



Engineering Status Report

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Engineering Theme

- 2011 success was aided by contractors
- Lots of work yet to do (but a great deal now done)
- An age for new engineers

Staffing

- **Operations**
 - 7 people (one position open)
- **Development**
 - 12 people
 - 5 Developers + Manager (One position open)
 - 6 contractors (down 1 from ARIN XXVII)
- **Quality Assurance**
 - 8 people
 - 3 QA + Manager
 - 4 contractors (down 1 from ARIN XXVII)
- **Requirements/Project Management**
 - 1 person
- **Management**
 - Me

Operations

- Upgrading end-of-life equipment
- Rolling out Anycast
- Consolidating Colo space in Equinix based on RPKI security needs
- Maintaining the various environments we have running (production/ot&e/dev/qa/staging)
- Consolidating equipment in east coast colo

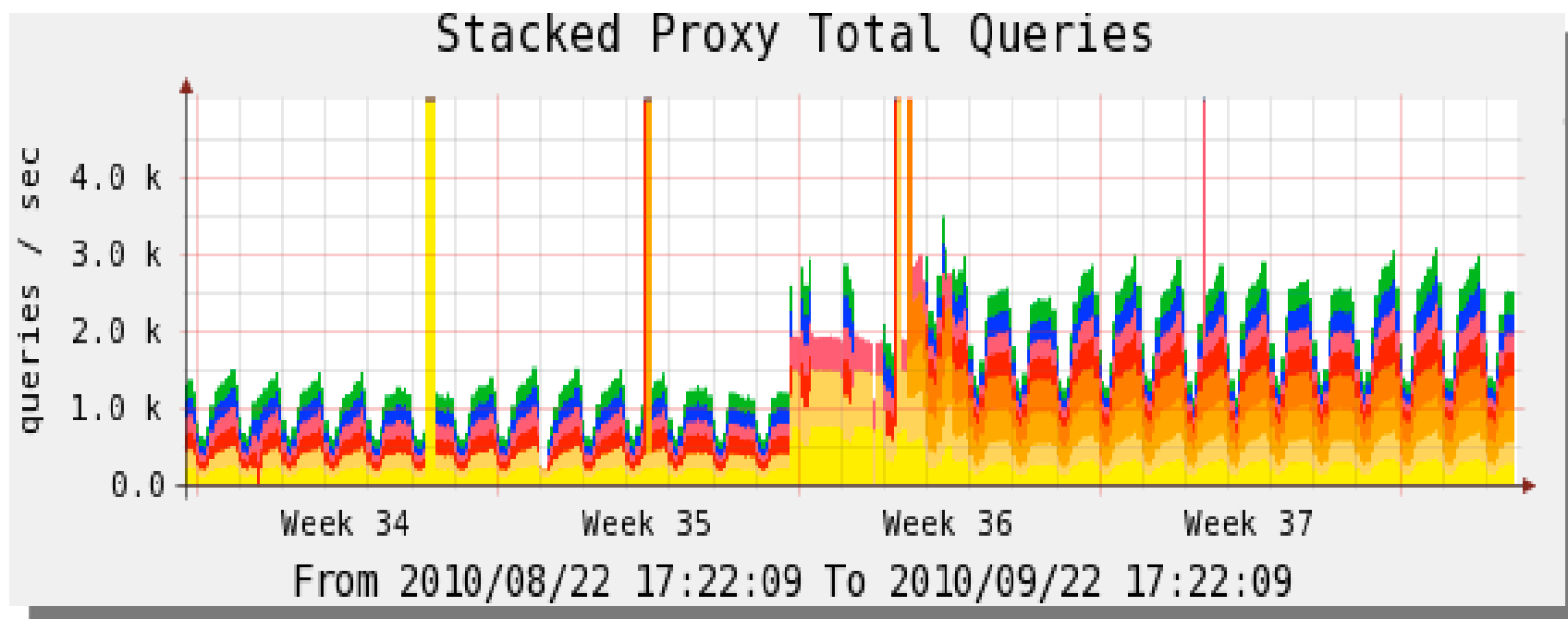
Whois/Whois-RWS Traffic Loads

- **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

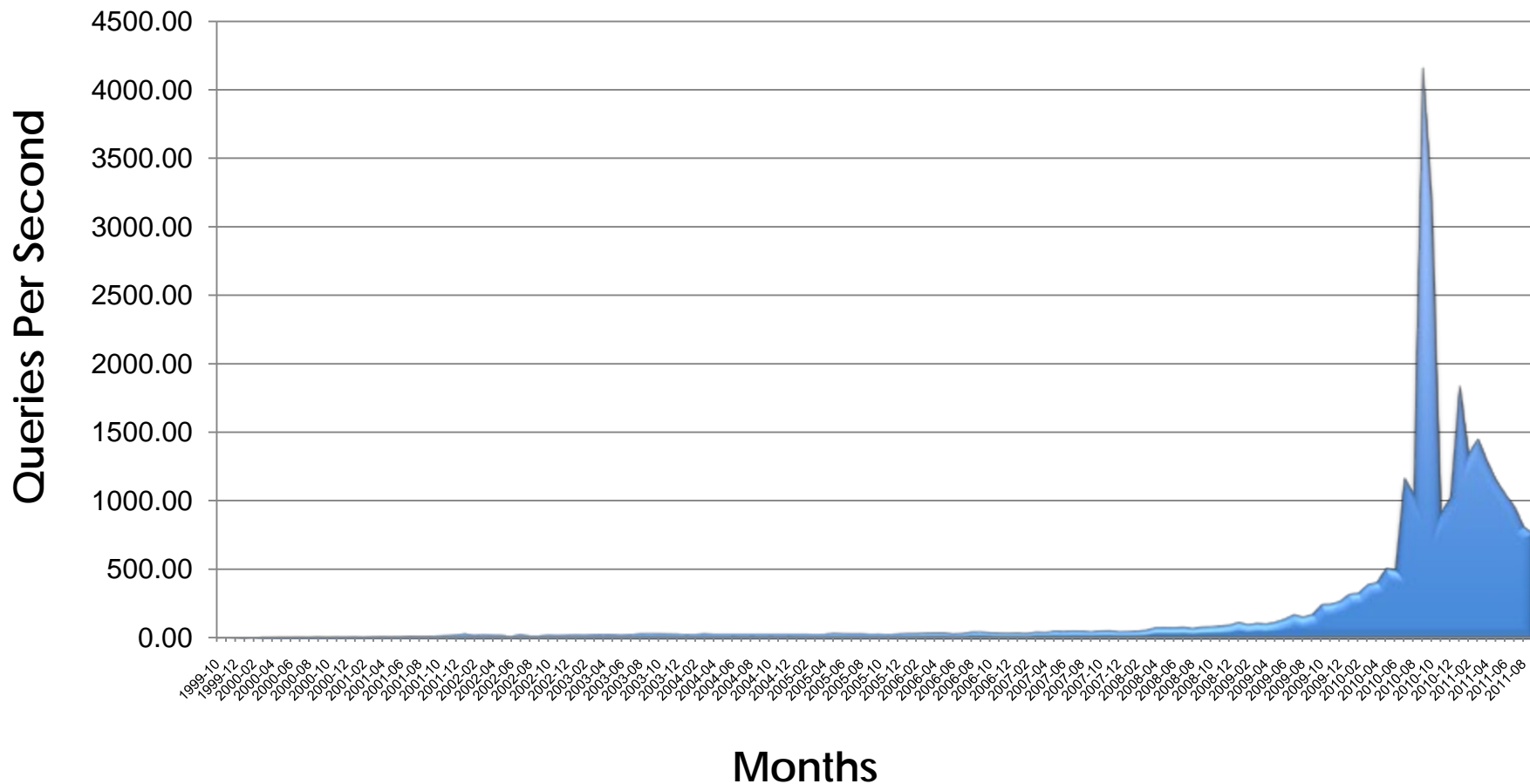
- **At ARIN XXVII**
 - Loads disappeared soon after ARIN XXVI
 - Running “normally” now at 2000 queries per second
- **So what about now...**

Whois-RWS Traffic Loads

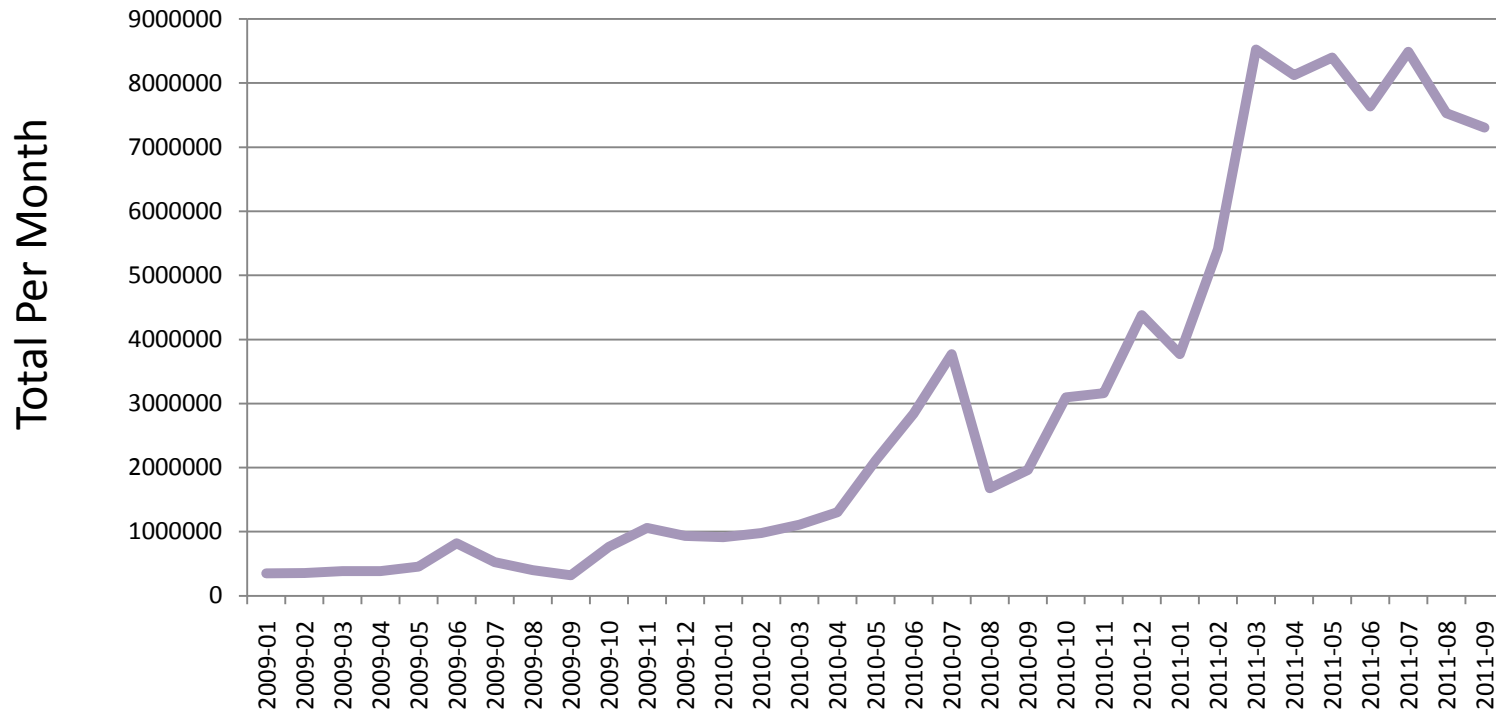
- **ARIN XXVIII (today)**
 - Still running “normally” now at 2000 queries per second

