



# **ARIN Update**

**NANOG 54**

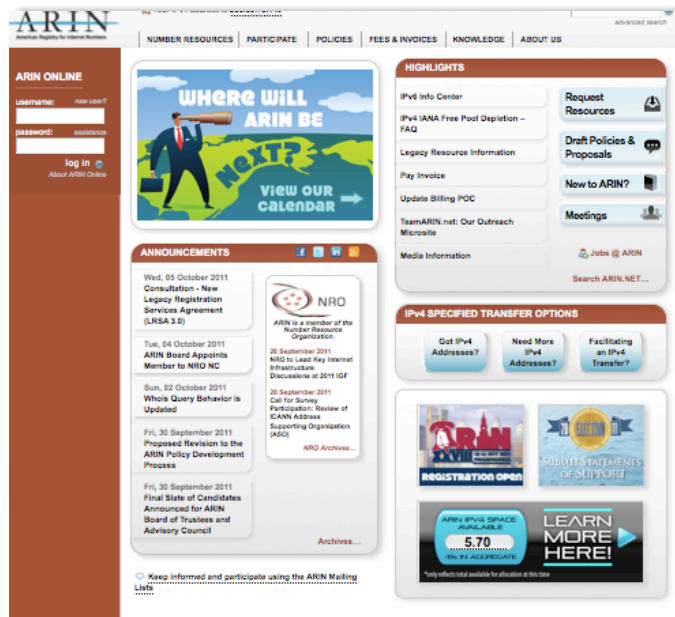
**Mark Kusters  
Chief Technical Officer**

# 2012 Focus

- **IPv4 Depletion & IPv6 Uptake**
  - Developing, adapting, and improving processes and procedures
  - Continuing IPv6 outreach
- **Implementation of new policies and services**
- **Continued development and integration of web-based system (ARIN Online)**
- **RPKI deployment**
- **Continued participation in Internet Governance forums**

