The Curious Case of IPv4

September, 2025

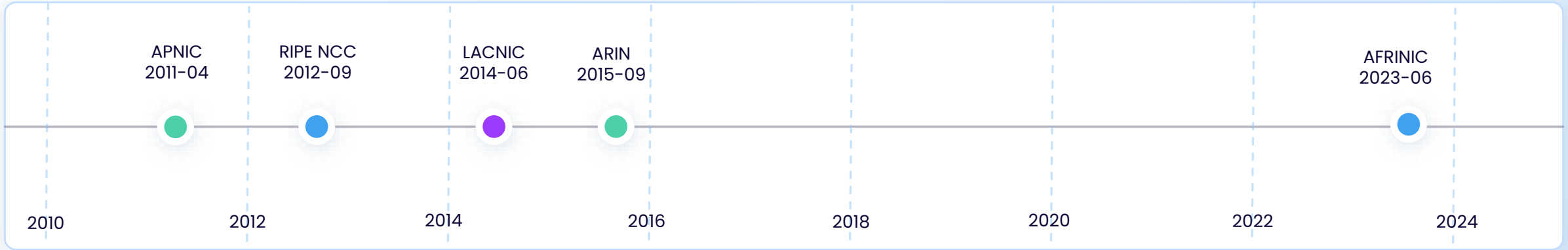
IPXO

SUSTAINING THE INTERNET

Until IPv6 Arrives

Scarcity

RIR	Region Covered	Exhaustion / Run-Out Date	Notes
APNIC	Asia-Pacific	**15 April 2011**	First RIR to reach its final /8 policy (only small blocks thereafter).
RIPE NCC	Europe, Middle East, Central Asia	**14 September 2012**	Reached last /8, can only allocate /22 (1024 addresses) per LIR.
LACNIC	Latin America & Caribbean	**10 June 2014**	Entered Phase 3 of exhaustion; strict allocation policies since.
ARIN	North America	**24 September 2015**	Fully depleted IPv4 free pool;
AFRINIC	Africa	**25 April 2017** (entered "soft landing")	As of **2020**, entered Phase 2 exhaustion (very limited remaining). Official depletion was declared **June 2023**.

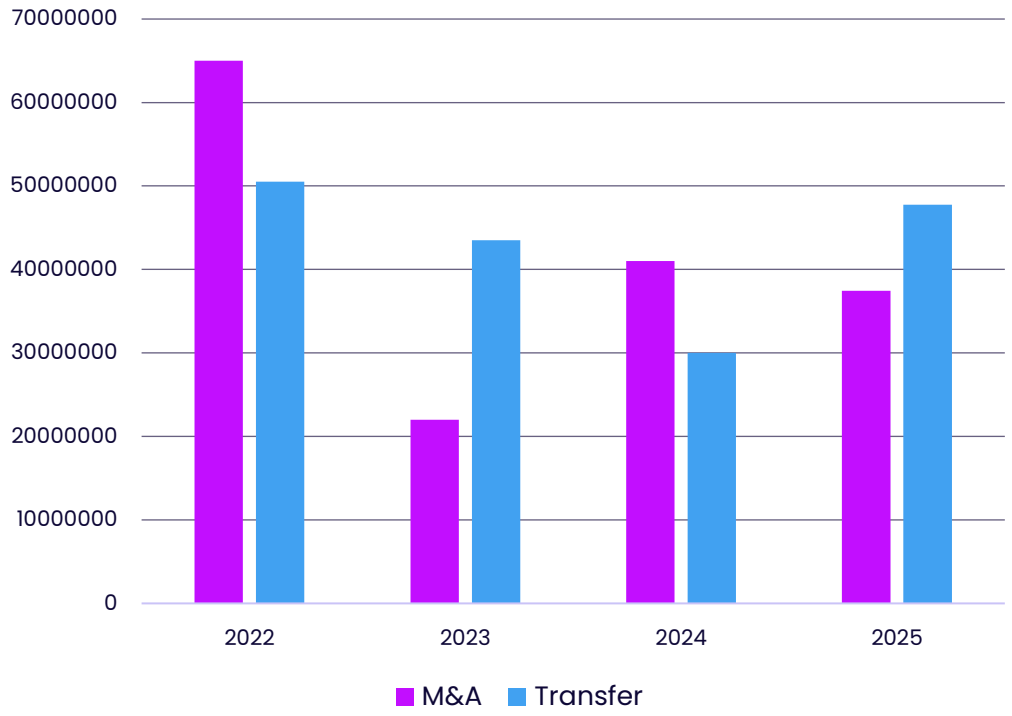


ARIN — American Registry for Internet Numbers	27 Months (+2 months)
RIPE NCC Member	18 Months (unchanged)
lacnic	54 Months
APNIC	Abolished waiting list in 2019