Whois-RWS Statistics

Queries

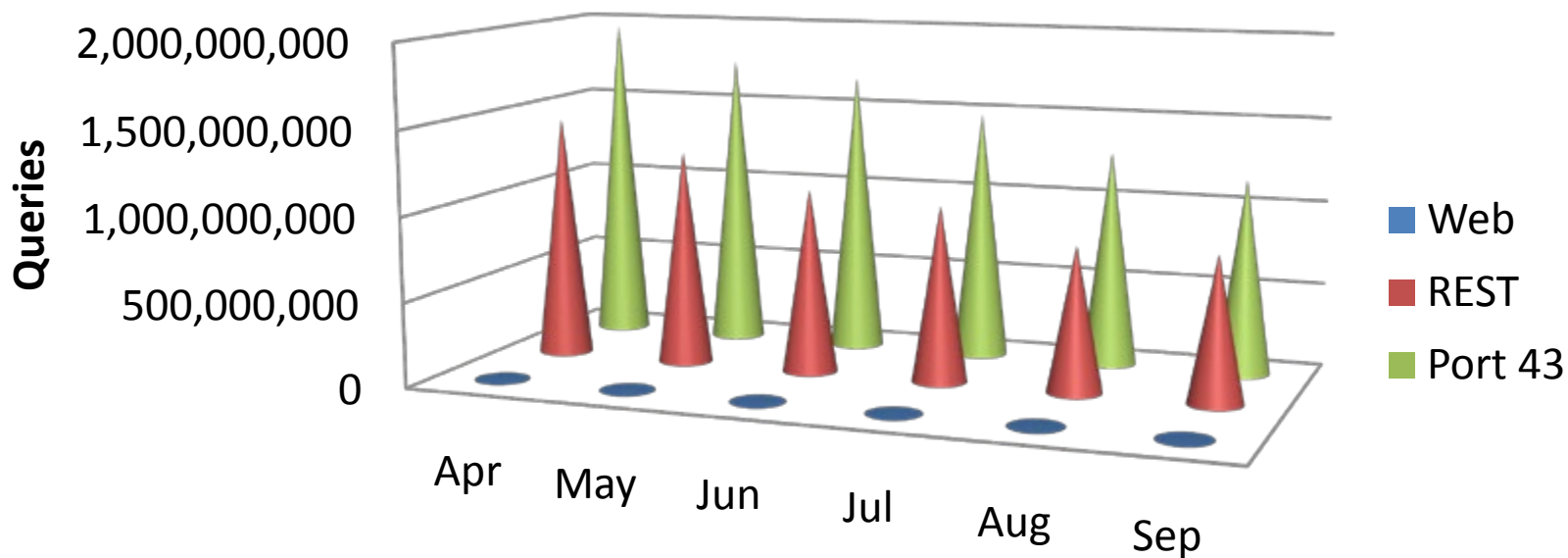


Whois-RWS - V6



Whois-RWS

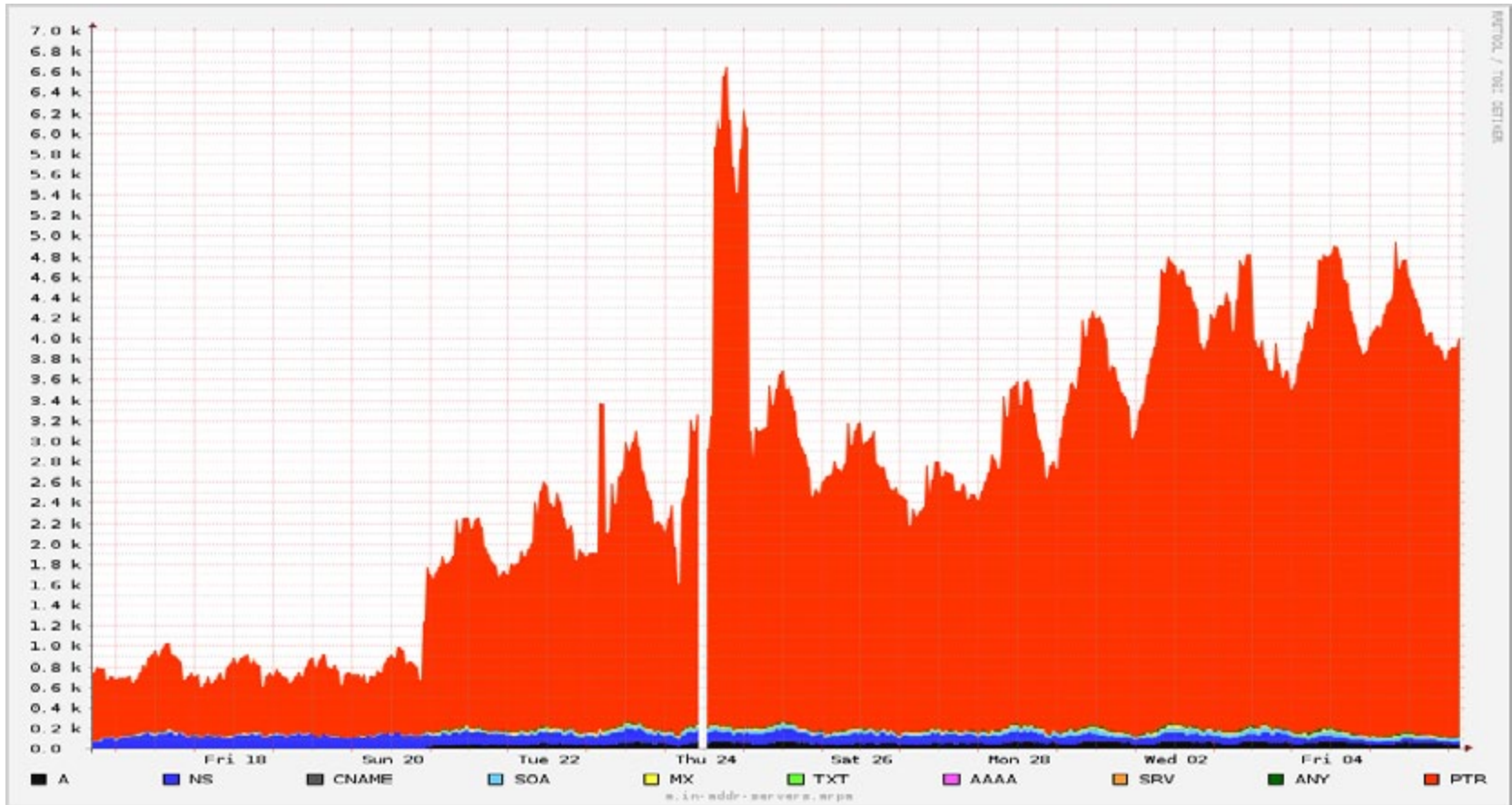
Since April, 2011



in-addr.arpa Transition

- in-addr.arpa generation moved from ARIN to ICANN on 2/16/11
- in-addr.arpa moved from root servers to RIR/ICANN managed servers
- Servers moved off root in increments from 2/21/11 until 3/7/11
- in-addr.arpa is now signed
- Provisioned DSs to ICANN for /8's under ARIN's control by 5/1/11
- Same goes for v6 reverse (ip6.arpa)
- No longer any need for trust anchors

