RDAP @ DNS Belgium

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Registration Data Access Protocol

Successor for WHOIS protocol (RFC 954 in 1985)

Addresses current problems

- No standardized command structures (queries)
- No standardized output and error structures (responses)
- No internationalization and localization
- No user identification, authentication and access control
- No redirection to authoritative sources

RESTful web service: http(s) & JSON

Developed by WEIRDS WG

RFC 7840 -> 7845 published Q1 2015
RDAP @ DNS Belgium

Past actions
  • Open source library
  • Internal service

Recent activities
  • RFC and documentation for library
  • External access requests?

Future plans
  • Public service?
Our RDAP incentives (Q1 2013)

Mailinglist participation

Design new application Abusetool
  • Automated access all public WHOIS data
  • Loosely coupled to registration platform

CERT.be
  • Automated access all public WHOIS data

No solution in current services

→ Implement RDAP
Implementing RDAP

DNS Belgium open source library
- Pluggable Java framework
- Presented at Jamboree 2013 Amsterdam
- https://github.com/DNSBelgium/rdap

CNNIC reference implementation?
- Application
- https://github.com/cnnic/rdap
- Not yet available in Q2 2013
DNS Belgium Open source library

Gray: Spring libraries
White: DNS Belgium library
Green: Your custom implementation
Extending default implementation

```java
public class MyDomainService extends DefaultDomainService {

    @Override
    public Domain getDomainImpl(DomainName domainName) {
        String tld = domainName.getTldLabel().getStringValue();
        if (!supportedTlds.contains(tld)) {
            throw RDAPError.notAuthoritative(domainName);
        }
        Domain domain = domainDAO.getDomain(domainName);
        if (domain == null) {
            throw RDAPError.noResults(domainName.getStringValue());
        }
        return domain;
    }
}
```
Deploying RDAP

Service up and running in Q3 2013

- Authentication using X.509 certificates
- Abusetool only user
- CERT.be dropped their request:
  - no external access
Q1 2015: RFCs published

Updating open source library
- Implementation: DONE
- Documentation: ONGOING
- Examples: ONGOING

Registry operator (Nic.at) assessing library
- Feedback
Q1 2015: Renewed WHOIS data interest

Federal computer crime unit (FCCU)
  • More serious than cert.be

Enabling third-party access to RDAP service
  • Registrant privacy protection in RDAP: DONE
  • Review client certificate solution: ONGOING
  • Contract negotiation: NOT YET STARTED
Possible next steps

Access for interested registrars
  • Manageable like a third party

Access for general public
  • Raises questions
    ▪ Authentication?
    ▪ Rate limiting?
RDAP authentication options

No authentication
  • Reduced service?

Basic authentication
  • User administration 😞

Client certificates
  • Certificate mgmt 😞

OpenID Connect
  • Draft submitted May 2015
  • Possible federation trust issue
RDAP rate limiting

WHOIS: based on IP address
  • Questions
    ▪ Who is not using rate limits?
    ▪ Who is using another mechanism?
  • Issues
    ▪ IP address change
    ▪ Users behind proxies?

RDAP: based on authenticated user
  • Solves issues above
RDAP improvements?

WHOIS is not a domain availability service (DAS)
  • Special cases like blocked or reserved domains?

Some registries build own DAS

Can RDAP provide uniform solution?
  • Earlier discussion unconcluded
  • RFC unclear (for us)
  • Who wants to collaborate?
Conclusions

RDAP is successor to WHOIS

ICANN could push RDAP to newgTLDs

Maybe ccTLDs also interested?

DNS Belgium

• Operational RDAP experience
• Java library: https://github.com/DNSBelgium/rdap
• Seeks active collaboration

Come talk to us!
Questions?

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