Transfer Market

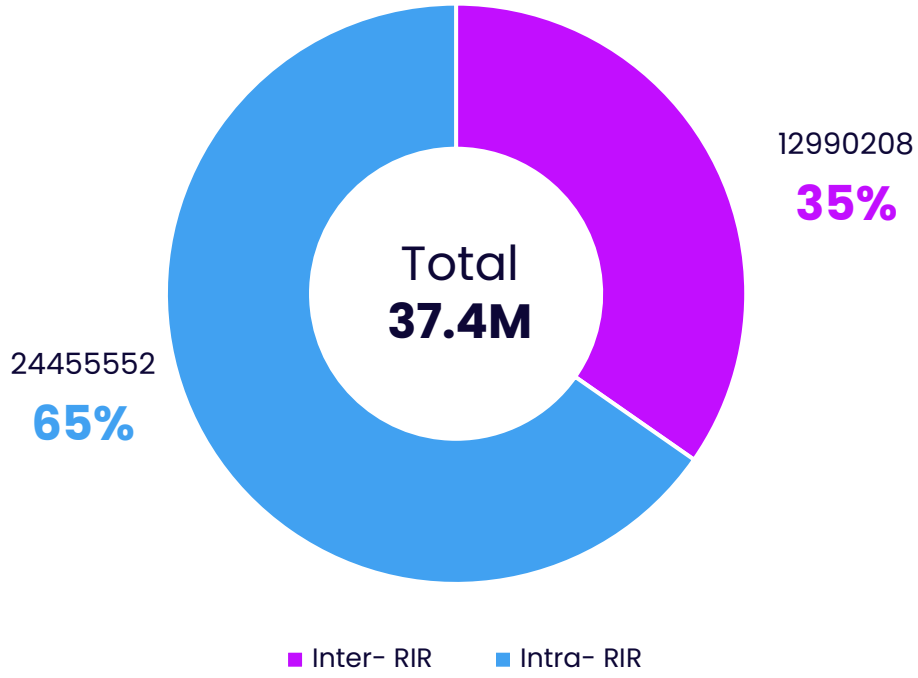
M&A and Transfer Volume Comparison

2022- 2025

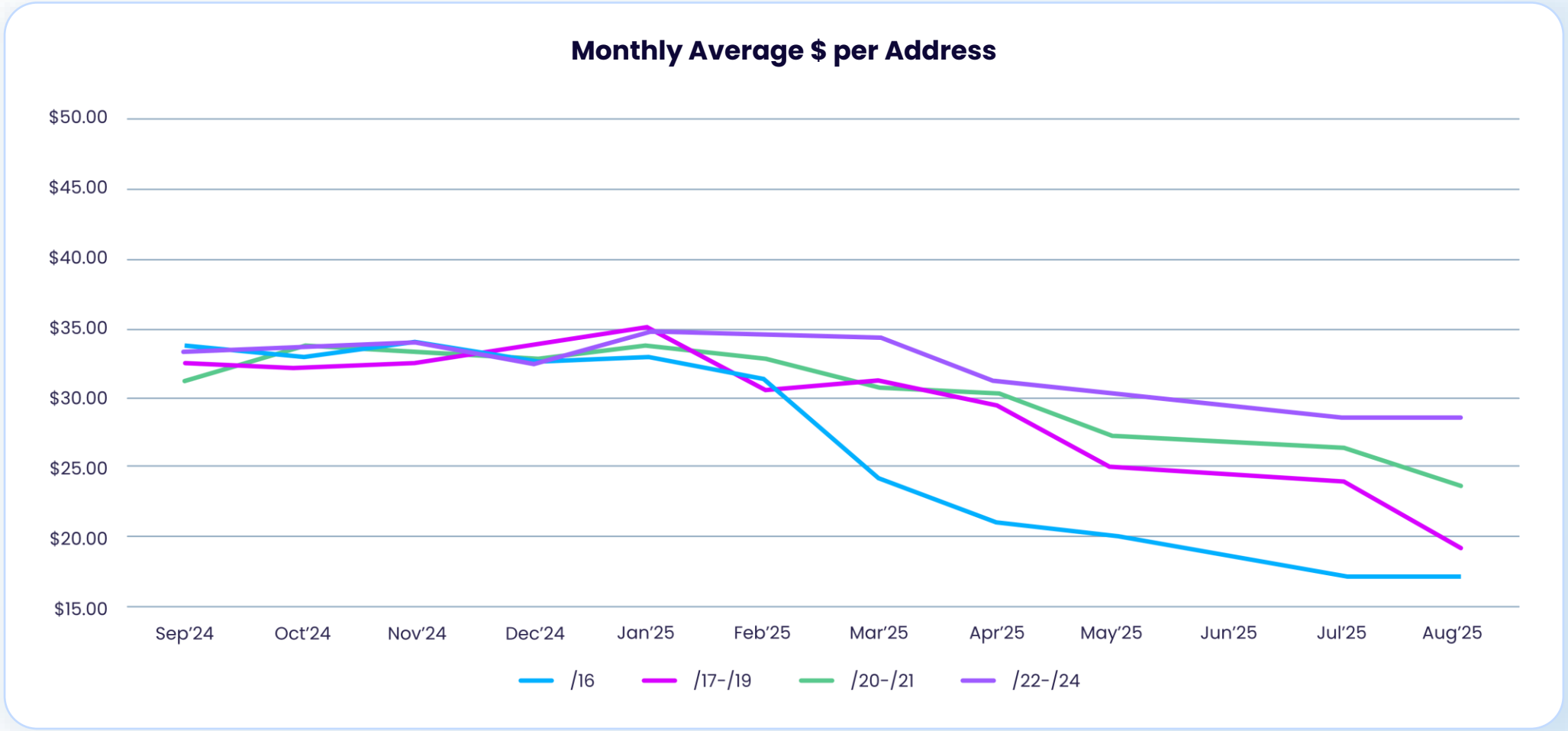


Inter vs Intra RIR transfers

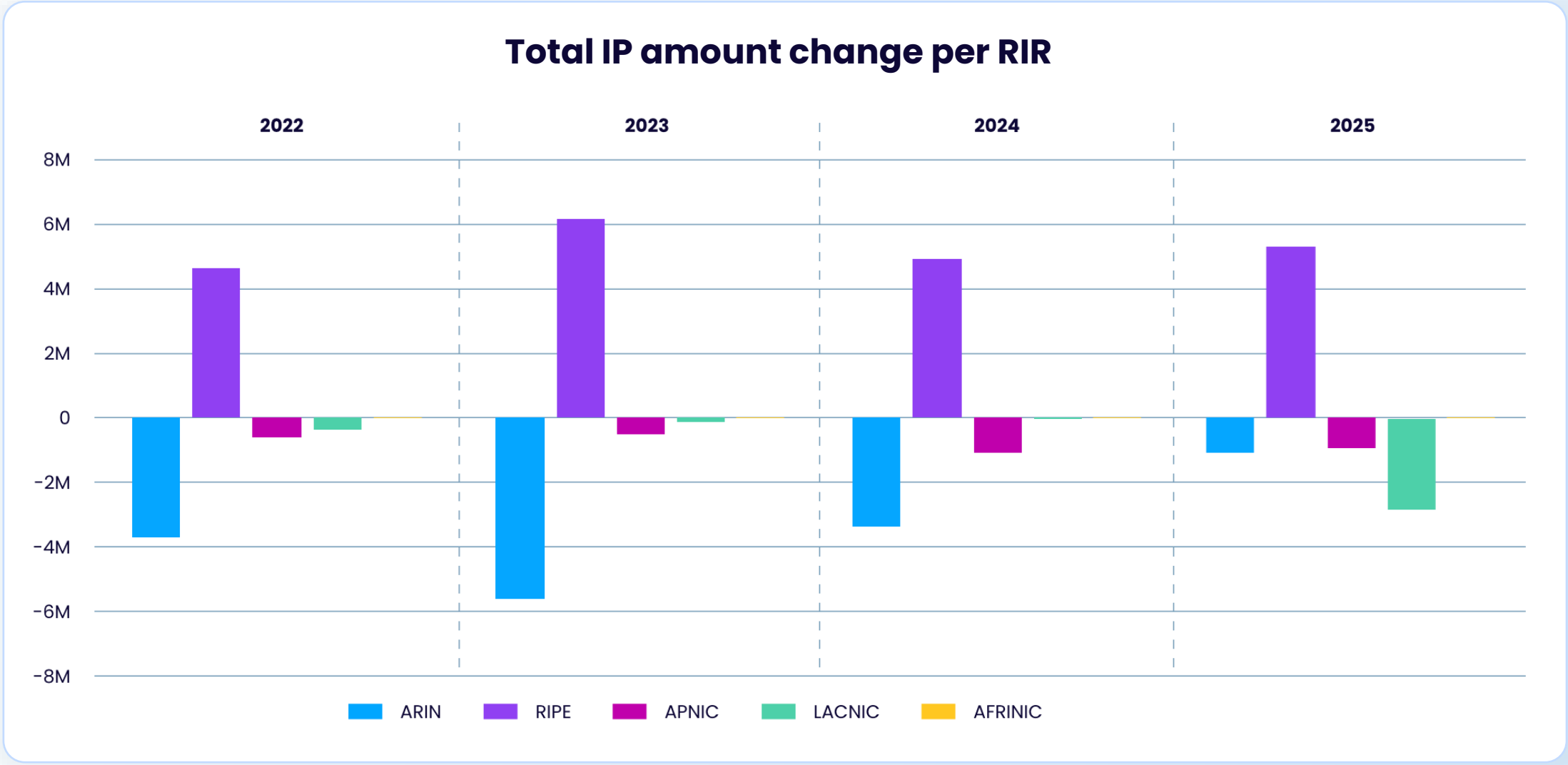
2025



Transfer price change



RIR IP amount change 2022-2024

