Session Agenda

• About the EWG
• Overview of the EWG’s Final Report
• Next Steps
• Extended Q&A Opportunities
  o EWG Final Report Discussion Session 1
    Monday, 23 June, 1700 - 1900
  o EWG Final Report Discussion Session 2
    Wednesday, 25 June, 0800 – 1000

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About the EWG

• Formed to overcome decade-long deadlock
  o Bring together a diverse group of volunteers
  o Apply wide range of expertise and experiences
  o Discuss issues frankly, participate individually
  o Strike compromises to find a path forward

• ICANN Board’s mandate to EWG
  o Reexamine purpose & provision of gTLD registration data
  o Envision a next-generation solution to better serve global Internet community needs
  o Create a foundation to help the ICANN community (through the GNSO) create a new policy for gTLD directory services
## EWG Members

<table>
<thead>
<tr>
<th>Jean-Francois Baril (Lead Facilitator)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pekka Ala-Pietilä</td>
<td>Michele Neylon</td>
</tr>
<tr>
<td>Lanre Ajayi</td>
<td>Michael Niebel</td>
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<tr>
<td>Steve Crocker</td>
<td>Stephanie Perrin</td>
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<td>Chris Disspain</td>
<td>Rod Rasmussen</td>
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<tr>
<td>Scott Hollenbeck</td>
<td>Carlton Samuels</td>
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<tr>
<td>Jin Jian</td>
<td>Faisal Shah</td>
</tr>
<tr>
<td>Susan Kawaguchi</td>
<td>Fabricio Vayra</td>
</tr>
<tr>
<td>Nora Nanayakkara</td>
<td></td>
</tr>
</tbody>
</table>
EWG Approach

• Final Report reflects 15+ month effort
  o Thousands of hours on in-depth research
  o 2600+ pages of comments, responses, results
  o 19 public community consultations
  o 35 EWG meeting days
  o 42 EWG calls
  o More than 200 subteam calls

• To answer a simple question about a very complex problem…

Is there an alternative to today’s WHOIS to better serve the global Internet community?

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EWG’s Answer

- Today's WHOIS model of giving every user the same entirely anonymous public access to often-inaccurate data should be abandoned.
EWG’s Final Report

• Details a proposed next-generation Registration Directory Service (RDS)
• Strikess a balance between accuracy, access, and accountability
• Collects, validates and discloses gTLD data for permissible purposes only
• Leaves minimum data publicly available
• Safeguards the rest through a new paradigm: purpose-driven gated access
• Introduces new contracted parties to
  o Validate Contact Data
  o Accredit RDS Users

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Overview of Final Report
Why create a new RDS?

- WHOIS provides one-size-fits-all public access to anonymous users
  - Little accountability or abuse remedies
  - Limited individual privacy protection or ability to conform to differing laws
  - Limited ability to ensure data integrity
  - Lack of security and auditing capabilities
  - Cumbersome contact management
  - Inefficient communication
Solution: Purpose-Driven Access

- Some registration data would remain public to promote Internet stability and meet basic DNS needs.
- This minimum public data would still be accessible by anyone, for any permissible purpose, without authentication...

Diagram:
- Any Requestor
- RDS Query (Unauthenticated, DN)
- RDS Response (Public Data Only)
- RDS
- Returns only public data available to anyone, for any purpose.
- All gTLD Registries
- All gTLD Validators

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Today’s WHOIS

- Entirely Public Data
- Entirely Anonymous Access
- Registrants Cannot Provide Contemporary/Alternate Data
- Contacts Cannot Prevent Inaccurate or Fraudulent Use

Purpose-Driven RDS

Minimum Public Data – *Most Data Gated By Default!*

- Contact Data is Validated
- IDs link Contact Data to Registered Domain Names
- Purpose-Based Contacts (PBCs) Manage Their Own Data

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Minimum registration data that is publicly available to anyone, for any permissible purpose, without authentication.

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Minimum Public Data Example

<table>
<thead>
<tr>
<th>Registration Status</th>
<th>Domain Name: MY_DOMAIN.TLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNSSEC Delegation</td>
<td>Name Server: NS01.MY_REGISTRAR.TLD</td>
</tr>
<tr>
<td>Client Status</td>
<td>Registrant Type: UNDECLARED</td>
</tr>
<tr>
<td>Server Status</td>
<td>Registrant Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Registrar</td>
<td>Registrant Contact Validation Status: Operationally-Validated</td>
</tr>
<tr>
<td>Reseller</td>
<td>Registrant Contact Last Validated Timestamp: x</td>
</tr>
<tr>
<td>Registrar Jurisdiction</td>
<td>Registrant Email: <a href="mailto:EMAIL@MY_DOMAIN.TLD">EMAIL@MY_DOMAIN.TLD</a></td>
</tr>
<tr>
<td>Registry Jurisdiction</td>
<td>Registrant Country: AA</td>
</tr>
<tr>
<td>Registration Agreement Language</td>
<td>Administrator Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Creation Date</td>
<td>Tech Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Original Registration Date</td>
<td>Legal Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Registrar Registration Expiration Date</td>
<td>Abuse Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Updated Date</td>
<td>Business Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Registrar URL</td>
<td>Privacy/Proxy Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Registrar IANA Number</td>
<td>Registrant Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Registrar Abuse Contact Email</td>
<td>Registrant Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Registrar Abuse Contact Phone</td>
<td>Registrant Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>URL of the Internic Complaint Site</td>
<td>Registrant Contact ID: xxxx-xxxx</td>
</tr>
</tbody>
</table>

Minimum\(^\d\) registration data that is publicly available to anyone, for any permissible purpose, without authentication* (grey = not applicable for every domain name)

* Except where prohibited by data protection laws
\(^\d\) Gated Registrant Data can also be made public at the Registrant’s discretion
When is Public Data returned?