Traffic from a.in-addr-servers.arpa

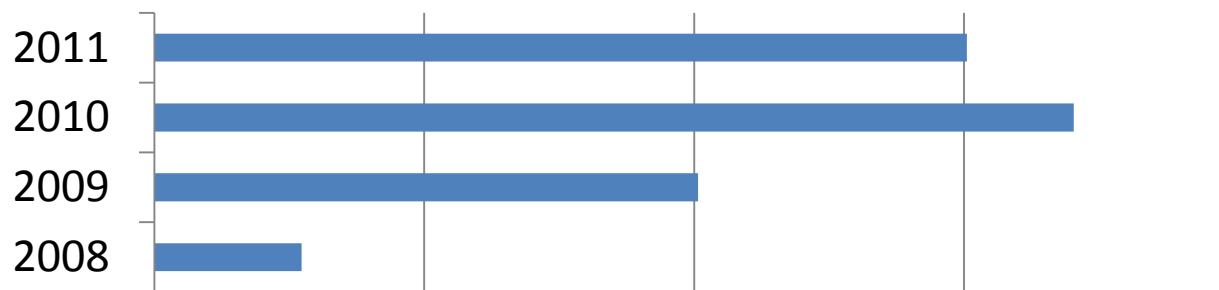


Development/QA

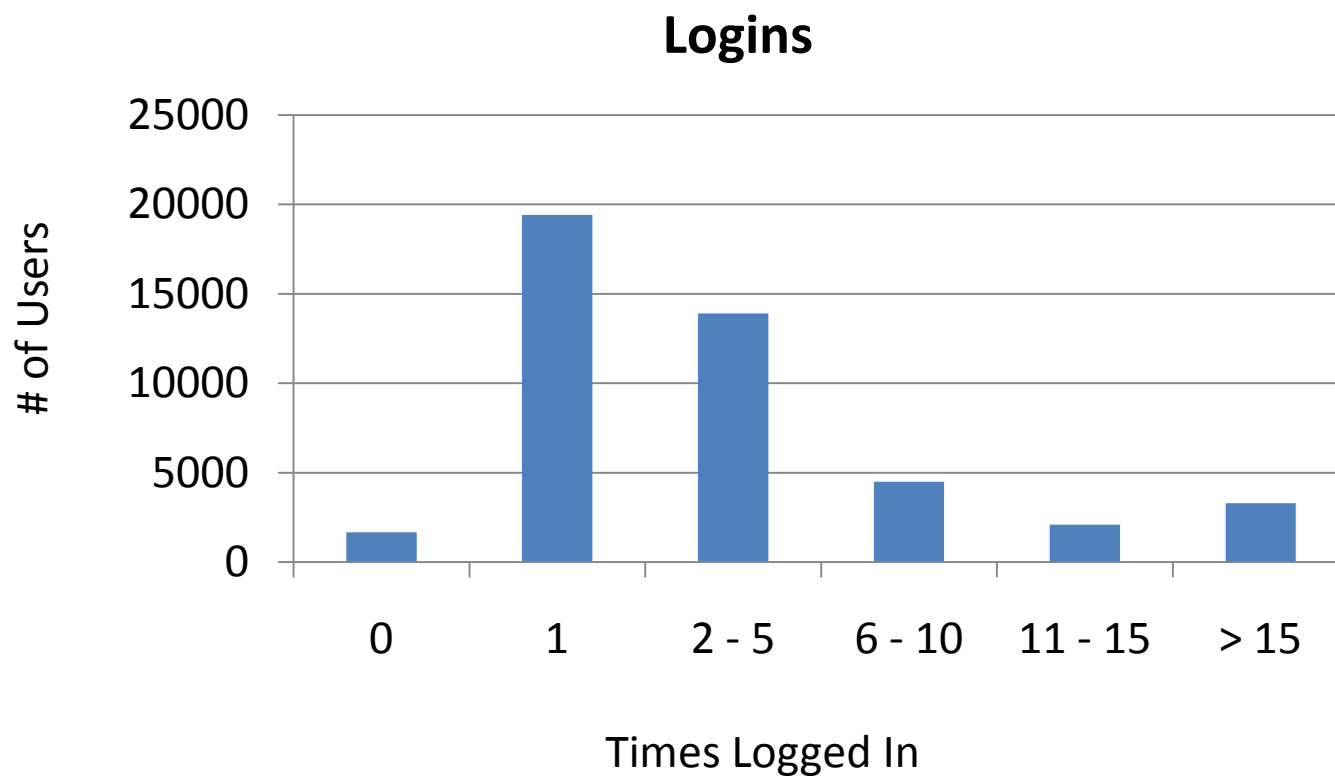
- Improvements to existing systems
- Three ARIN Online releases since ARIN XXVII
 - Billing Integration
 - Partial Implementation of 2011-3
 - Implementation of 2010-14
 - Delegations via REST
 - Assorted ACSP requests finished
- IRR deployed on Sept 29
- RPKI development keeps going

How is ARIN Online Used?