# ARIN Inventory Report

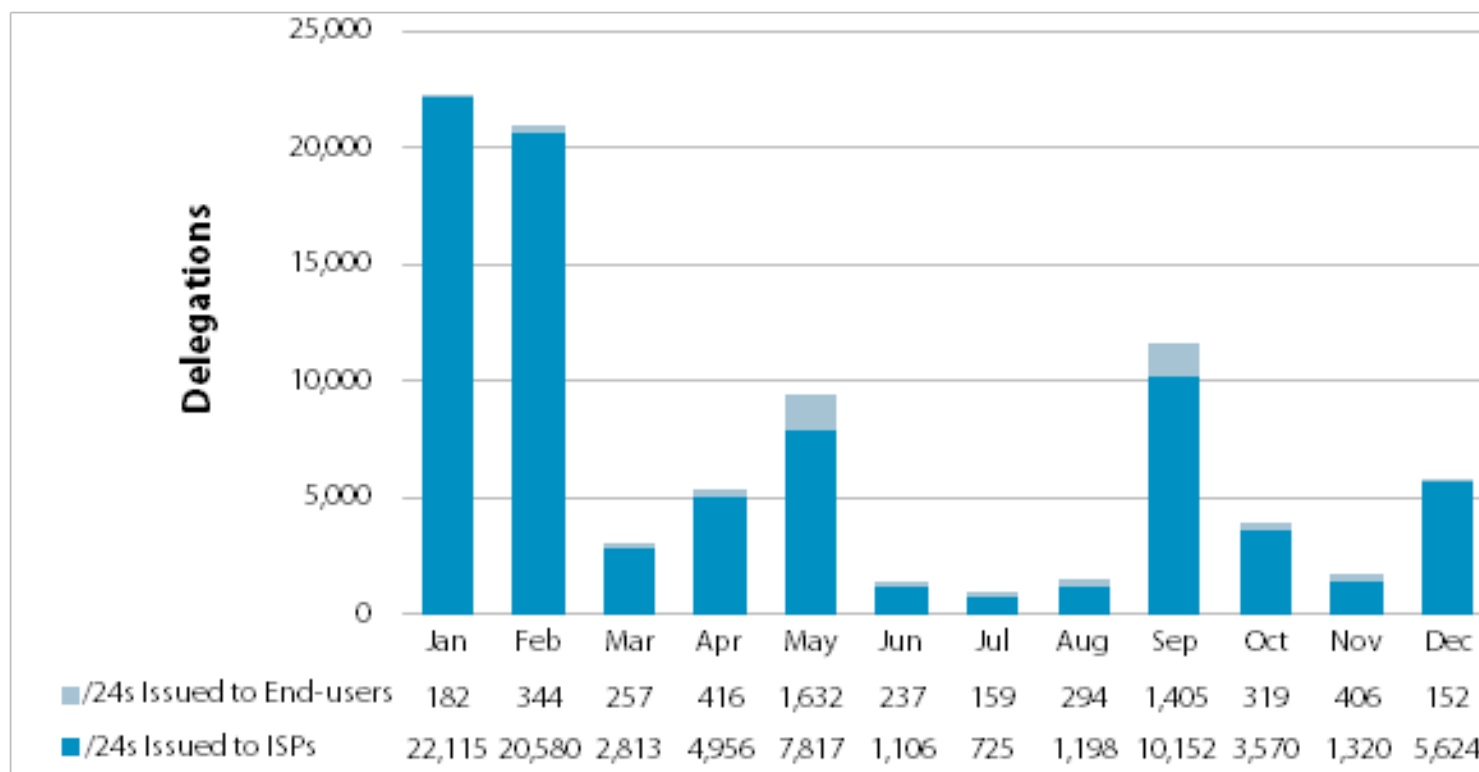
~5.34 /8s in available inventory



- Doesn't include quarantined space (reclaimed/returned space held for 6 months to clear filters, ~6.7 /16s)

