

UWho and CRISP

Mark Kusters
VeriSign Labs
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- **Universal Whois**
 - Uwho is the name of the work VeriSign has committed to in agreement with ICANN (Appendix W.)
- **Formal public consultations**
 - business, intellectual property holders (Aug/01)
 - civil liberties, other ngo's (Nov/01)
 - international input (Nov/01)
- **Informal public consultations**
 - RIPE 40 (Oct/01)
 - NANOG 23 (Oct/01)
 - ARIN VIII (Oct/01)
 - RIPE 41 (Jan/02)
 - NANOG 24 (Feb/02)
 - CENTR (Feb/02)
 - APRICOT 2002 (Mar/02)
 - APNIC 13 (Mar/02)

- **Cross Registry Information Service Protocol**
- **BOF held at IETF 53 in Minneapolis, MN**
- **What is VeriSign's role here?**
 - **Appendix W. requires Universal Whois to be an open standard.**
 - **VeriSign is contributing UWho work to the IETF as a starting point.**
 - **The IETF process is open and anybody can participate.**

- A better whois.
- Not a science project.
- “Universal” means distributed, not centralized.
- To be unencumbered by the shackles of port 43.

- **The process to refine the requirements:**
 1. Identify the community of users
 2. Decide on scope
 3. List needs
 4. Determine features
- **The requirements are still being derived and participation is welcome.**

- If we tried to include every aspect of every type of whois service (past or present) in the world, we would never get any work completed. The scope would be too large.
- The subset is the community of people that “administer” the Internet:
 - Network operators and service providers
 - Registry operators
 - Implementers of software (for this community)
 - Registrars, Certificate Authorities, etc.
 - IPR Holders, Law Enforcement, other government agencies, Non-Governmental Organizations (NGO's), etc...

So is Harmony Communal?

- **Not always**
 - Laws applying to various network and registry operators vary from country to country.
 - Some policies may conflict with laws elsewhere.
 - Registry operators don't always see eye-to-eye.
 - Registrars don't always see eye-to-eye.
 - ... the list goes on...
- **We must provide the mechanism, not the policy.**
 - Because it is not our job.
 - And we would never finish if we did.

Why CRISP? Why now?

- **The registry operators are starting to drift apart.**
 - At least two TLD operators flirting with LDAP.
 - There is nothing like RPSL for domains.
 - What about Rwhois?
 - ICANN registrars being told to use XML for escrow.
- **Is it time to address this problem?**
- **Over time, the problem will only get worse.**

- The most consistent “end-users” of all 3 registry types in terms of frequency and depth of need.
- If their needs aren't met, then the Internet doesn't run.
 - Disagreement?
- Do network operators benefit from registry drift and a less unified service model?
- Do other end-users benefit from registry drift and a less unified service model?

- While the data contained in the different registries isn't the same, they all have common base requirements.
 - Data mining prevention
 - Need for machine consumable data
 - Access control
 - Etc...
- One standard, not 3 or 4 or 5.
- A common understanding.

- Provides a known direction for implementers.
- Allows input from end-users.
- Helps with the development of common code bases.
 - The work done on graphical clients for domains could easily be re-used for dealing with addressing.
 - Allows smaller entities such as some LIR's or Domain registrars to have common server software.
 - Would allow network operators to more easily integrate data into their customer management systems.
- Encourages ideas not yet imagined.

- CRISP is in the early stages.
- Scope and requirements are still being defined.
- Input and feedback are very much encouraged.
- Early participation would be nice.

- Your comments, opinions, and ideas are welcome.
 - ietf-not43@lists.verisignlabs.com
 - To subscribe:
<https://lists.verisignlabs.com/mailman/listinfo/ietf-not43>
- Further reading:
 - Requirements: draft-newton-ir-dir-requirements-01.txt

Stale POC Data



Ginny Listman

Leslie Nobile

Problem Definition

- ④ Data in Whois used to troubleshoot network problems, however, some of the information becomes stale
- ④ ARIN does limited verification of the data at registration
- ④ ARIN does not perform periodic checks for stale information
- ④ ARIN relies on the customer to provide accurate updated information in a timely manner

What's In Whois?