- 44,882 accounts activated in Q3 of 2011



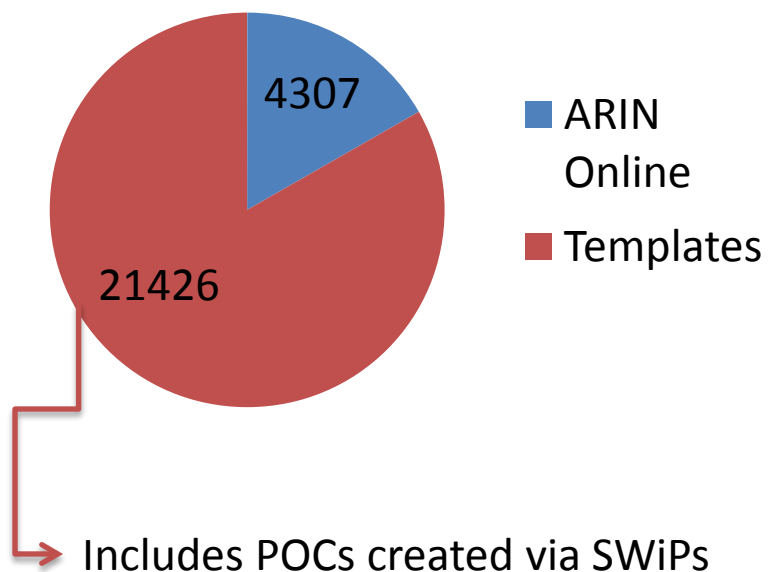
Active Usage of ARIN Online



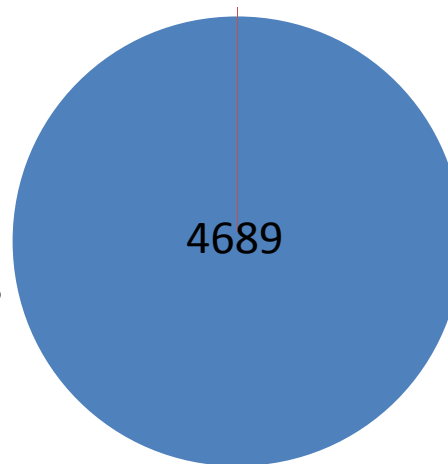
Management of POCs

Since April, 2011

Create

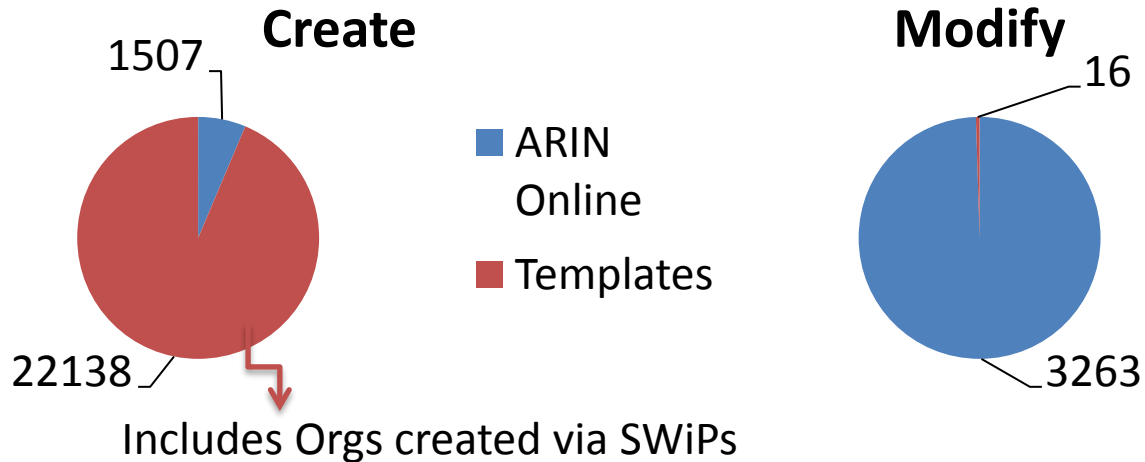


Modify



Management of Orgs

Since April, 2011



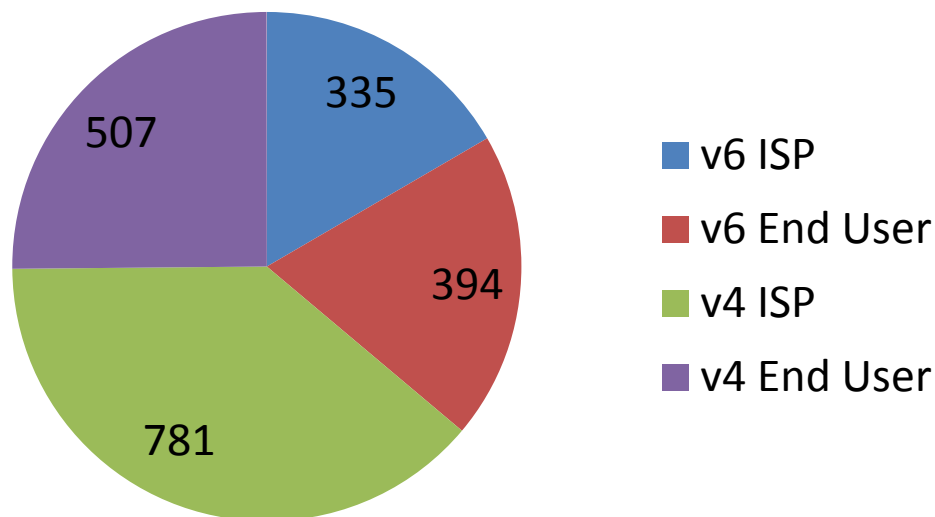
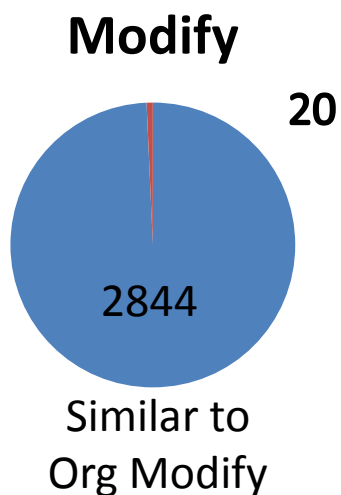
Nobody likes to delete their Org records.