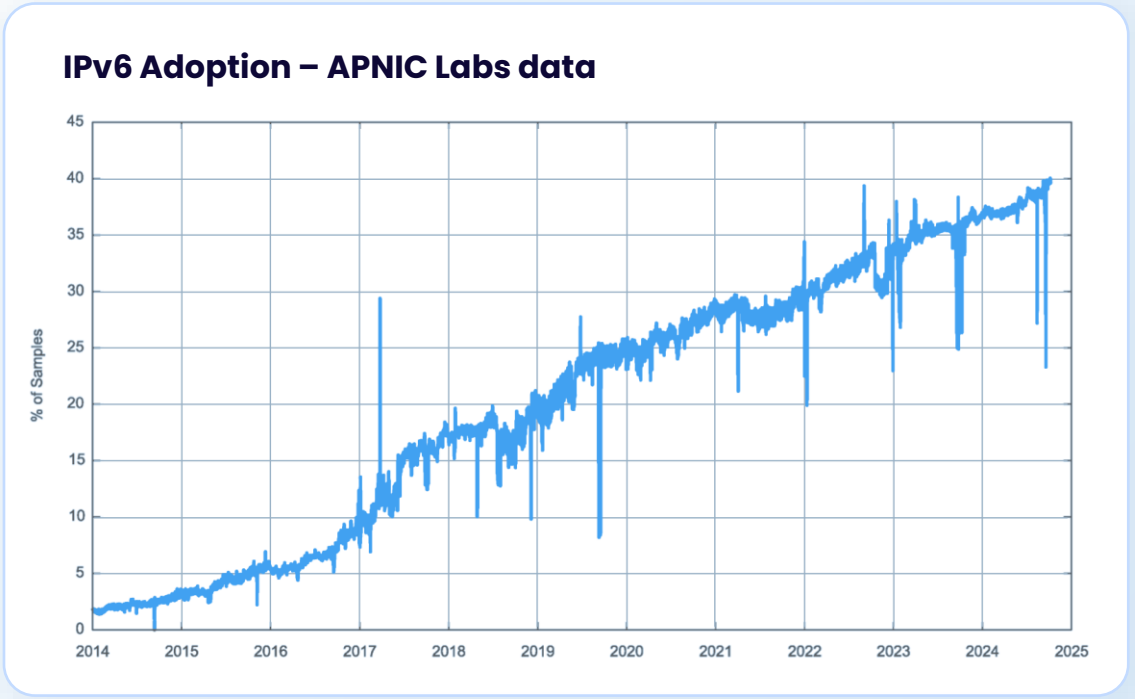


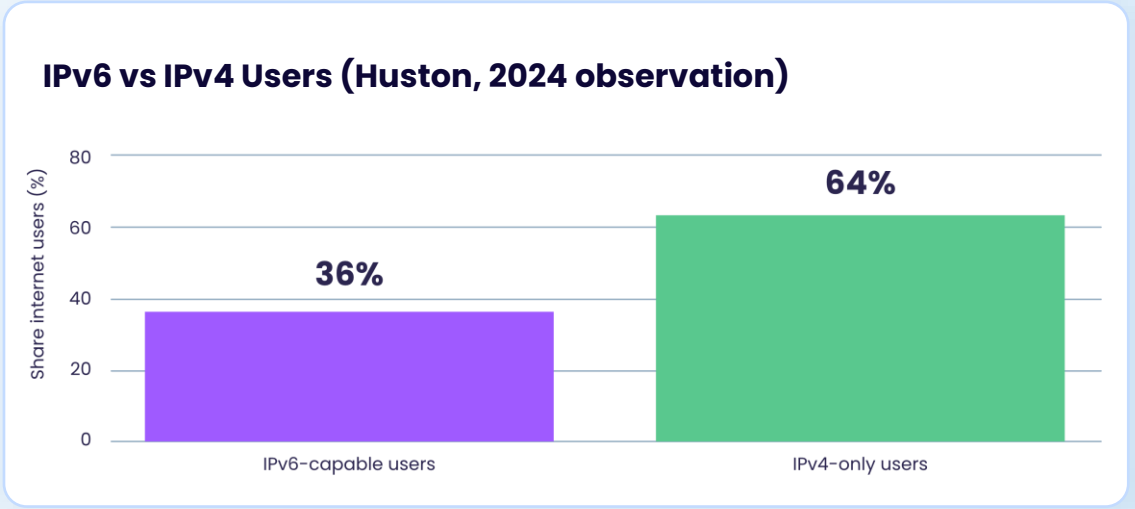
The End of End-to-End

- NAT (Network Address Translation) now standard, not an exception
- Shared addressing lets billions more devices connect despite exhaustion
- “End-to-end” principle — every device with its own IP — is effectively gone