Requestor queries RDS (User, Purpose, DN)

- Requestor Identified?
  - Y
    - Purpose Declared?
      - Y
        - Purpose = ?
        - Apply GATED ACCESS policy for declared purpose...
      - N
        - Purpose = ?
        - Apply GATED ACCESS policy for declared purpose...
  - N
    - Return Only PUBLIC DATA

- Purpose Declared?
  - Y
    - Purpose = ?
    - Apply GATED ACCESS policy for declared purpose...
  - N
    - Return Only PUBLIC DATA

- Purpose = ?
  - Apply GATED ACCESS policy for declared purpose...

- Domain Name Control
- Personal Data Protection
- Technical Issue Resolution
- Domain Name Certification
- Individual Internet Use
- Business DN Sale or Purchase
- Academic DNS Research
- Legal Actions
- Regulatory Contractual Enforcement
- Criminal Investigation & Abuse Mitigation
- DNS Transparency
What is the RDS “gate”?

There is no single RDS “gate”

• Requestors and their data needs vary; so would RDS gated access policies

• Like most on-line services that hold private data, the RDS would
  o Apply policy-defined permissions
  o Driven by requestor identity + purpose
  o Uniformly enforce terms of service
  o Apply measures to deter and mitigate abuse
What is Gated Access?

- In the RDS, data is collected and disclosed for permissible purposes.
Accredited Users and Purposes

- RDS must be able to support existing and future permissible purposes

- Domain Name Control
- DNS Transparency
- Personal Data Protection
- Technical Issue Resolution
- Abnormal Mitigation
- Regulatory/Contractual Enforcement
- Legal Actions
- Domain Name Certification
- Domain Name Purchase/Sale
- Individual Internet Use
- Domain Name Research
- DNS Transparency
- Abuse Mitigation

gTLD Registration Data Permissible Purposes
Purposes and Data

• Every permissible purpose has data needs
  o Domain Names involved
  o Domain Name Data (public)
  o Registrant Data (public &/or gated)
  o PBC Data (gated)
  o WhoWas &/or Reverse Query needs

• Some purposes are widely used and can be satisfied by minimum public data

• Other purposes require formal accreditation, strict terms of service, strong access controls, anti-abuse mechanisms, penalties for misuse
Purpose-Based Contacts

- Improve accountability and reachability while giving Registrants more control over personal data use
- Contact IDs are public, linked to Contact Data
- Contact Data is largely gated, accessible only to authenticated requestors with specific purpose who agree to be accountable for use

Every Domain Name has
1 Registrant Contact ID
4 Mandatory PBC ID
2 Optional PBC IDs

Registrant Contact
Required for all DNs today

Admin Contact
Required for all DNs today

Technical Contact
Required for all DNs today

Abuse Contact
Required for all new DNs

Legal Contact
Required for all new DNs

Privacy/Proxy Provider Contact
Required for PP registrations

Business Contact
Recommended for businesses

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Legal Actions (Requestor = x, DN = y)

N

Authentic Requestor “x”?

Y

Authorized for this Purpose?

N

Return Error

Y

Gated Registrant Data Requested?

N

Return Requested Public Data + Legal Contact for DN “y”

Y

Approved for Gated Data?

N

Approved for Gated Data?

Y

Return Requested Public Data + Legal Contact + Approved Gated Data for DN “y”
Contact Data can contain

- Third-party PBC’s information, authorized for use by this Domain Name
- Forwarding addresses, supplied by an accredited Privacy Service
- Proxy’s information, supplied by an accredited Proxy Service
- Registrant’s own information, if no other choice is made
- Each Contact Holder can opt to gate data not needed for purpose(s)
Data Quality Improvements

- Gated Access reduces intentional inaccuracy
- With Contact Directory, conceptually separate from Domain Name Directory, individuals and organizations control and maintain own data
- Contact data accuracy improved by Standard Validation, at time of collection/update
- Optional identity validation reduces identity theft
- Reusable Contacts improve data consistency and simplify large-scale updates
- Letting Contacts use any Validator may ease compliance with local data protection laws
- Local Validators may support native languages
Standard Validation

- Syntax Validation for every Data Element
- Operational Validation for some Addresses
- Identity Validation is Optional
- User-Visible Validation Result & Timestamp

Name = Z
Email = Z@ISP

Standard Validation performed by any Validator

2. Syntax Validation
   e.g., Does “Z@ISP” look like an Email Address?

3. Operational Validation
   e.g., Can email be sent to “Z@ISP”?

4. Identity Validation
   e.g., Does email sent to “Z@ISP” reach Z?

5. Assign Contact ID & Credential

Contacts Database
RDS Contact Directory

- Registrants and PBCs create and maintain their own Contact Data using Validators
- By separating Contact Validation from Domain Name Registration
  - Difficult validation tasks can be carried out by specialists – many of whom already validate addresses on a global scale
  - Registrars and Registries won't be forced to create global validation systems
  - Registrants can choose local Validators, reducing overall cost
Recommended Model

- The EWG evaluated several possible models against defined criteria

<table>
<thead>
<tr>
<th>POSSIBLE MODELS</th>
<th>Collection</th>
<th>Storage</th>
<th>Copy</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current WHOIS</td>
<td>RR</td>
<td>RR/Ry</td>
<td>n/a</td>
<td>RR/Ry</td>
</tr>
<tr>
<td>Federated</td>
<td>RR &amp; V</td>
<td>RR/Ry &amp; V</td>
<td>n/a</td>
<td>RDS</td>
</tr>
<tr>
<td>Synchronized *</td>
<td>RR &amp; V</td>
<td>RR/Ry &amp; V</td>
<td>RDS</td>
<td>RDS</td>
</tr>
<tr>
<td>Regional</td>
<td>RR &amp; V</td>
<td>RR/Ry &amp; V</td>
<td>Regional</td>
<td>RDS</td>
</tr>
<tr>
<td>Opt-Out</td>
<td>RR &amp; V</td>
<td>RR/Ry &amp; V</td>
<td>Optional</td>
<td>RDS</td>
</tr>
<tr>
<td>Bypass</td>
<td>RR &amp; V</td>
<td>RR &amp; V</td>
<td>RDS</td>
<td>RDS</td>
</tr>
</tbody>
</table>

