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American Registry for Internet Numbers

Why IPv6 Matters

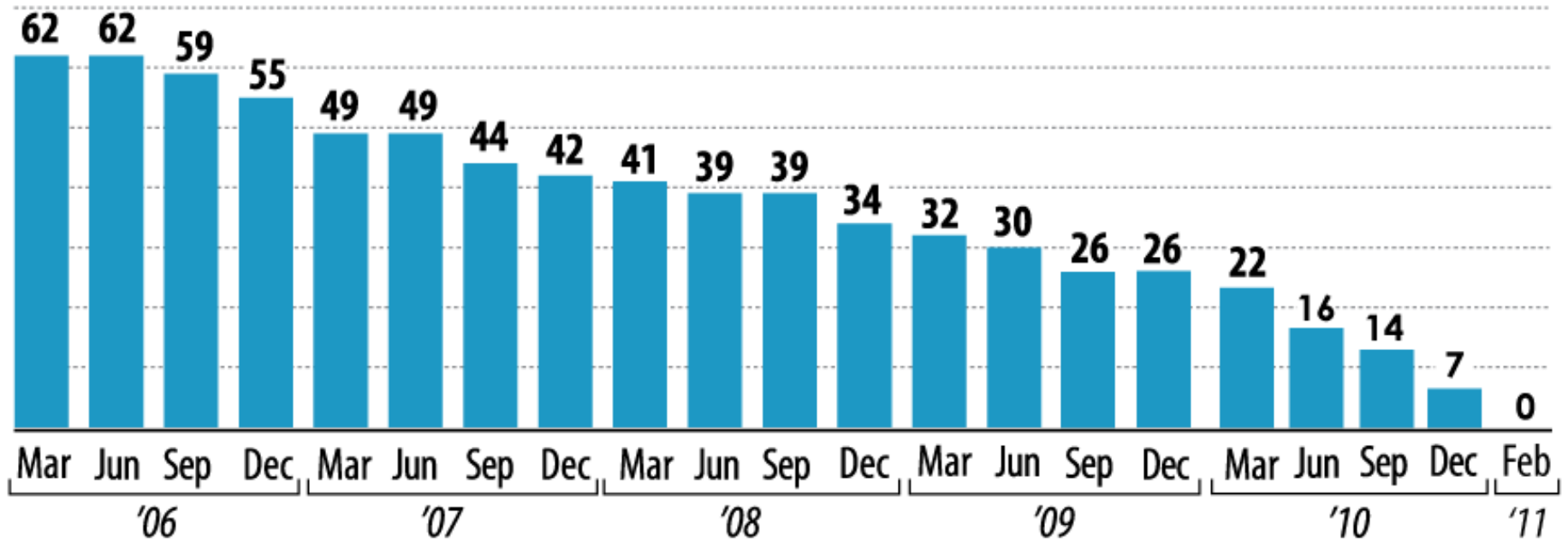**Network World's The Critical Path to IPv6**
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President and CEO, ARIN

Quick History of the Internet Protocol

- Internet Protocol version 4 (IPv4, or just "IP")
  - First developed for the original Internet (ARPANET) in spring 1978
  - Deployed globally with growth of the Internet
  - Total of 4 billion IP addresses available
  - Well entrenched and used by every ISP and hosting company to connect customers to the Internet
  - Allocated based on documented need

- Internet Protocol version 6 (IPv6)
  - Design started in 1993 when IETF forecasts showed IPv4 depletion between 2010 and 2017
  - Completed, tested, and available for production since 1999
  - Total of 340,282,366,920,938,463,463,374,607,431,768,211,456 IP addresses available
  - Used and managed similar to IPv4

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IANA available IPv4 Space in /8s

Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Feb
62	62	59	55	49	49	44	42	41	39	39	34	32	30	26	26	22	16	14	7	0
'06				'07				'08				'09				'10				'11

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IPv4 Depletion Situation Report

- Each RIR received its last /8 from IANA on 3 February 2011.

- The IANA free pool of IPv4 addresses has reached 0%.

- While each RIR currently has IPv4 addresses to allocate, it is impossible to predict when each RIR will run out.

- ARIN publishes a daily inventory of available IPv4 addresses, at **www.arin.net**

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IPv4 & IPv6 - 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.

- IPv6 deployment has begun.

IPv6 Deployment has begun

RIRs have been allocating
IPv6 address space since 1999.

Thousands of organizations have
received an IPv6 allocation to date.

ARIN has IPv6 distribution policies for
service providers, community networks,
and end-user organizations.

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Action Plans

What does this mean for:

- Broadband Access Providers?
- Internet Service Providers?
- Internet Content Providers?
- Enterprise Customers?
- Equipment Vendors?
- Government Organizations?

Call to Action

Your customers want access to the <u>entire</u> Internet, and this means IPv4 and IPv6 websites. Offering full access requires running IPv4/IPv6 transition services and is a significant engineering project.

Multiple transition technologies are available, and each provider needs to make its own architectural decisions.

Call to Action

Plan out how to connect businesses via IPv6-only and IPv4/IPv6 in addition to IPv4-only.

Businesses are beginning to ask for IPv6 over their existing Internet connections and for their co-located servers.

Communicate with your peers and vendors about IPv6, and confirm their timelines for production IPv6 services.

Call to Action

Content must be reachable to newer Internet customers.

Content served only via IPv4 will be accessed by IPv6 customers via transition solutions run by access providers.

Plan on serving content via IPv6 in addition to IPv4 as soon as possible.

Call to Action

Mail, web, and application servers must be reachable via IPv6 in addition to IPv4.

Open a dialogue with your Internet Service Provider about providing IPv6 services.

Each organization must decide on timelines, and investment level will vary.

Call to Action

There was 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

Coordinate with industry to support and promote awareness and educational activities.

Adopt regulatory and economic incentives to encourage IPv6 adoption.

Require IPv6 compatibility in procurement procedures.

Officially adopt IPv6 within your government agencies.

Learn More and Get Involved

Learn more about IPv6

www.arin.net

www.getipv6.info

www.TeamARIN.net

Get Involved in ARIN

Public Policy Mailing List

Attend a Meeting

http://www.arin.net/participate/

Thank You