



# Post IPv4 Depletion Trends

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# Current Trends

- The need for IPv4 is still great
  - Seeing increased activity in transfers/transfer market, waiting list, pre-approvals and STLS
- Increase in hijackings/attempted hijackings (mostly legacy space)
  - ~25 hijackings reported or discovered since ARIN depleted its free pool in Sept 2015 (includes both successful and attempted)
  - In contrast, ~50 verifiable hijackings between 2005 and 2015
- Finding fraud “rings” that started their activity just prior to IPv4 depletion
  - Set up shell companies in order to hoard IPv4 address space for spamming and/or selling

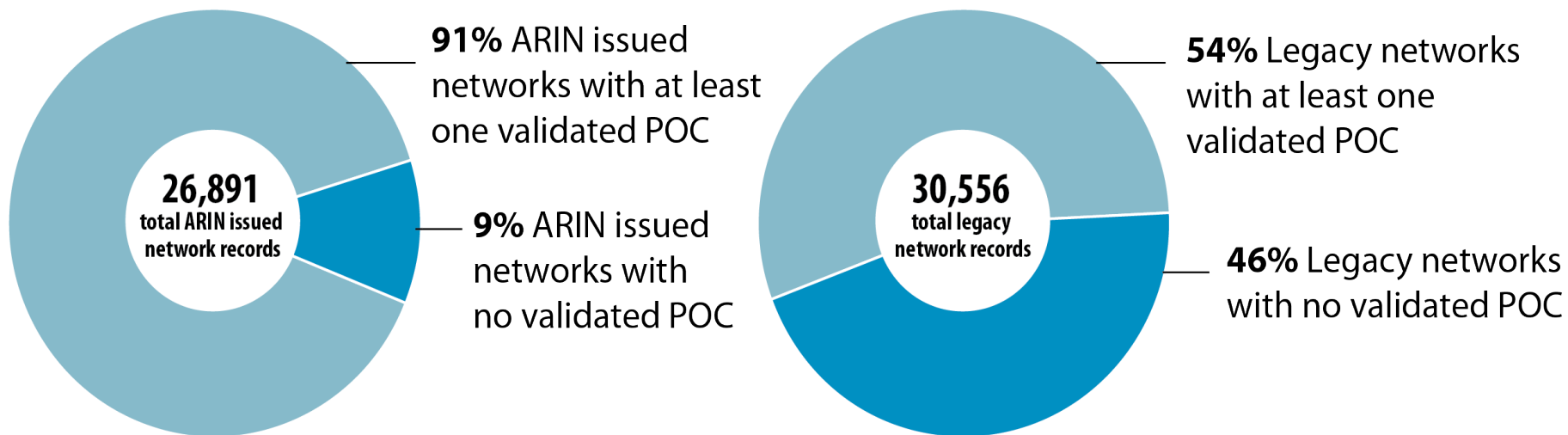
# Evolving Behavior

- See more attempted hijackings at ARIN
  - Hijacking - unauthorized changes made to database records to gain control of IP resources
    - Find dormant registration records in Whois (typically legacy)
    - Check routing
    - Re-register expired domain names
    - Re-register defunct business names
    - Go through a series of registration record modifications pretending to be the original registrant
    - Ultimate goal is likely to sell the IP addresses and transfer them
- Reports of more route hijackings (unauthorized use of IP addresses)
  - Hijackers bringing forged LOAs to ISPs to get them to route the space

# Hijacking Targets

## ARIN Issued vs Legacy

Legacy IPv4 nets are less likely to have at least one validated POC



**\*\*Validated POC – has either responded to ARIN’s annual POC validation email or updated their POC record within the past 12 months**

**\*\*There are a total of 345,837 /24s contained in the legacy networks with no validated POC**

# What Can You Do To Protect Your Whois Data?

- Keep your Whois information updated and accurate
- Respond to ARIN's annual POC validation request\*
  - Either confirm registration information is correct or submit updated contact information to ARIN