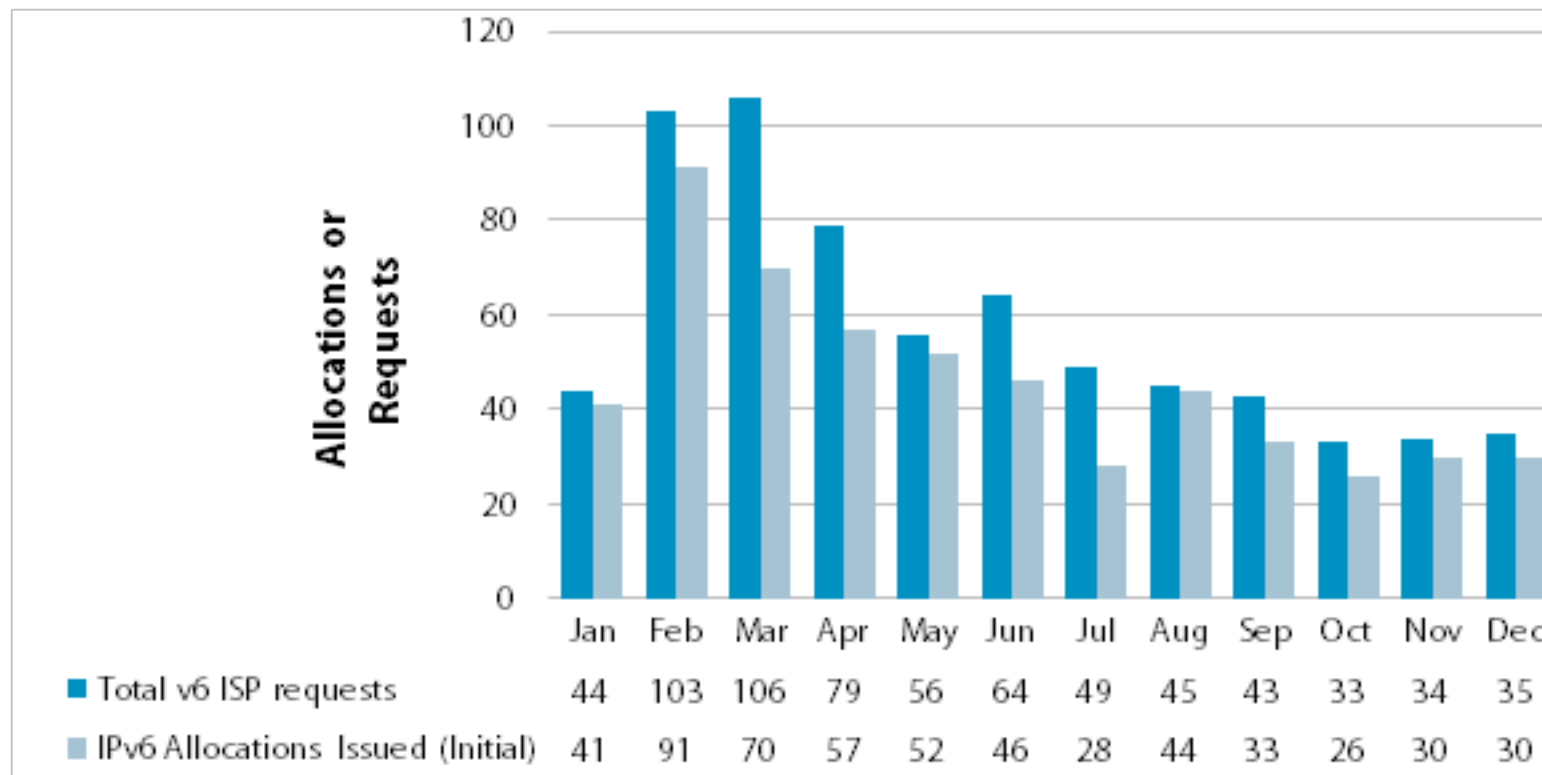
\*as of 3 Feb 2012

# 2011 IPv4 Delegations Issued By ARIN (listed in /24s)



**\*\*Feb 3, 2011- IANA depletion**

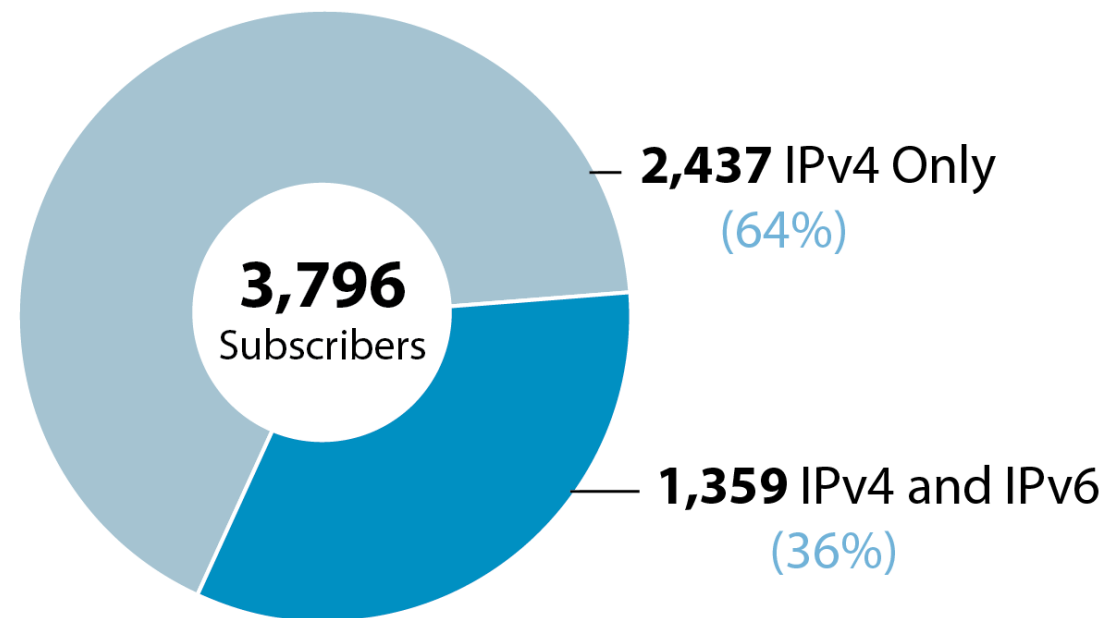
# 2011 IPv6 Address Allocations and Requests



