Going IPv6-Only:
From Myths to Modern Network Realities

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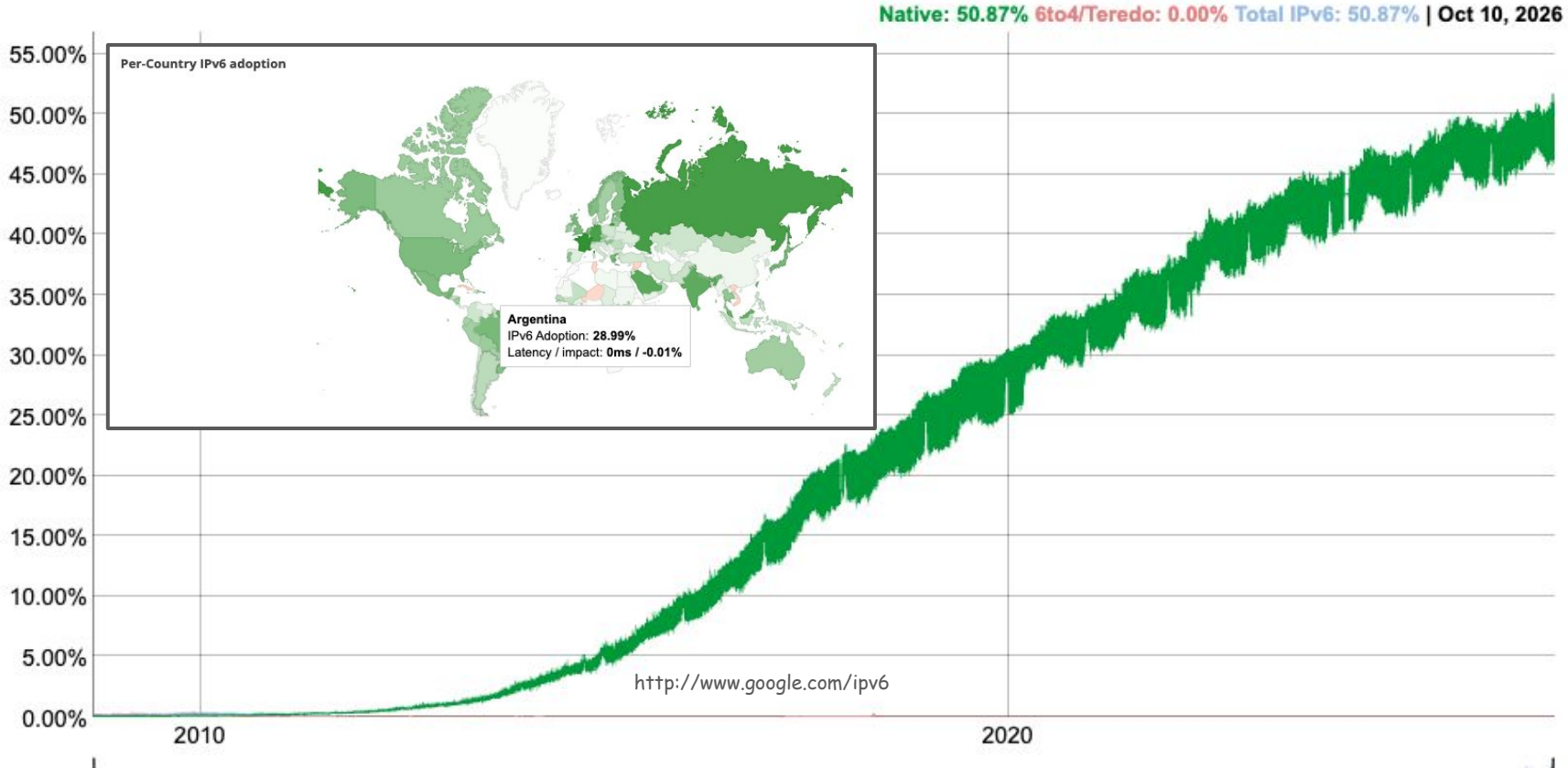
LACNIC46, Oct 2026

Myth #1
"It's been 30 years, IPv6 is undeployable"

IPv6 Adoption | Per-Country IPv6 adoption

IPv6 Adoption

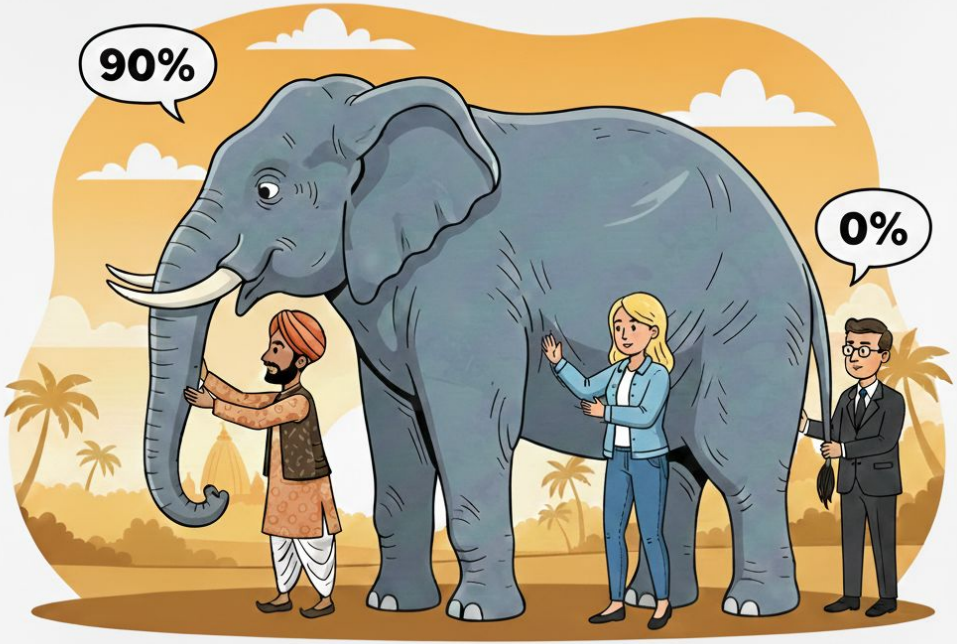
We are continuously measuring the availability of IPv6 connectivity among Google users. The graph shows the percentage of users that access Google over IPv6.