\*<https://www.arin.net/policy/nrpm.html#three6>

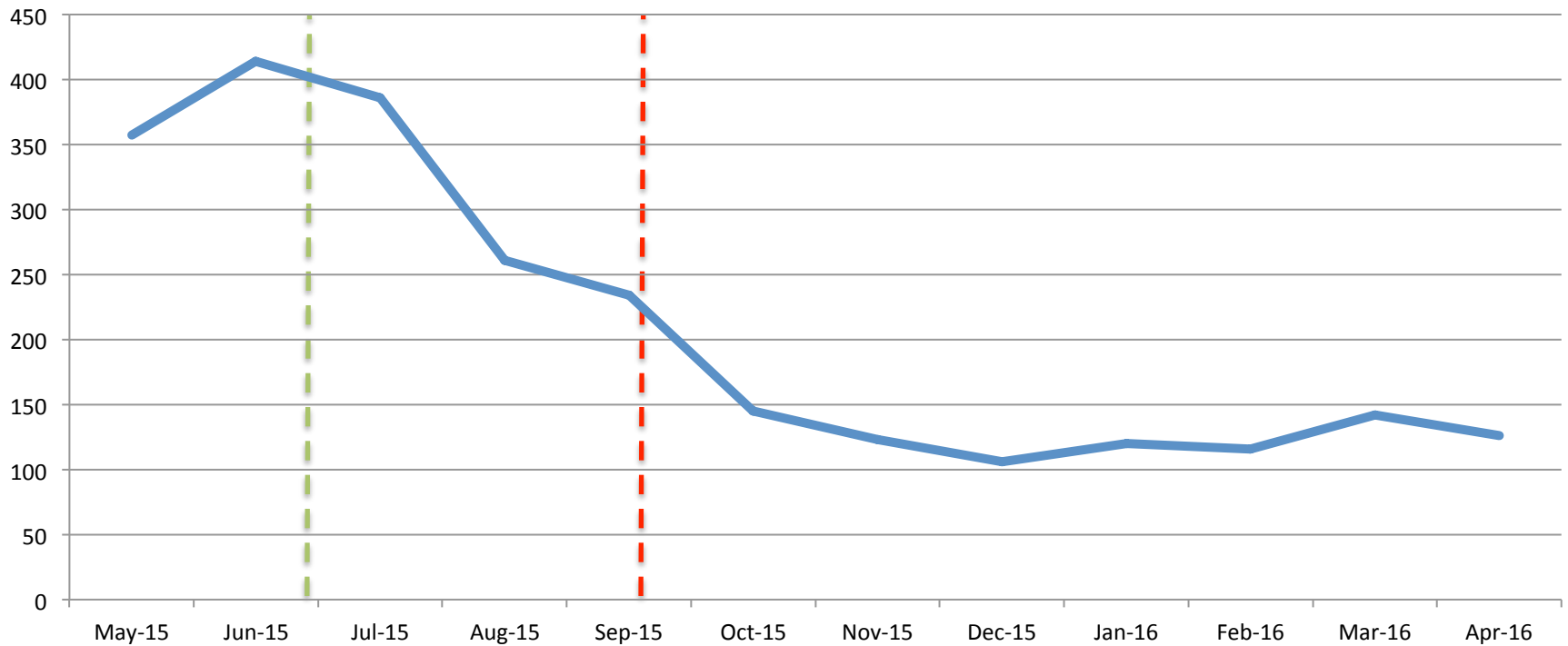
# Request Activity

- IPv4 Requests
  - **Decreasing:** IPv4 free pool tickets
  - **Increasing:** Pre-approvals and Specified Recipient transfers (NRPM 8.3)
- Change of Authority Requests
  - **Increasing**
    - Merger & Acquisition transfers (NRPM 8.2)
    - Specified Recipient transfers (NRPM 8.3)
    - ORG Recovery Requests
- IPv6 Requests
  - **Steady** ticket traffic

