



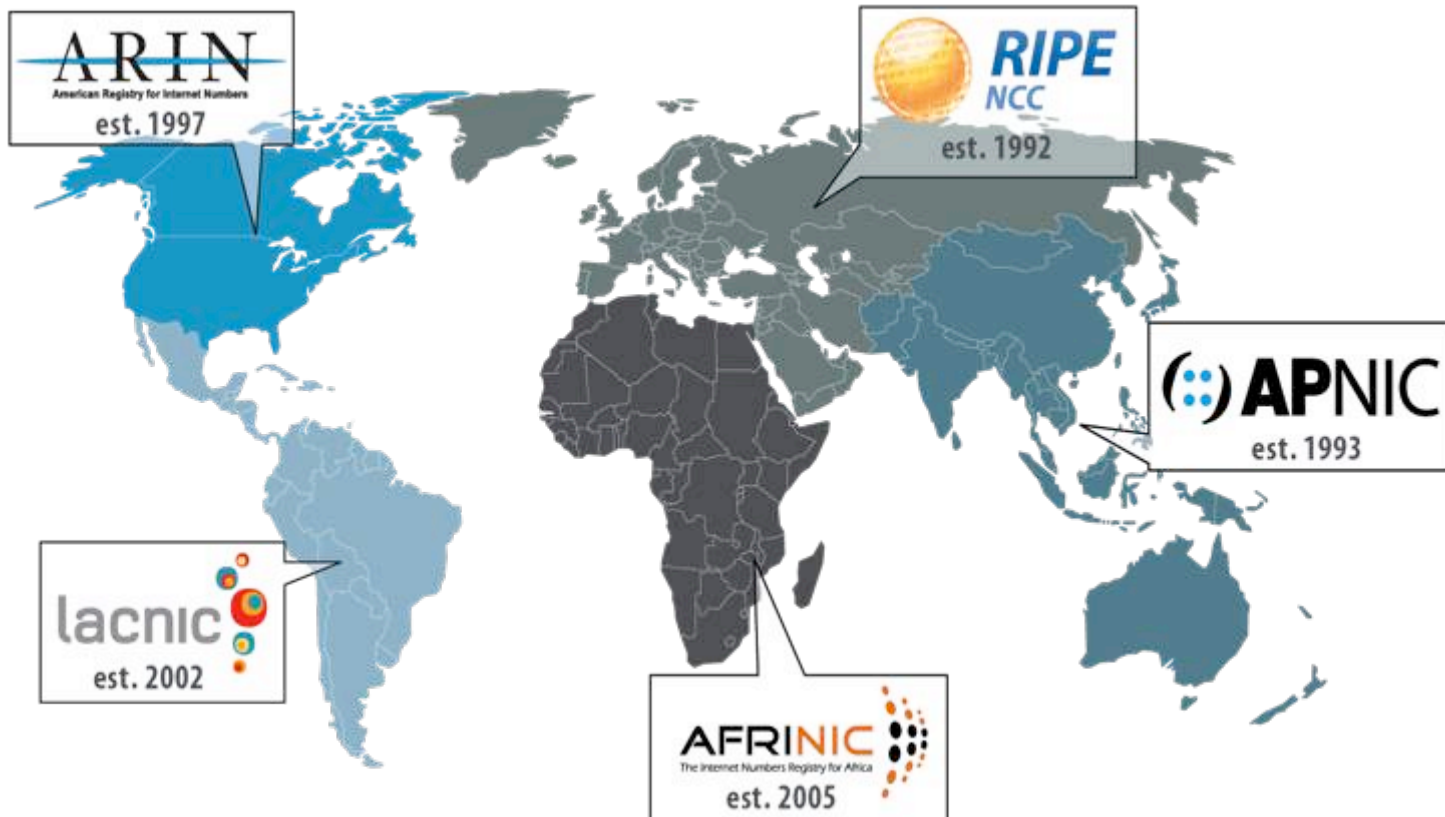
# Moving to IPv6

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ARIN President and CEO

Dominios Latinoamerica  
November 2015

# Regional Internet Registries (RIRs)

- The RIR system was created in 1992



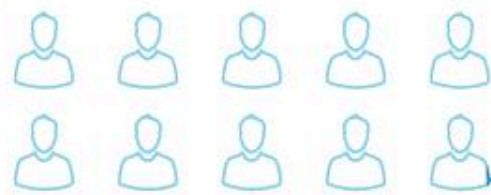
# RIR Core Functions

- RIRs operate the Internet Number Registry System
  - Not-for-profit organizations that provide unique Internet number resources through technical coordination and management within a defined geographical region
- Responsible for the management of:
  - IP addresses (IPv4 and IPv6) assignments & allocations
  - Autonomous System Numbers (ASNs)
  - Transfers
  - Reverse DNS
  - Record Maintenance and Directory services
    - Whois
    - Routing Information (Internet Routing Registry)
    - WhoWas

