Why IPv6, Why Now?

The Operations and Business Case for Deployment

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ABQNOG
17 September 2026

The HOW

What most IPv6 sessions cover:

- Protocol architecture
- Prefix allocation
- Deployment checklists
- Configuration steps

The WHY and The COST

What this session covers:

- Why it matters to your business
- The operational cost of waiting
- Strategic planning for autonomy
- How to make the case to leadership

Technical teams understand IPv6.
*Leadership often still needs the **"why"***

IPv4 Scarcity Is Not Theoretical

2015

ARIN free pool exhausted

4.10

Reserved pool, IPv6 transition use only, /24 max

Waitlist

NRPM 4.1.8 queue, up to /22, extended waiting period

WHY THIS MATTERS

- The IPv4 transfer market remains active but erratic, costly, and unpredictable.
- Every remaining path to IPv4 comes with cost, long waits, or tight qualification rules.
- The longer you wait, the more dependencies build up – and the harder migration becomes.

Why Now: The Forcing Functions

IPv4-Only is Technical Debt

Stable IPv6 support is now a standard expectation. IPv4-only hardware and software should be evaluated for modernization or replacement.

Already at Scale

Major mobile, cloud, and content networks already operate IPv6 at scale. Customers increasingly reach modern platforms over IPv6, whether a network is ready or not.

IPv6 Is Production Ready

Large networks already use IPv6 at scale, including IPv6-only operating models. The question is no longer whether IPv6 works, but whether legacy environments are ready.

Global Policy Push

Governments are increasingly requiring or encouraging IPv6 adoption. In the US, federal agencies are directed to complete the transition to IPv6-only environments under OMB M-21-07.

IPv6 is Not the Future. It is the Present.

~50%

of global Internet traffic is IPv6

Source: Google

~58%

of U.S. Internet traffic is IPv6

Source: Google

Global Adoption

of IPv6 continues to accelerate

WHY THIS MATTERS

- Mobile traffic is primarily IPv6. Enterprises remain the last frontier.
- Major content and cloud providers prioritize IPv6. Your customers and partners are already there.
- The question is no longer whether IPv6 is viable. It is whether your network is keeping up.

The Business Case for IPv6

Cost Control

Reduce IPv4 lease, transfer, and legacy technical debt costs.

IPv6 address space **grows** with your network, not your budget.

Operational Simplicity

NAT adds layers of complexity and troubleshooting overhead.

IPv6 end-to-end connectivity and stateless addressing is **cleaner** by design.

Network Growth Flexibility

IPv6's address space effectively removes allocation constraints.

Design for the network you **need**, not the addresses you can **afford**.

Long-Term Resilience

IPv4 will become increasingly more expensive and scarce.

IPv6 **reduces** exposure to market volatility and vendor lock-in.

Operational Reality

Start with Dual Stack

- Low-risk path to begin IPv6 adoption
- Maintains IPv4 compatibility during transition
- Allows teams to build IPv6 experience without disrupting existing services
- Avoids the all-or-nothing concern

Plan the Path to IPv6-Only

- Regularly assess where IPv4 can be reduced or removed
- Target clean opportunities first: guest wifi, edge, cloud, and new builds
- Use translation where IPv4-only services still exist
- Long term, simpler networks reduce cost, complexity, and operational drag

Practical IPv6 Roadmap

1

Inventory the Current State

Identify IPv4 costs, NAT dependencies, customer-facing services, vendor limits, and IPv4-only systems.

2

Start with Dual Stack

Deploy IPv6 alongside IPv4 where it lowers risk and helps teams build operational experience.

3

Prioritize New Builds

Require IPv6 support in new networks, applications, cloud services, procurement, and vendor decisions.

4

Measure Progress

Track IPv6 traffic, service coverage, support issues, customer impact, and where IPv4 still creates cost.

5

Reduce IPv4 Over Time

Regularly assess where IPv4 can be removed, starting with cloud, edge, guest Wi-Fi, labs, and new builds.

*Progress from inventory to **steady IPv4 reduction**. Each stage builds on the last.*

Planning Now Matters

Network Autonomy

Organizations that hold their own IPv6 space are not subject to ISP address plans. That independence has **real** operational and contractual value.