**\*\*Feb 3, 2011- IANA depletion**

# ISP Members with IPv4 and IPv6

3,796 ISP subscriber members



\*as of 11 Jan 2012

# New Policies Implemented

## ARIN-2011-3: Better IPv6 Allocations for ISPs

- Enables ISPs to request larger blocks of IPv6 space on nibble boundaries
- Fully implemented
  - Initial allocations from /36 to /16

## ARIN-2011-8: Combined M&A and Specified Transfers

- Enables transfers to specified recipients during M&A transfers

# Proposals

- **Awaiting Board Review**
  - ARIN-2011-12: Set Transfer Need to 24 months
  - ARIN-2011-11: Clarify Justified Need for Transfers
- **Under Discussion**
  - ARIN-2011-1: ARIN Inter-RIR Transfers
  - ARIN-2011-7: Compliance Requirement
- **Awaiting Further Developments**
  - ARIN-2011-5: Shared Transition Space for IPv4 Address Extension
  - ARIN-2011-9 (Global Proposal): Global Policy for post exhaustion IPv4 allocation mechanisms by the IANA
- **And 8 new proposals** (as of 3 Feb 2012)

All of these are available at:  
<https://www.arin.net/policy/proposals/>



# Public Facing Development Efforts

- **ARIN Online**

- Billing integration initiated
- Working on integration with payment vendor
- Templates and corresponding RESTful interfaces protected by API Keys

- **Specified Transfer Listing Service**

- Operational for over a year
- Allows Buyers (Needers), Sellers (Listers), and Brokers (Facilitators) to find each other
- Lots of background activity occurring

- **IRR**

- Rolled out a revamped IRR on September 29
- Added CRYPT-PW, PGP, and email notification of object updates

# Public Facing Development Efforts

- **Value Added Security Services**

- RPKI

- Running into HSM snafus delaying rollout
    - Hosted
      - We hold your private key
      - Managed via ARIN Online
      - To be completed in 2012 –development is underway
    - Delegated
      - you build your own RPKI infrastructure
      - Interact with ARIN via “up/down” protocol
      - To be done after Hosted deployed

- DNSSEC

- Fully implemented and operational
    - Managed by either RESTful options or ARIN Online
    - Will be only available those who sign RSA/LRSA

# Definitions for RPKI

- Hosted
  - Managed by RIR
  - Keys held by RIR
  - Generates Repository for all Hosted Internet Resource Holders and ARIN
- Delegated
  - Managed by ISP
  - Keys held by ISP
  - Only hold information for Resources of that ISP and perhaps Downstreams
  - Uses Up/Down to notify changes made to resources

# RPKI Status Executive Summary

- Working on Hosted Solution
  - Anticipate Q2 Deployment
- Move to a programmable HSM has added an extra year of development to satisfy ARIN Board requirements
- Once Hosted Solution is deployed, we will work on a delegated solution
- Participating with the other RIRs on a single global trust anchor with ICANN
- Participating with the other RIRs on a RPKI transfer process that mirrors an emerging global transfer policy

# RPKI – How to play

- Provision your ROAs
  - 4 of the 5 RIR's have RPKI in production for the Hosted solution
  - ARIN has a pilot for a hosted solution
- Pull down a validator
- Look at the results
- Compare the results with the routes you receive
- Here's a good place to start
  - <http://www.ripe.net/lir-services/resource-management/certification/tools-and-resources>

# ARIN's RPKI Pilot

- Available since June 2009
  - <http://rpki-pilot.arin.net>
  - ARIN-branded version of RIPE NCC software
  - NOT integrated into ARIN Online
- 52+ organizations participating
- Experimentation with emerging RPKI repositories from the various RIRs and others