- After rigorous analysis of factors – including cost – the EWG chose the Synchronized RDS (SRDS)

* Formerly known as the Aggregated RDS (ARDs)
Synchronized RDS

Registrars and Contacts

Data Collection

Registrars

Data Storage

gTLD Registries

Synchronized Model (SRDS)

Validators

Synchronized RDS

Requestors

Purpose-Driven Data Disclosure via Public & Authenticated Access Methods

Stores copies of Validated Data
Handles All Queries (public & authenticated)
Authorizes Access
Applies Gating Policy
Returns Allowed Data
Audits Data Access
Additional Services

Data Access Enabled via Synchronized Data Copied for all gTLDs

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RDS Ecosystem

User X queries RDS (MerchantZ.gtld, Technical Issue Res)

RDS authenticates X for purpose Technical Issue Res

RDS authorizes access to data for Technical Issue Res

Required for Gated Data Otherwise Optional

List of Public and Gated data elements accessible for this purpose

RDS looks up authorized data for Domain Name MerchantZ.gtld

RDS looks up authorized data for Registrant Contact ID 12345

RDS looks up authorized data for Technical Contact ID 67890

RDS consolidates resulting data about MerchantZ.gtld ExampleTech into one response

Example #2 – Querying SRDS about DN for Technical Issue Resolution (illustrates Synchronized model)
Data Protection Principles

• Compliance challenges growing rapidly for WHOIS, exacerbated by new gTLDs

• Mechanisms must be adopted to facilitate routine legally compliant data collection and transfer between RDS ecosystem actors handling personal data, including

1. Standard Contract Clauses that are harmonized with privacy and data protection laws, codified in a policy and enforced through contracts

2. “Rules Engine” to apply data protection laws

3. RDS Storage Localization to implement a high level of data protection
Privacy Principles

- In addition to compliance with data protection laws, the RDS ecosystem must accommodate needs for privacy by including:
  - An accredited Privacy/Proxy Service
  - An accredited Secure Protected Credentials Service
- There Accreditation and rules for the provision and use of accredited Privacy/Proxy services
- Outside of domain names registered via accredited Privacy/Proxy Services, Registrants must assume responsibility for the domain names they register
Secure Protected Credentials

For persons at risk, and in instances where free-speech rights may be denied or speakers persecuted
Other Topics in Final Report

- Data Element Principles
- RDS User Accreditation
- Law Enforcement Access
- Compliance and Contractual Relationships
- Accredited Privacy and Proxy Service Principles
- Model Design Principles
- Core RDS Cost Analysis
- Data Storage, Escrow, and Logging Principles
- Benefits compared to 2013 RAA WHOIS
- RDS Risks and Impacts

Conclusion
Next Steps

• EWG to offer webinars and other opportunities for Community Q&A

• ICANN Board to consider EWG’s Final Report as foundation for the Board-requested GNSO Policy Development Process (PDP)

• Fundamental questions to consider
  o Is the RDS preferable to today’s WHOIS?
  o If not, can WHOIS meet the needs of the evolving global Internet?
Questions?

• EWG Discussion Sessions
  o Monday, 23 June, 1700 - 1900
  o Wednesday, 25 June, 0800 – 1000

• Where EWG members will
  o Discuss key RDS concepts
  o Answer your questions
Background Materials
Additional Resource Links

- **EWG Public Wiki**
  
  https://community.icann.org/pages/viewpage.action?pageld=40175189

- **Initial Report Announcement**
  
  https://www.icann.org/news/announcement-3-2013-06-24-en

- **Status Update Report Announcement**
  

- **Final Report Announcement**
  
  https://www.icann.org/news/blog/ewg-recommends-a-replacement-for-whois

- **Public Research Page**
  
  https://community.icann.org/display/WG/EWG+Public+Research+Page
Users and Purposes
Background Materials
# Purposes and Tasks

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Includes tasks such as...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domain Name Control</strong></td>
<td>Creating, managing and monitoring a Registrant’s own domain name (DN), including creating the DN, updating information about the DN, transferring the DN, renewing the DN, deleting the DN, maintaining a DN portfolio, and detecting fraudulent use of the Registrant’s own contact information.</td>
</tr>
<tr>
<td><strong>Personal Data Protection</strong></td>
<td>Identifying the accredited Privacy/Proxy Provider or Secure Protected Credential Approver associated with a DN and reporting abuse, requesting reveal, or otherwise contacting that Provider.</td>
</tr>
<tr>
<td><strong>Technical Issue Resolution</strong></td>
<td>Working to resolve technical issues associated with domain name use, including email delivery issues, DNS resolution failures, and website functional issues, by contacting technical staff responsible for handling these issues.</td>
</tr>
<tr>
<td><strong>Domain Name Certification</strong></td>
<td>Certification Authority (CA) issuing an X.509 certificate to a subject identified by a domain name needing to confirm that the DN is registered to the certificate subject.</td>
</tr>
<tr>
<td><strong>Individual Internet Use</strong></td>
<td>Identifying the organization using a domain name to instill consumer trust, or contacting that organization to raise a customer complaint to them or file a complaint about them.</td>
</tr>
<tr>
<td><strong>Business Domain Name Purchase or Sale</strong></td>
<td>Making purchase queries about a DN, acquiring a DN from another Registrant, and enabling due diligence research.</td>
</tr>
<tr>
<td><strong>Academic/Public-Interest DNS Research</strong></td>
<td>Academic public-interest research studies about domain names published in the RDS, including public information about the Registrant and designated contacts, the domain name’s history and status, and DNs registered by a given Registrant.</td>
</tr>
<tr>
<td><strong>Legal Actions</strong></td>
<td>Investigating possible fraudulent use of a Registrant’s name or address by other domain names, investigating possible trademark infringement, contacting a Registrant/Licensee’s legal representative prior to taking legal action and then taking a legal action if the concern is not satisfactorily addressed.</td>
</tr>
<tr>
<td><strong>Regulatory and Contractual Enforcement</strong></td>
<td>Tax authority investigation of businesses with online presence, UDRP investigation, contractual compliance investigation, and registration data escrow audits.</td>
</tr>
<tr>
<td><strong>Criminal Investigation &amp; DNS Abuse Mitigation</strong></td>
<td>Reporting abuse to someone who can investigate and address that abuse, or contacting entities associated with a domain name during an offline criminal investigation.</td>
</tr>
<tr>
<td><strong>DNS Transparency</strong></td>
<td>Querying the registration data made public by Registrants to satisfy a wide variety of needs to inform the general public.</td>
</tr>
</tbody>
</table>
Example Registrations using Purpose-Based Contacts