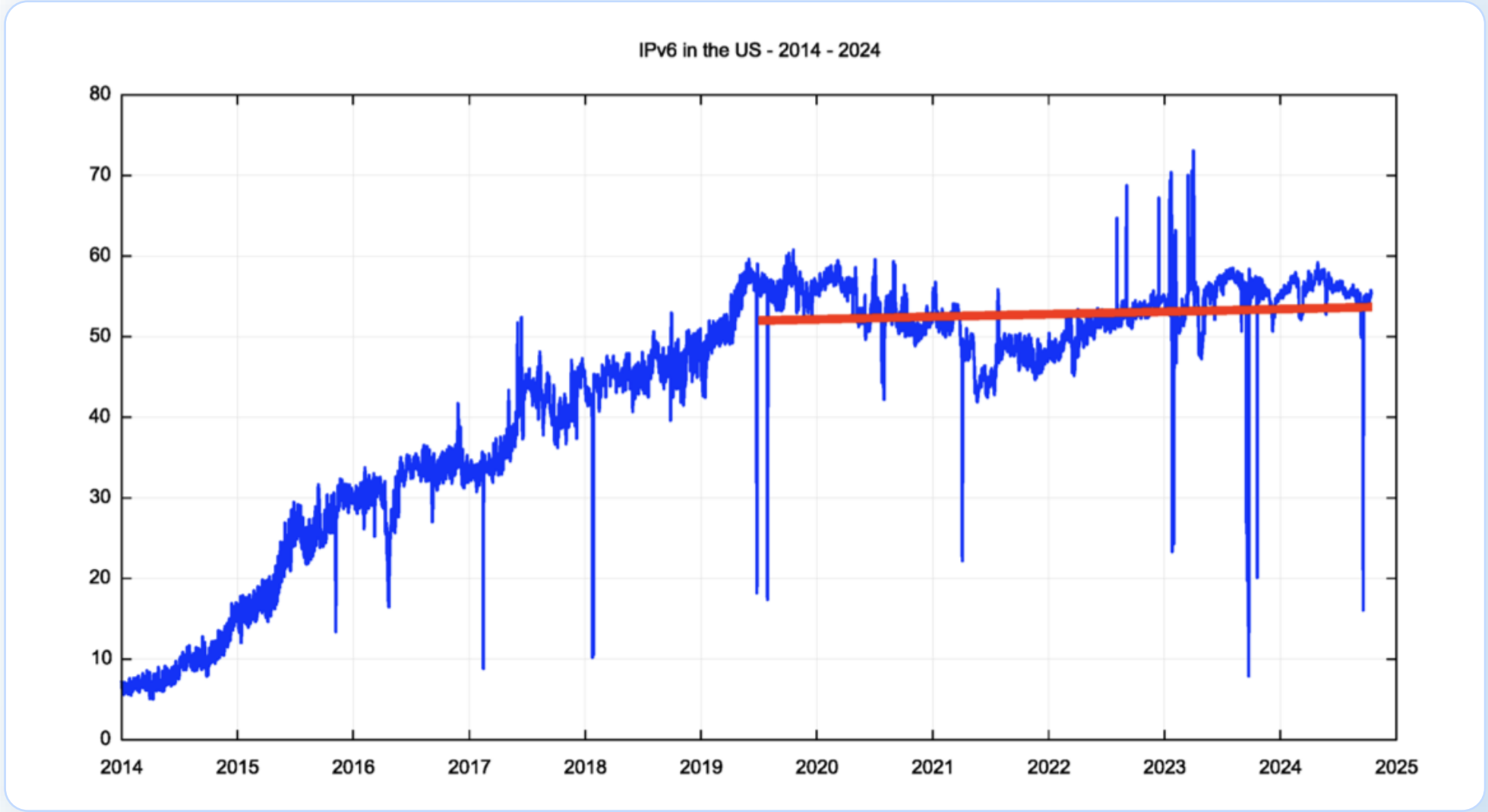
IPv6 vs IPv4: Still a Dual-Stack Internet

- Despite exhaustion, only **a bit over one-third** of users can reach IPv6-only services (2024 observation; trend continues into 2025).
- **~20B** devices vs **~3.1B** unique IPv4s → roughly **7 devices per IPv4** via NAT sharing.
- "End-to-end" addressing is no longer the default for most users—yet the Internet keeps working.





Curious case of USA IPv6 adoption



Why IPv6 Hasn’t “Tipped” Yet

- **No immediate upside:** IPv6 is “IPv4 with bigger addresses” → little marginal benefit to operators.
- **Coordination problem:** apps ↔ hosts ↔ ISPs ↔ content all waited for each other.
- **Early pain:** auto-tunnels (6to4, Teredo) were unreliable → reputational drag.
- **NATs worked too well:** port multiplexing massively stretched IPv4.
- **Architecture shift:** DNS + TLS/SNI + CDNs push content to the edge—service identity is in **names**, not addresses.