Registration Type	Number of Records	Percentage of database
Direct Allocation	6,525	0.85%
Direct Assignments	32,196	4.21%
Reallocations	15,425	2.02%
Detailed Reassignments	18,239	2.39%
Simple Reassignments	692,124	90.53%

Current Procedure

- ④ Receive notification from the community about stale data
- ④ Log information for processing
- ④ Contact listed POC via email and/or phone
- ④ Contact upstream POC via email and/or phone
- ④ Contact announcing AS POC via email and/or phone
- ④ Contact domain POC via email and/or phone

Questions

- Is the current procedure acceptable?
- Should ARIN take a pro-active approach?
 - Validate data more thoroughly at registration
 - Reject templates with invalid data
 - Establish procedure to periodically review data
 - Continue to rely on customer to update data
- Should ARIN be contacting the downstream directly for updated information?
- If valid information can not be obtained, should stale information be removed from the database?
- Should ARIN indicate data is stale in Whois?
- Should ARIN establish distinct procedures for direct allocations/assignments versus downstream?

RWhois Update



Ginny Listman
Director of Engineering

What's RWhois?

- ④ Decentralized network database server
- ④ Distributed Whois
- ④ Provides network allocation tracking
- ④ Used to justify utilization
- ④ Data stored locally
- ④ Should have cleaner/more up-to-date information

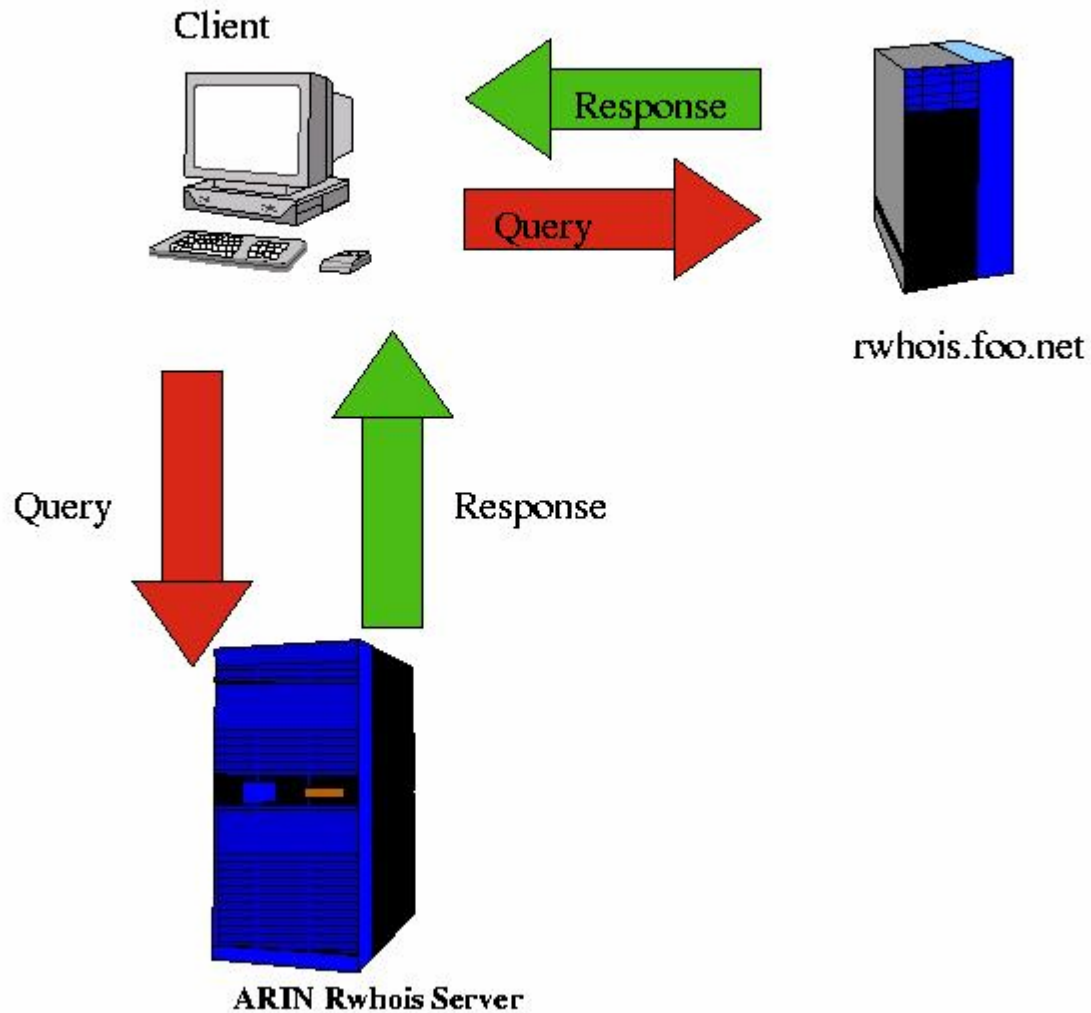
What's Wrong with RWhois?