# Growth of the Internet



THEN 1995

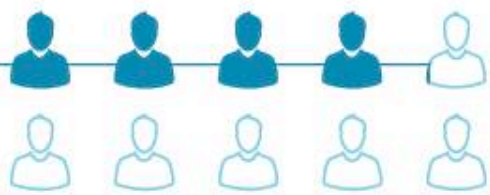


**0.4%**  
of the world

WORLDWIDE GROWTH  
OF THE INTERNET



NOW 2014



**41%**  
of the world

# 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

# Why Move to IPv6 Now?

- IPv4 depletion has occurred
  - Cost of IPv4 will only increase
- Lots more addresses and more!
  - IPv6 performs better than IPv4
  - IPv6 is simpler operationally; not difficult to deploy
- More efficient network management - allows for end-to-end networking to occur again
- Designed with security in mind
- IPv6 is your platform for innovation

# Global IPv4 Runout – Feb 2011

Each RIR received its last /8 IPv4 address block from IANA on **3 February 2011**



# ARIN IPv4 Runout – Sept 2015



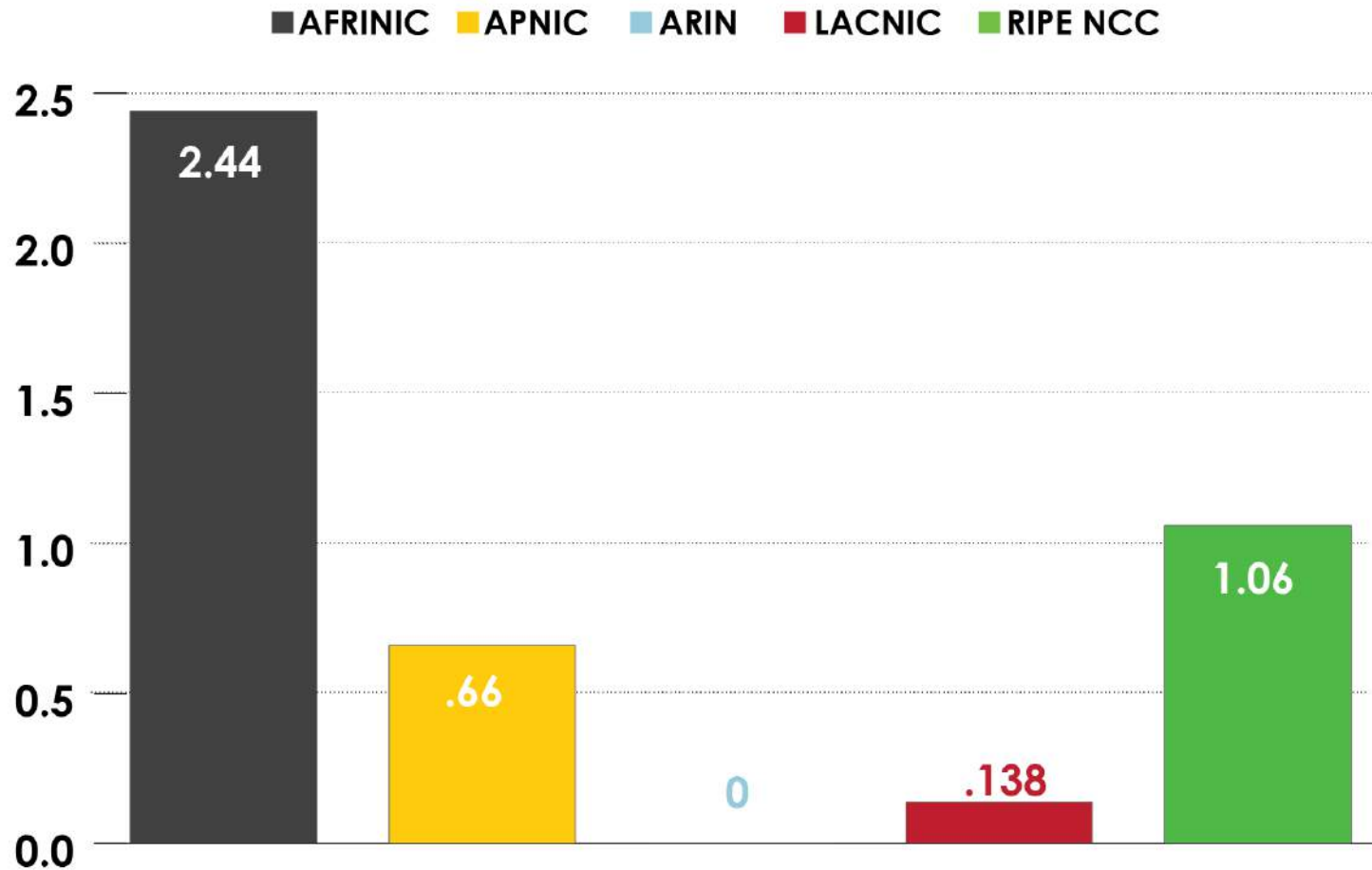
**ARIN'S IPv4 ADDRESS  
POOL IS EMPTY**

TeamARIN.net

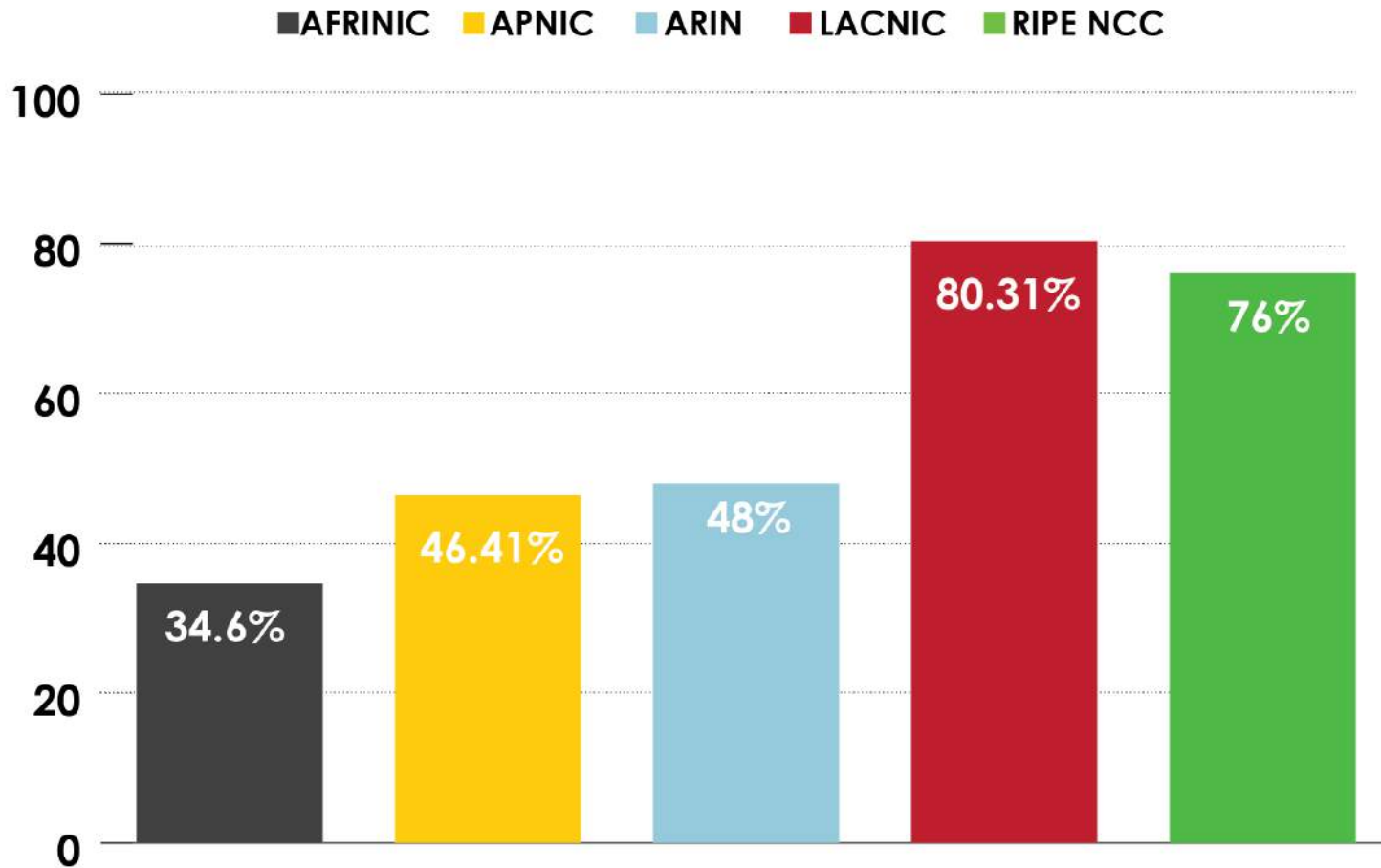
It's time to Get6