Prices Stabilized,

Demand Steady

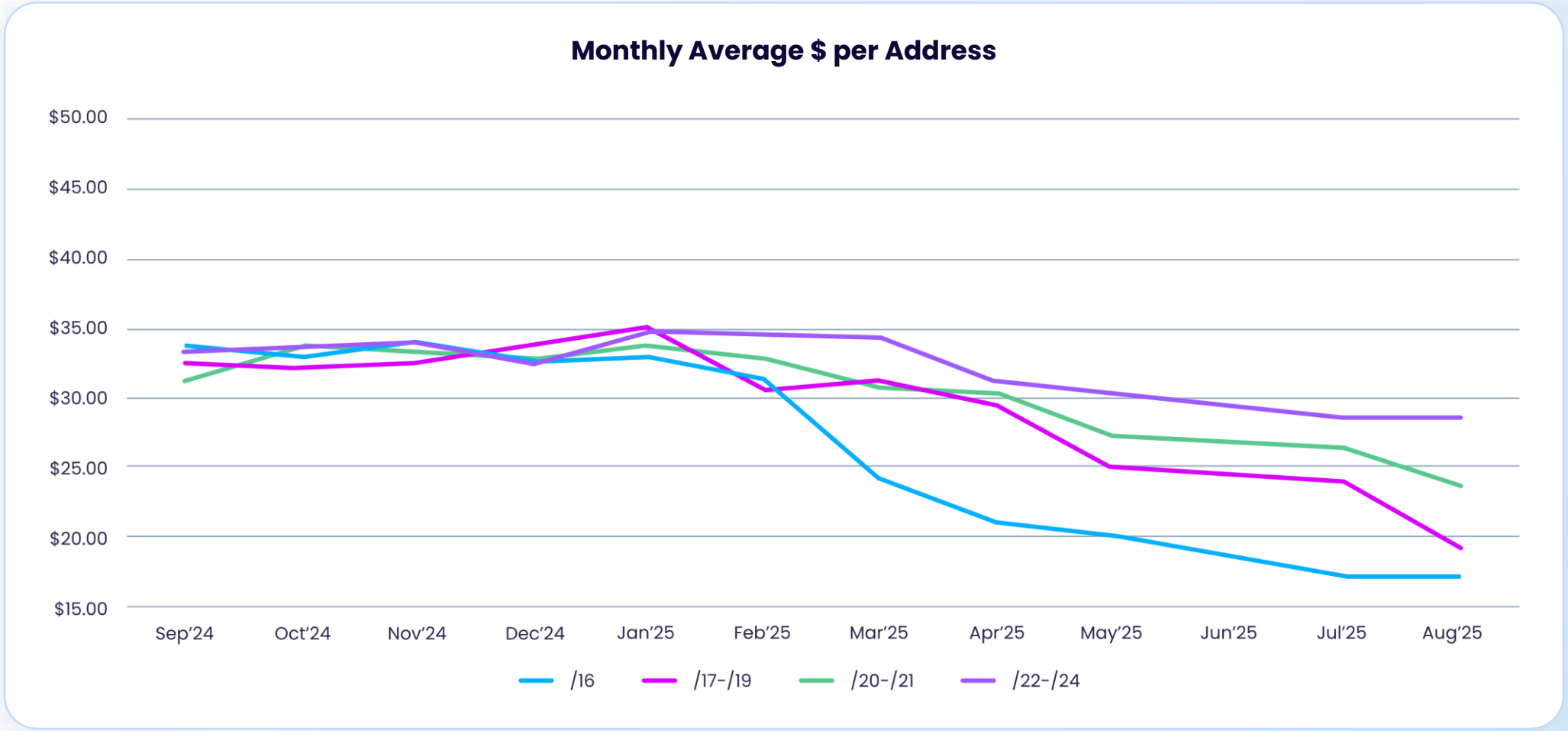
No Urgency Signal

"/16 blocks dropped below ~$20/IP in mid-2025 due to increased supply."

"Medium blocks pricing narrowing as sellers subdivide large blocks."

"Transfer request rates remain strong—demand steady vs previous years."

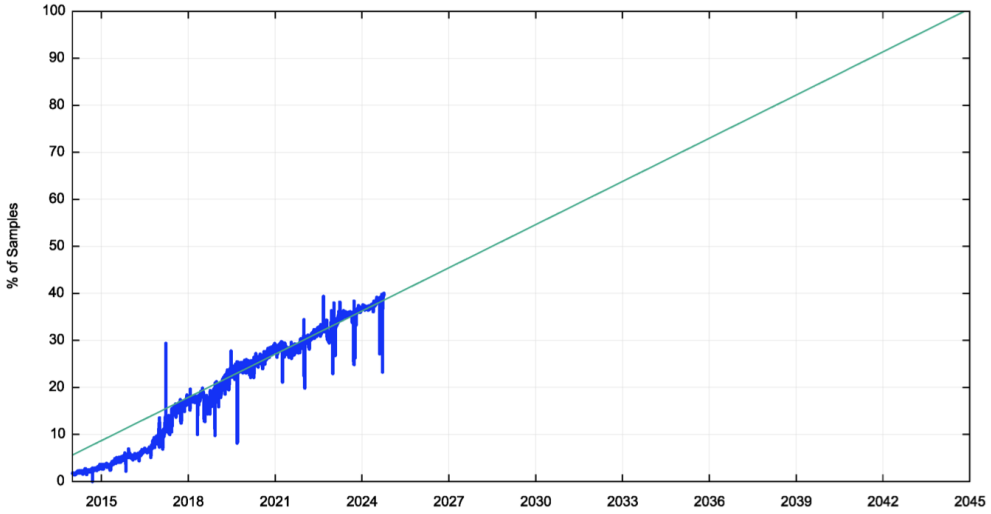
Transfer price change



The Long Road to IPv6

- IPv6 adoption keeps climbing but slowly — ~⅓ of users by 2025.
- At the current trend, **completion ≈ late 2045**.
- Dual-stack isn't temporary — it may last another 20 years.
- Market and architecture shifts (NAT, CDNs, DNS/TLS) reduce urgency for IPv6.
- Leasing keeps IPv4 sustainable during this extended transition.