# Whois/Whois-RWS Traffic Loads

- **At ARIN XXV**

- 50% of the queries are self-referential (i.e. source ip 192.168.2.5 asking for 192.168.2.5)
- Most are singleton queries
- Was increasing over the last year
- Started noticing decrease after ARIN XXV

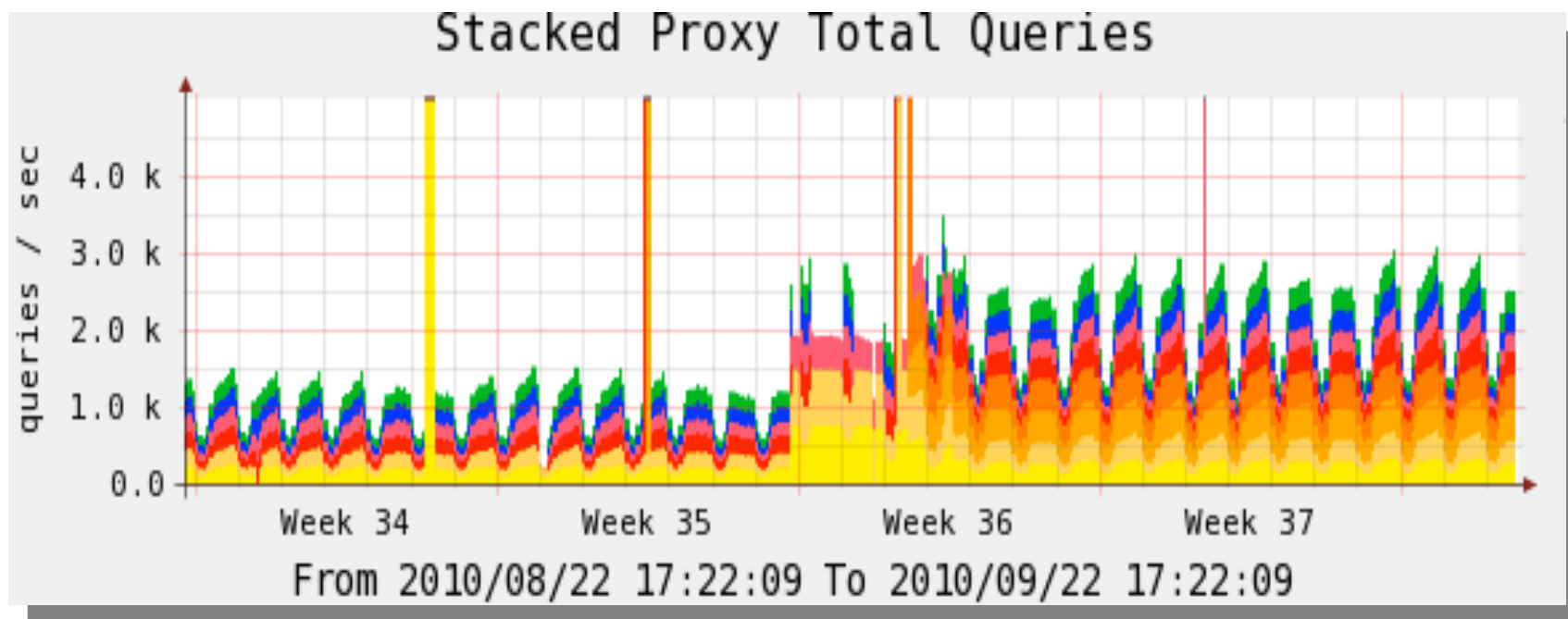
# Whois-RWS Traffic Loads

- **At ARIN XXVI**

- Saw a rise in traffic day after Google announced OpenID collaboration with Yahoo in September
- Traffic spiked 300%
- Top ten sites being login sites for various providers – Yahoo, AOL, and Facebook
- Approximately 5600 queries per second during the height of the day



