Putting
IPv6
to work

North American IPv6 Summit

Grand Hyatt, Denver, Colorado
September 23-25, 2014

Rocky Mountain IPv6 Task Force

RMv6TF

15 Years of IPv6

North American IPv6 Summit
25 September 2014

Richard Jimmerson, CIO, ARIN

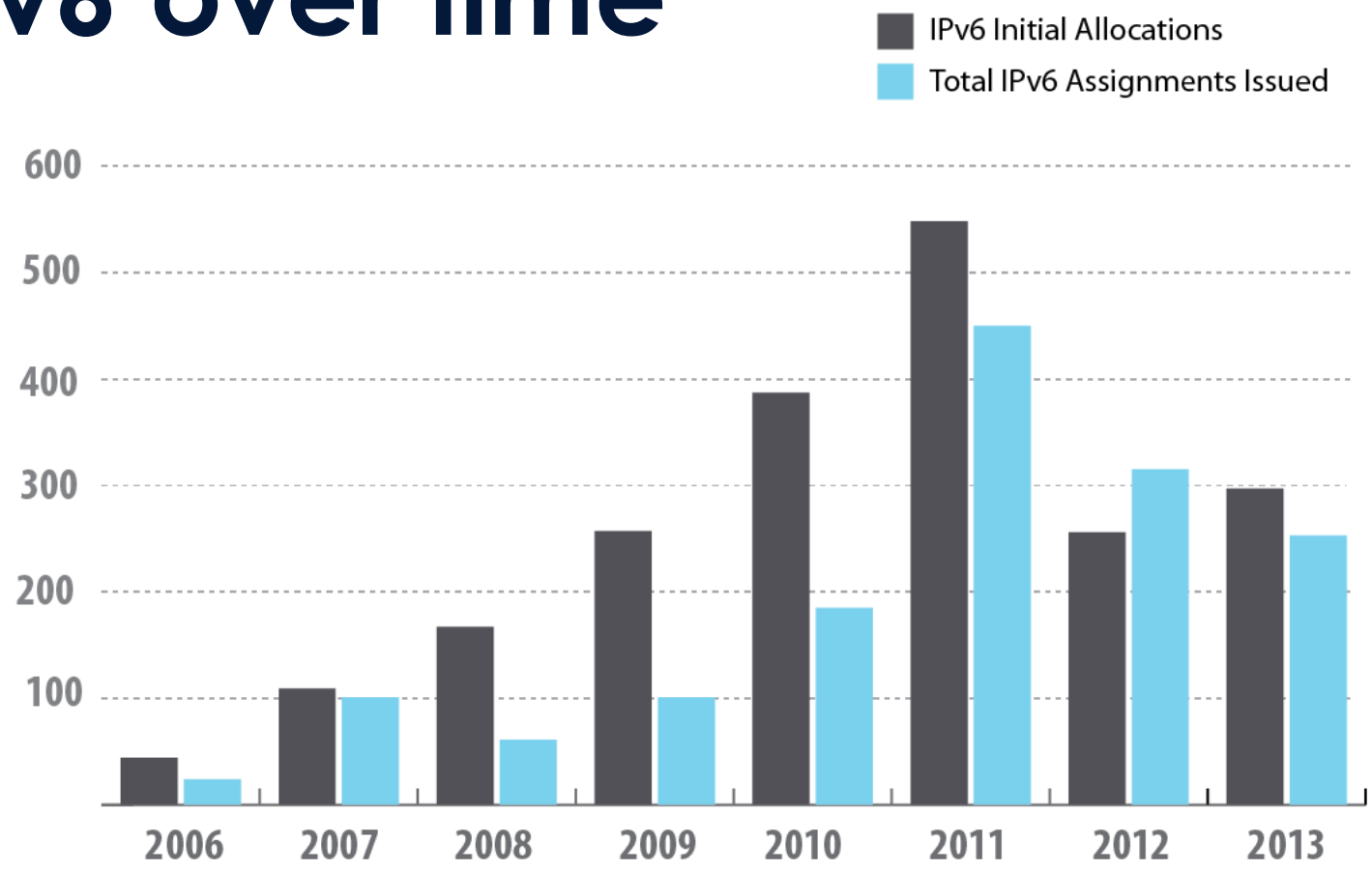
IPv6 Deployment

- RIRs allocating since 1999
- Thousands of organizations have received an IPv6 allocation to date
- ARIN has distribution policies for
  - Service Providers
  - Community Networks
  - End-User Organizations