IPv6 Adoption (and Linear Projection) – APNIC Labs Data



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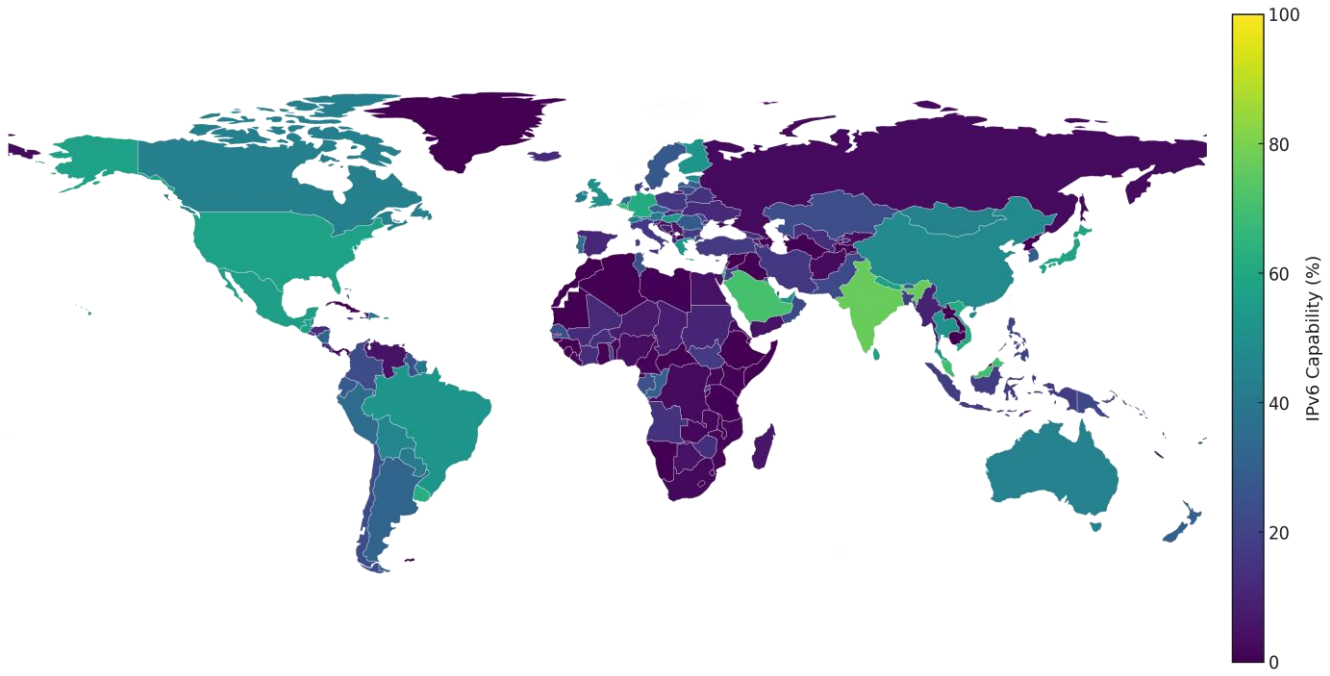


IN India — 76.72%

FR France — 76.43%

SA Saudi Arabia — 70.89%

MY Malaysia — 70.05%

BE Belgium — 67.93%

. . .

RO Romania — 28.64%

. . .

LB Lebanon — 0.28%

KH Cambodia — 0.28%

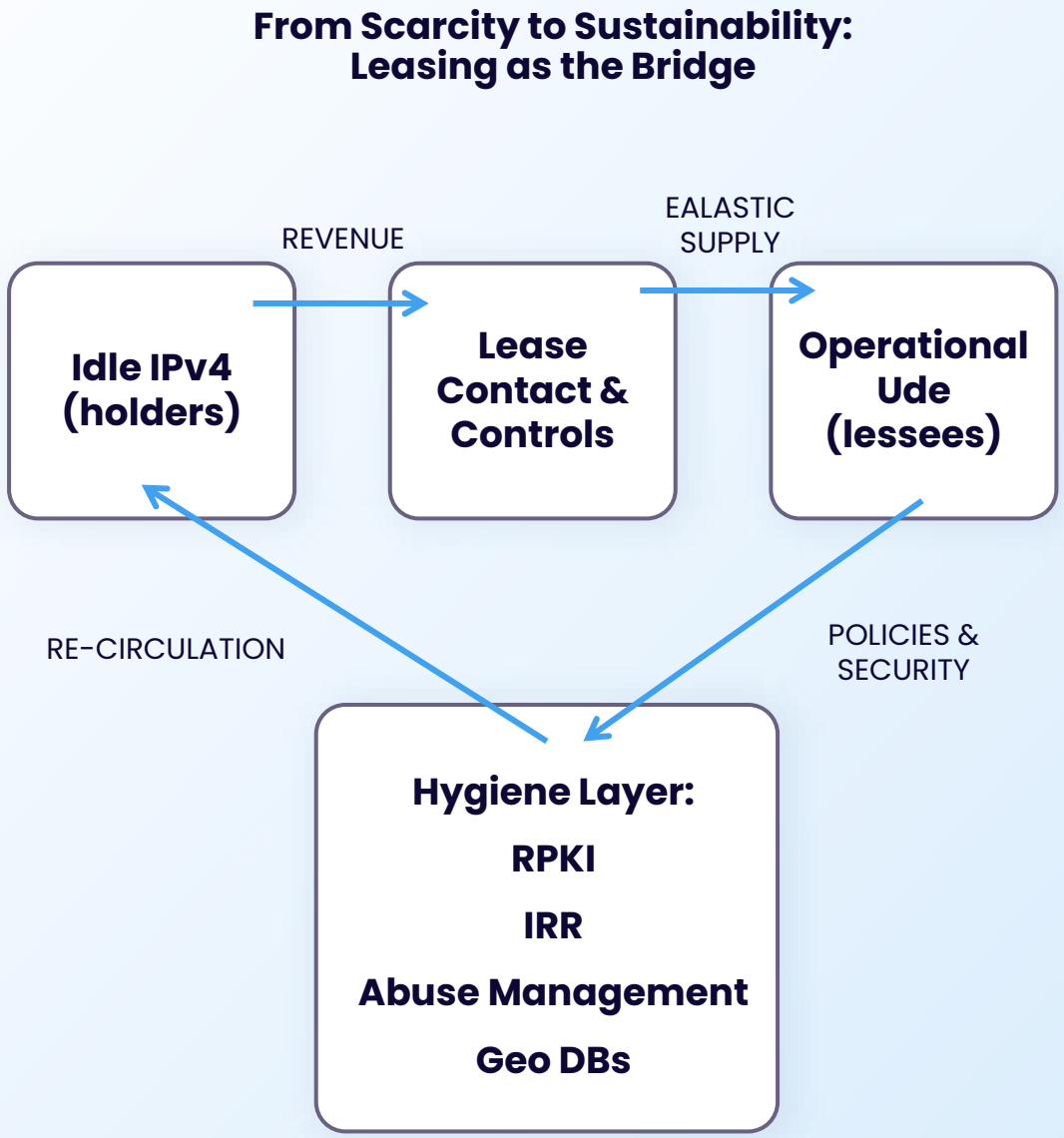
SO Somalia — 0.25%

SY Syria — 0.22%

ET Ethiopia — 0.09%

Reduce, Reuse, Re-lease: Bridging to IPv6 Responsibly

- Leasing **recirculates idle IPv4**—a pragmatic "renewable" mechanism while IPv6 adoption grows.
- **Holders:** keep the asset + recurring revenue, hedge long-term value.
- **Operators:** faster access, lower CAPEX, elastic scaling while deploying IPv6 where it's easy.
- **Hygiene matters:** pair leasing with **RPKI, IRR, abuse controls, geo-DB management**.