# Whois-RWS Statistics- Uptick



# Whois-RWS Traffic Loads

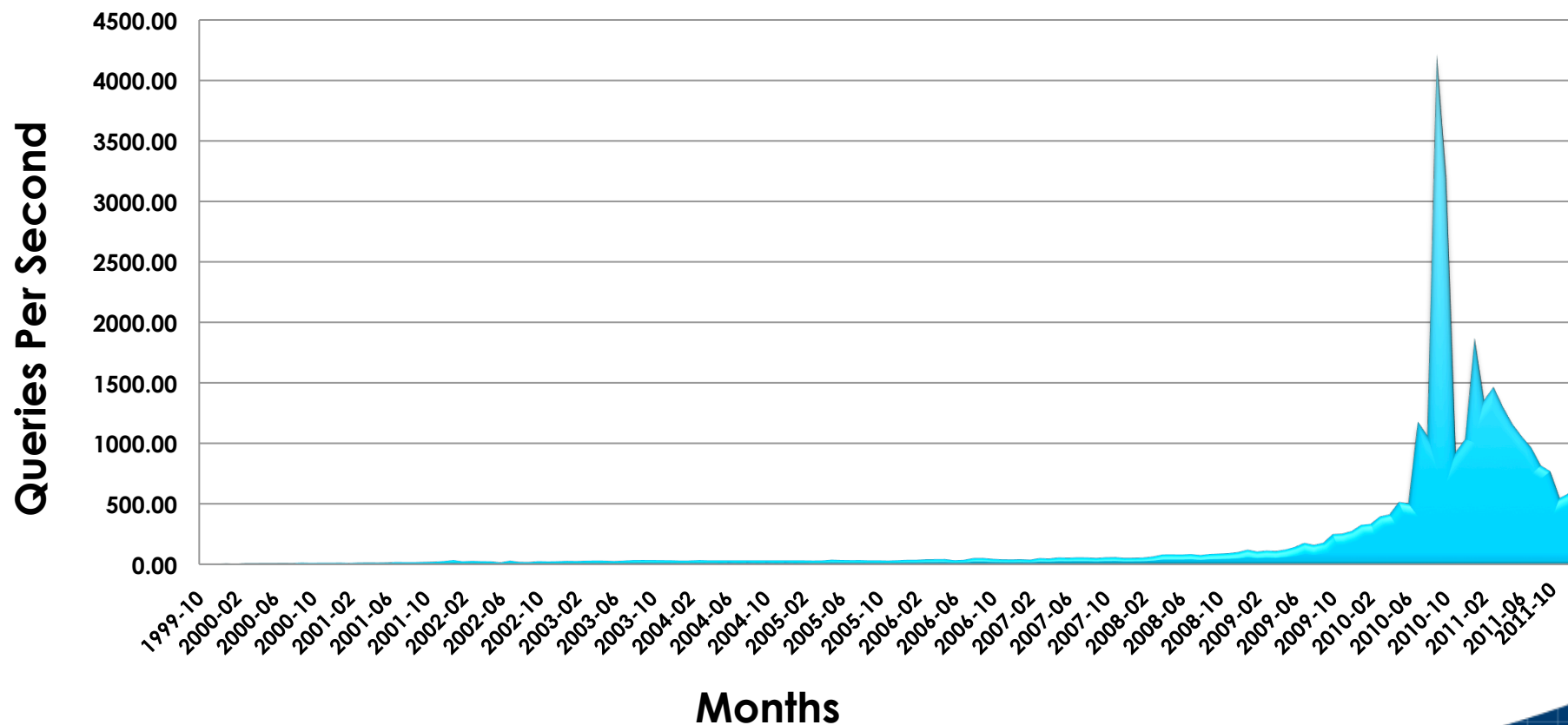
- **At ARIN XXVII**
  - Loads disappeared soon after ARIN XXVI
  - Running “normally” now at 2000 queries per second
- **So what about now...?**