Individual using own Data

Registrant Contact ID = <reg>
Admin Contact ID = <reg>
Technical Contact ID = <reg>
Abuse Contact ID = <reg>
Legal Contact ID = <reg>
PP Provider Contact ID = NULL
Business Contact ID = NULL

Individual or Org using Privacy Service*
forwarding addresses

Registrant Contact ID = <reg>pp
Admin Contact ID = <reg>pp
Technical Contact ID = <isp>
Abuse Contact ID = <reg>pp
Legal Contact ID = <reg>pp
PP Provider Contact ID = <reg>pp
Business Contact ID = NULL

Business using 3rd Party PBCs

Registrant Contact ID = <reg>
Admin Contact ID = <admin>reg>
Technical Contact ID = <isp>
Abuse Contact ID = <abuse>reg>
Legal Contact ID = <legal>reg>
PP Provider Contact ID = <reg>pp
Business Contact ID = <cs>reg>

* Proxy Registration also possible, not shown
# Purposes and Needs

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Query Scope</th>
<th>Contact(s) Needed</th>
<th>Registrant Data Needed</th>
<th>DN Data</th>
<th>Other Queries Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain Name Control</td>
<td>Own DN</td>
<td>All</td>
<td>Public+Gated</td>
<td>Yes</td>
<td>Reverse (Own Data)</td>
</tr>
<tr>
<td>Personal Data Protection</td>
<td>PP DN*</td>
<td>PP</td>
<td>Public</td>
<td>Yes</td>
<td>None</td>
</tr>
<tr>
<td>Technical Issue Resolution</td>
<td>Any DN</td>
<td>Tech</td>
<td>Public</td>
<td>Yes</td>
<td>None</td>
</tr>
<tr>
<td>Domain Name Certification</td>
<td>Any DN</td>
<td>None</td>
<td>Public+Gated</td>
<td>Yes</td>
<td>None</td>
</tr>
<tr>
<td>Individual Internet Use</td>
<td>LP DN*</td>
<td>Business</td>
<td>Public</td>
<td>No</td>
<td>None</td>
</tr>
<tr>
<td>Business Domain Name Purchase or Sale</td>
<td>Any DN</td>
<td>Admin</td>
<td>Public+Approved Gated</td>
<td>Yes</td>
<td>Reverse (Approved Data)</td>
</tr>
<tr>
<td>Academic/Public Interest DNS Research</td>
<td>Any DN</td>
<td>All</td>
<td>Public+Approved Gated</td>
<td>Yes</td>
<td>Reverse (Approved Data)</td>
</tr>
<tr>
<td>Legal Actions</td>
<td>Any DN</td>
<td>Legal</td>
<td>Public+Approved Gated</td>
<td>Yes</td>
<td>Reverse (Approved Data)</td>
</tr>
<tr>
<td>Regulatory and Contractual Enforcement</td>
<td>Any DN</td>
<td>Legal</td>
<td>Public+Gated</td>
<td>Yes</td>
<td>Reverse (Any Data)</td>
</tr>
<tr>
<td>Criminal Investigation &amp; DNS Abuse Mitigation</td>
<td>Any DN</td>
<td>Abuse</td>
<td>Public+Gated</td>
<td>Yes</td>
<td>Reverse (Any Data)</td>
</tr>
<tr>
<td>DNS Transparency</td>
<td>Any DN</td>
<td>Public</td>
<td></td>
<td>Yes</td>
<td>None</td>
</tr>
</tbody>
</table>

LP = Legal Person         PP = Privacy/Proxy        DN = Domain Name
# PBCs and Responsibilities

<table>
<thead>
<tr>
<th>PBC Type</th>
<th>Potential Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin</td>
<td>Handling requests related to domain name acquisition and sale, such as purchase inquiries and domain name transfers.</td>
</tr>
<tr>
<td>Legal</td>
<td>Handling requests about this domain name from tax authorities, UDRP investigators, contractual compliance investigators, and legal representatives.</td>
</tr>
<tr>
<td>Technical</td>
<td>Handling requests about this domain name related to problems with website outages, DNS issues, mail delivery issues, etc.</td>
</tr>
<tr>
<td>Abuse</td>
<td>Handling DNS abuse reports about this domain name, including phishing, spam, and other harmful Internet activities.</td>
</tr>
<tr>
<td>Privacy Proxy</td>
<td>Handling requests for relay/reveal, fielding complaints about domain name abuse on behalf of the Registrant/Licensee, complying with LEA investigations into criminal activities.</td>
</tr>
<tr>
<td>Business</td>
<td>Handling consumer requests for information about a business and information for contacting the company for further information or to resolve customer complaints.</td>
</tr>
</tbody>
</table>
RDS User Accreditation
Background Materials
RDS User Accreditation