- ④ Referrals don't work
- ④ Non-standard format
- ④ No documentation or examples
- ④ Difficult to setup
- ④ Difficult to administer
- ④ Difficult to enhance/make changes
- ④ Does not meet RFC2167
- ④ Many RWhois servers not always "on"

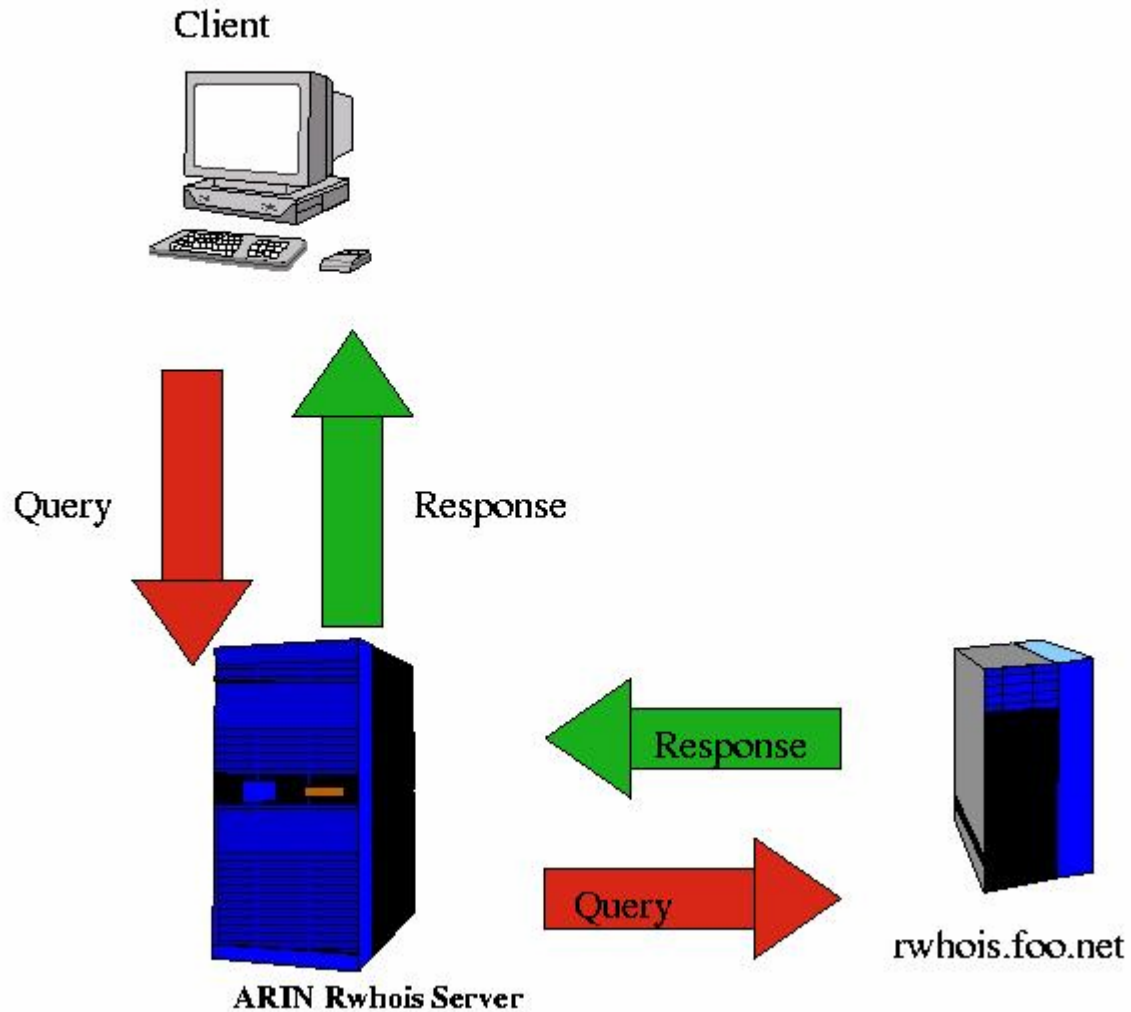
ARIN's Goals

- ④ Develop IP specific database
- ④ Implement referral mechanism
- ④ Simplify setup
- ④ Simplify administration
- ④ Provide Documentation/User's Guide
- ④ Re-write Informational RFC
- ④ Develop an intelligent client

Current Architecture



Future Architecture



Technologies Used

- Code written in Perl
- POE – Perl Object Environment
 - General purpose multi-tasking and network framework
 - <http://poe.perl.org>
- Modular code
- MySQL database (initial)
- Flatfile database (future)

Primary Modules (1)

- Server
 - Handles incoming connections
- Connection Manager
 - Manage individual connections
 - Moves the query/response through states
 - Sends response back to the client
- Validator
 - Parses and validates contents of query
- Database Manager
 - Maintains persistent connections to DB

Primary Modules (2)

- Lookup
 - Forks
 - Buffer
 - Cache
- Output
 - HTML
 - XML
 - Compressed
 - RPSL
- Report Interface (TBD)

Options for Reporting Utilization



Tanya Hinman & Michael J. O'Neill