Prepare for IPv6

- **The good news**
  - Lots more addresses
  - IPv6 adoption = easier & more efficient network management
  - Designed with security in mind
- **The bad news**
  - We've all got some work to do

IPv6 over time



ARIN IPv6 Allocations and Assignments

History of the Internet Protocol

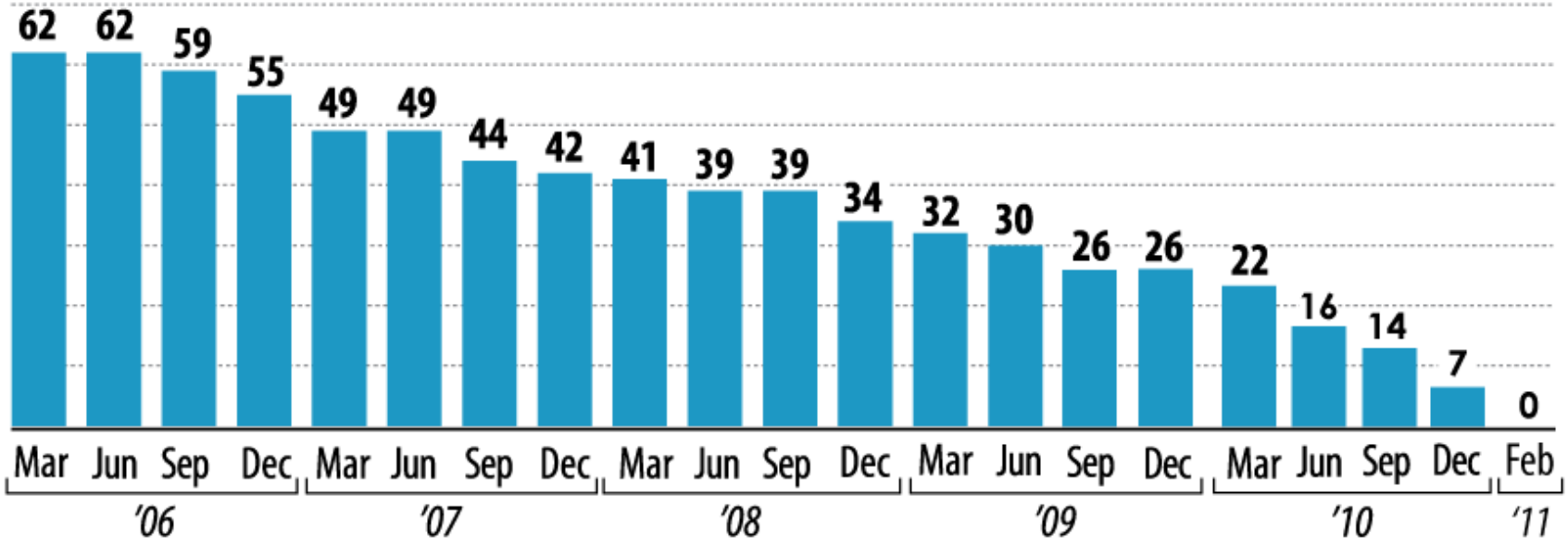
- **Internet Protocol version 4 (IPv4)**
  - Developed for the original Internet (ARPANET) in 1978
  - 4 billion addresses
  - Deployed globally & well entrenched
  - Allocated based on documented need
- **Internet Protocol version 6 (IPv6)**
  - Design began in 1993 when IETF forecasts showed IPv4 depletion between 2010 and 2017
  - 340 undecillion addresses
  - Completed, tested, and available since 1999
  - Used and managed similar to IPv4