• Any purpose requiring gated access requires user accreditation

• Each RDS User community should be consulted to confirm
  o EWG-identified purposes
  o Data elements needed for purpose
  o Possible RDS User Accreditors
RDS User Accreditor Models

• Many organizations may accredit RDS Users, taking on one or both of these roles:
  o Accrediting Body - manages community
  o Accreditation Operator - underlying platform

• Guided by common principles but using varied implementations

1. Accrediting Body, separate from third-party Accreditation Operator
2. Accrediting Body + Operator, passing authenticated requests to RDS
3. Accrediting Body + Operator, proxying member requests (i.e., “Interpol model”)

Gated Data Examples
Background Materials
Requestor queries RDS (User, Purpose, DN)

- Y: Requestor Identified?
  - Y: Purpose Declared?
    - Y: Purpose = ?
      - Apply GATED ACCESS policy for declared purpose...
        - Domain Name Control
        - Personal Data Protection
        - Technical Issue Resolution
        - Domain Name Certification
        - Individual Internet Use
        - Business DN Sale or Purchase
          - Academic DNS Research
          - Legal Actions
          - Regulatory Contractual Enforcement
          - Criminal Investigation & Abuse Mitigation
          - DNS Transparency
        - Return Only PUBLIC DATA
    - N: Purpose = ?
  - N: Return Only PUBLIC DATA
<table>
<thead>
<tr>
<th>Registration Status: x</th>
<th>Domain Name: EXAMPLE.TLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNSSEC Delegation: signedDelegation</td>
<td>Name Server: NS01.EXAMPLE-REGISTRAR.TLD</td>
</tr>
<tr>
<td>Client Status: DeleteProhibited, RenewProhibited, TransferProhibited</td>
<td>Registrant Type: UNDECLARED</td>
</tr>
<tr>
<td>Server Status: DeleteProhibited, RenewProhibited, TransferProhibited</td>
<td>Registrant Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Registrar: EXAMPLE REGISTRAR LLC</td>
<td>Registrant Contact Validation Status: Operationally-Validated</td>
</tr>
<tr>
<td>Reseller: EXAMPLE RESELLER</td>
<td>Registrant Contact Last Validated Timestamp: x</td>
</tr>
<tr>
<td>Registrar Jurisdiction: EXAMPLE JURISDICTION</td>
<td>Registrant Email: <a href="mailto:EMAIL@EXAMPLE.TLD">EMAIL@EXAMPLE.TLD</a></td>
</tr>
<tr>
<td>Registry Jurisdiction: EXAMPLE JURISDICTION</td>
<td>Registrant Country: AA</td>
</tr>
<tr>
<td>Registration Agreement Language: ENGLISH</td>
<td>Administrator Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Creation Date: 2000-10-08T00:45:00Z</td>
<td>Tech Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Original Registration Date: 2000-10-08T00:45:00Z</td>
<td>Legal Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Registrar Registration Expiration Date: 2010-10-08T00:44:59Z</td>
<td>Abuse Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Updated Date: 2009-05-29T20:13:00Z</td>
<td>Business Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Registrar URL: <a href="http://www.example-registrar.tld">http://www.example-registrar.tld</a></td>
<td>Privacy/Proxy Contact ID: xxxx-xxxx</td>
</tr>
<tr>
<td>Registrar IANA Number: 5555555</td>
<td></td>
</tr>
<tr>
<td>Registrar Abuse Contact Email: <a href="mailto:email@registrar.tld">email@registrar.tld</a></td>
<td></td>
</tr>
<tr>
<td>Registrar Abuse Contact Phone: +1.1235551234</td>
<td></td>
</tr>
<tr>
<td>URL of the Internic Complaint Site: <a href="http://wdprs.internic.net/">http://wdprs.internic.net/</a></td>
<td></td>
</tr>
</tbody>
</table>

Minimum* registration data that is publicly available to anyone, for any permissible purpose, without authentication*

(gray = not applicable for every domain name)

* Except where prohibited by data protection laws

￥ Gated Registrant Data can also be made Public at the Registrant’s discretion
Domain Name Control (Requestor = x, DN = y)

Authentic Requestor “x”?

DN “y” registered to “x”?

Gated Registrant Data Requested?

Return Requested Public Data + PBCs + Gated Data for DN “y”

Return Requested Public Data + PBCs for DN “y”

Return Error
### Administrator Contact (PBC) ID: xxxx-xxxx
- **PBC Validation Status:** Operationally-Validated
- **PBC Last Validated Timestamp:** x
- **PBC Name:** EXAMPLE ADMIN
- **PBC Organization:** EXAMPLE ORG
- **PBC Street Address:** 123 Street Road
- **PBC City:** AnyTown
- **PBC State/Province:** CA
- **PBC Postal Code:** 12345
- **PBC Country:** AA
- **PBC Phone + Ext:** +1.1235551234
- **PBC Alt Phone + Ext:** +1.5556661234
- **PBC Email Address:** admin@example.tld
- **PBC Alt Email Address:** admin-tld@isp.net
- **PBC Fax + Ext:** +1.1235551234
- **PBC SMS:** +1.1235551212
- **PBC IM:** @exampleadmin
- **PBC Social Media:** socialsite.com/example
- **PBC Alt Social Media:** socialsite.com/example2
- **PBC Contact_URL:** example.tld/contact_us.html
- **PBC Abuse_URL:** example.tld/report_abuse.html

### Technical Contact (PBC) ID: xxxx-xxxx
- **PBC Validation Status:** Operationally-Validated
- **PBC Last Validated Timestamp:** x
- **PBC Name:** EXAMPLE TECH
- **PBC Organization:** EXAMPLE ORG
- **PBC Street Address:** 123 Street Road
- **PBC City:** AnyTown
- **PBC State/Province:** CA
- **PBC Postal Code:** 12345
- **PBC Country:** AA
- **PBC Phone + Ext:** +1.1235551234
- **PBC Alt Phone + Ext:** +1.5556661234
- **PBC Email Address:** tech@example.tld
- **PBC Alt Email Address:** tech-tld@isp.net
- **PBC Fax + Ext:** +1.1235551234
- **PBC SMS:** +1.1235551212
- **PBC IM:** @exampletech
- **PBC Social Media:** socialsite.com/example
- **PBC Alt Social Media:** socialsite.com/example2
- **PBC Contact_URL:** example.tld/contact_us.html
- **PBC Abuse_URL:** example.tld/report_abuse.html