# IPv4 Requests – Past Year

Waiting list initiated

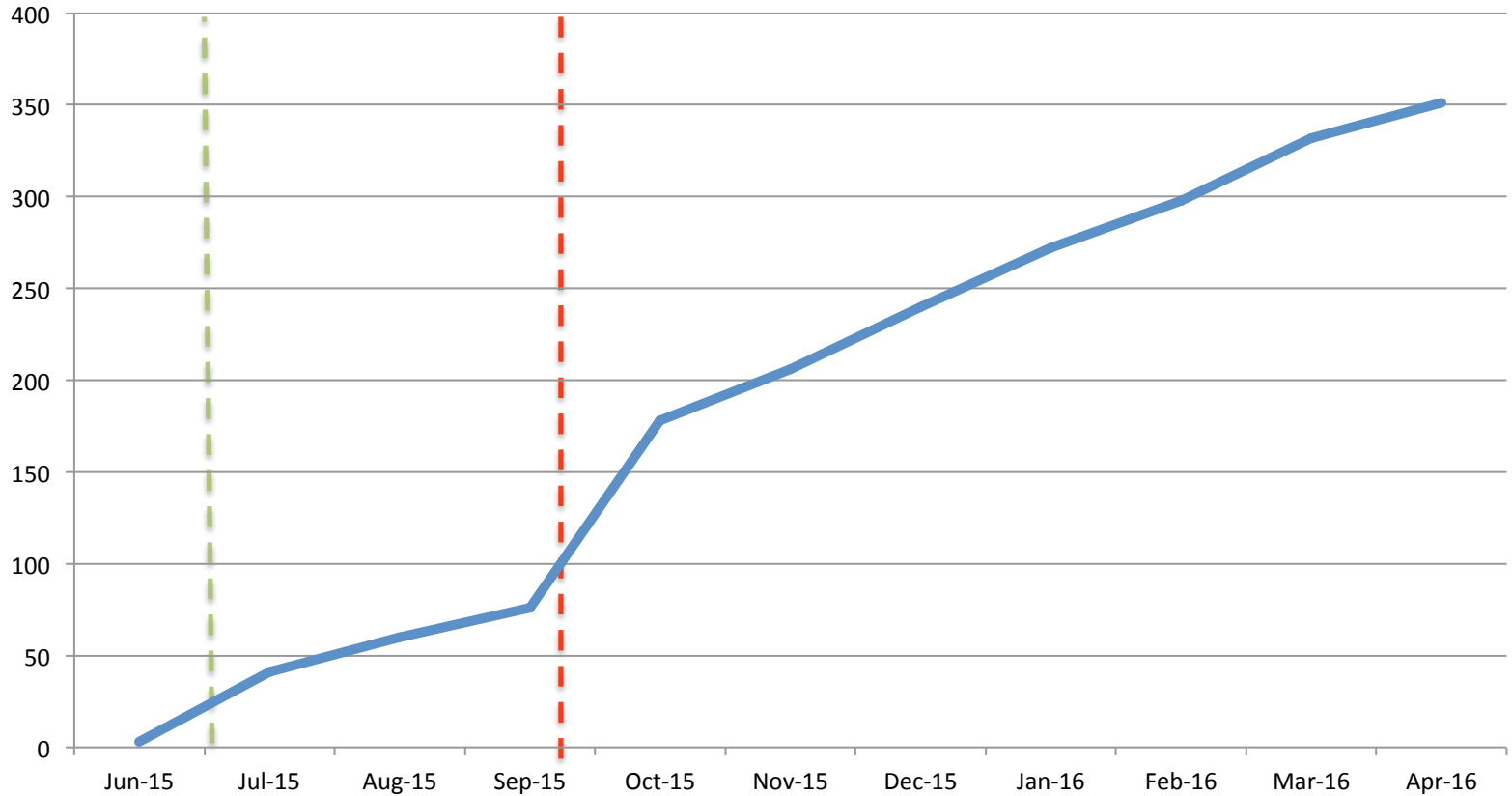
IPv4 depletion



# IPv4 Waiting List Growth

Waiting list initiated

IPv4 depletion





# Transfers of IPv4 Addresses

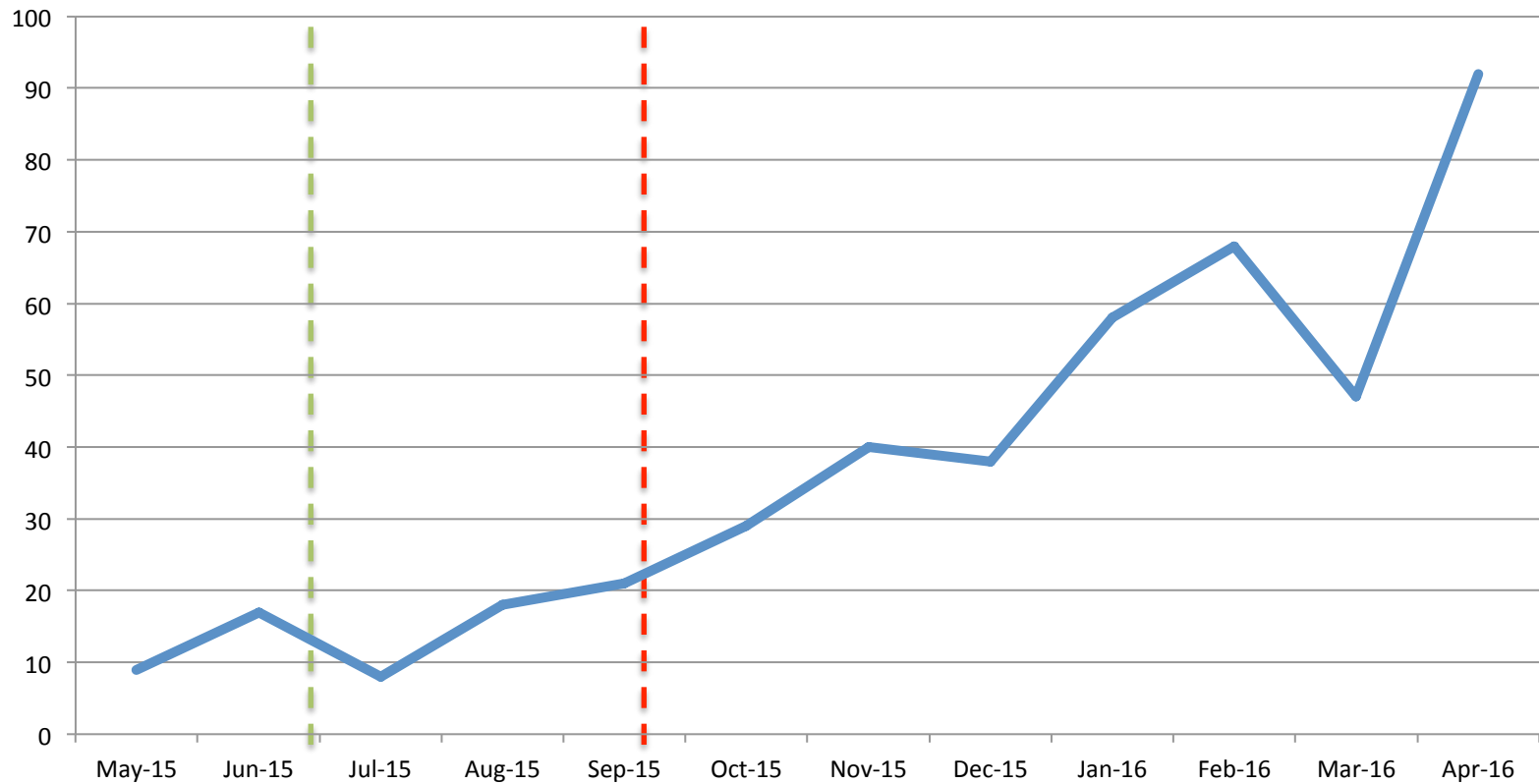
## 3 ARIN Transfer Policies Available:

- Mergers and Acquisitions (NRPM 8.2)
  - Traditional transfer based on change in business structure, including company reorganizations, supported by legal documentation
- Transfers to Specified Recipients (NRPM 8.3)
  - IPv4 market transfer based on financial transaction, supported by justified need (within region)
- Inter-RIR transfers to Specified Recipients (NRPM 8.4)
  - IPv4 market transfer based on financial transaction, supported by justified need (outside region)

