Development of Open Source RESTful WHOIS

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Why We Need a New WHOIS Protocol

WHOIS Protocol (RFC 3912) has problems

- **WHOIS has never been internationalized**
  - WHOIS was defined for ASCII only

- **WHOIS also has no data model**
  - The WHOIS protocol (RFC 3912) does not define query formats or encoding, has no structure for replies and error messages

- **The WHOIS protocol does not offer any differential service**
  - No authentication mechanisms
  - Authentication makes user authorization, access control or rate limit possible
IETF WEIRDS WGs

- IETF WEIRDS (Web Extensible Internet Registration Data Service) working group was formed on May 16, 2012

- The WG aims to:
  - Standardize a single data framework
  - Use standard features of HTTP to support differential service levels to different classes of user
  - Produce a simple, easy-to-implement protocol that supports internationalized registration data

- WG drafts
  - draft-ietf-weirds-rdap-sec (CNNIC co-author)  draft-ietf-weirds-rdap-redirects (CNNIC co-author)
  - Individual drafts
    - draft-hollenbeck-weirds-rdap-search
    - draft-zhou-weirds-dnrd-ap-object-inventory(CNNIC)
    - draft-zhou-weirds-rdap-restful-search (CNNIC)
CNNIC and ICANN executed the collaboration agreement for development of a RESTful WHOIS open-source server on 26 Oct, 2012.

- CNNIC assumes the exclusive role of open source RESTful WHOIS development program.

- The RESTful WHOIS server will be implemented according to the WEIRDS WG protocols to meet the needs of the community.
Project Plan

Completed
- Hardware and software preparation
- Project management web site

Jan 2013

Completed
- Implementation release and update
- Searchable RESTful WHOIS
- Rate limit
- Redirection function

Mar 2013

Oct 2013

Dec 2013

- Demo software supporting query, response and authentication
Server preparation

1

2

• Software requirement specifications
• Architecture
• Database design

RESTful WHOIS

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Call for volunteers to join in the development team

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Project management --
www.restfulwhois.org
Demo system--
rdap.restfulwhois.org
If you have product development experience in JAVA, strong understanding of algorithms and software engineering, relevant experience with database design and SQL etc., please click here to join us!

Please mail to here.
• Manage this project by Scrum approach that is an iterative and incremental agile software development method.
• Volunteers will attend a 10-15 min daily teleconference.
• New tickets will be created for everyone’s tasks. Find them on the “View Tickets” page.
Software and Hardware

**Software**
- Developed by JAVA 6
- Web server – Apache httpd (v2.0 or above)
- Web container – Tomcat (v6.0 or above)
- Database – MySQL (v5.0 or above). System is also compatible with other databases such as Oracle
- Client – CMD Client and browser

**Hardware**
- 1 Database Server
- 3 servers used for RESTful WHOIS server, Port 43 proxy server and redirect server
Functions Overview

- 5 query types
  - IP/AS number/Domain/Name server/Entity
- REST URI: http://rdap.restfulwhois.org/domain/example.cn
- Multi response format (JSON/XML)
- Response extension
- Authentication & Authorization
- Redirect
- Rate limit
- Search
UI Prototype
Software Architecture

Front-end
- Command Interface – Interface for WHOIS server core access
- JSON/XML Parser – Convert to JSON or XML format
- Plain text Parser – Convert to plain text format
- Redirect Server Module – RDAP redirect service
- A&A module – Authentication and authorization
- RESTful Webapp – Client based on REST component
- Port 43 Proxy Interface – Change Port 43 query to REST query

Back-end
- RDB – Relational database (MySQL)
- DB Interface – Data access interface
- WHOIS Server Core – Support RDAP functions
- Cache Module – Simple cache control
Next Step

1. Call for more volunteers to join in the project team.
2. Report to and communicate with ICANN staff regularly.
4. We are going to refine the existing functions and prepare for the advanced functions, like rate limiting, search etc.
中国互联网重要的基础设施建设者、运行者和管理者