---

PBC data that is disclosed only to authenticated RDS users authorized for specific purpose*
(grey = collected and published at the Contact’s discretion)

* Except where prohibited by data protection laws
Example PBCs – Legal and Abuse

<table>
<thead>
<tr>
<th>Legal Contact (PBC) ID: xxxx-xxxx</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBC Validation Status: Operationally-Validated</td>
</tr>
<tr>
<td>PBC Last Validated Timestamp: x</td>
</tr>
<tr>
<td>PBC Name: EXAMPLE LEGAL REP</td>
</tr>
<tr>
<td>PBC Organization: EXAMPLE ORG</td>
</tr>
<tr>
<td>PBC Street Address: 123 Street Road</td>
</tr>
<tr>
<td>PBC City: AnyTown</td>
</tr>
<tr>
<td>PBC State/Province: CA</td>
</tr>
<tr>
<td>PBC Postal Code: 12345</td>
</tr>
<tr>
<td>PBC Country: AA</td>
</tr>
<tr>
<td>PBC Phone + Ext: +1.1235551234</td>
</tr>
<tr>
<td>PBC Alt Phone + Ext: +1. 5556661234</td>
</tr>
<tr>
<td>PBC Email Address: <a href="mailto:legal@example.tld">legal@example.tld</a></td>
</tr>
<tr>
<td>PBC Alt Email Address: <a href="mailto:legal-tld@isp.net">legal-tld@isp.net</a></td>
</tr>
<tr>
<td>PBC Fax + Ext: +1.1235551234</td>
</tr>
<tr>
<td>PBC SMS: +1.12355551212</td>
</tr>
<tr>
<td>PBC IM: @examplelegalrep</td>
</tr>
<tr>
<td>PBC Social Media: socialsite.com/example</td>
</tr>
<tr>
<td>PBC Alt Social Media: socialsite.com/example2</td>
</tr>
<tr>
<td>PBC Contact_URL: example.tld/contact_us.html</td>
</tr>
<tr>
<td>PBC Abuse_URL: example.tld/report_abuse.html</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Abuse Contact (PBC) ID: xxxx-xxxx</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBC Validation Status: Operationally-Validated</td>
</tr>
<tr>
<td>PBC Last Validated Timestamp: x</td>
</tr>
<tr>
<td>PBC Name: EXAMPLE ABUSE DESK</td>
</tr>
<tr>
<td>PBC Organization: EXAMPLE ORG</td>
</tr>
<tr>
<td>PBC Street Address: 123 Street Road</td>
</tr>
<tr>
<td>PBC City: AnyTown</td>
</tr>
<tr>
<td>PBC State/Province: CA</td>
</tr>
<tr>
<td>PBC Postal Code: 12345</td>
</tr>
<tr>
<td>PBC Country: AA</td>
</tr>
<tr>
<td>PBC Phone + Ext: +1.1235551234</td>
</tr>
<tr>
<td>PBC Alt Phone + Ext: +1. 5556661234</td>
</tr>
<tr>
<td>PBC Email Address: <a href="mailto:abuse@example.tld">abuse@example.tld</a></td>
</tr>
<tr>
<td>PBC Alt Email Address: <a href="mailto:abuse-tld@isp.net">abuse-tld@isp.net</a></td>
</tr>
<tr>
<td>PBC Fax + Ext: +1.1235551234</td>
</tr>
<tr>
<td>PBC SMS: +1.12355551212</td>
</tr>
<tr>
<td>PBC IM: @exampleabusedesk</td>
</tr>
<tr>
<td>PBC Social Media: socialsite.com/example</td>
</tr>
<tr>
<td>PBC Alt Social Media: socialsite.com/example2</td>
</tr>
<tr>
<td>PBC Contact_URL: example.tld/contact_us.html</td>
</tr>
<tr>
<td>PBC Abuse_URL: example.tld/report_abuse.html</td>
</tr>
</tbody>
</table>

PBC data that is disclosed only to authenticated RDS users authorized for specific purpose* (grey = collected and published at the Contact’s discretion)

*Except where prohibited by data protection laws
Example PBCs – PP Provider and Business