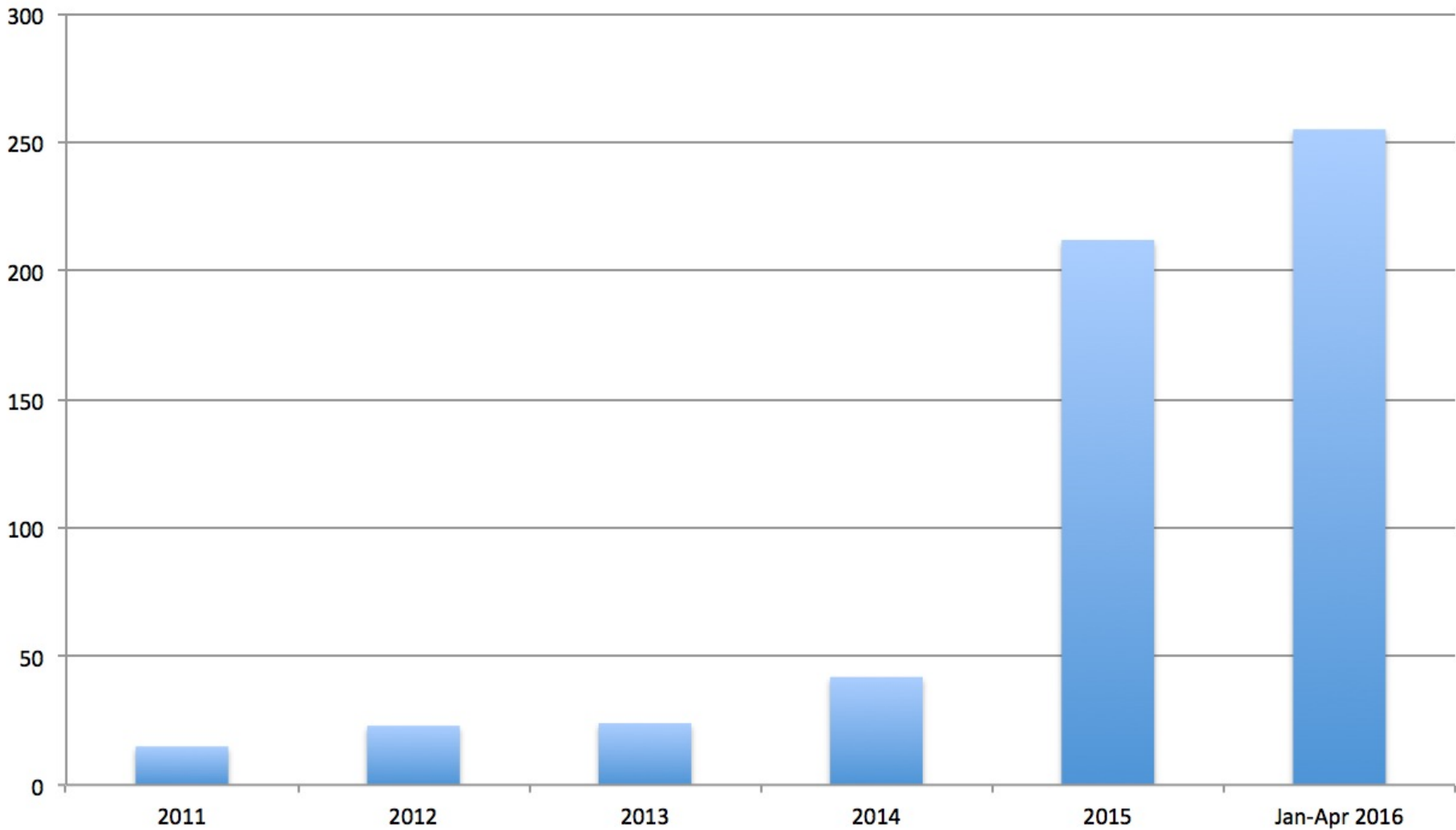
# Completed Specified Recipient Transfers (NRPM 8.3)