ARIN Online	87
Templates	12

Net Record Management

Since April, 2011

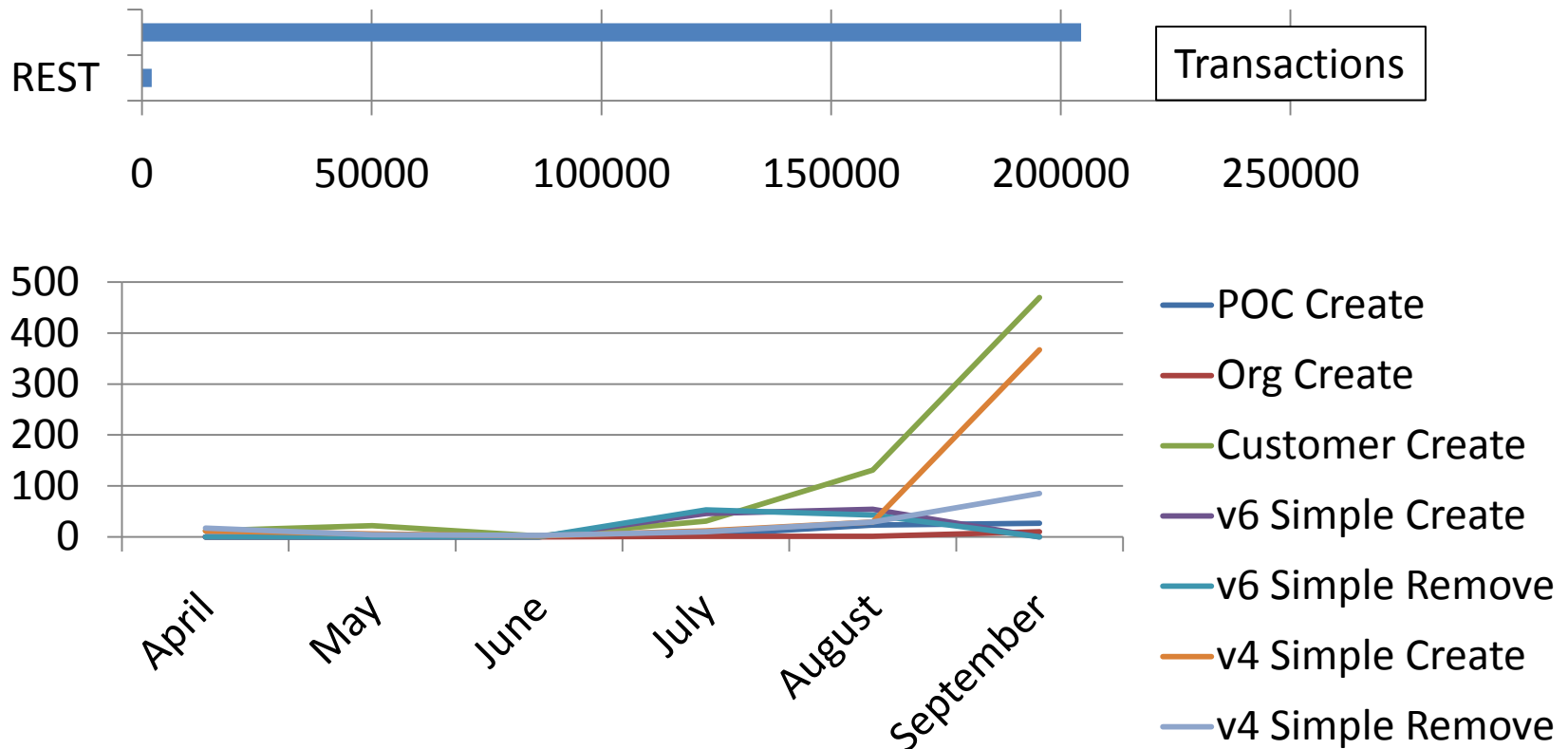
Requests



All requests made via ARIN Online

Reg-RWS (RESTful Provisioning)