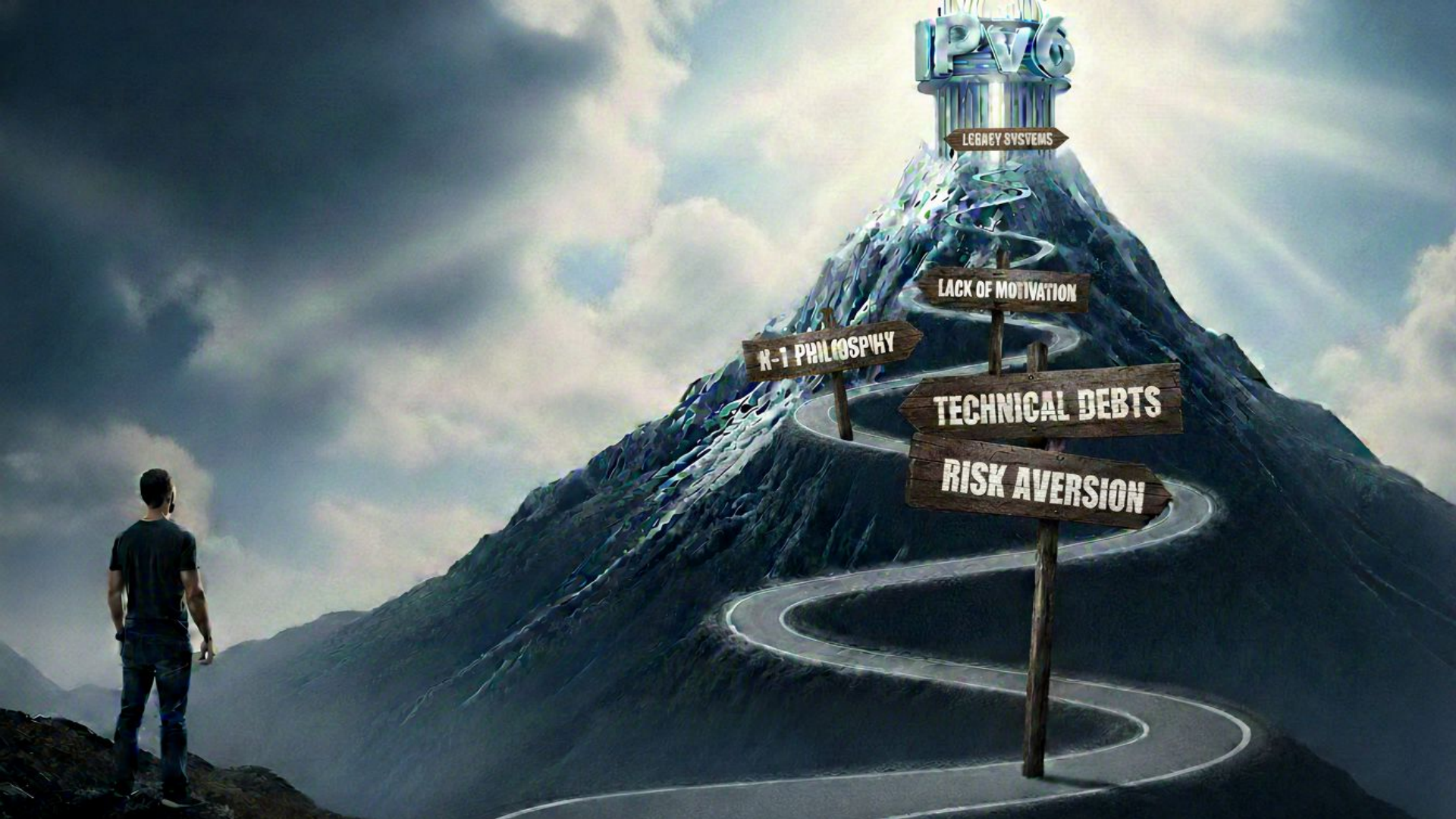


ASN	AS Name	IPv6 Capable	IPv6 Preferred	Samples
AS36183	AKAMAI-AS - Akamai Technologies, Inc.	100.00%	99.44%	360
AS54113	FASTLY - Fastly, Inc.	100.00%	98.53%	68
AS13335	CLOUDFLARENET - Cloudflare, Inc.	99.63%	96.62%	42,551
AS266700	AS266700 - HONORABLE CAMARA DE DIPUTADOS DE LA NACION	98.97%	94.65%	486
AS264642	AS264642 - TELESISTEMA S.R.L.	81.41%	80.37%	38,512
AS27833	AS27833 - BVNET S.A.	77.67%	77.42%	41,380
AS265777	AS265777 - SOLUCIONES WISP S.A.	77.16%	76.89%	10,357
AS266668	AS266668 - OBERCOM S.R.L.	77.58%	76.43%	25,205
AS27747	AS27747 - Telecentro S.A.	78.34%	73.74%	1,273,298
AS14593	SPACEX-STARLINK - Space Exploration Technologies Corporation	75.10%	73.29%	345,861
AS52268	AS52268 - COPELCO LTDA. (CUTRAL-CO)	73.85%	73.16%	6,061
AS271914	AS271914 - SEMPRINI EMILIANO EFREN	71.34%	70.77%	9,182
AS52405	AS52405 - Caleta Video Cable SRL	71.01%	70.35%	14,486
AS27984	AS27984 - Ver Tv S.A.	73.97%	69.83%	83,011
AS264830	AS264830 - Coop. de Luz y Fuerza Elect. Industria y Otros Serv. Publicos,Vivienda y Credito de Punta Alta Ltda	67.54%	67.25%	11,935
AS273965	AS273965 - NETIC COMUNICACIONES S.A.S.	67.79%	66.88%	1,425
AS11815	AS11815 - Cooperativa Telefonica de V.G.G. Ltda.	69.12%	65.61%	8,895
AS28009	AS28009 - Davitel S.A.	64.64%	63.98%	12,314
AS273833	AS273833 - IQ NET SA	63.75%	63.61%	2,259
AS272928	AS272928 - P&C ON LINE S.R.L. (NETWAY INTERNET)	62.60%	62.17%	10,050
AS52419	AS52419 - CESOP	61.92%	61.59%	12,334
AS263789	AS263789 - CORTUC S.A.	61.21%	60.49%	1,931
AS266721	AS266721 - VISIO RED SRL	61.39%	60.16%	1,541
AS264754	AS264754 - SWISSNET S.R.L.	60.77%	59.89%	7,444
AS11664	AS11664 - Techtel LMDS Comunicaciones Interactivas S.A.	66.71%	59.35%	1,878,445
AS61449	AS61449 - RESEARCH SRL	61.39%	58.38%	11,573
AS269874	AS269874 - COOPERATIVA ELECTRICA MIXTA DEL OESTE Y OTROS SERVICIOS PUBLICOS LIMITADA	58.78%	58.35%	4,903
AS27927	AS27927 - Coop. Popular de Elec., Obras y Servicios Pub. de Santa Rosa LTDA	57.76%	57.03%	37,312
AS269909	AS269909 - COMTEC S. A.	57.19%	56.76%	14,330
AS27818	AS27818 - Cotesma	56.67%	55.69%	12,865
AS27976	AS27976 - Coop. de Servicios Publicos de Morteros Ltda.	56.95%	53.64%	7,247

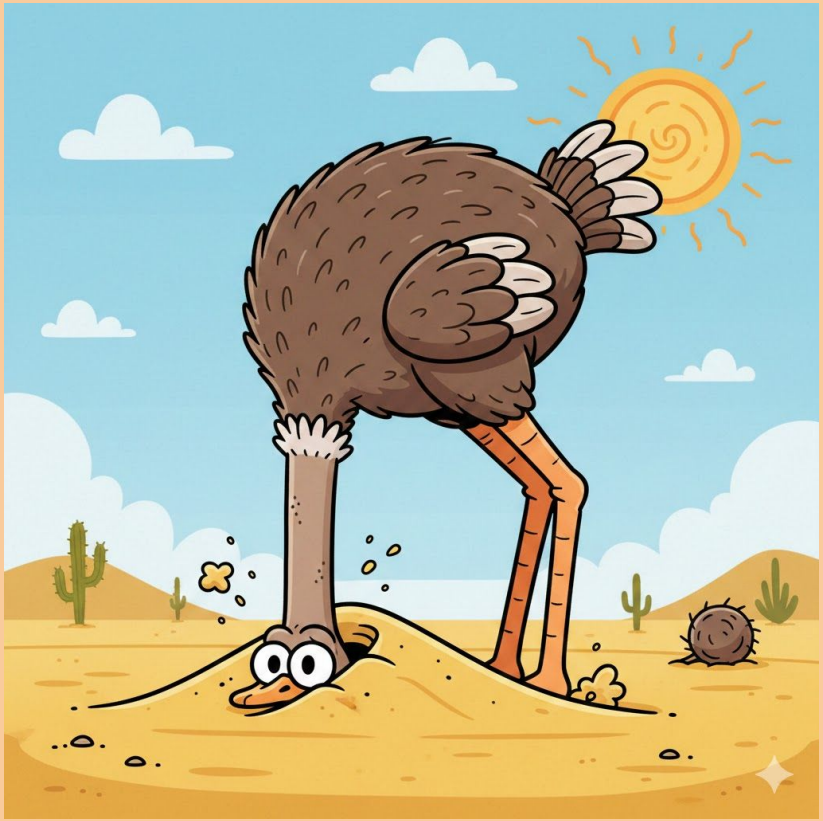
Source: https://stats.labs.apnic.net/ipv6/AR

IPV6 Adoption Elephant

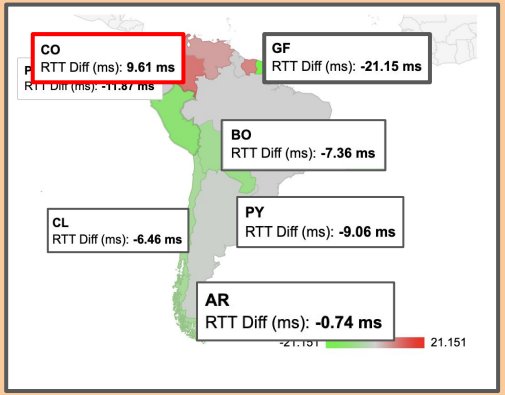



IPV6
LEGACY SYSTEMS
LACK OF MOTIVATION
K-1 PHILOSPHY
TECHNICAL DEBTS
RISK AVERSION

Myth #2
"I don't need to deploy IPv6"

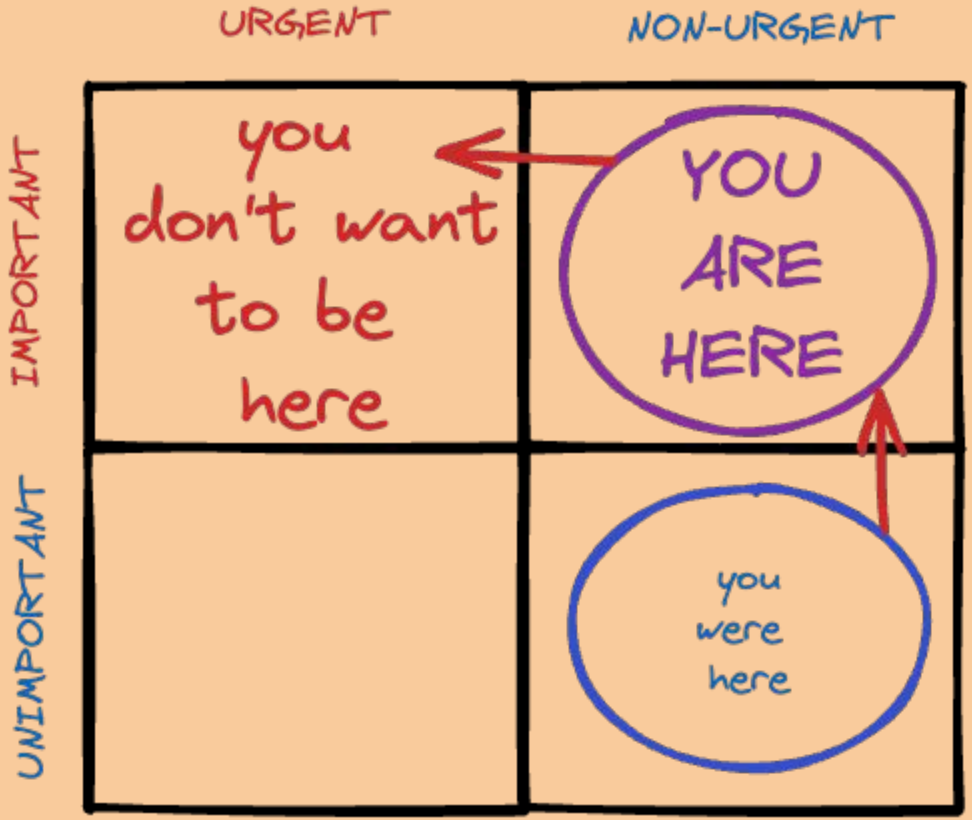


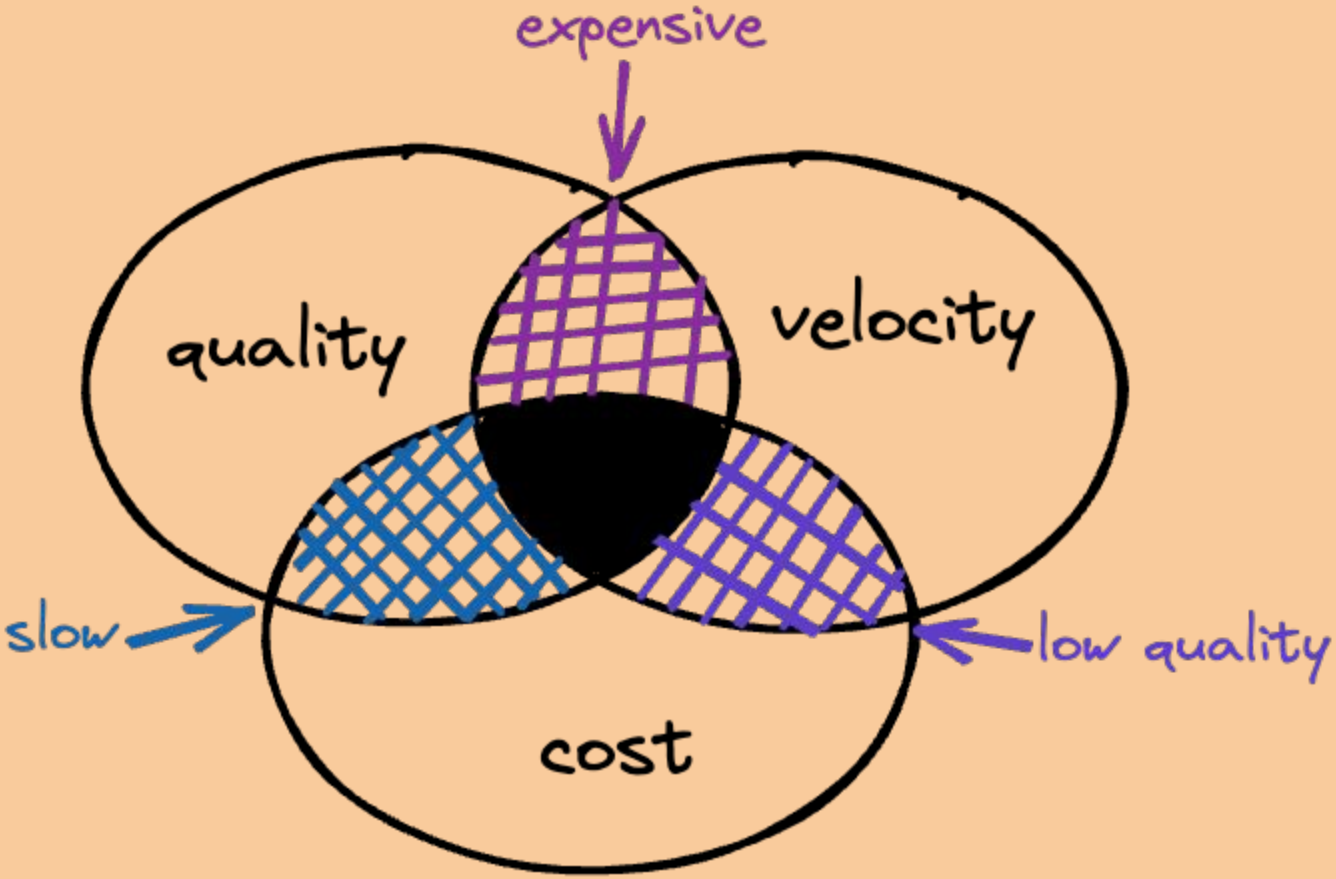
```
en0: flags=88e3<UP,BROADCAST,SMART,RUNNING,NOARP,SIMPLEX,MULTICAST> mtu 1500
        options=6460<TSO4,TSO6,CHANNEL_IO,PARTIAL_CSUM,ZEROINVERT_CSUM>
        ether 006:53:00:2c:ef:66
        inet6 fe80::146a:1802:9a94:e5a4%en0 prefixlen 64 secured scopeid 0xb
        inet6 2001:df9:0:1:c20:f250:9b91:2b9e prefixlen 64 autoconf secured
        inet6 2001:df9:0:1:dd4b:e782:c109:f120 prefixlen 64 autoconf temporary
        inet 192.0.0.2 netmask 0xffffffff broadcast 192.0.0.2
        inet6 2001:df9:0:1:865:2056:7822:dee1 prefixlen 64 clat46
        nat64 prefix 64:ff9b:: prefixlen 96
        nd6 options=201<PERFORMNUD,DAD>
        media: autoselect
        status: active
[furry@Wintermute ~]$
```