Competitive Readiness

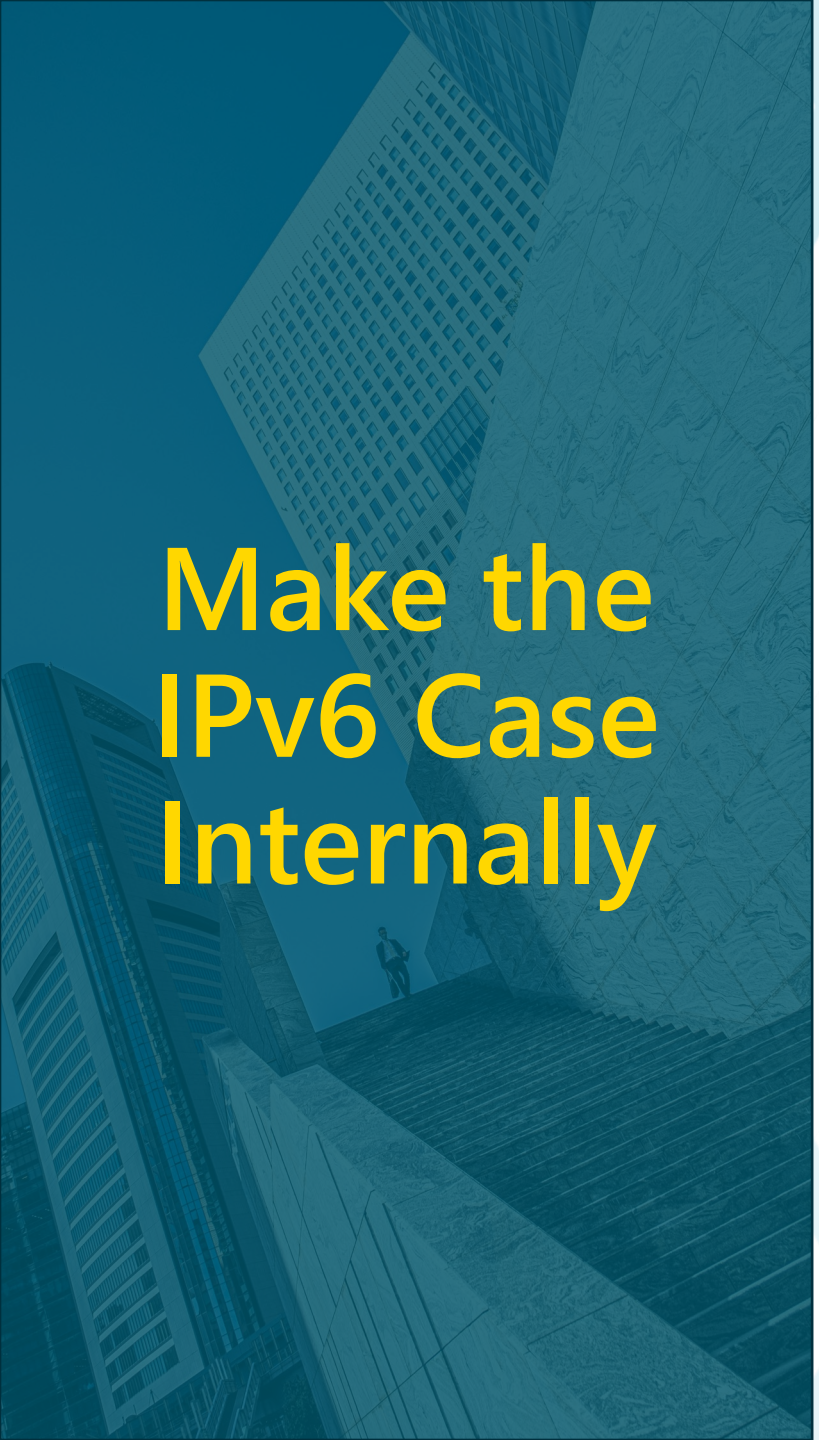
Customers, partners, and content providers are moving. IPv6 deployment and support are increasingly a **baseline expectation**, not a differentiator.

Simplified Future State

Every year of dual-stack operation is another year of **added complexity** and **cost**. Earlier transition = lower long term operational cost.

Regulatory Awareness

Some government and enterprise procurement requirements already mandate IPv6 support. Knowing your exposure matters now.