# Whois-RWS Traffic Loads

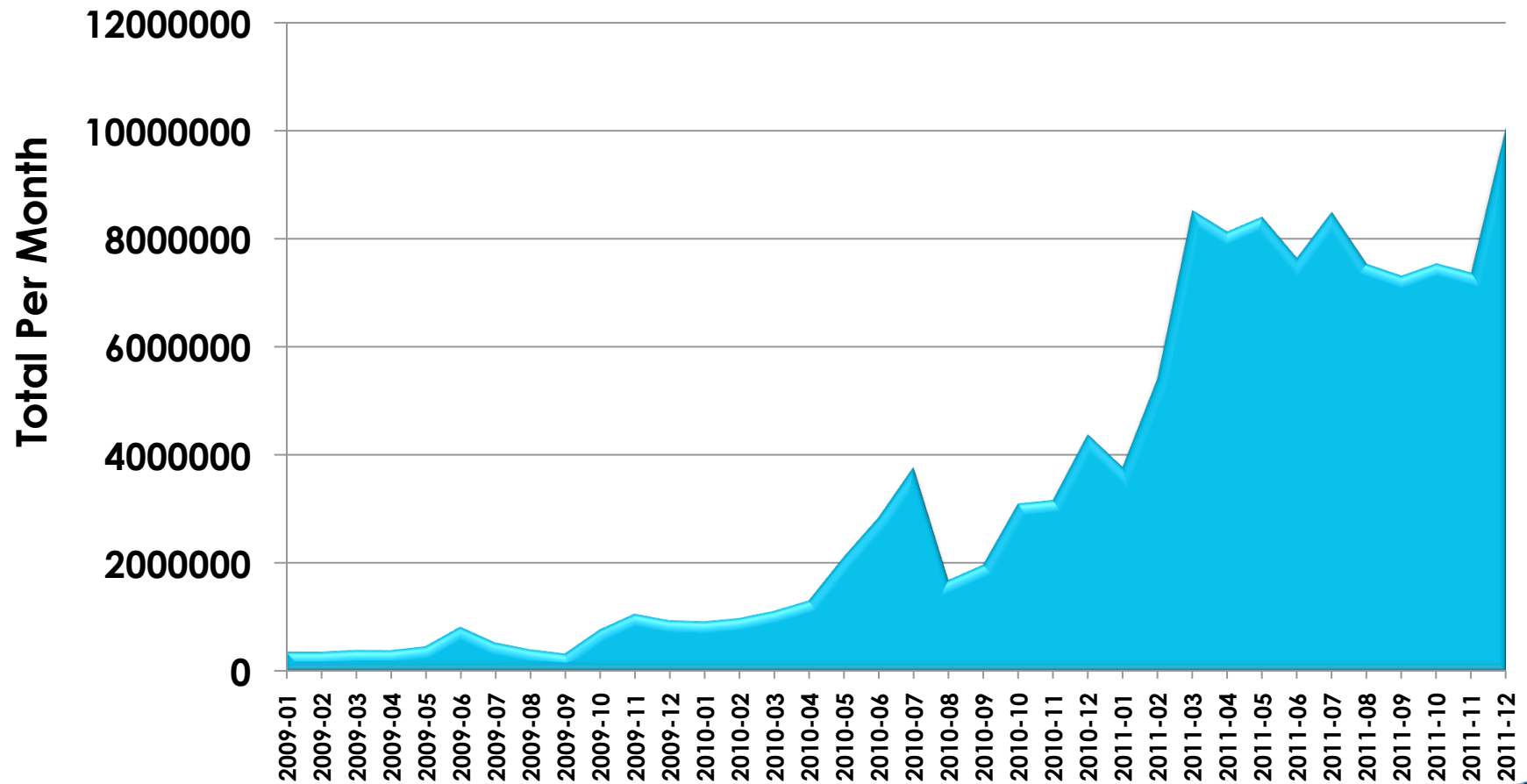
- Today
  - Running “normally” now at 675 queries per second