Source: https://stats.labs.apnic.net/

Myth #3
"I can think about it tomorrow..."

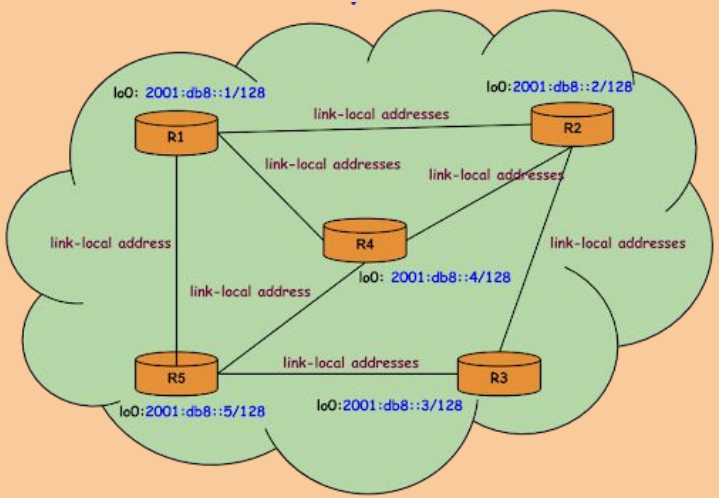

URGENT
NON-URGENT
IMPORTANT
UNIMPORTANT
you don't want to be here
YOU ARE HERE
you were here


expensive
quality
velocity
slow
low quality
cost

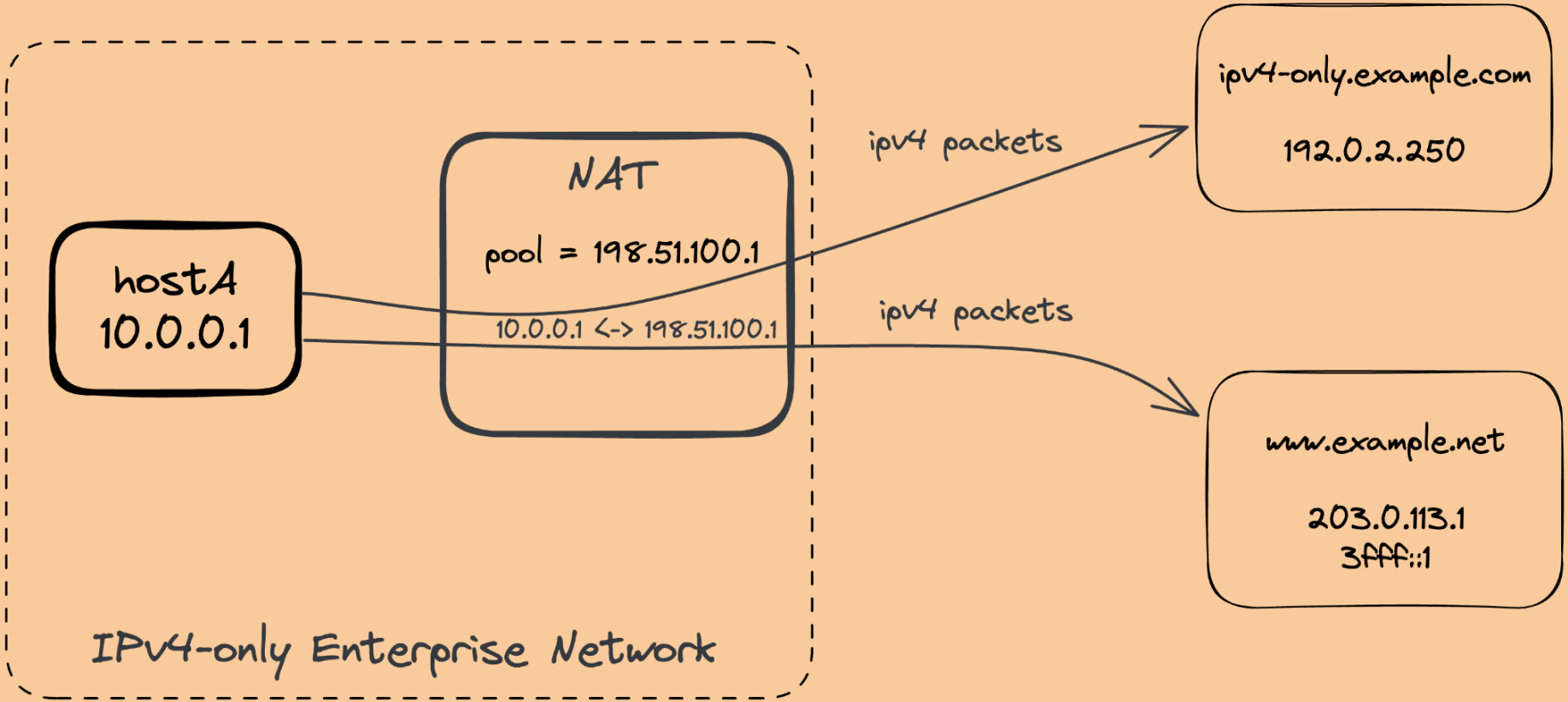
Myth #4
"IPv6 is just IPv4 with 128-bits addresses"

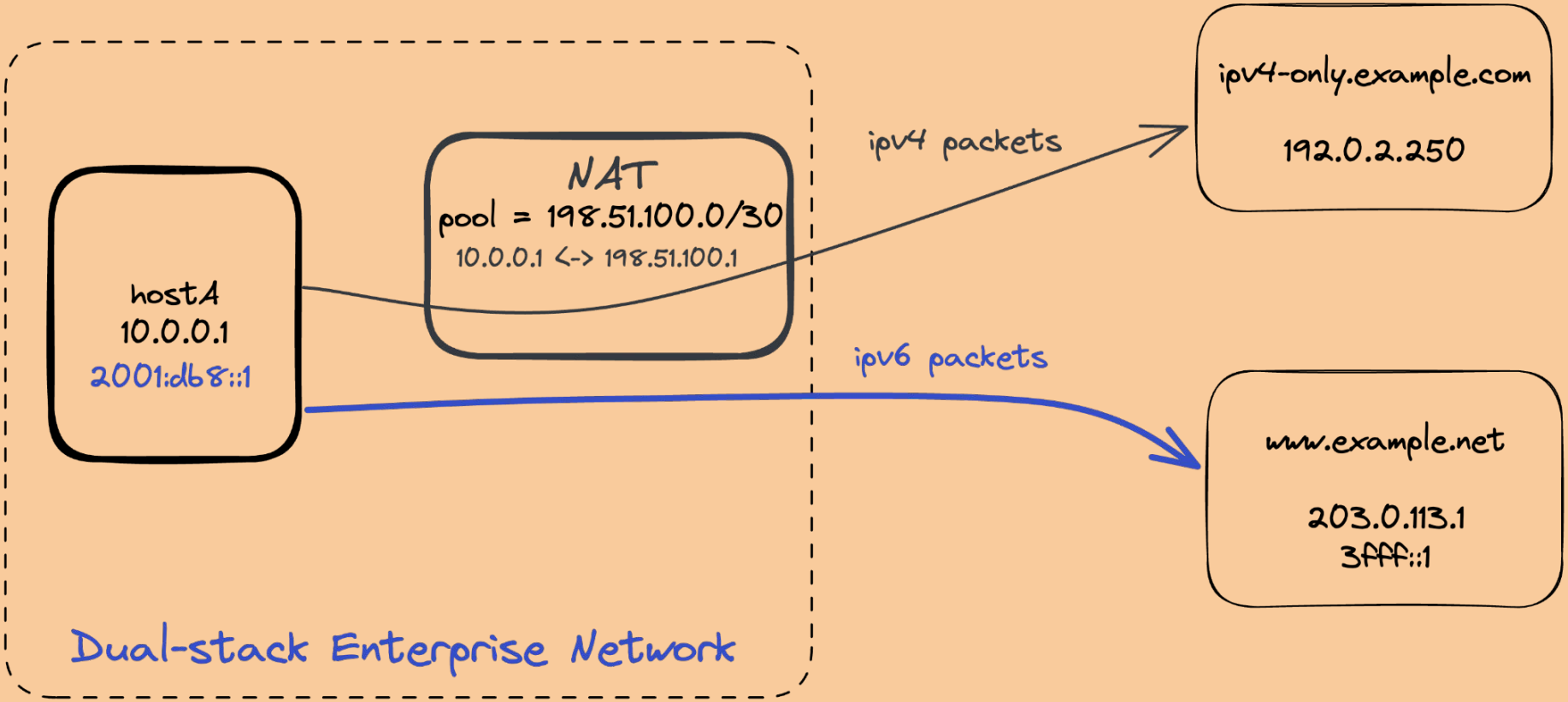
Some Examples...