RIR Policies on IPv4 Leasing (2025)

RIR	Policy Position	Can Monetize?	Notes
RIPE NCC	Permissive; temporary transfers allowed	✅ Yes	Must register transfers; only intra-RIR for temporary.
ARIN	Neutral; allowed but not counted for justification	✅ Yes	Leases don't qualify as "efficient use" for new requests.
APNIC	Prohibited; must be tied to connectivity	❌ No	Leasing = invalid; can revoke allocations.
LACNIC	Prohibited; must be tied to infrastructure	❌ No (except legacy)	Legacy resources (pre-LACNIC) can be leased.
AFRINIC	Prohibited; assignment only to end-users of LIRs	❌ No	Very strict; no leasing allowed.

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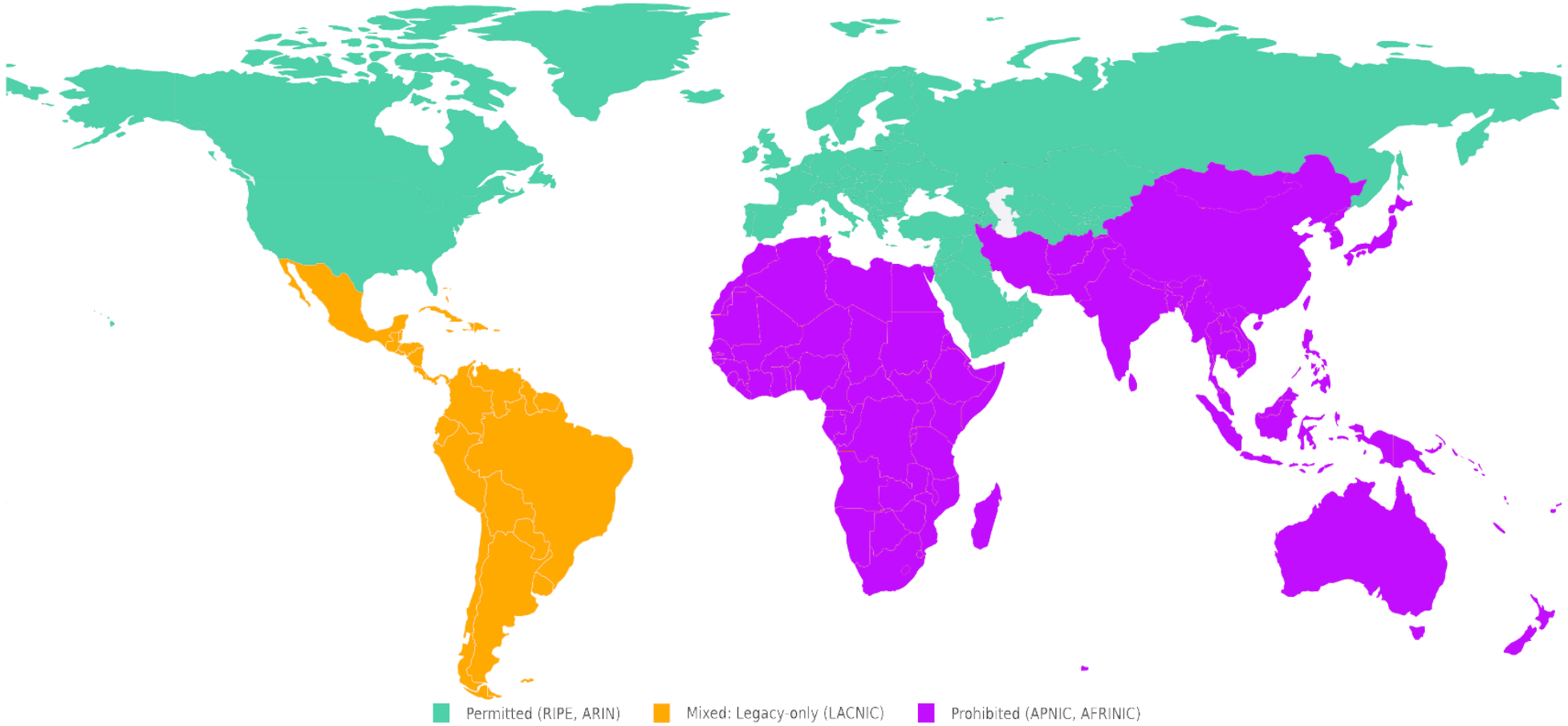


Where Leasing Works Today

CAN MONETIZE

ARIN — American Registry for Internet Numbers

RIPE NCC Member

lacnic

legacy

CANNOT MONETIZE

APNIC

AFRINIC — The Internet Numbers Registry for Africa

lacnic

non-legacy

CAN LEASE (as recipients)

Any region

APNIC

ARIN — American Registry for Internet Numbers

RIPE NCC Member

lacnic

AFRINIC — The Internet Numbers Registry for Africa

addresses can be used globally

IPv4 is a universal resource, yet the regions most in need of growth are the same ones that prohibit leasing.

Leasing – Viable Alternative

IPv4 Leasing

Risks

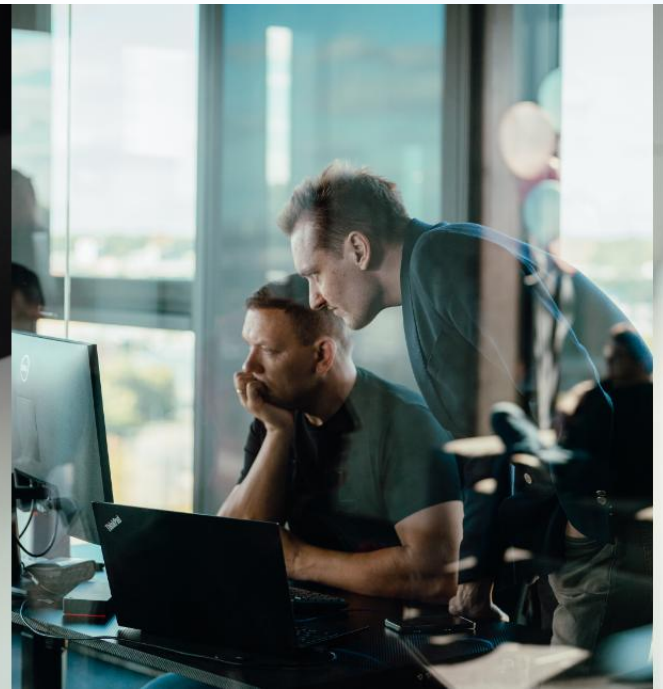
- Abuse observability
- rDNS records validation
- KYC process
- ASN blocklists
- Risky industries
- IP Hijacking