<table>
<thead>
<tr>
<th>Privacy/Proxy Provider Contact (PBC) ID: 1234-5678</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBC Validation Status: Operationally-Validated</td>
</tr>
<tr>
<td>PBC Last Validated Timestamp: x</td>
</tr>
<tr>
<td>PBC Name: PROXY.NET INFO</td>
</tr>
<tr>
<td>PBC Organization: PROXY.NET</td>
</tr>
<tr>
<td>PBC Street Address: 123 Street Road</td>
</tr>
<tr>
<td>PBC City: AnyTown</td>
</tr>
<tr>
<td>PBC State/Province: CA</td>
</tr>
<tr>
<td>PBC Postal Code: 12345</td>
</tr>
<tr>
<td>PBC Country: AA</td>
</tr>
<tr>
<td>PBC Phone + Ext: +1.12355551234</td>
</tr>
<tr>
<td>PBC Alt Phone + Ext: +1.55566661234</td>
</tr>
<tr>
<td>PBC Email Address: <a href="mailto:info@proxy.net">info@proxy.net</a></td>
</tr>
<tr>
<td>PBC Alt Email Address: <a href="mailto:info@proxy2.net">info@proxy2.net</a></td>
</tr>
<tr>
<td>PBC Fax + Ext: +1.12355551234</td>
</tr>
<tr>
<td>PBC SMS: +1.12355551212</td>
</tr>
<tr>
<td>PBC IM: @proxynet</td>
</tr>
<tr>
<td>PBC Social Media: socialsite.com/proxynet</td>
</tr>
<tr>
<td>PBC Alt Social Media: socialsite.com/proxynet2</td>
</tr>
<tr>
<td>PBC Contact_URL: proxy.net/contact_us.html</td>
</tr>
<tr>
<td>PBC Abuse_URL: proxy.net/report_abuse.html</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Contact (PBC) ID: 8765-4321</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBC Validation Status: Operationally-Validated</td>
</tr>
<tr>
<td>PBC Last Validated Timestamp: x</td>
</tr>
<tr>
<td>PBC Name: BIZ.COM INFO</td>
</tr>
<tr>
<td>PBC Organization: BIZ.COM</td>
</tr>
<tr>
<td>PBC Street Address: 123 Street Road</td>
</tr>
<tr>
<td>PBC City: AnyTown</td>
</tr>
<tr>
<td>PBC State/Province: CA</td>
</tr>
<tr>
<td>PBC Postal Code: 12345</td>
</tr>
<tr>
<td>PBC Country: AA</td>
</tr>
<tr>
<td>PBC Phone + Ext: +1.1235551234</td>
</tr>
<tr>
<td>PBC Alt Phone + Ext: +1.5556661234</td>
</tr>
<tr>
<td>PBC Email Address: <a href="mailto:owner@biz.com">owner@biz.com</a></td>
</tr>
<tr>
<td>PBC Alt Email Address: <a href="mailto:info@biz.com">info@biz.com</a></td>
</tr>
<tr>
<td>PBC Fax + Ext: +1.1235551234</td>
</tr>
<tr>
<td>PBC SMS: +1.12355551212</td>
</tr>
<tr>
<td>PBC IM: @biz</td>
</tr>
<tr>
<td>PBC Social Media: socialsite.com/biz</td>
</tr>
<tr>
<td>PBC Alt Social Media: socialsite.com/biz2</td>
</tr>
<tr>
<td>PBC Contact_URL: biz.com/contact_us.html</td>
</tr>
<tr>
<td>PBC Abuse_URL: biz.com/report_abuse.html</td>
</tr>
</tbody>
</table>

PBC data that is disclosed only to authenticated RDS users authorized for specific purpose* (grey = collected and published at the Contact’s discretion)

* Except where prohibited by data protection laws
Example Gated Registrant Data

In addition to the Minimum Public Data for Registrant Contact ID: xxxx-xxxx, requested Gated Data may include…

<table>
<thead>
<tr>
<th>Registrant Name: EXAMPLE OWNER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registrant Organization: EXAMPLE ORG</td>
</tr>
<tr>
<td>Registrant Company Identifier: MY-DUNS</td>
</tr>
<tr>
<td>Registrant Street Address: 123 Street Road</td>
</tr>
<tr>
<td>Registrant City: AnyTown</td>
</tr>
<tr>
<td>Registrant State/Province: CA</td>
</tr>
<tr>
<td>Registrant Postal Code: 12345</td>
</tr>
<tr>
<td>Registrant Phone + Ext: +1.1235551234</td>
</tr>
<tr>
<td>Registrant Alt Phone + Ext: +1. 5556661234</td>
</tr>
<tr>
<td>Registrant Alt Email Address: <a href="mailto:example-tld@isp.net">example-tld@isp.net</a></td>
</tr>
<tr>
<td>Registrant Fax + Ext: +1.1235551234</td>
</tr>
<tr>
<td>Registrant SMS: +1.12355551212</td>
</tr>
<tr>
<td>Registrant IM: @example</td>
</tr>
<tr>
<td>Registrant Social Media: socialsite.com/example</td>
</tr>
<tr>
<td>Registrant Alt Social Media: socialsite2.com/example</td>
</tr>
<tr>
<td>Registrant Contact_URL: example.tld/contact_us.html</td>
</tr>
<tr>
<td>Registrant Abuse_URL: example.tld/report_abuse.html</td>
</tr>
</tbody>
</table>

Registrant data that is gated by default ¥ and disclosed only to authenticated RDS users authorized to access approved data for specific purpose* (grey = collected when applicable or at the Registrant’s discretion)

* Except where prohibited by data protection laws

¥ Gated Registrant Data can also be made Public at the Registrant’s discretion
Personal Data Protection (Requestor = x, DN = y)

Authentic Requestor “x”? [Y/N]

DN “y” Reg Type = PP? [Y/N]

Gated Registrant Data Requested? [Y/N]

Return Requested Public Data + PP PBC for DN “y”

Allow self-accreditation for this common purpose? (e.g., identify self and agree to ToS)
Domain Name Certification (Requestor = x, DN = y)

- Authentic Requestor “x”?
  - N: Return Error
  - Y: Authorized for this Purpose?
    - N: Return Requested Public Data + PBCs for DN “y”
    - Y: Gated Registrant Data Requested?
      - N: Return Requested Public Data + PBCs for DN “y”
      - Y: Return Requested Public Data + PBCs + Gated Data for DN “y”
Individual Internet Use (Requestor = x, DN = y)

Authentic Requestor “x”?

N

Y

DN “y” Reg Type = LP?

N

Y

Gated Registrant Data Requested?

N

Y

Return Error

Allow self-accreditation for this common purpose? (e.g., identify self and agree to ToS)

Return Requested Public Data + Business PBC for DN “y”
Business DN Sale or Purchase (Requestor = x, DN = y)

- Authentic Requestor “x”?
  - Y: Authorized for this Purpose?
  - N: Return Error
  - N: Gated Registrant Data Requested?
    - N: Return Requested Public Data + Admin PBC for DN “y”
    - Y: Approved for Gated Data?
      - N: Return Requested Public Data + Admin PBC + Approved Gated Data for DN “y”
      - Y: Return Requested Public Data + Admin PBC + Approved Gated Data for DN “y”
Legal Actions (Requestor = x, DN = y)

Authentic Requestor “x”?