Neighbour Discovery instead of ARP
No NAT
Stateless Address Autoconfiguration
Link-local addresses
Multiple addresses per host
/64 per segment
DHCPv6 Prefix Delegation

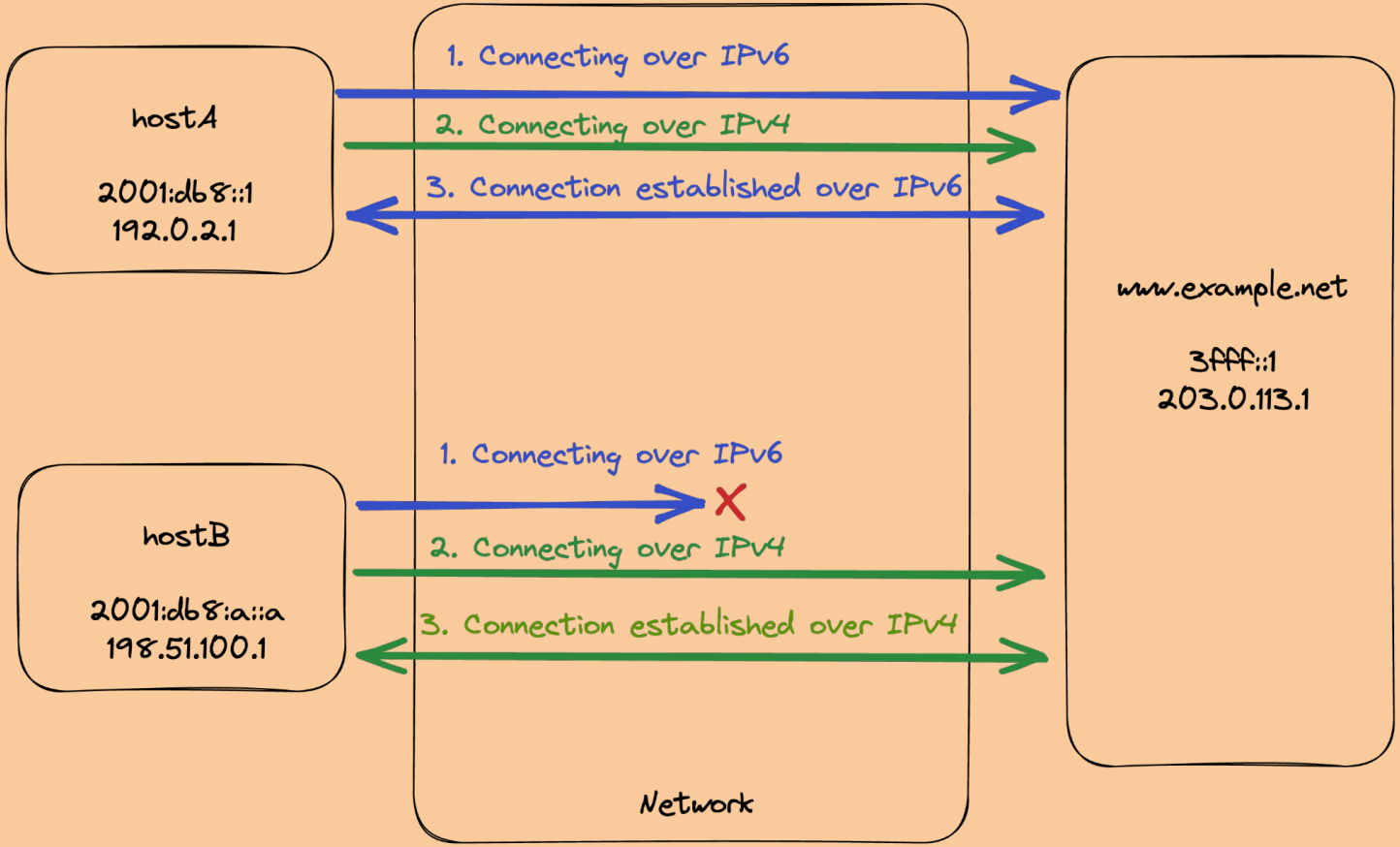


Myth #5
"The goal is to deploy IPv6 alongside IPv4"

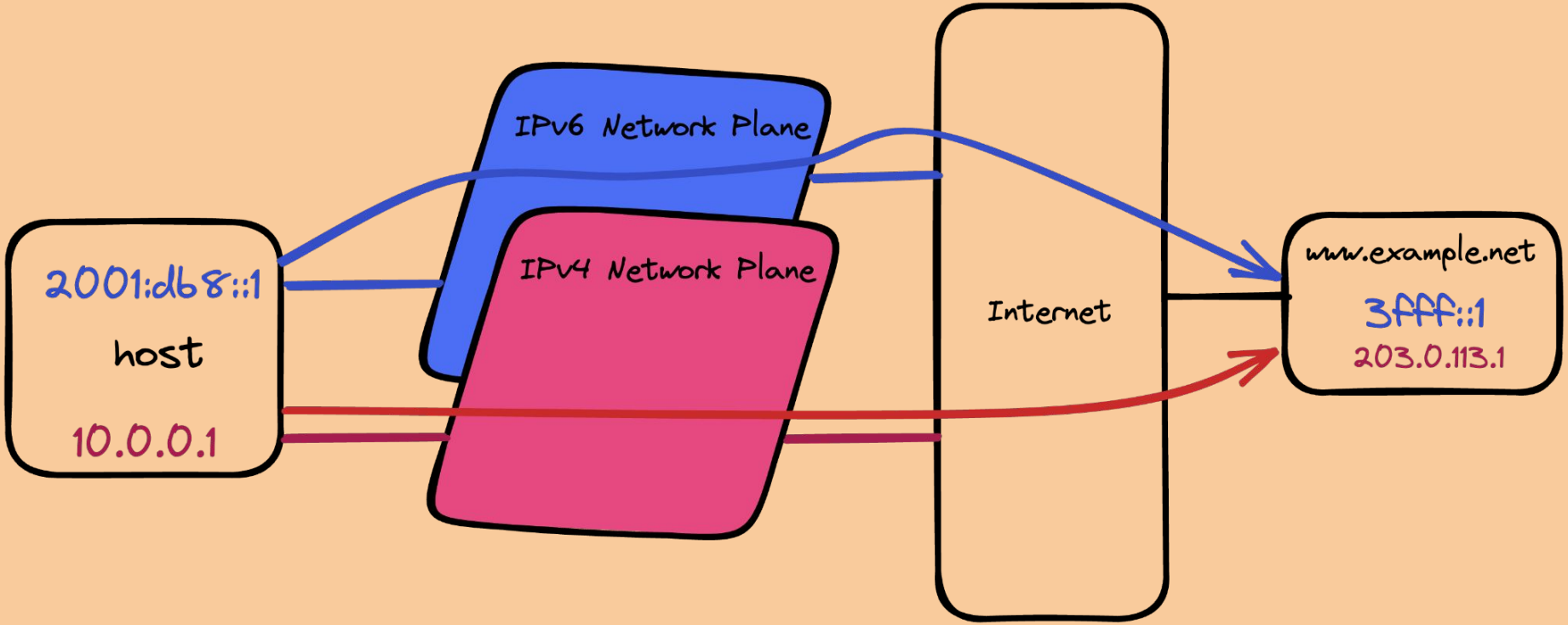

ipv4-only.example.com
192.0.2.250
NAT
pool = 198.51.100.1
ipv4 packets
hostA
10.0.0.1
10.0.0.1 <-> 198.51.100.1
ipv4 packets
www.example.net
203.0.113.1
3fff::1
IPV4-only Enterprise Network


ipv4-only.example.com
192.0.2.250
ipv4 packets
NAT
pool = 198.51.100.0/30
10.0.0.1 <-> 198.51.100.1
hostA
10.0.0.1
2001:db8::1
ipv6 packets
www.example.net
203.0.113.1
3fff::1
Dual-stack Enterprise Network

Happy Eyeballs (Simplified)