Overview

- ④ Reporting ISP Allocation Utilization at ARIN
- ④ RPSL inetnums
- ④ Overview of the CW database
- ④ Sample objects

Reporting ISP Allocation Utilization

- ④ options
 - SWIP
 - RWHOIS
- ④ range
- ④ netname
- ④ about recipient
 - organization name
 - organization street address
 - country code
- ④ maintainer or organization identifier
- ④ contact information (of recipient)

RPSL inetnums

- as in RFC 2725
- a proposed alternative to SWIP or RWHOIS
- similar requirements
 - recipient organization
 - netname
 - postal address
 - country
 - range
 - country code



CABLE & WIRELESS

C&W WHOIS Database Update

Presented By:
Tanya Hinman
Cable & Wireless

C&W Whois Overview

- Using C&W database in place of SWIP and RWHOIS
- Currently using ripe-db v3.0.2
- Mirror with ARIN
- Request Whois Information via:
<http://infopage.cary.cw.net/Tools/whois.html> or whois -h rr.cw.net
- Aggregates in ARIN db will also reference rr.cw.net

Process for Inetnum Object

- ④ Inetnums submitted to auto-rr@cw.net
- ④ Top Level Inetnums with “ALLOCATED PA” require “mnt-by: CW”
- ④ Only one designated maintainer can create the initial allocation
 - CW in our case
- ④ Also used “mnt-lower: SWIP-MAINT-CW”
- ④ More specific objects have a different mnt-by
 - Such as SWIP-MAINT-CW