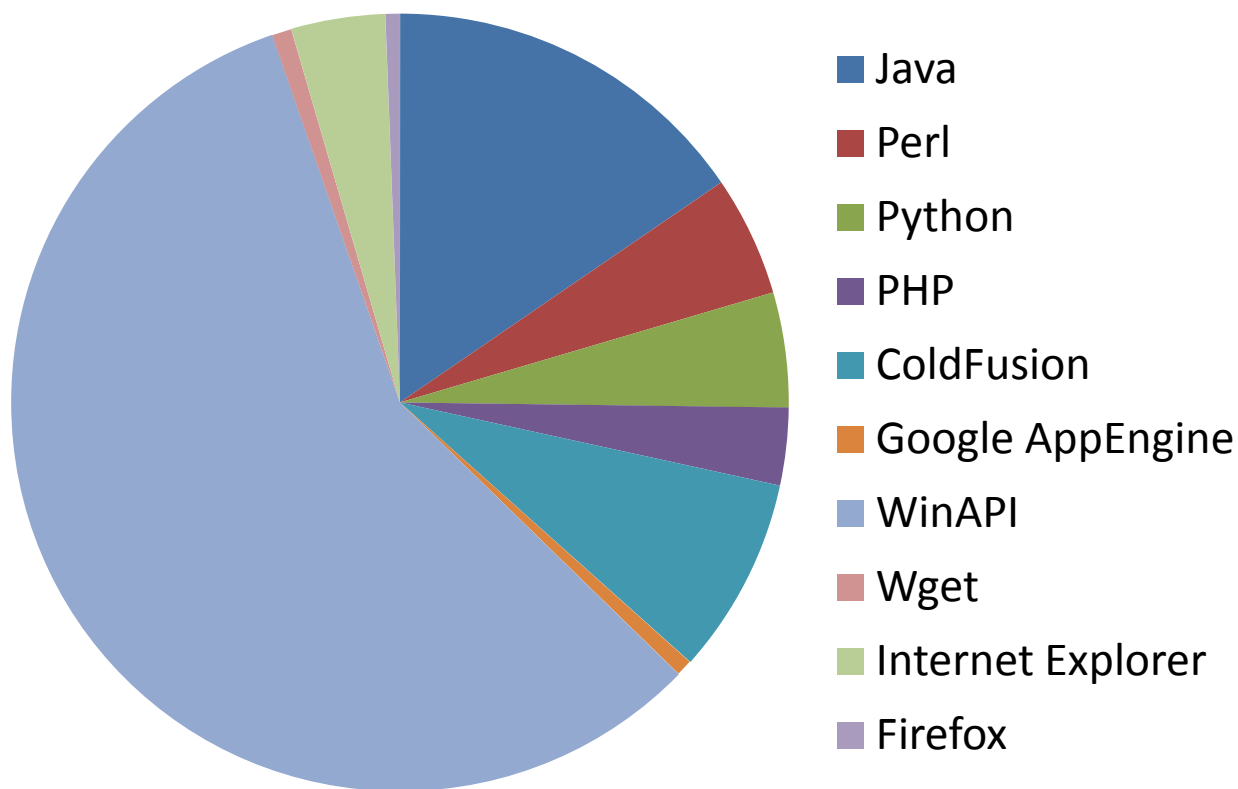
Since April, 2011



Whois-RWS Releases

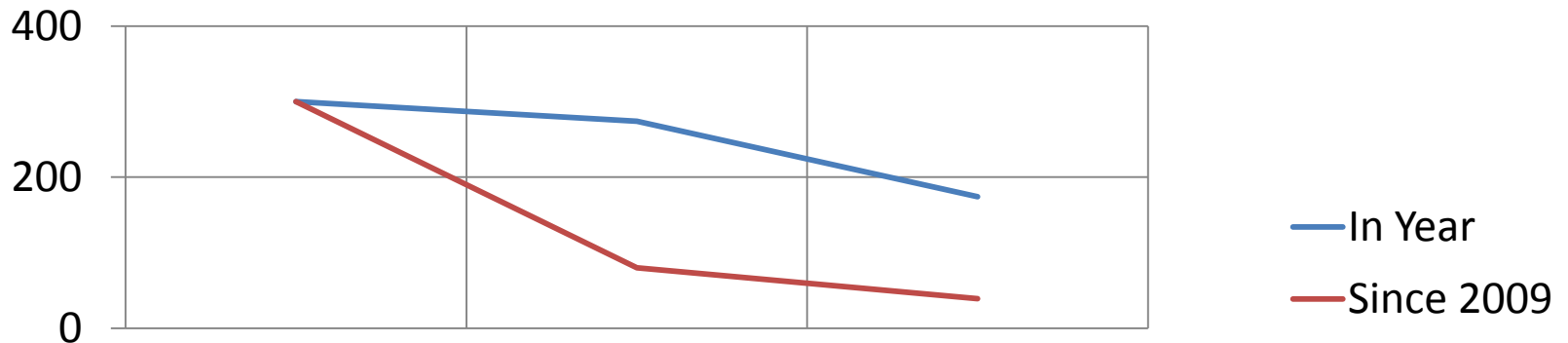
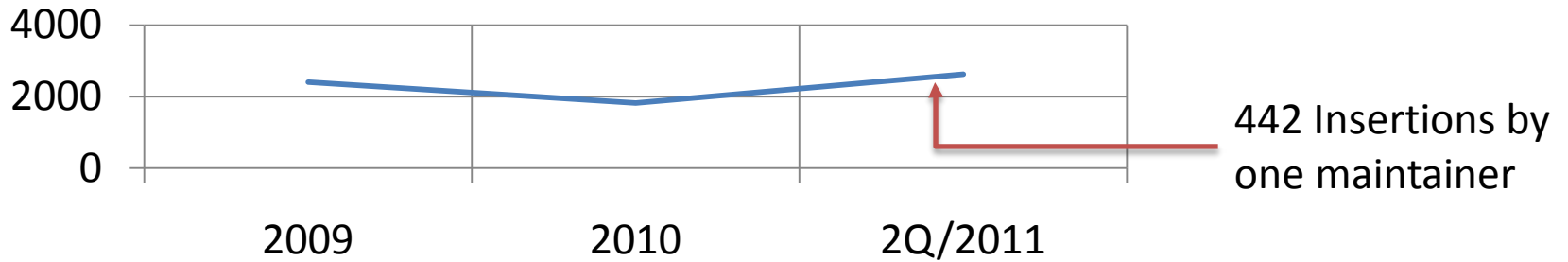
- Whois-RWS Improvements
 - Improved CIDR performance
 - CIDR bug fixes
 - Removed the errant parent info on IP Address queries Oct 2

Whois-RWS Port 80 User Agents



IRR Usage 2009-2Q/2011

Insertions/Changes



Active Maintainers

Value-Added Trust Services

- Core services available to all regardless of RSA/LRSA status
 - Whois
 - Regular reverse dns services
- **Value-Added Services – must have a RSA/LRSA in place**
 - DNSSEC
 - RPKI

RPKI

- **Huge challenge developing against IBM HSM**
 - Poorly documented
 - Bad failure modes
- **Lost the main developer**
- **Estimated to have first part in production in 2012**
- **Protocol is mature – much documentation to do yet (Global Trust Anchor – NRO and ICANN)**

Upcoming Challenges

- **Community Desires/Policy**
 - 9 ACSPs
 - Complete Implementation of 2011-3
 - Transfers a part of ARIN Online
- **Identified Efficiencies**
 - Improved Payments
 - Voting Integration
- **Internal Projects**
 - Limiting liability
 - Reducing inefficiency
- **Thought leadership**
 - Whois-RWS
 - RESTful Registration



Questions?