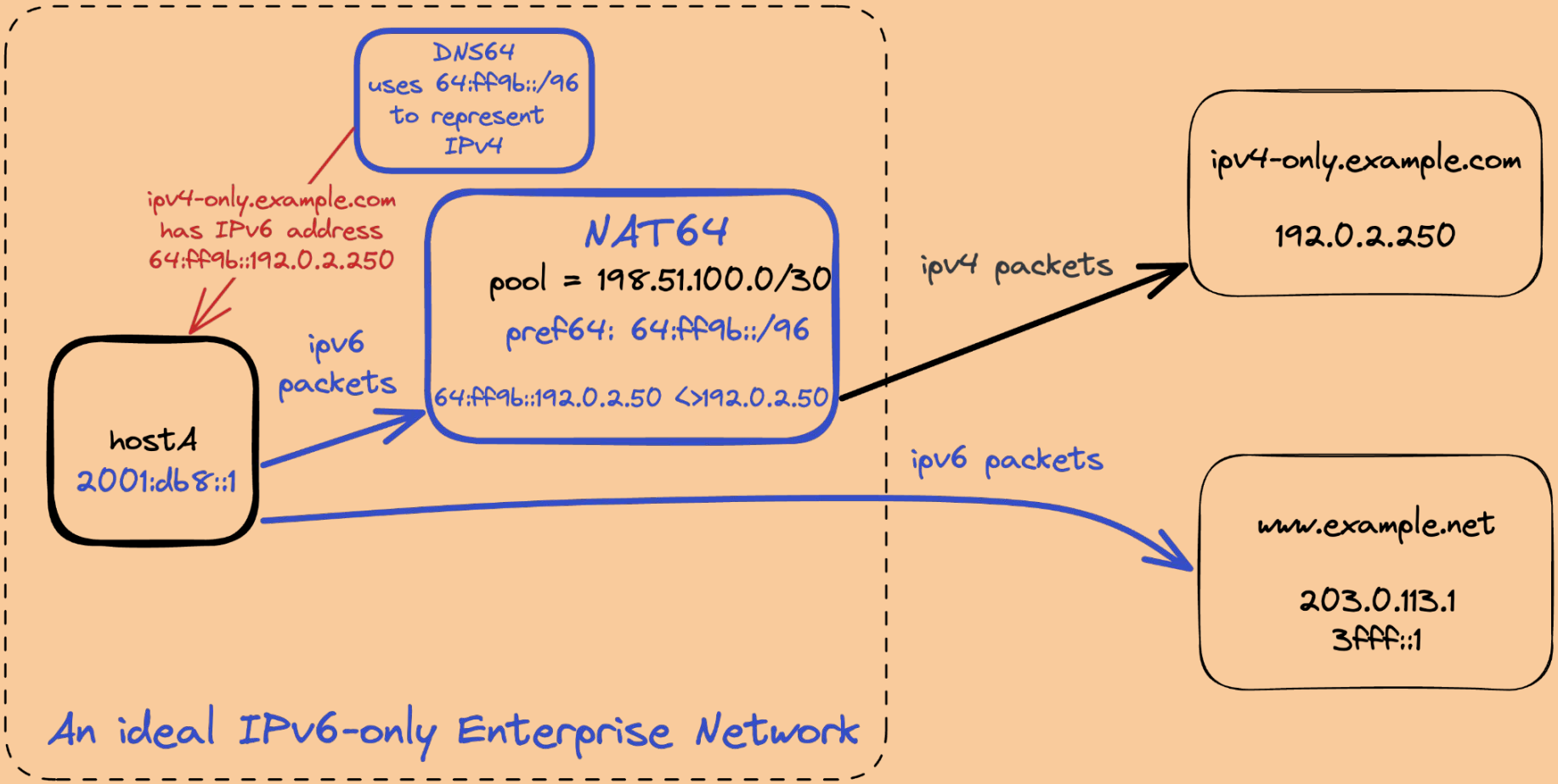
Dual-Stack: The Honey and the Sting



Dual-Stack Doesn't Solve the IPv4 Exhaustion Problem

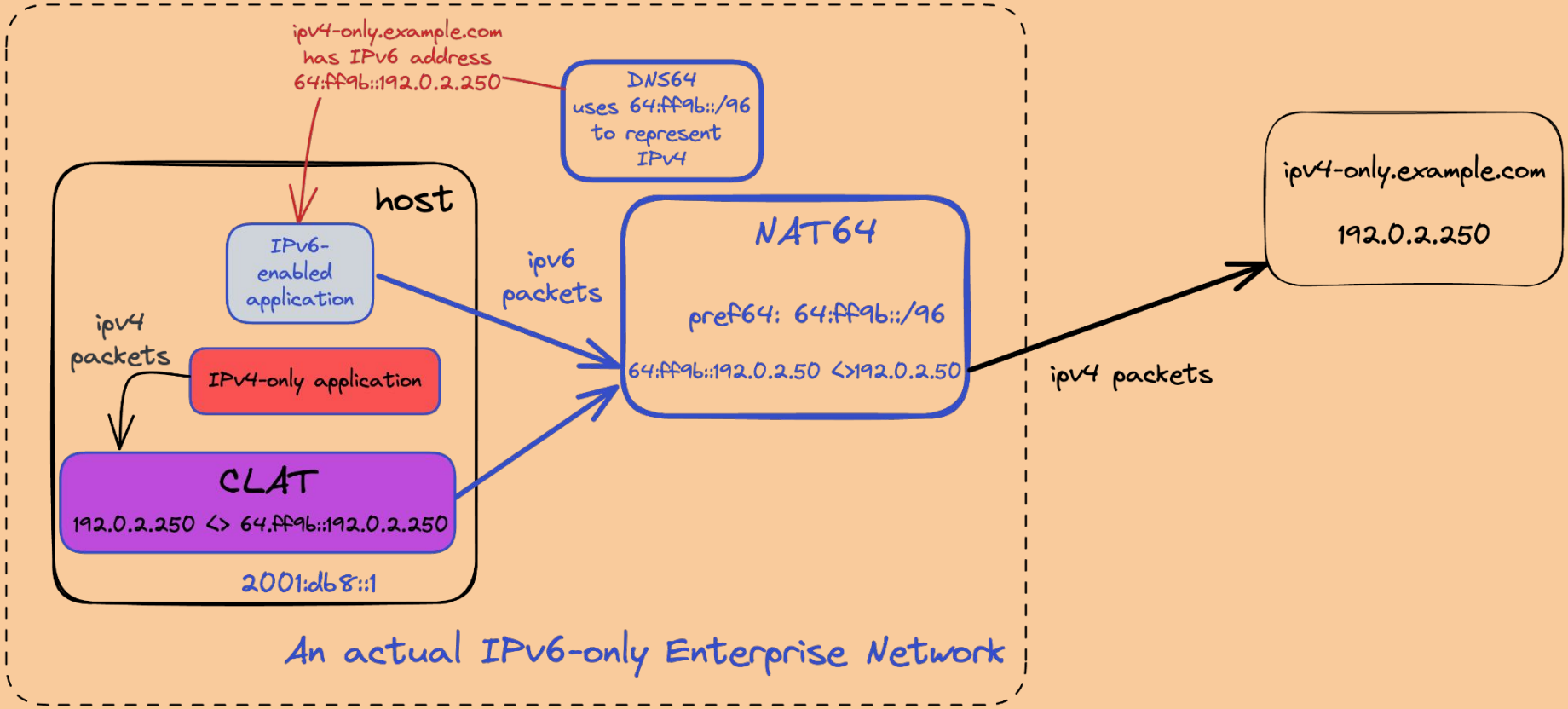

Time to start disabling IPv4

Reaching IPv4-only Destinations from an IPv6-only Network

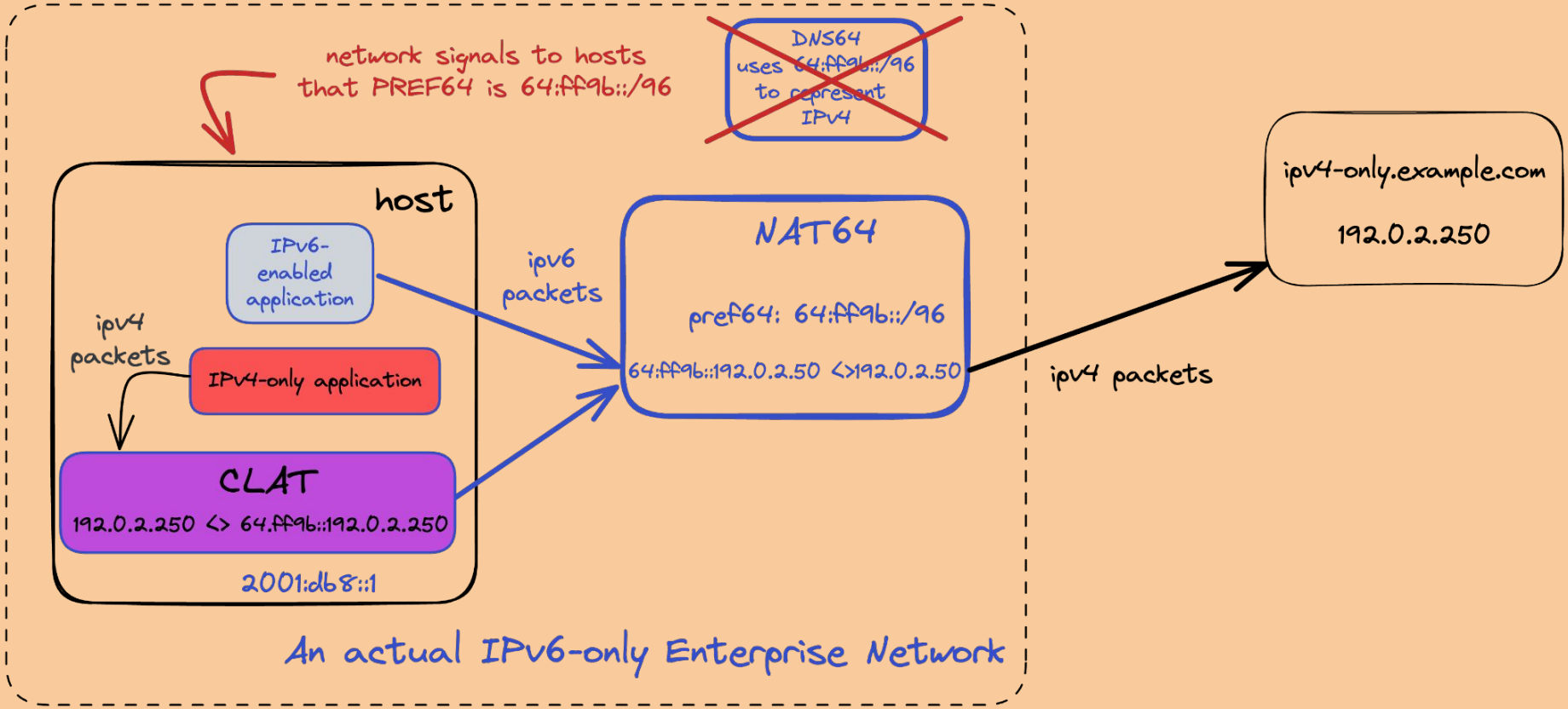


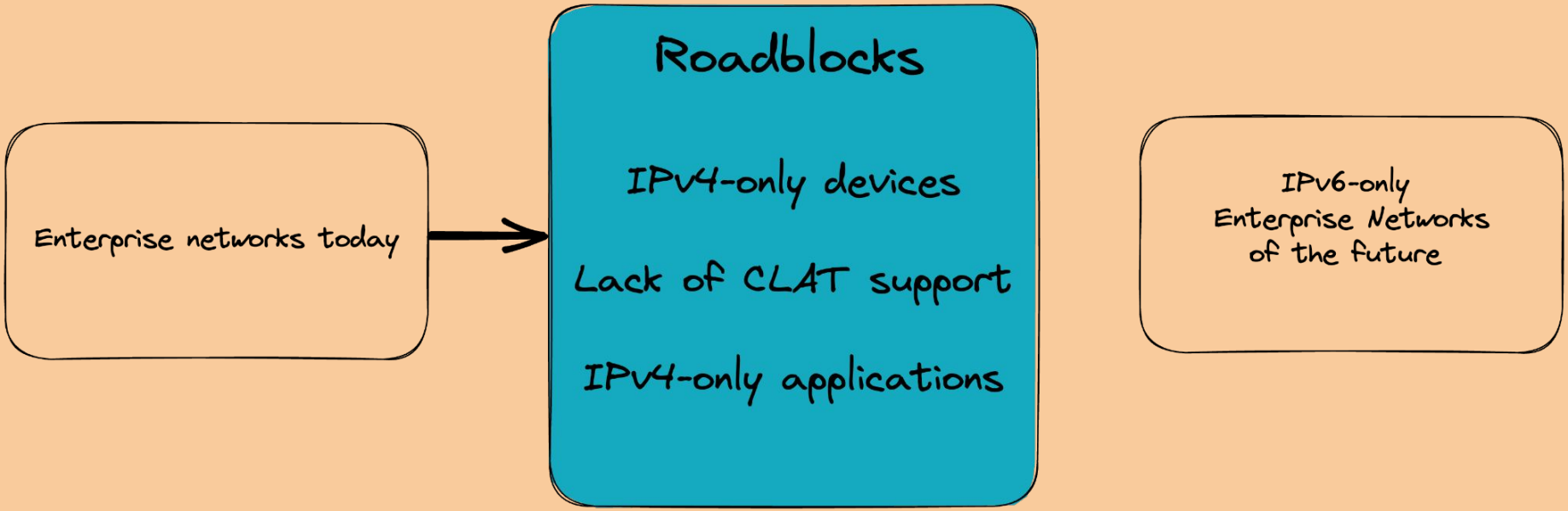
Myth #6
"You can not turn off IPv4"

