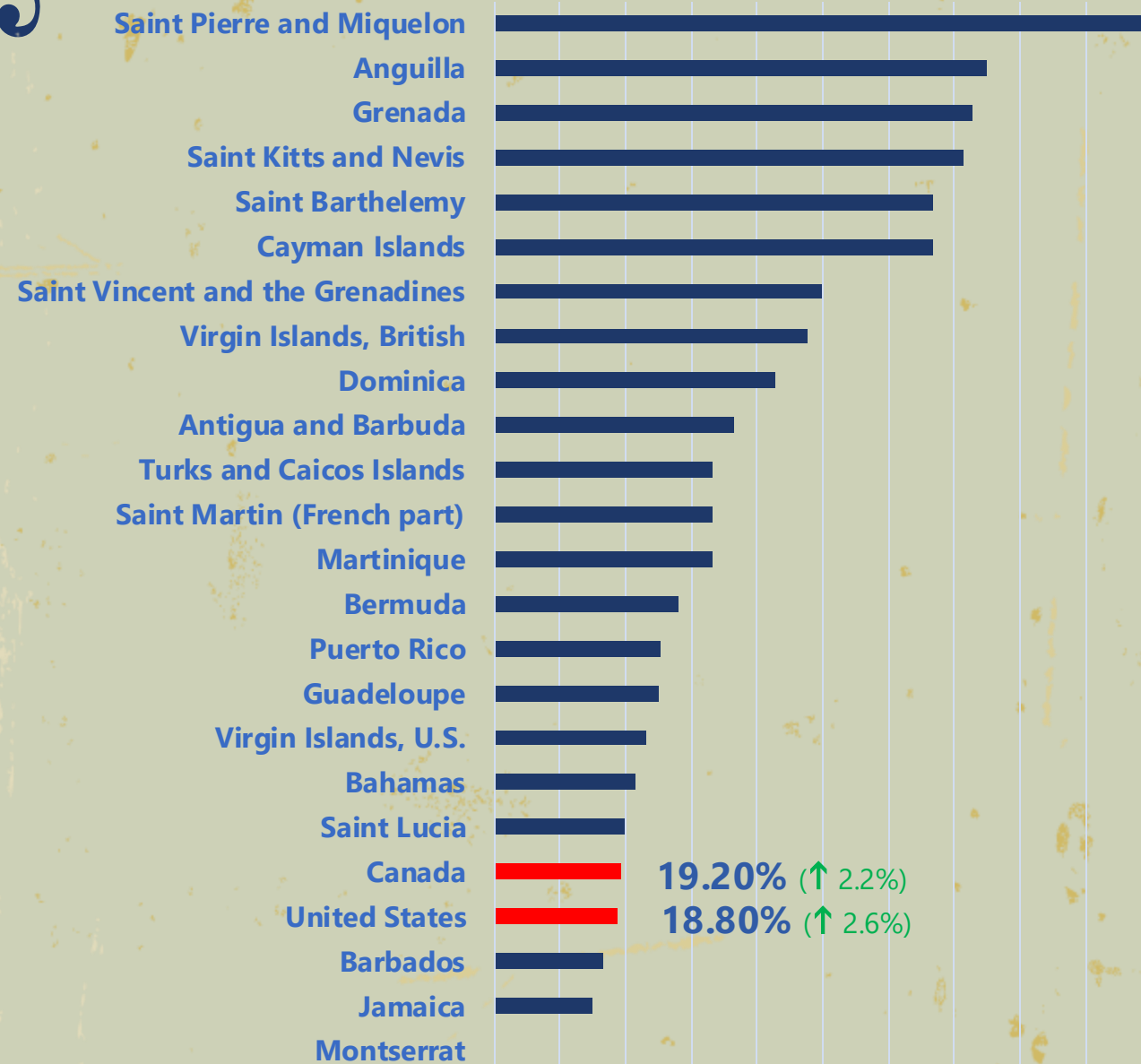
48.7% of 6,461k (**49.2%** of 6,467k)