N

Authorized for this Purpose?

N

Return Error

Y

Gated Registrant Data Requested?

N

Approved for Gated Data?

N

Return Requested Public Data + Legal PBC for DN “y”

Y

Authorized for this Purpose?

Y

Gated Registrant Data Requested?

N

Approved for Gated Data?

Approved Gated Data?

Return Requested Public Data + Legal PBC + Approved Gated Data for DN “y”
DNS Transparency (Requestor = x, DN = y)

Authentic Requestor “x”? Y N

Gated Registrant Data Requested? Y N

Return Error

Allow self-accreditation for this common purpose? (e.g., identify self and agree to ToS)

Return Only Requested Public Data
Models and Costs
Background Materials
RDS Ecosystem

- Registrant
- Registry
- Registrar
- Registry Operator
- Contact Data Validation Service Provider
- Secure Credential Service Provider
- Privacy / Proxy Service Provider
- RDS System
- User Accreditation Service Provider
- ICANN
- RDS Service Provider
- Analysis Scope
- Core RDS System

#ICANN50
Volumetric Assumptions

- **Budgetary cost analysis**, focused on differences between SRDS and FRDS, to handle predicted volume...

<table>
<thead>
<tr>
<th>YEARLY GROWTH RATE</th>
<th>22%</th>
</tr>
</thead>
<tbody>
<tr>
<td>nr of DN records added in a year, assumed to include the growth in the nr of gTLDs</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nr of DN RECORDS, YEARLY UPDATE RATE</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>nr of DN records updated in a year</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nr of gTLDs</td>
<td>2000</td>
<td>3000</td>
<td>4000</td>
<td>5000</td>
<td>6000</td>
<td>7000</td>
</tr>
<tr>
<td>growth rate</td>
<td>50%</td>
<td>33%</td>
<td>25%</td>
<td>20%</td>
<td>17%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>December 2013, ICANN input</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR OF DOMAIN NAMES</td>
</tr>
<tr>
<td>NR OF QUERIES/MONTH</td>
</tr>
<tr>
<td>AVERAGE NR OF QUERIES/SEC</td>
</tr>
<tr>
<td>NR OF QUERIES/PEAK SEC</td>
</tr>
<tr>
<td>AVERAGE NR OF QUERIES/HOUR</td>
</tr>
<tr>
<td>NR OF QUERIES IN PEAK HOUR</td>
</tr>
<tr>
<td>USER VISITS IN PEAK HOUR</td>
</tr>
<tr>
<td>CONCURRENT VISITS IN PEAK HOUR</td>
</tr>
<tr>
<td>NEW VISITS IN PEAK SEC</td>
</tr>
</tbody>
</table>

| % of reverse queries | 1.0% |

#ICANN50
Estimated RDS Costs

- Based on volumetric inputs and solution outline, the cost per domain name per year for the Core FRDS and SRDS Systems only are estimated as:

### SRDS Budgetary Cost Estimate

<table>
<thead>
<tr>
<th>yr</th>
<th>cost per domain name (€)</th>
<th>average cost/domain/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>yr1</td>
<td>0.041</td>
<td></td>
</tr>
<tr>
<td>yr2</td>
<td>0.023</td>
<td></td>
</tr>
<tr>
<td>yr3</td>
<td>0.017</td>
<td></td>
</tr>
<tr>
<td>yr4</td>
<td>0.020</td>
<td></td>
</tr>
<tr>
<td>yr5</td>
<td>0.019</td>
<td></td>
</tr>
</tbody>
</table>

### FRDS Budgetary Cost Estimate

<table>
<thead>
<tr>
<th>yr</th>
<th>cost per domain name (€)</th>
<th>average cost/domain/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>yr1</td>
<td>0.041</td>
<td></td>
</tr>
<tr>
<td>yr2</td>
<td>0.018</td>
<td></td>
</tr>
<tr>
<td>yr3</td>
<td>0.017</td>
<td></td>
</tr>
<tr>
<td>yr4</td>
<td>0.021</td>
<td></td>
</tr>
<tr>
<td>yr5</td>
<td>0.017</td>
<td></td>
</tr>
</tbody>
</table>
Cost Analysis Conclusions

• With 1% Reverse Queries, the Core RDS is slightly less expensive in the FRDS model than the SRDS model

• But FRDS model is highly sensitive to Reverse Query load
  - With a 3% Reverse Query load, the cost of the FRDS model would increase close to 35%

• The FDRS model is expected to require higher application operations, support, maintenance, and test effort

• The FRDS model has more impact on Registry Operators
  - Each Registry Operator would have to support - under SLA - online queries, including Reverse and WhoWas queries
  - Historical data would have to be maintained by Registry Operators
Benefits for individual registrants?

• In the RDS, Registrants will have
  o More visibility into what their data is used for
  o Ability to enter and update their data more easily
  o More flexibility and control over what data is public
  o Options to deter fraudulent use of their data
  o One place to see what RDS users can learn about them
• And greater assurance that
  o Privacy, data protection, security, and auditing policies will be uniformly applied
  o Access to data will be limited to those with a need to know
  o Requestors who access data will be held accountable
Acronyms

ARDS  Aggregated RDS (now SRDS)
FRDS  Federated RDS
ID    Identifier
P/P   Privacy/Proxy
PBC   Purpose-Based Contact
PDP   Policy Development Process
RAA   Registrar Accreditation Agreement
RDAP  Registration Data Access Protocol
RDS   Registration Directory Service
RR    Registrar
Ry    Registry
SC    Secure Credential
SMS   Short Message Service
SRDS  Synchronized RDS (formerly ARDS)
ToS   Terms of Service
UDRP  Uniform DN Dispute Resolution Process
V     Validator