



IPv4 Depletion / IPv6 Adoption

Richard Jimmerson





ARIN
American Registry for Internet Numbers

LACNIC

AfrinIC
The Internet Numbers Registry for Africa

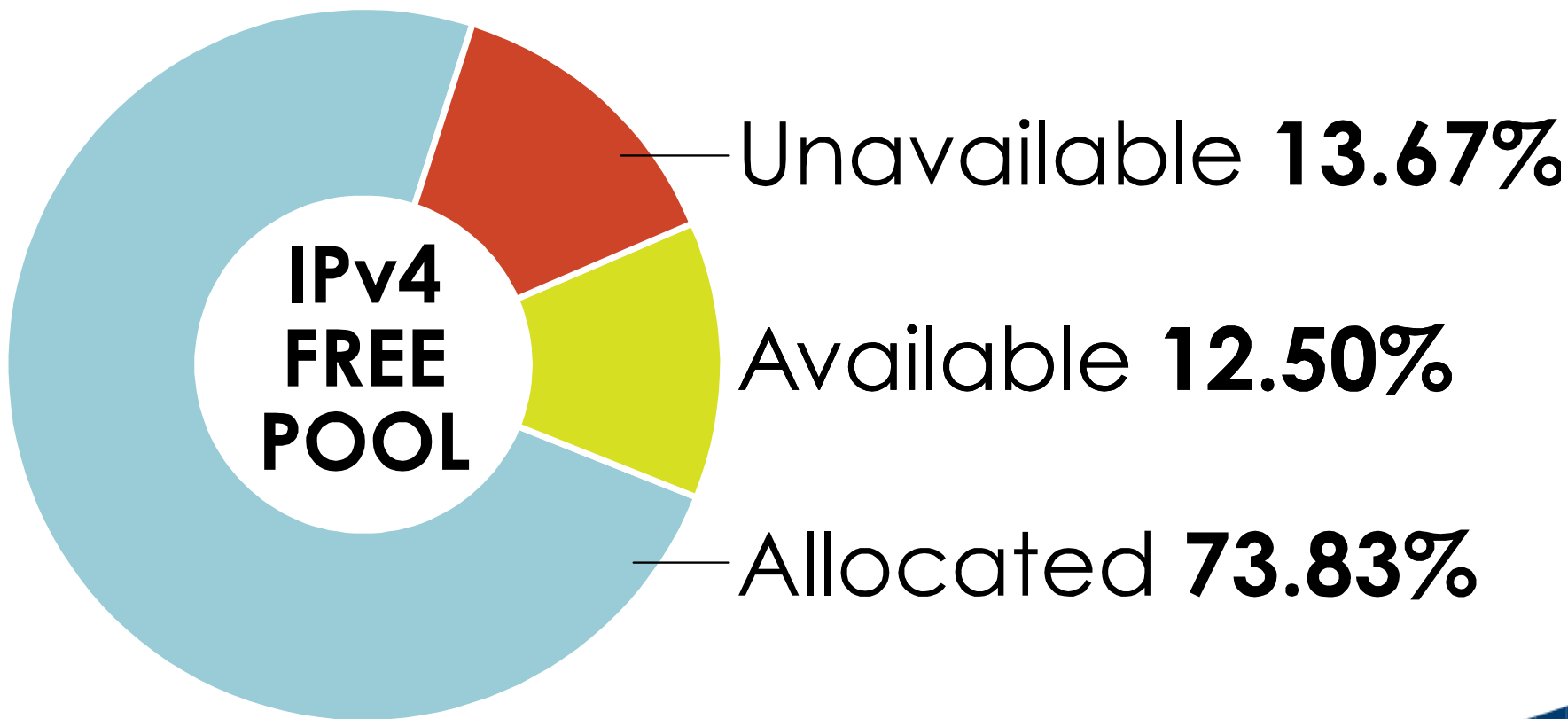
RIPE
NCC

APNIC

About IPv4 and IPv6

	Internet Protocol version 4 (IPv4)	Internet Protocol version 6 (IPv6)
Deployed	1981	1999
Address Size	32-bit number	128-bit number
Address Format	Dotted Decimal Notation: 192.149.252.76	Hexadecimal Notation: 3FFE:F200:0234:AB00: 0123:4567:8901:ABCD
Prefix Notation	192.149.0.0/24	3FFE:F200:0234::/48
Number of Addresses	$2^{32} = 4,294,967,296$	$2^{128} = 340,282,366,920,938,463,463,374,607,431,768,211,456$

Available IPv4 /8s from IANA*



* as of March 2009

What We Know

- RIRs are consistently allocating over 12 /8s each year worldwide
- There are 28 /8s remaining at the IANA as of August 2009
- Demand for IPv4 from the RIRs is not decreasing

What Will Happen (in no particular order)

- IPv4 demand continues to increase
- IPv4 free pool depletes
- IPv4 NAT use increases
- IPv6 deployment

The Bottom Line

- We're running out of IPv4 address space
- IPv6 must be adopted for continued Internet growth
- IPv6 is not backwards compatible with IPv4
- We must maintain IPv4 and IPv6 simultaneously for many years



RIRs have been allocating
IPv6 address space since 1999

Thousands of organizations have
obtained an IPv6 allocation to date

ARIN has IPv6 distribution policies for both
service providers and end-user organizations

Situation

Today, the Internet is predominantly based on IPv4

The Internet must run two IP versions at the same time (IPv4 & IPv6) - this is the “dual-stack” approach

Situation

Today, there are organizations attempting to reach your mail and web servers via IPv6.

In the near future there will be many more deployments using IPv6.

Situation

What requires contiguous number resources?

- Building out major new networks
- ISPs adding new customers

What does this mean for:

- Enterprise Customers?
- Internet Service Providers?
- Equipment Vendors?
- Content and Hosting Firms?

Call to Action

Enterprise Customers

Mail and web servers need to be reachable via IPv6 in addition to IPv4 in the future

Open a dialogue with your Internet Service Provider about future IPv6 services

Each organization's decision regarding timeline & investment level will vary

Call to Action

Internet Service Providers

Begin planning to connect customers via both IPv4 and IPv6 now

Communicate with your peers and vendors about IPv6

IPv6 considerations when making purchases

Call to Action *Equipment Vendors*

Probably limited demand for IPv6 in the past

Demand for IPv6 support will become mandatory very, very quickly

Introduce IPv6 support into your product cycle as soon as possible

Call to Action *Content Providers*

Content clients must be reachable to newer Internet customers

Begin planning to connect hosting customers via both IPv4 and IPv6 now

Encourage customers to use IPv6 and test their applications over it as soon as possible

Government Actions

Awareness

Coordinate with industry

Adopt incentives

- Regulatory
- Economic

Support and promote activities

Officially adopt IPv6

IPv6 Adoption Needs

IPv6 address space

IPv6 connectivity (native or tunneled)

Operating systems, software, and network management tool upgrades

Router, firewall, and other hardware upgrades

IT staff and customer service training

Learn More and Get Involved

ARIN

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ISOC

<http://www.isoc.org>

LACNIC

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ICANN

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Thank You