Waiting list initiated

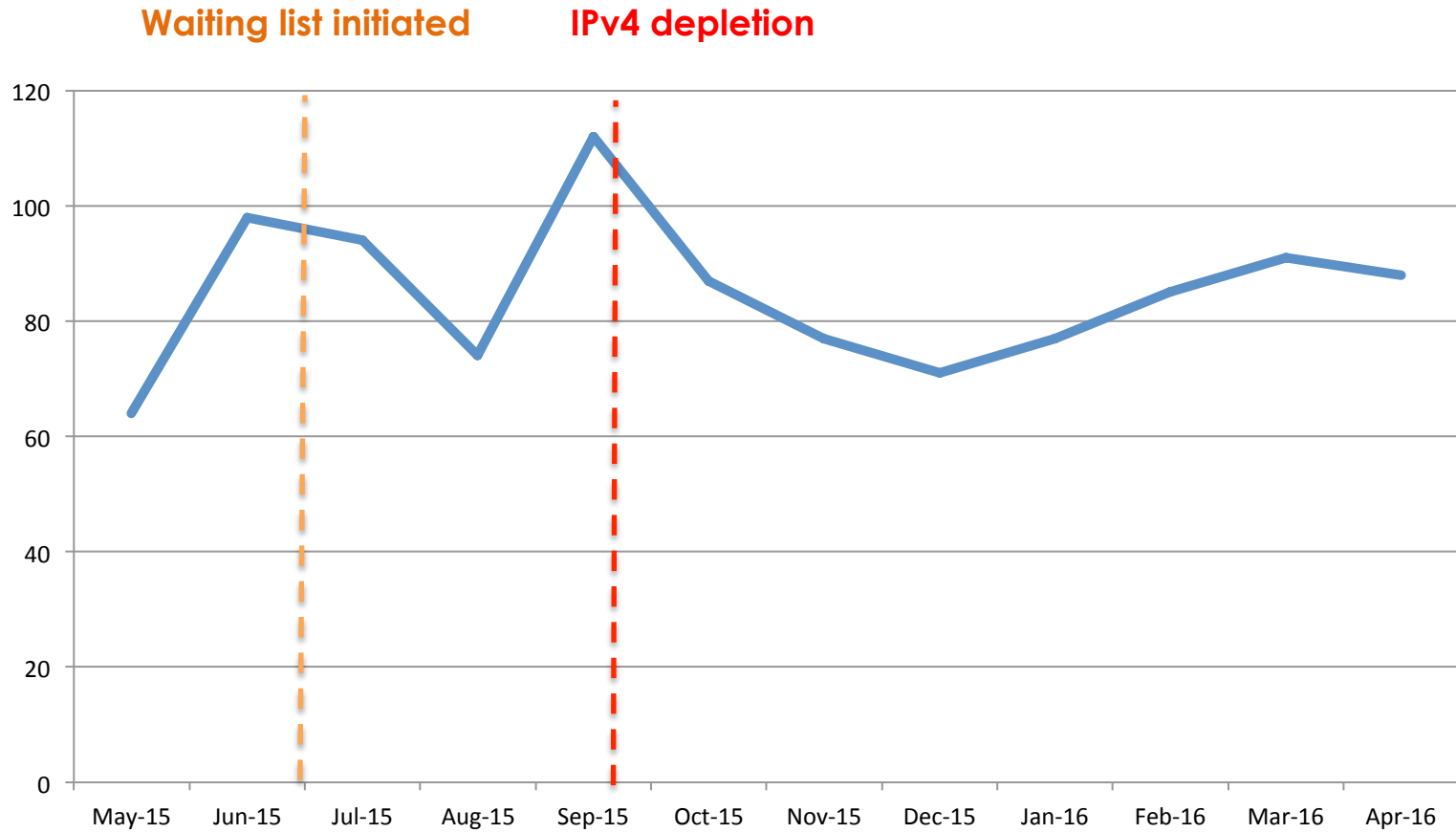
IPv4 depletion



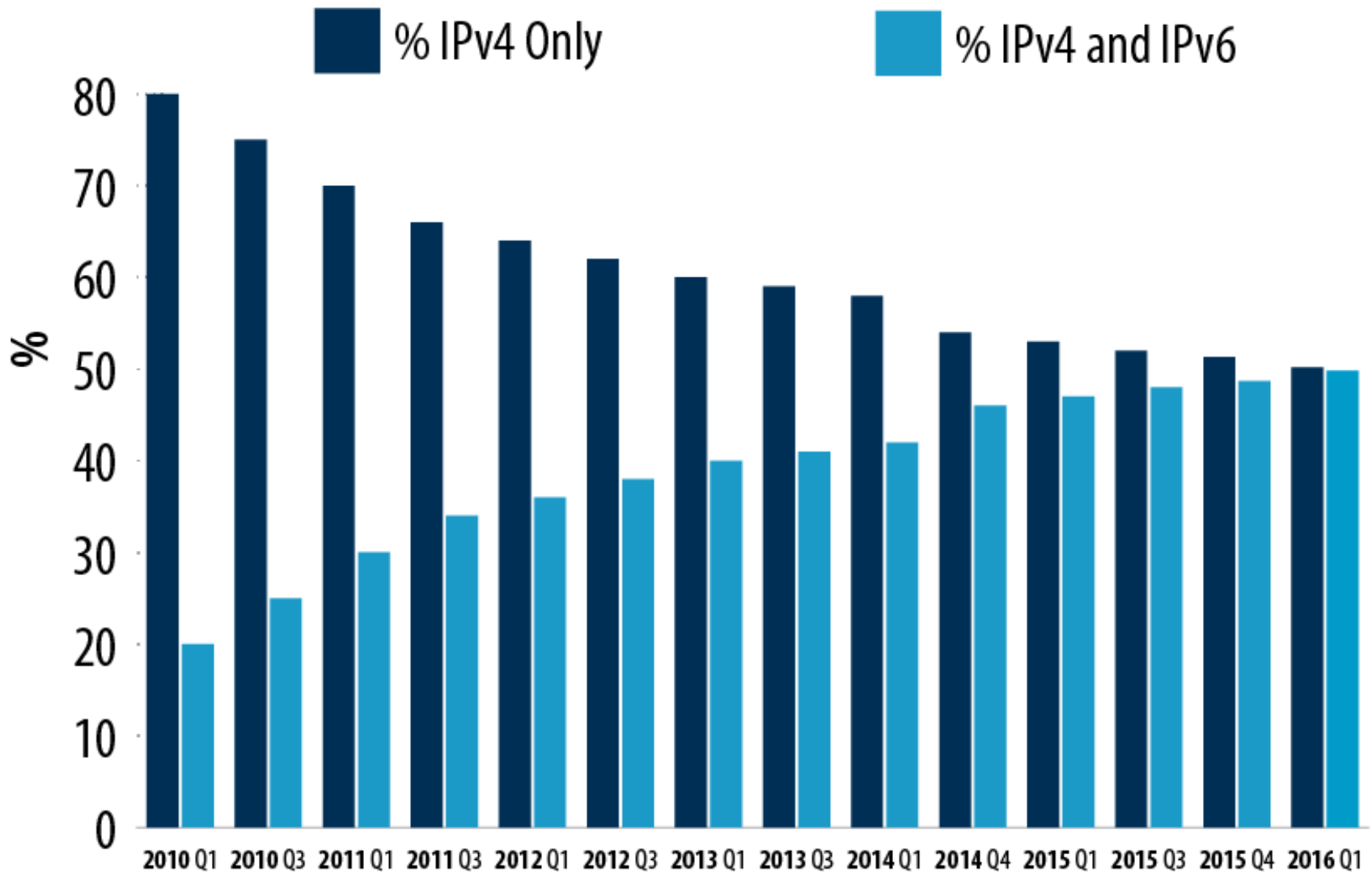
## 8.3 Requests Completed



# IPv6 Requests – Past Year



# ISP Members with IPv4 and IPv6



**\*5,332 total members as of 30 April 2016**

# IPv6 Adoption Rate by ISP Size