IPv4 Depletion Situation Report

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

The IANA free pool of IPv4 addresses reached 0%

Global IPv4 Depletion



IANA IPv4 Space in /8s

ARIN IPv4 Depletion

ARIN reached a last /8 on 23 April 2014

Triggering Final Phase of IPv4 Countdown Plan

ARIN's IPv4 Inventory

ARIN still has a few IPv4 addresses remaining

IPv4 inventory published on ARIN's website: www.arin.net

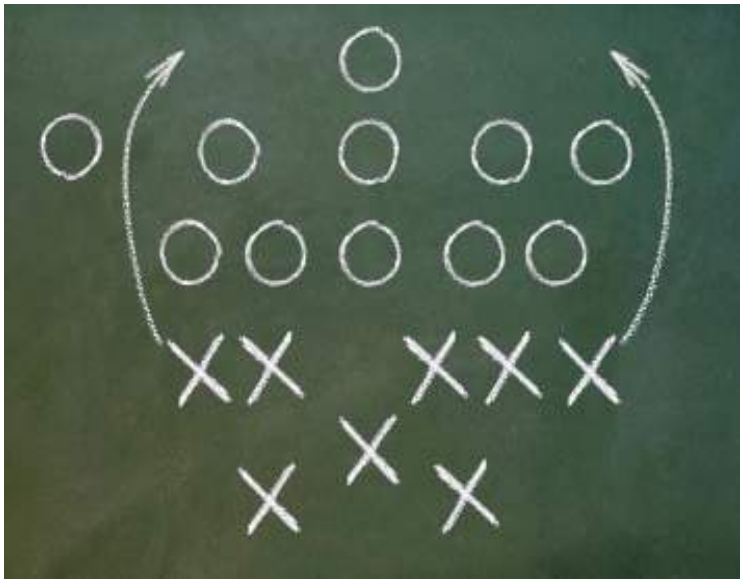
Updated daily @ 12AM ET

Get IPv6 from ARIN now

Most organizations with IPv4 can IPv6 without increasing their annual ARIN fees

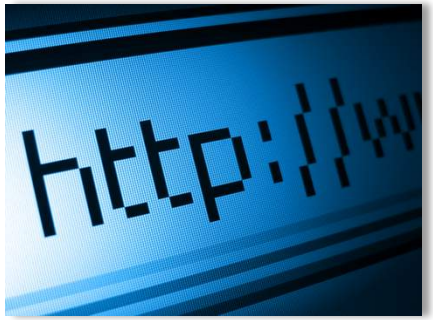
Everyone needs an IPv6 Plan

- Each organization must decide on a unique IPv6 deployment plan right for them
  - Timeline will vary
  - Investment level will vary



How can you get started?

- **Dual-Stack your networks**
  - IPv6 not backwards compatible with IPv4
  - Both will run simultaneously for years
- **Servers must be reachable via both IPv4 and IPv6**
  - Mail
  - Web
  - Applications



- **Do you operate a website?**
  - Ensure content will be available to all customers
  - Even new Internet users with an IPv6-only address

How can you prepare?

- **Talk to your ISP about IPv6 services**
  - You want access to the entire Internet
- **ISPs must connect customers via IPv4-only, IPv4/IPv6, & Via IPv6-only**
- **Must plan for IPv4/IPv6 transition services**
  - Many transition technologies available
    - Research options
    - Make architectural decisions

What else can you do?

- **Audit your equipment and software**
  - Are your devices and applications IPv6 ready?
- **Encourage vendors to support IPv6**
  - If not already, when will IPv6 support be part of their product cycle?
- **Get training for your staff**
  - Free resources available

What Can Governments Do?

- **Government and the Internet community need to coordinate to support and promote**
  - IPv6 awareness
  - IPv6 education

- **Governments should consider:**
  - Regulatory and economic incentives to encourage IPv6 adoption
  - Required IPv6 compatibility in procurement procedures
  - Official IPv6 deployment within agencies

Your IPv6 Check List

- ☑ 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

www.GetIPv6.info

ARIN
American Registry for Internet Numbers

IPv6 Info Center
www.arin.net/knowledge/ipv6_info_center.html

www.TeamARIN.net

Operational Guidance

www.InternetSociety.org/Deploy360/

www.NANOG.org/archives/

bcop.NANOG.org

www.hpc.mil/cms2/index.php/ipv6-knowledge-base-general-info

Thank you

Richard Jimmerson

richardj@arin.net