Make the IPv6 Case Internally

For Technical Teams

- Reduce NAT and CGN complexity over time
- End-to-end addressing simplifies troubleshooting
- Modern applications and cloud platforms optimize for IPv6
- Plan for where IPv4 can be reduced over time to avoid permanent and costly parallel operations

For Leadership and Finance

- IPv4 has real cost and is subject to market volatility
- IPv6 has much lower cost per device and more stable long-term pricing
- IPv6 reduces operational risk from address scarcity
- IPv6 aligns with long-term infrastructure investment
- Competitors and partners are already moving

Leasing is a “Bridge Solution” not a foundation

Compared to deploying IPv6, leasing carries risks you don't control:

Rising and unpredictable costs

Lease pricing follows the transfer market, and renewals are not guaranteed at today's rates.

The space is not yours

The lessor can reclaim, sell, or repurpose that space. When they do, you are renumbering on their timeline, not yours.

Routing and reputation risk

Leased blocks can arrive with poor reputation history or create routing and geolocation issues you inherit.

Delays the real fix

Every lease dollar and renumbering cycle is spent maintaining IPv4 dependence instead of reducing it.

Mergers & Acquisitions

The hidden integration tax

Most organizations use the same RFC 1918 private ranges internally. When two networks merge, those ranges collide.

The IPv4 way

Overlapping 10.x and 192.168.x space forces renumbering projects, double NAT, or long-lived translation layers. Integration timelines stretch from months to years.

The IPv6 way

Globally unique addressing means no overlap by design. Networks interconnect directly, and integration effort goes into services, not address conflict cleanup.

If M&A is anywhere in your organization's future, IPv6 readiness is due diligence.

The "Resistant Customer" Problem

"We can't fully deploy IPv6 because one customer refuses to change."

You don't need everyone to move.

Translation mechanisms (NAT64, 464XLAT) let you run IPv6-first while IPv4-only customers keep working unchanged.

Your slowest customer sets the pace for their connection. Not your network.

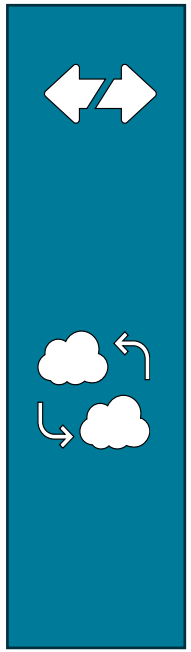
Deploy IPv6-mostly internally, translate at the edge, and let stragglers catch up on their own time.

“Only IPv6” vs. “Mostly IPv6”

IPv4 fully translated — *IPv4 phased out per host*

IPv6-only (+IPv4 as a Service)
Access network runs IPv6 only. IPv4 survives as a translated service (464XLAT)

Best fit: unmanaged networks
Mobile and residential access. How major mobile carriers run today



IPv6-mostly
Dual-stack segments where capable hosts opt out of IPv4 (RFC 8925). NAT64/CLAT covers the rest

Best fit: managed corporate networks
Gradual, host-by-host transition. No IPv6-only segments needed
Surfaces hidden IPv6 problems that dual stack masks

Takeaway for Enterprises:
IPv6-mostly is the on-ramp

Start where you control the hosts.
Expand as compatibility is proven

Source: J. Palet Martinez, RIPE Labs (Jun 2026), reposted on ARIN Blog (Jul 2026) – arin.net/blog

The Last Desktop Barrier is Falling

"We can't go IPv6-first because Windows desktops break" is expiring.

What is CLAT?

The client-side half of 464XLAT (RFC 6877). It lets a device on an IPv6-only network keep running applications that require IPv4, by translating on the device itself.

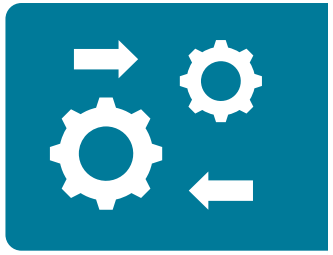
Why it matters now

CLAT is why mobile carriers run IPv6-only at scale. Desktop support has been the gap.

macOS and Linux added it, and Windows 11 CLAT is now in public preview (June 2026).