Reaching IPv4-only Destinations from an IPv6-only Network

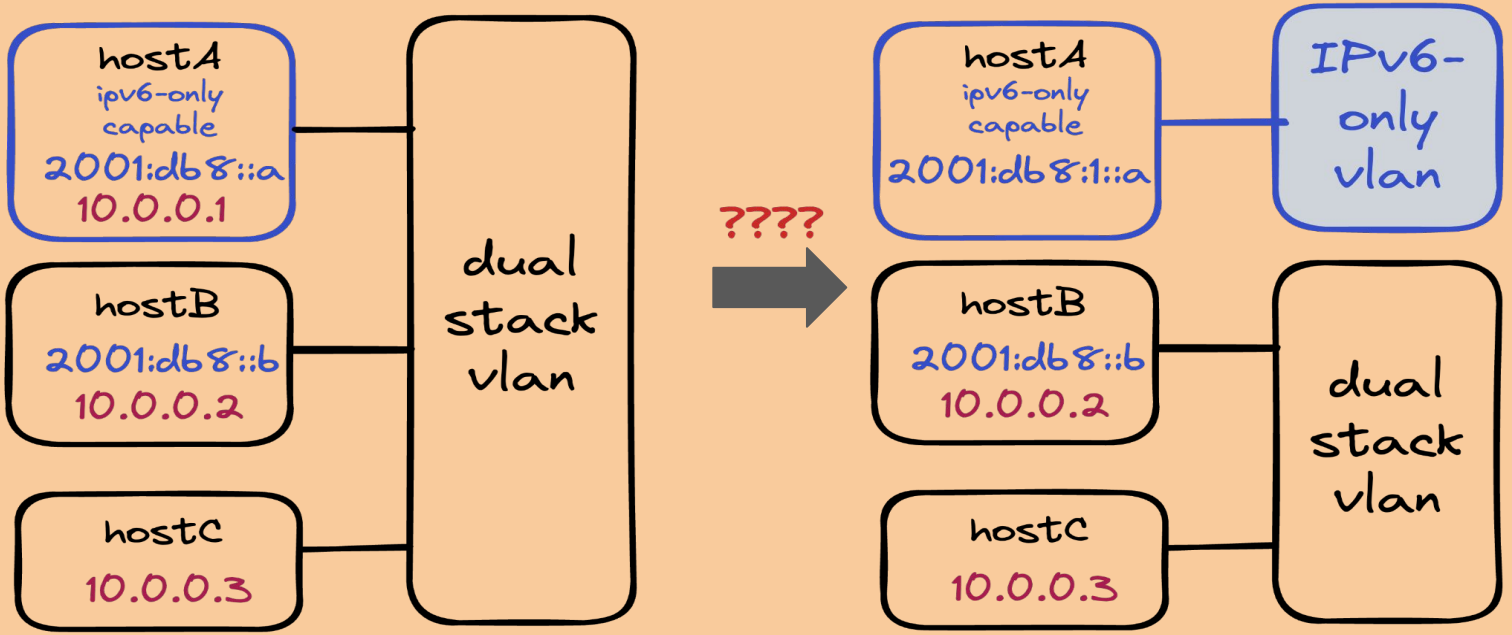


Eliminating DNS64




Enterprise networks today
Roadblocks
IPv4-only devices
Lack of CLAT support
IPv4-only applications
IPv6-only
Enterprise Networks
of the future

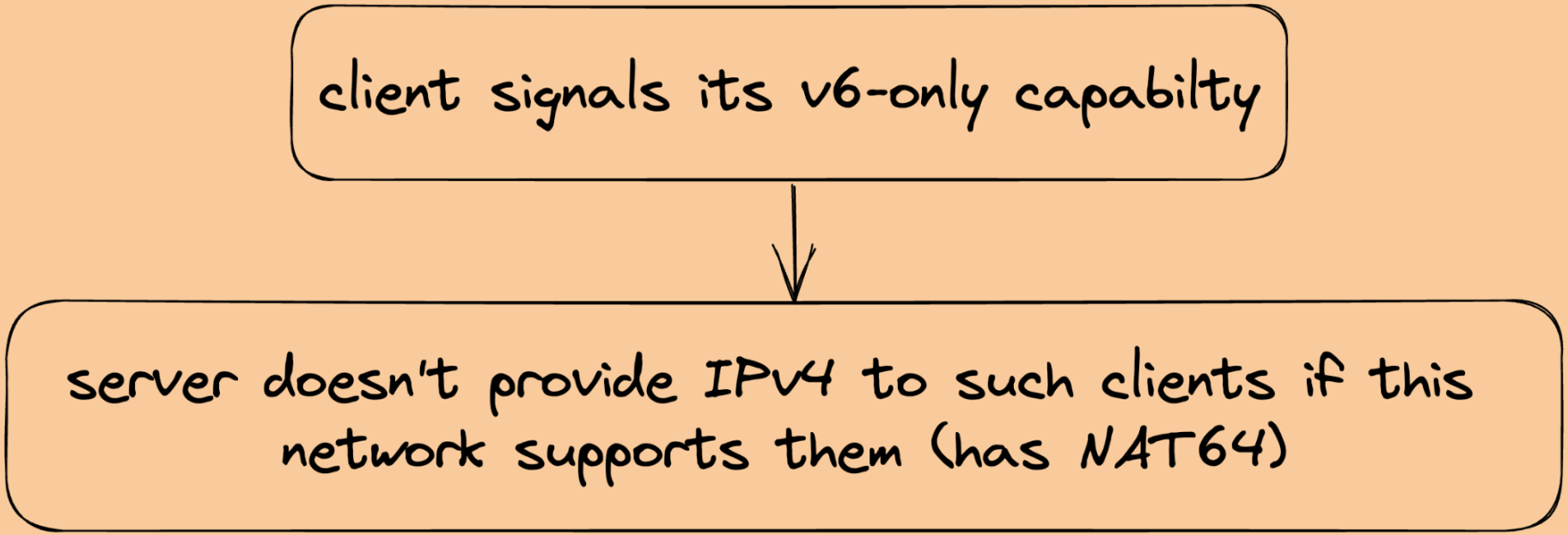
Incremental Migration: Dedicated Network?



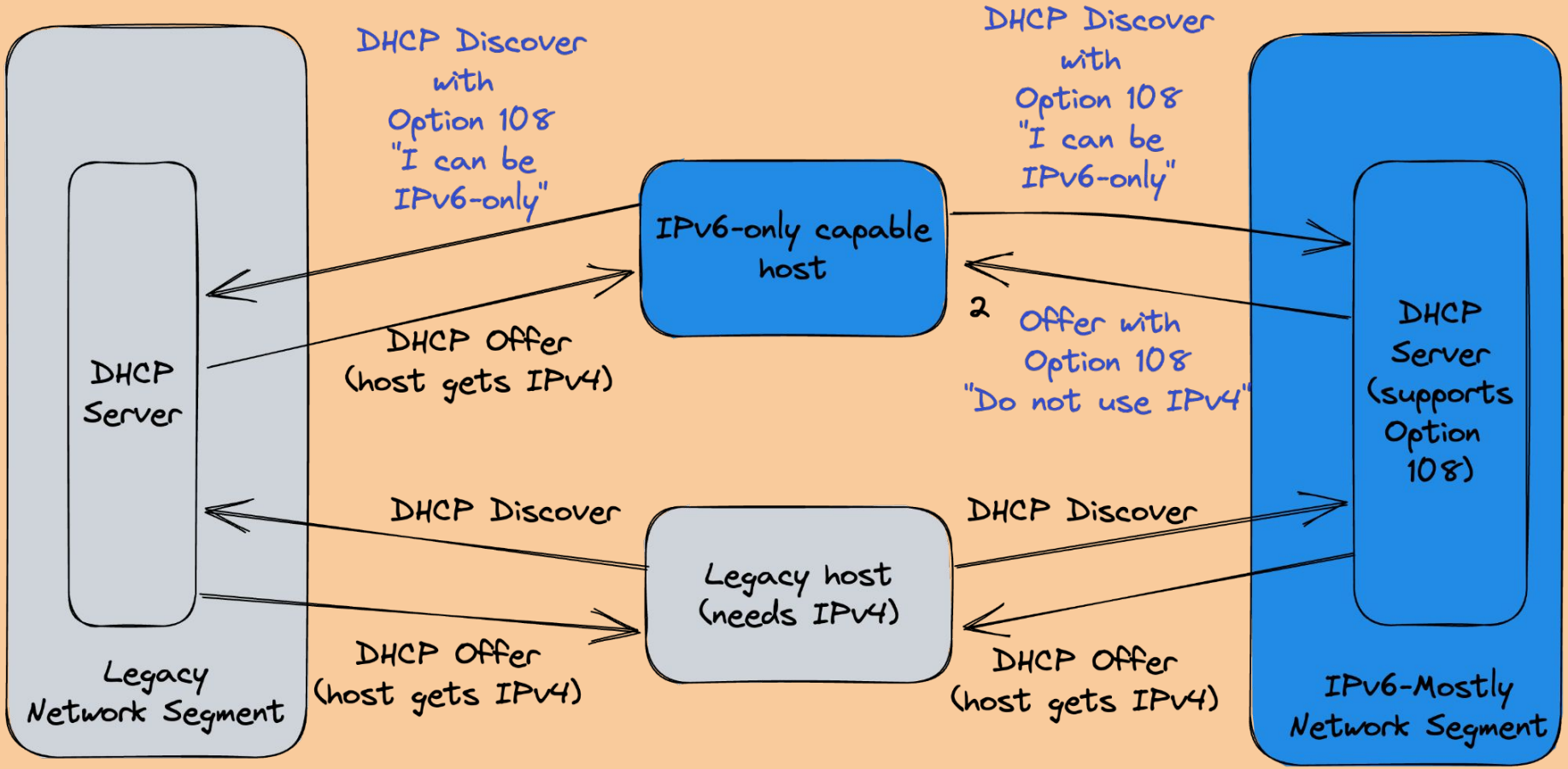
* Operational complexity
* Scalability concerns
* Limited issues observability
* Higher IPV4 consumption