Process for Inetnum Object

- Increased the description line to include full street address.

```
inetnum: 204.71.0.0 - 204.71.255.255
netname: CW-PROVIDER
descr: Cable & Wireless US
descr: 3300 Regency Pkwy
descr: Cary, NC 27511
country: US
admin-c: TH8-CW
tech-c: KC12-CW
status: ALLOCATED PA
notify: thinman@cw.net
mnt-by: CW
mnt-lower: SWIP-MAINT-CW
changed: thinman@clp.cw.net 20020319
source: CW
```

Process for Person Objects

Submitted typical Person Object

person: Tanya Hinman
address: Cable & Wireless
address: 3300 Regency Parkway
address: Cary, NC 27511
address: US
phone: +1 919 465 4023
fax-no: +1 919 465 4187
e-mail: thinman@cw.net
nic-hdl: TH8-CW
notify: thinman@clp.cw.net
mnt-by: SWIP-MAINT-CW
changed: thinman@clp.cw.net 20020318
source: CW

NOTES

- Both Phone and Fax fields must use International calling code and the “+”.
 - Otherwise you get the ***Error: intn'l phone number expected (with a preceding '+').
 - The fax field is optional.
- These templates are obtained by querying the C&W WHOIS db using “-t person” or “-t inetnum”.
 - Also available from whois.ripe.net
- Inetnum and Person Object Generators were created.
 - Pulls data from C&W provisioning database
 - Not yet available to ISP customers
 - Once the testing is complete a public version may be available for use via <http://infopage.cw.net>.

NOTES

- May allow ISP's to submit their own reassignment information
 - Many ISP's will already have a maintainer for BGP RO submissions to CW RR
 - If the ISP does not have a maintainer, we can submit the reassignment information for them

Summary

- Still testing and implementing
- Will need to migrate SWIP data to C&W DB



CABLE & WIRELESS

C&W WHOIS Database Update

Presented By:
Tanya Hinman
Cable & Wireless

Database Working Group



Ginny Listman
Director of Engineering

Overview

- ④ Preparing for Change
- ④ Handle Generation
- ④ Whois Display
- ④ Web-based Templates




Preparing for Change

- Review templates
 - <ftp://ftp.arin.net/pub/new-templates>
- Rewrite auto-generator for SWIP process
 - Use “raw” templates
 - Reallocate Template
 - Reassign Detailed Template
 - Reassign Simple Template
 - Netmod Template
- Review organizational information and resources for accuracy
- Become a beta tester




Handle Generation (1)

POC Handles

Person records

-  Initials <+ sequence> + -ARIN
-  Handles can NOT be reused
-  Existing handles prevail

Role account records






-  Org ID + initials <+ sequence> + -ARIN
-  Handles can be reused
-  Existing handles prevail

Handle Generation (2)

- Organization ID
 - Multi-word organizations
 - Initials <+sequence>
 - Example:
 - American Registry for Internet Numbers - ARFIN
 - Single-word organizations
 - First 7 letters <+sequence>
 - Example
 - Connections-R-Us - CONNECT
 - Handles can NOT be reused
 - Existing Maintainer ID becomes Org ID
 - If no Maintainer ID exists, new Org ID generated






Handle Generation (3)

Autonomous Systems

-  AS## where ## is the first (or only) autonomous system number
-  Handles can be reused
-  Example:
 -  AS65000
-  Existing handles replace with new format

Handle Generation (4)

IPv4 Networks

-  NET-##-##-##-##<-sequence> where ## represents each of the octets in the IP address
-  Handles can be reused
-  Example
 -  NET-10-0-0-0
-  Existing handles replaced with new format

Whois Display

- Message sent discussing new format
 - <http://www.arin.net/maillinglists/dbwg/0223.html>
- Enhancements:
 - Added labels to facilitate parsing
 - Added “%” flag to show sub-queries
 - Reassignment/reallocation information
 - Organization’s resources
 - Added “*” flag to show parentage
 - Registration date will be displayed for all objects

POC Record

Name: Network Operations Center

Handle: ABC-NOC-ARIN

Company Name: ABC ISP

Address: 132 Main Street

Anytown, VA 22222

Country Code: US

Phone: +1-999-999-6666 (Office)

Phone: +1-888-888-8888 (Mobile)

Phone: +1-777-777-7777 (Fax)

Email: noc@example.net

Registration Date: 1998-06-09

Last Updated: 2000-11-21

Org Record

Org Name: ABC ISP

Org ID: ABC

Org Address: 132 Main Street

Anytown, VA 22222

Country Code: US

Registration Date: 1999-01-07

Last Updated: 2001-12-30

Org Admin Handle: DEF-ARIN

Org Admin Name: Foobar, Dwight E.