Organization Adoption of RPKI by Country

% of Orgs using RPKI



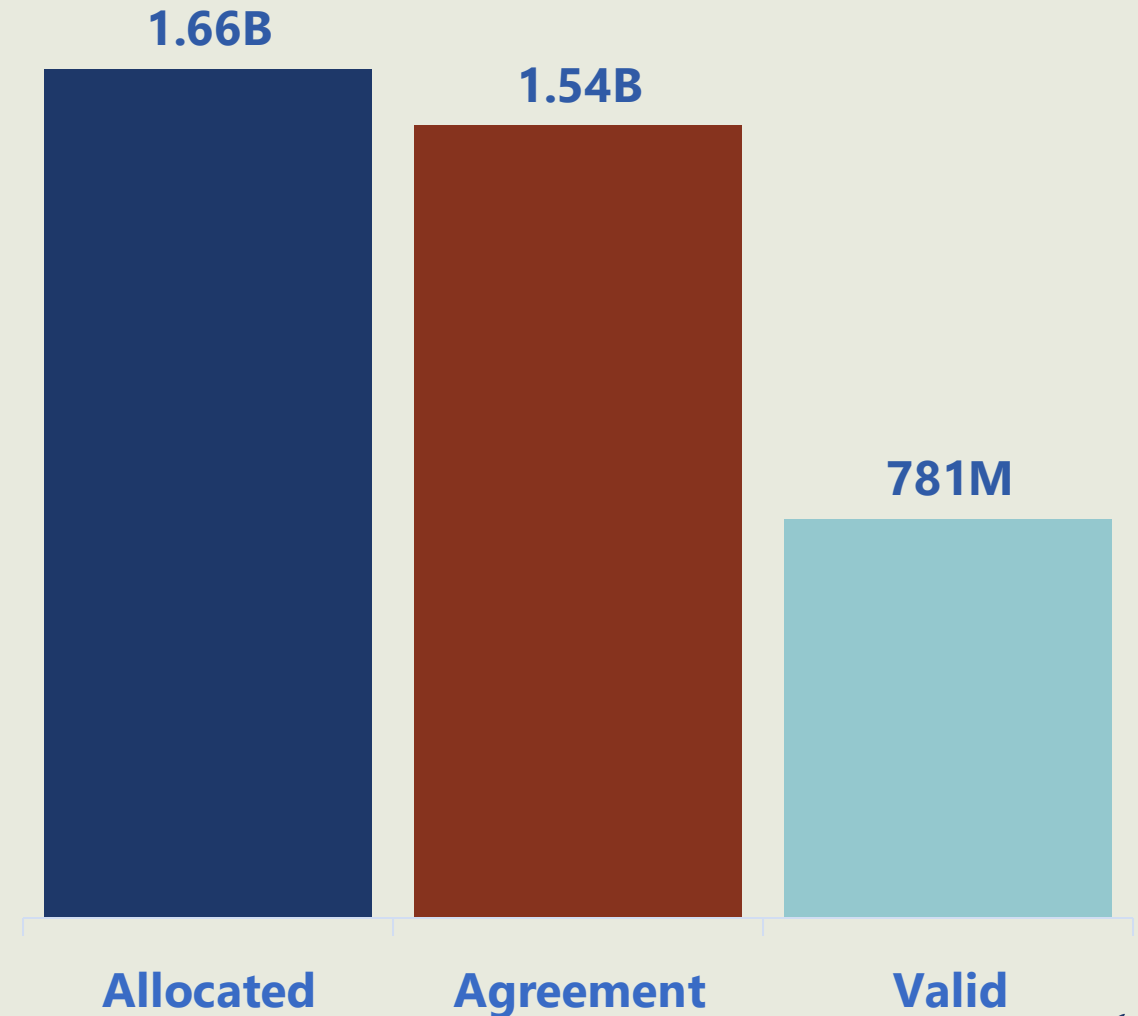


RPKI Adoption – Resource Coverage

47.1% of ARIN-allocated IPv4
resources are RPKI-valid

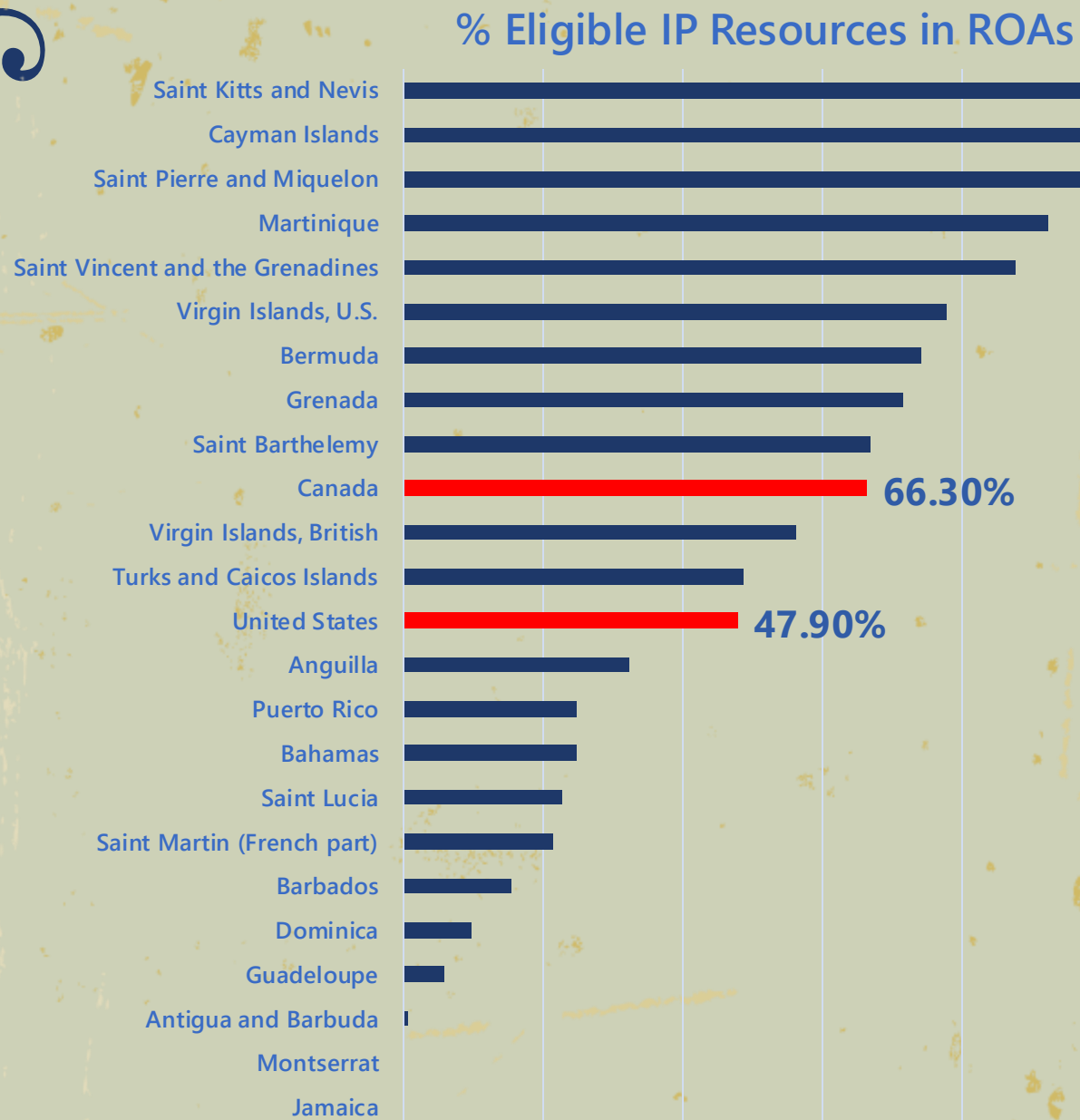
50.5% of IPv4 resources
under an ARIN agreement
are RPKI-valid