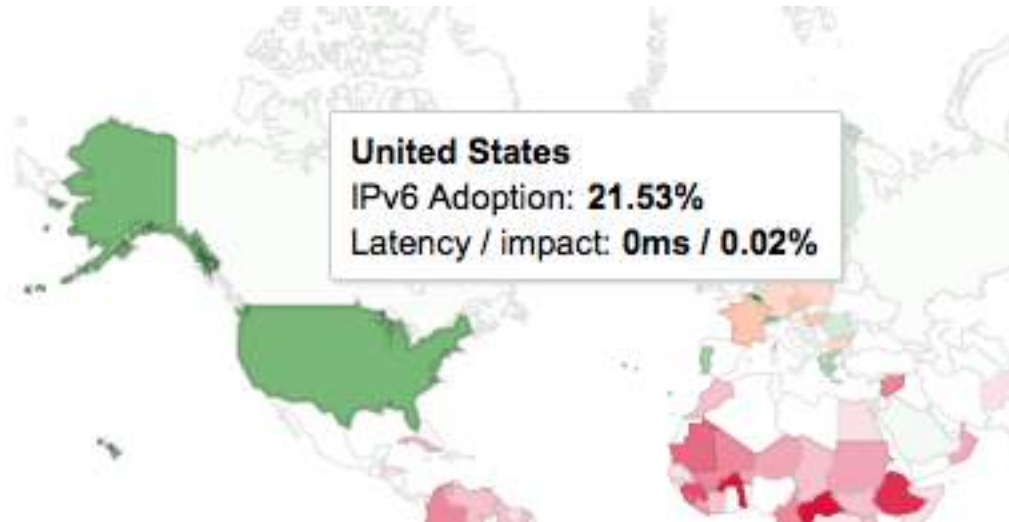
# Global IPv4 Depletion Status



# PERCENTAGE OF MEMBERS WITH BOTH IPv4 AND IPv6 IN EACH RIR



# IPv6 Deployment



> 20% of US customers connected via IPv6 up from 10% one year ago today & growing rapidly

# Better Performance Over IPv6



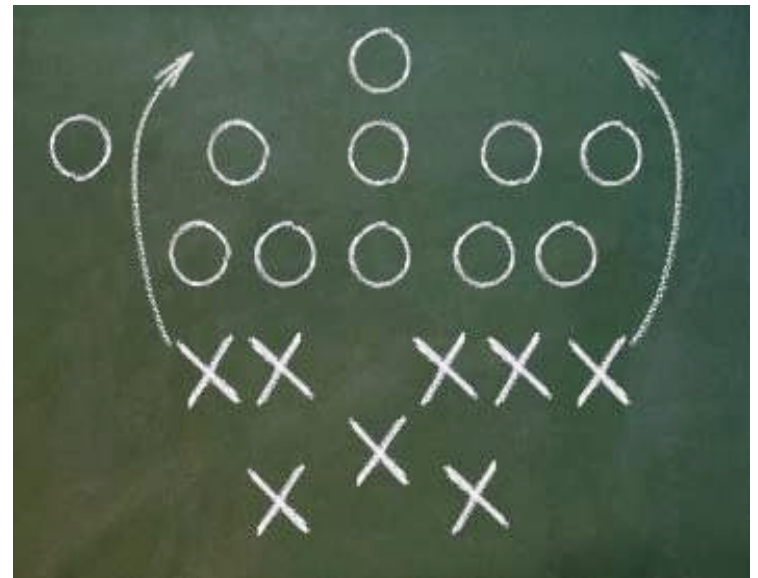
- Facebook says it has seen users' news feeds loading 20% to 40% faster on mobile devices using IPv6

# What Should You be Doing Right Now?



# 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



# Your IPv6 Checklist



- Get your IPv6 address space
- Set up IPv6 connectivity (native or tunneled)
- Configure your operating systems, software, and network management tools
- Upgrade your router, firewall, and other hardware
- Get your IT staff training
- Enable IPv6 on your website

# Get IPv6 from Your ISP or RIR





# Talk to Your ISP About IPv6 Services



- You want access to the entire Internet!
  - ISPs must connect customers via IPv4 only, IPv4-IPv6, and IPv6 only
  - They must plan for IPv4-IPv6 transition services
    - Many transition technologies available
    - Research options and make architectural decisions

# Dual-stack Your Network

- IPv6 not backwards compatible with IPv4
- Both will run simultaneously for years



# Make Your Servers Reachable Over IPv6

- Mail, Web, Applications
- Operating systems, software, and network management tools



# 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 IPv6 Training for Staff

–Free resources available



# Enable IPv6 on Your Website

WEBSITES THAT ARE FULLY

**IPv6**  
ENABLED

**MUST:**



**PUBLISH  
AAAA RECORDS**



**BE REACHABLE OVER AN  
IPV6 CONNECTION**



**SERVE DNS  
OVER IPV6**

# Steps To Get Your Website IPv6-Enabled



[TeamARIN.net/get6](https://TeamARIN.net/get6)



# Operational Resources



# Questions?