What to Take Back to Your Organization

1. Know your current IPv4 cost exposure – lease fees, transfer costs, and hidden NAT complexity all count.



2. Audit where dual-stack has become indefinite rather than transitional. That's operational debt.

3. Build the business case in your organization's language: cost, risk, and operational efficiency – not protocol specs.

4. Engage with ARIN. We have resources, training, and policy tools specifically designed to support this transition.

Resources for IPv6 Adoption

IPv6 let's grow!

Visit www.arin.net/IPv6

E-learning @ ARIN Academy

Events

Business Case blog series

How-To Videos

ARIN ACADEMY

ARIN Academy is here to help you maximize your value from ARIN

Getting Started With ARIN

Learn how to navigate ARIN Online.

Using ARIN's Hosted RPKI

Follow our guided module to learn to deploy RPKI for your organization.

IPv6 Address Planning Basics

Ready to get started with IPv6? But how much and how should I plan?

arin.net/training

You Don't Have to Be a Member to Engage

The conversation starts with an account, not a membership.

Open to everyone in the community:

- Create a free ARIN Online account
- Chat with us via Ask ARIN
- Take free courses at ARIN Academy
- Subscribe to ARIN mailing lists and the blog
- Attend outreach events like this one or the ARIN Public Policy and Members Meetings in person or virtually

Membership adds:

- Service Members hold internet number resources under a Service Agreement, and get access to services such as RPKI
- Service Members can **opt in** to our General Membership to vote in ARIN elections and participate in governance

ARIN Supports Your Transition

- **IPv6 Info Center - arin.net/resources/guide/ipv6**
  Guides, primers, case studies, and policy resources for organizations at any stage of deployment
- **RPKI & Routing Security – arin.net/resources/rpki**
  Secure your IPv6 routing from day one with ARIN's RPKI tools
- **Training & Webinars – arin.net/training**
  E-learning, self-service and job aides
- **Community Resources – arin.net/participate**
  Policy process, community forums, and how to engage with ARIN's work
- **Outreach events – arin.net/meetings**
  We attend many community events – maybe there is one near you!

Organizational Updates

Election Timeline

Self-Nominations
8-22 June 2026

Deadline to establish voting eligibility
7 September

Initial Candidate Slate Announced
8 September 2026
Community members can submit Statements of Support for candidates

Virtual Candidate Forum
22 October 2026

Voting Period
22-30 October 2026

Results Announced
By 6 November 2026

Open Seats

ARIN Board of Trustees (*Three full-term open seats)*
Maintains authority over the scope and mission of ARIN and establishes strategic direction and fiscal oversight.

ARIN Advisory Council (*Five full-term open seats)*
Forwards consensus-based policy proposals to the Board for ratification.

Number Resource Organization (NRO)
Number Council (NC)
(*One appointed representative from the ARIN region)*
Advises the Executive Council concerning the ratification of proposed global IP number resource allocation policies.

Candidate Slate: Board of Trustees

- Dan Alexander
- Kevin Blumberg
- Catherine Middleton
- Tina Morris

Candidate Slate: Advisory Council

- Douglas Camin
- Elizabeth Goodson
- Altie Jackson
- Evghenii Kosatii
- Kaitlyn Pellak
- Leif Sawyer
- Matthew Wilder

NRO Number Council*

- Kate Gerry
- Kat Hunter
- Adair Thaxton

** The ARIN Board of Trustees will appoint a candidate from the list of nominees to the NRO NC open seat this year.*

Voting Contacts Are Important

General Member

To be eligible to vote, **General Member** organizations must be in **good standing**

Voting Contact

Organizations must have a Voting Contact identified and listed by the deadline of **7 September**

Finalized by 15 Oct

Voting Contact changes must be finalized at least **seven days before** voting begins on **22 October**

Check your ARIN Online Account

- Your Records > Organization Identifiers
- Select an Org Handle associated with your account

- If you have designated a Voting Contact, it will be displayed in the **Voting Contact section**
- If not, in the Org Info section, select, **"Manage Voting Contact"** from the Actions menu to assign one


ARIN 58
POWERED BY PARTICIPATION
Registration is now open arin.net/arin58
Save the Date • 22-23 October 2026 • Miami, Florida

How to Reach Us

www.arin.net/contact

ARIN's Registration Services Help Desk:
Voice: 7:00 AM-7:00 PM ET
Chat: 10:00 AM-4:00 PM ET
Monday-Friday

Ask ARIN when logged in to your ARIN Online account

General questions? Email info@arin.net

Thank You