(data as of 30-Sep)





Resource Coverage by Country





New Releases and Upcoming Development

RPKI Feature Enhancements



Since
ARIN 55

ROA Modify

- Ability to make changes to an existing ROA

ASPA Object Support (in OT&E)

- Access via both API and web user interfaces

Sunset of 2014 API endpoint

- All remaining users have switched to the 2023 endpoint

ROA Change Log

New
Feature
(Sep 29)

- **New Visibility:** Easily track changes to your ROAs with a full year of history available directly in ARIN Online.
- **On-Demand Access:** Review past updates instantly without needing to contact ARIN staff.
- **Export for Analysis:** Download a .csv report for offline review.

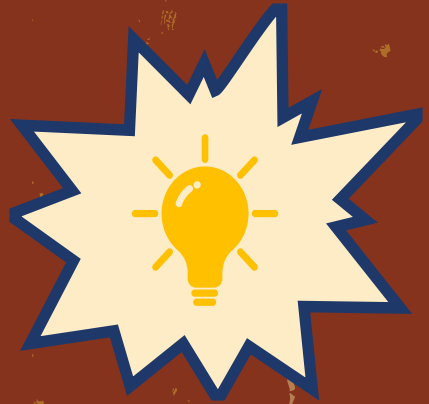
Benefit: Provides greater transparency, control, and efficiency in managing RPKI resources.

ROA Support During Transfers

New
Feature
(Sep 29)

- **Automatic Updates:** If the source organization has ROAs which contain resources that are transferred, those ROAs are automatically re-rolled to reflect the changes in the RPKI resource certificate.
- **Reduced Manual Work:** Eliminates the need for customers to manually recreate ROAs after a transfer for the source organization.
- **Increased Reliability:** Ensures ROAs stay current and valid without interruption during the transfer process.

Benefit: *These improvements simplify transfer-related ROA management, reduce risk of errors, and maintain stronger routing security with less effort.*



What's on the Horizon?

RPKI Routing Intelligence



ARIN Online users will see a **table with route announcements** in the global BGP table that contain IP prefixes on your resource certificate.

During the ROA creation flow, users will be advised if their proposed changes conflict with current announcements and explain the **potential impacts to RPKI validity**

The table will include the RPKI **validity state** of announcements as of the last pull of the BGP data.

If any announcements are categorized as RPKI-invalid, the user will be shown the **details why** and be given the option to modify the ROA to rectify the invalid state

RPKI for Reallocated or Reassigned Resources



- **Changes the current rule** that only direct resource holders can make RPKI decisions for those eligible resources
- The direct resource holders will have the **option to grant recipients** of reallocations or detailed reassignments the ability to make RPKI decisions.
- The direct resource holder grant and withdraw the ability for the downstream recipients during reassignment or reallocation, or independently thereafter.
- Deleting reassignments or reallocations will also revoke the ability to make RPKI decisions and delete RPKI objects created by the downstream recipient
- The requirement that resources are under contract remains unchanged



**Help us shape the future of
routing security at ARIN!**

**Submit a Suggestion at
<https://account.arin.net/public/acsp>**

Contact us at routing.security@arin.net



Questions and Comments?

Thank You