# Whois-RWS Statistics

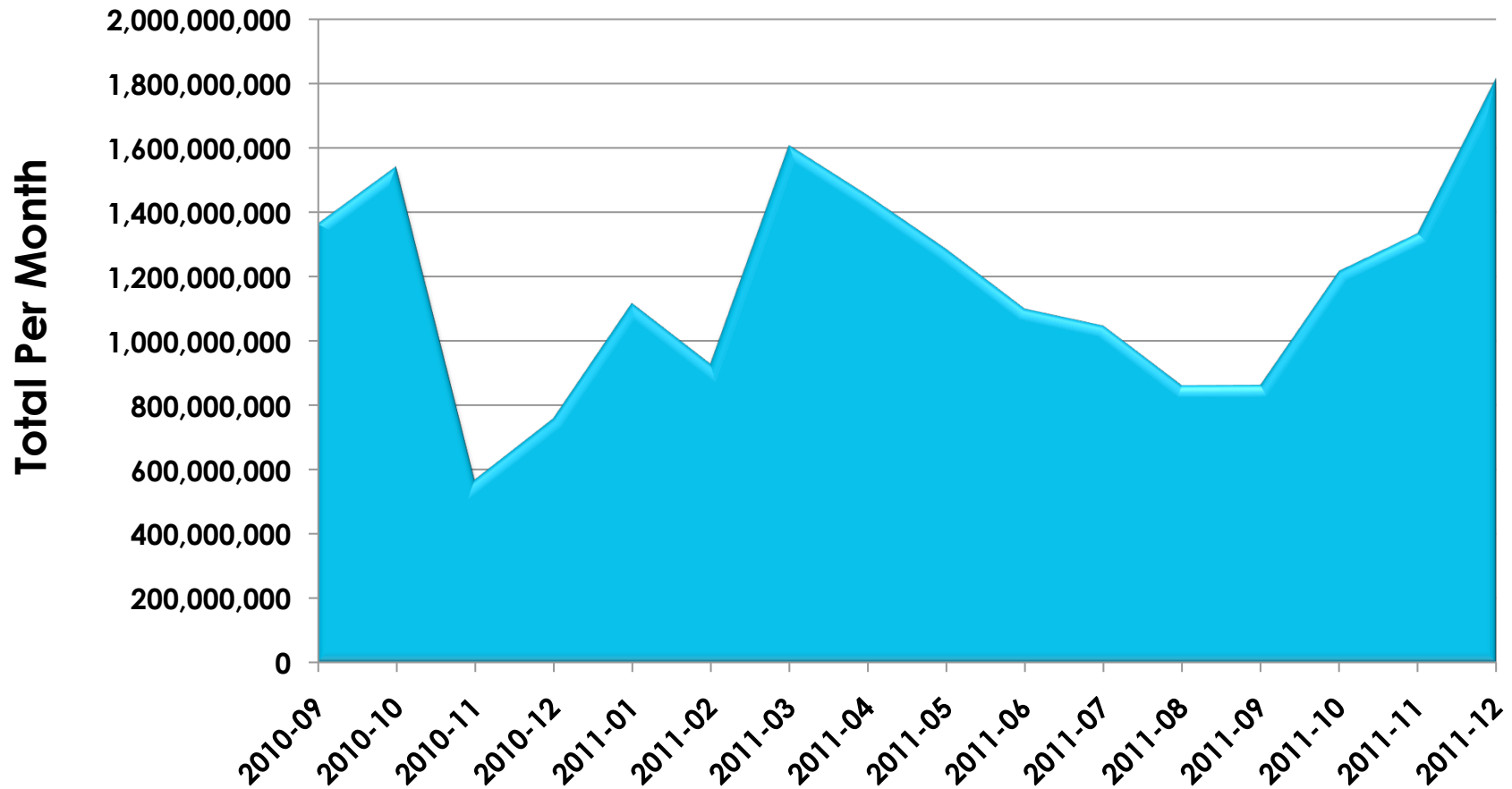
## Queries



# Whois-RWS – V6



# Whois-RWS – RESTful Calls



# Upcoming ARIN Meetings



Network Sponsor



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