Org Admin Phone: +1-999-999-7777 (Office) *

Org Admin Email: foobar@example.net

Org Tech Handle: ABC-TECH-ARIN

Org Tech Name: Technical Support

Org Tech Phone: +1-999-999-9999 (Office) *

Org Tech Email: tech@example.net

Org Record (2)

Org Tech Handle: ABC-TECH2-ARIN

Org Tech Name: Technical Support Manager

Org Tech Phone: +1-999-999-8888 (Office)

Org Tech Email: tech-mgr@example.net

Org NOC Handle: ABC-NOC-ARIN

Org NOC Name: Network Operations Center

Org NOC Phone: +1-999-999-6666 (Office) *

Org NOC Email: noc@example.net

Org Abuse Handle: ABC-ABU-ARIN

Org Abuse Name: Network Abuse Support

Org Abuse Phone: +1-999-999-5555 (Office) *

Org Abuse Email: abuse@example.net

AS Record

Org Name: ABC ISP

Org ID: ABC

AS Number: 65000

AS Name: ABC-ASN65000

AS Handle: AS65000

Registration Date: 2000-05-24

Last Updated: 2001-06-12

AS Abuse Handle: ABUSE-ARIN

AS Abuse Name: AS 65000 Abuse Support

AS Abuse Phone: +1-703-000-0000 (Office) *

AS Abuse Email: abuse-65000@example.net

Org Tech Handle: ABC-TECH-ARIN

Org Tech Name: Technical Support

Org Tech Phone: +1-999-999-9999 (Office) *

Org Tech Email: tech@example.net

AS Record (2)

```
Org Tech Handle: ABC-TECH2-ARIN
Org Tech Name: Technical Support Manager
Org Tech Phone: +1-999-999-8888 (Office)
Org Tech Email: tech-mgr@example.net

Org NOC Handle: ABC-NOC-ARIN
Org NOC Name: Network Operations Center
Org NOC Phone: +1-999-999-6666 (Office) *
Org NOC Email: noc@example.net

Org Abuse Handle: ABC-ABU-ARIN
Org Abuse Name: Network Abuse Support
Org Abuse Phone: +1-999-999-5555 (Office)
*
Org Abuse Email: abuse@example.net
```


Network Record

Org Name: ABC ISP

Org ID: ABC

Network Range: 10.0.0.0-10.1.255.255

CIDR Notation: 10.0.0.0/15

Network Name: NETWORK-10

Network Handle: NET-10-0-0-0

Can Sub-Delegate: Y

IN-ADDR: ns.example.net

IN-ADDR: ns2.example.net

Registration Date: 2001-10-30

Last Updated: 2001-10-30

Org Tech Handle: ABC-TECH-ARIN

Org Tech Name: Technical Support

Org Tech Phone: +1-999-999-9999 (Office) *

Org Tech Email: tech@example.net

Network Record (2)

Org Tech Handle: ABC-TECH2-ARIN

Org Tech Name: Technical Support Manager

Org Tech Phone: +1-999-999-8888 (Office)

Org Tech Email: tech-mgr@example.net

Org NOC Handle: ABC-NOC-ARIN

Org NOC Name: Network Operations Center

Org NOC Phone: +1-999-999-6666 (Office) *

Org NOC Email: noc@example.net

Org Abuse Handle: ABC-ABU-ARIN

Org Abuse Name: Network Abuse Support

Org Abuse Phone: +1-999-999-5555 (Office) *

Org Abuse Email: abuse@example.net