Benefits

- Instant provisioning
- No CAPEX required
- WHOIS accuracy
- Addressing legacy space
- RPKI adoption
- More IPv4 in the market
- Extra revenue

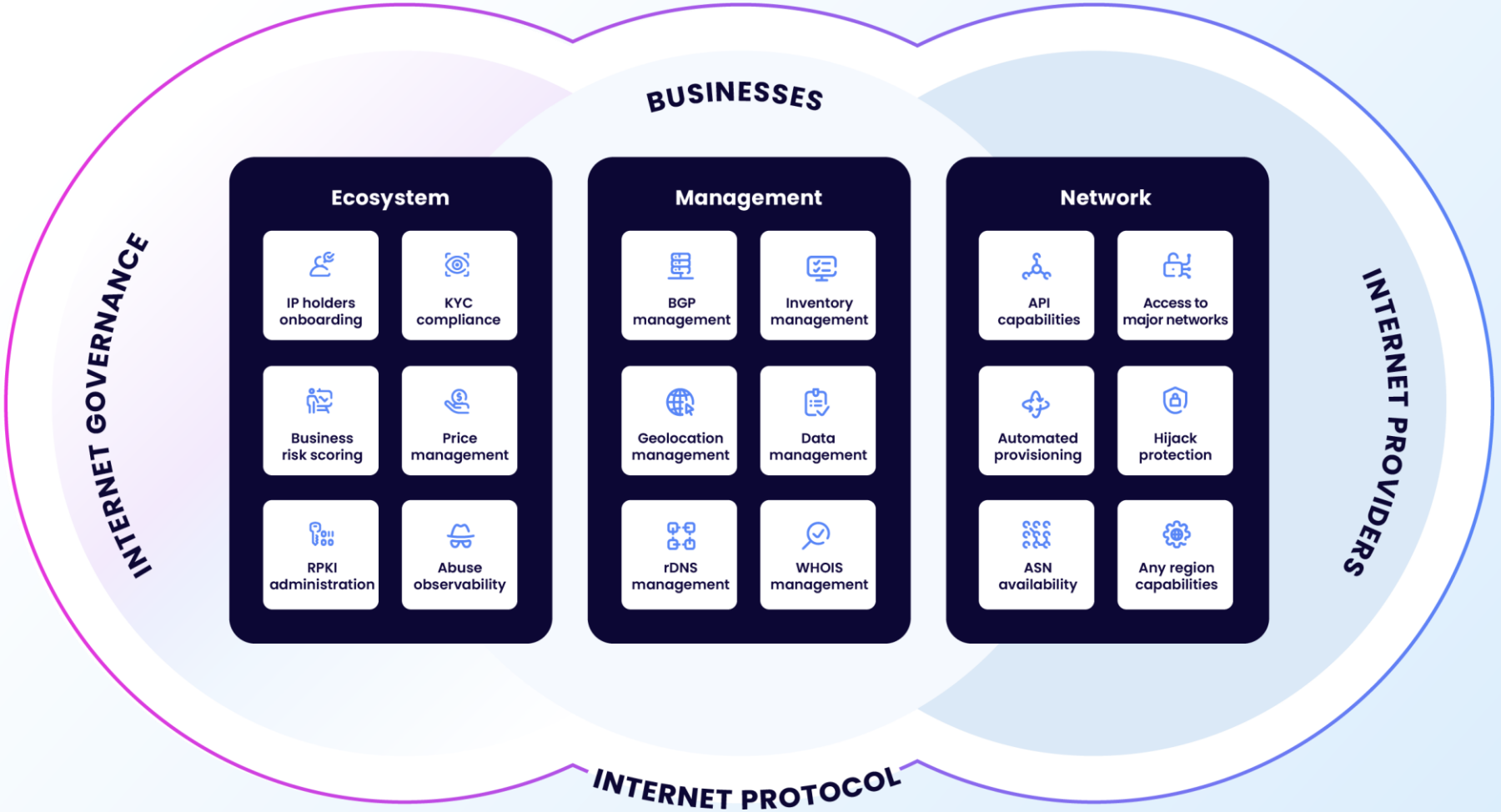
IPXO

Launched in 2021 as a **US-patented network automation** solution to temporarily redeploy idle enterprise network assets to the fast-growing network operators at a fraction of a cost



Solution

Develop a unified platform connecting governance and Internet providers.



Our know-how leads the industry

- **8M+** IP addresses
- **80%** IP utilization rate
- **400+** IP holders
- **1200+** IP lessees
- **B2B customers only**
- **First in the market**

Certified and accredited

We are trusted by the world's leading brands

IP Monetization vs selling comparison

SALE

Pros

- One-time significant capital gains

Cons

- Losing the ownership
- Not benefiting from yield gains*
- Not a recurring revenue

MONETIZATION

Pros

- Retaining the ownership
- Benefiting from yield gains*
- Stable recurring revenue

IPv4 monetization provides a stable revenue source, while IP holders benefit from yield gains on the global IPv4 price increase.

Based on global IPv4 pricing statistics, it takes 3 to 4 years of monetization before selling IPv4 assets to receive double the amount compared to selling IPv4 addresses from the start.

* On average, IPv4 addresses display 25% annual yield gains on IP price growth

The Process

The IPXO Platform is the first fully automated IP lease platform ensuring quick, easy and secure IPv4 Monetization.

Why chose IPXO ?

KYC Processes

Robust customer vetting procedures

Full Automation

Automated IP provisioning for end customers

IP Reputation Management

Full abuse observability and management

Geolocation Management

Automated Geolocation update mechanism for multiple databases

IP Hijack Protection

Preventing unauthorized IP access

Inventory Management

Maximizing IP holder's revenue

Lessee perspective key points

- Flexibility to make changes
- ROI when comparing Buy vs Lease
- Fast access to IPs

Outlook for the future

Outlook for the future

Continuous shortage of IPv4 addresses

Limited supply

Increased demand

Slow transition to IPv6

Economic factors

84.32%
(+1.97%)

Total IPv4 address space announced

(3,108,847,232 IPv4)
(+72,380,144)

15.68%
(-1.97)

Not announced

(577,988,184 IPv4)
(- 72,717,328)

Q&A

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