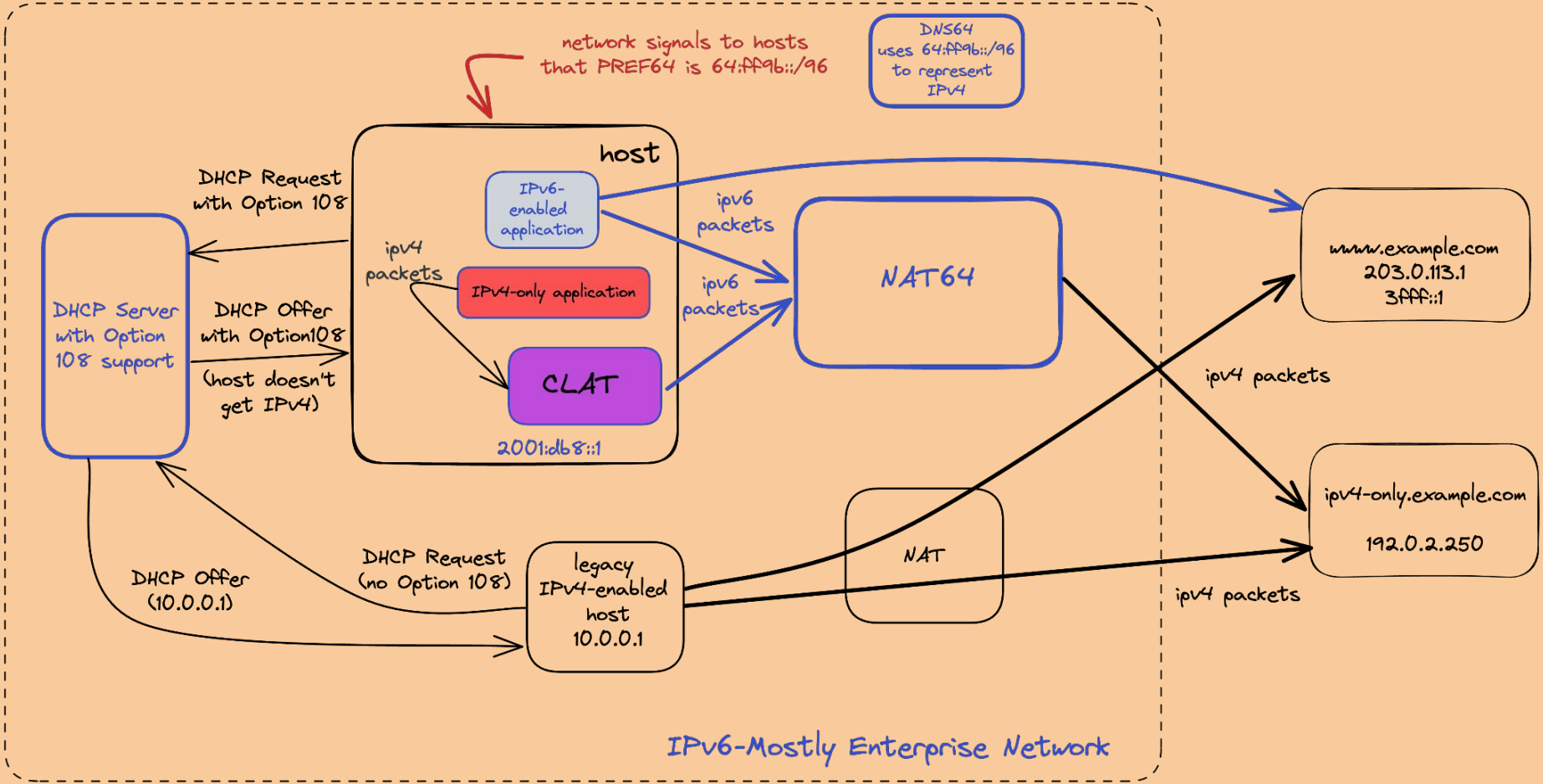
Incremental Migration: IPv6-Mostly

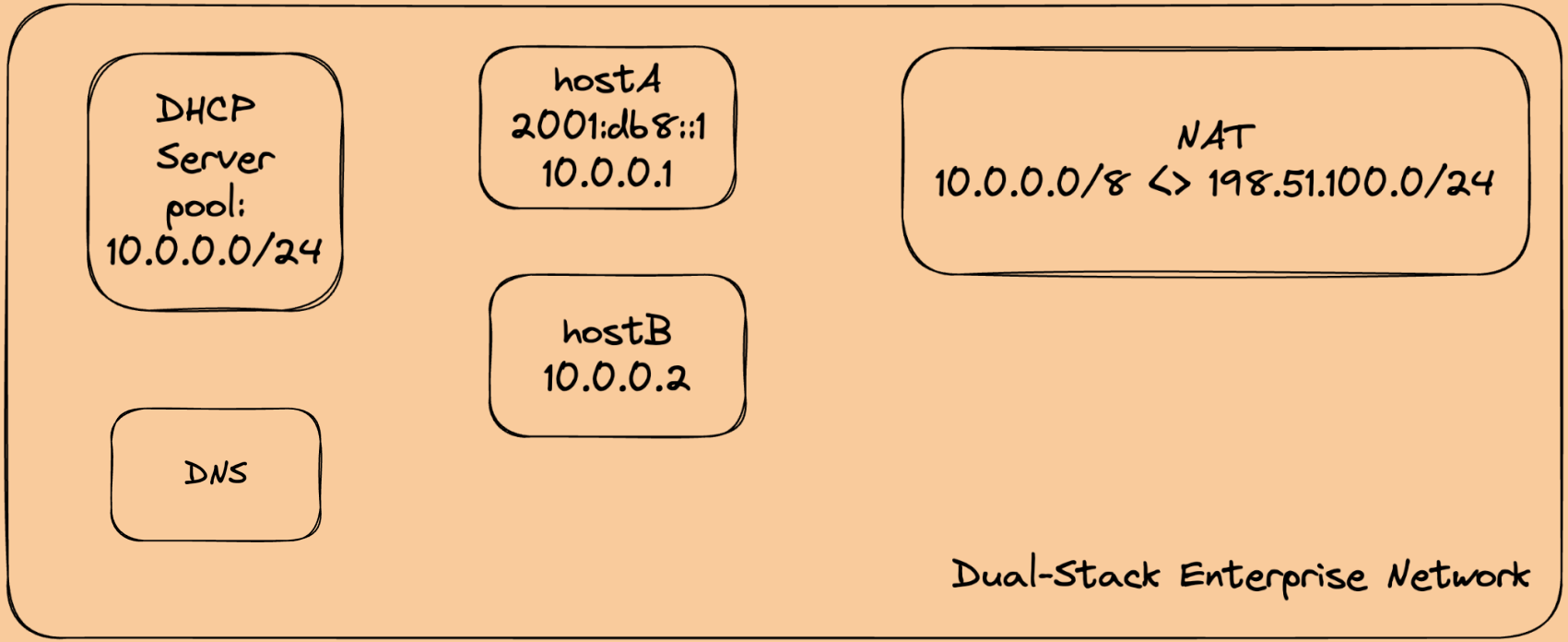
A network enabling co-existence of IPv6-only and IPv4-enabled devices

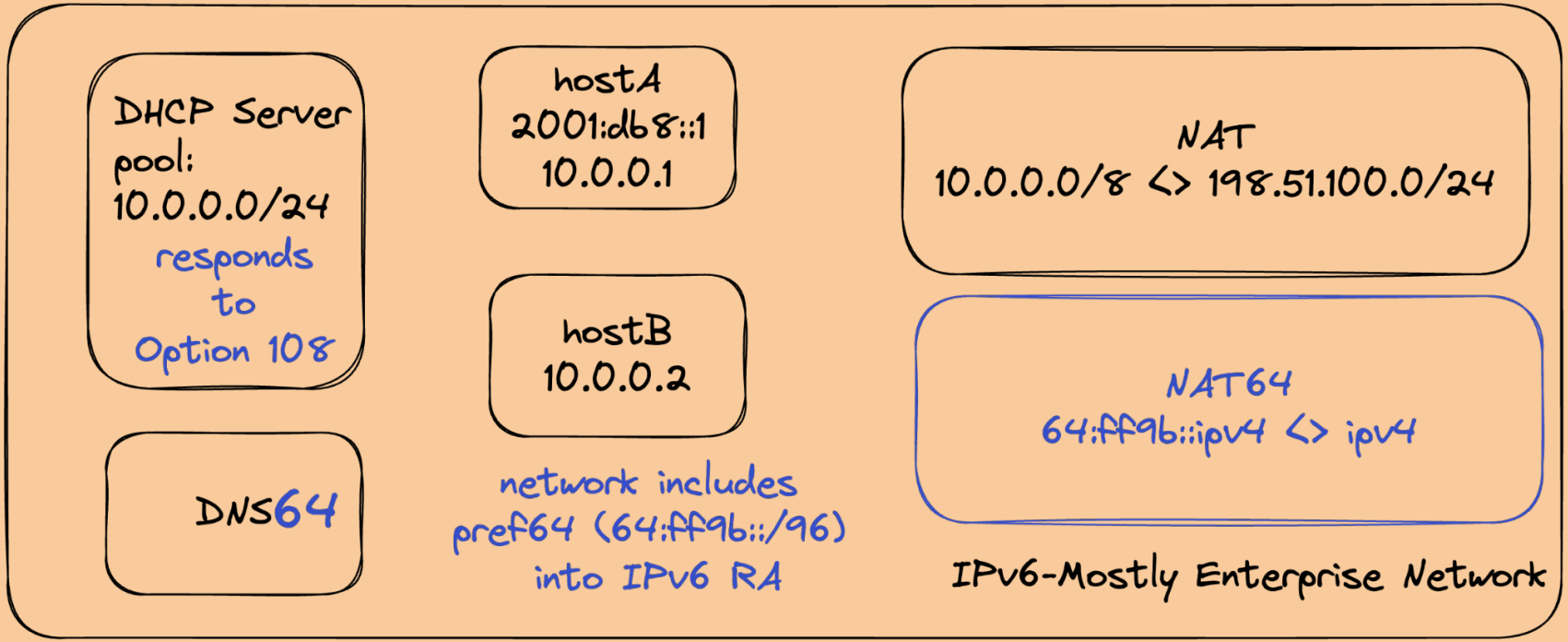


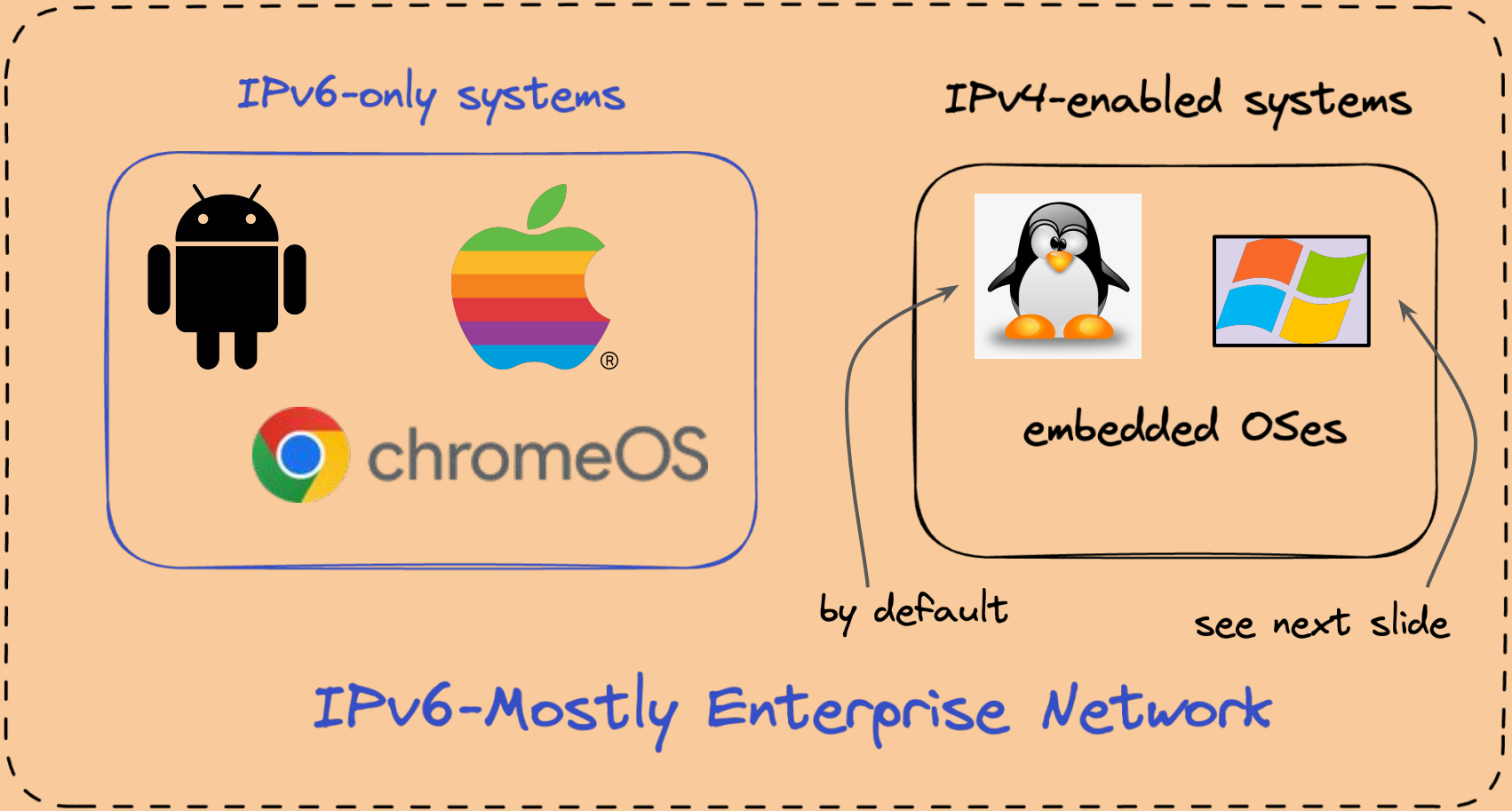
RFC8925: How to Use DHCPv4 to Turn IPv4 Off




network signals to hosts that PREF64 is 64:ff9b::/96
DNS64 uses 64:ff9b::/96 to represent IPv4
host
IPv6-enabled application
IPv4-only application
CLAT
2001:db8::1
DHCP Request with Option 108
DHCP Server with Option 108 support
DHCP Offer with Option108
(host doesn't get IPv4)
ipv4 packets
ipv6 packets
ipv6 packets
NAT64
www.example.com
203.0.113.1
3fff::1
ipv4 packets
ipv4-only.example.com
192.0.2.250
ipv4 packets
NAT
DHCP Request (no Option 108)
DHCP Offer (10.0.0.1)
legacy IPv4-enabled host
10.0.0.1
IPv6-Mostly Enterprise Network


DHCP
Server
pool:
10.0.0.0/24
hostA
2001:db8::1
10.0.0.1
NAT
10.0.0.0/8 <> 198.51.100.0/24
hostB
10.0.0.2
DNS
Dual-Stack Enterprise Network


DHCP Server
pool:
10.0.0.0/24
responds
to
Option 108
DNS64
hostA
2001:db8::1
10.0.0.1
hostB
10.0.0.2
network includes
pref64 (64:ff9b::/96)
into IPv6 RA
NAT
10.0.0.0/8 <> 198.51.100.0/24
NAT64
64:ff9b::ipv4 <> ipv4
IPv6-Mostly Enterprise Network


IPv6-only systems
IPv4-enabled systems
chromeOS
embedded OSes
by default
see next slide
IPv6-Mostly Enterprise Network

In November 2025, we announced the private preview of Windows CLAT, marking a major milestone in helping customers operate successfully on IPv6-only and IPv6-mostly networks.

Since then, we've worked closely with customers across government, enterprise, and the broader internet community to validate the feature, refine the experience, and ensure it's ready to scale.

If you're interested in the background on why Windows CLAT exists, how it works, and the standards it's built on, we encourage you to read the original announcement:

Windows CLAT Enters Private Preview: A Milestone for IPv6 Adoption

Public Preview Now Available

Today, we're thrilled to announce that **Windows CLAT is now available in public preview**.

The public preview is available starting with **Windows Insider Canary** **build #29599-1000,** and will continue to become available in other Windows Insider Channels over the coming weeks. This expands access beyond the private preview cohort and enables a broader set of customers to evaluate Windows CLAT in their environments and provide feedback as we continue toward general availability. For public preview, we also now support Group Policy Object (GPO) to configure Windows CLAT.

NetworkManager 1.58 Released With 464XLAT CLAT Support & GENEVE Interface

Written by Michael Larabel in Linux Networking on 20 July 2026 at 04:12 PM EDT. 3 Comments

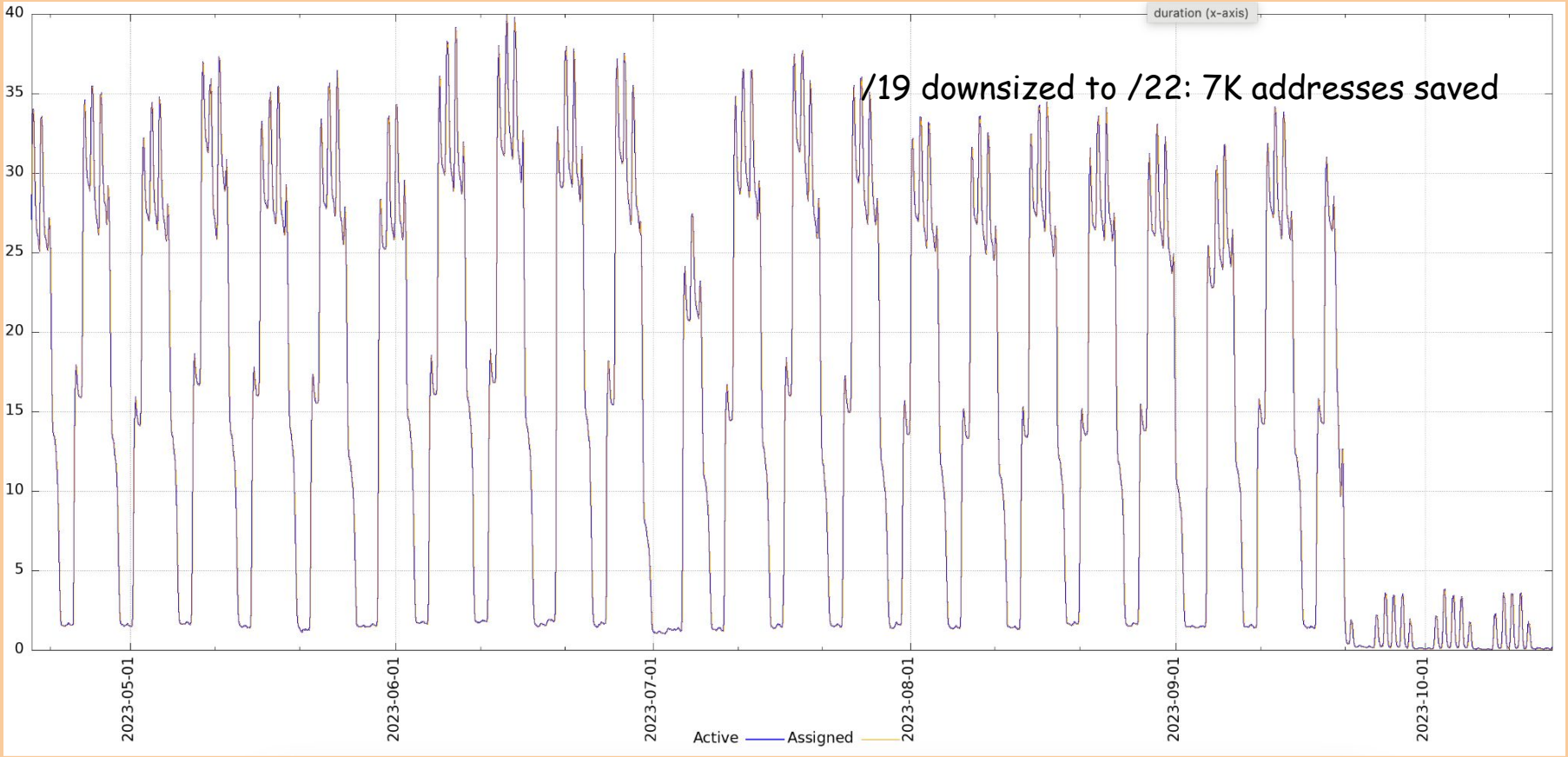


NetworkManager 1.58 is out today with the latest feature enhancements for bettering wired and wireless network management on Linux.

NetworkManager 1.58 adds support for 464XLAT Customer-side Translator (CLAT) to create a virtual IPv4 interface for intercepting outbound IPv4 traffic from legacy applications and translate the headers into IPv6. 464XLAT is for helping IPv6 transition to allow devices on IPv6-only networks to still access legacy IPv4 services and applications.

fe80::/10 r/ipv6 • 1y ago
UnderEu

NetworkManager v1.52 finally adds support for RFC 8925 - “IPv6-only preferred” DHCPv4 option


duration (x-axis)
/19 downsized to /22: 7K addresses saved
40
35
30
25
20
15
10
5
0
2023-05-01
2023-06-01
2023-07-01
2023-08-01
2023-09-01
2023-10-01
Active
Assigned

You Are Not Operating IPv6 Until You Turn IPv4 Off

Setting Expectations: Network

* All hidden issues resurface
* IPv6 specifics become evident
    * Fragmentation
    * Extension headers (IPSec)
    * Security policies (ICMP vs ICMPv6)
    * Multiple addresses per host

* Choose pilot locations wisely
* Identify key teams and find allies
* Start with low-hanging fruit
    * guest networks
    * mobile devices/laptops

Setting Expectations: Humans

* People get confused
* People expect IPv4
* People will be re-enabling IPv4
* People will be turning IPv6 off



This Is Not the End...

Questions?

