Contact Object Usage Patterns

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Introduction

• Standard Data Model for Domain Registries:
  • RFC series 5731 – 5733
  • Three "first-class" object types:
    • Domains
    • Hosts*
    • Contacts
Questions:

1. Does the one-to-many relationship between domains and contacts reflect reality?

2. Do registrars treat contact objects with the same care and attention that they do with domains? *Are they pets or cattle?*

3. What, if any, are the implications (operational, compliance, protocol) of the answers to the above questions?
Assumptions

• Registrars interact with our registry in more-or-less the same way they do with other thick registries

  • Otherwise the conclusions I've come to are not applicable to anyone else!
Background

- Data taken from CentralNic registry system as of late April 2017

- ~44,480,000 contact objects present in the registry

- ~1,270 unique sponsoring clients
  - includes ~340 IANA accredited registrars

- The oldest contact still in the database was created on 1998-02-02

- Most TLDs on the platform are generic, general-purpose, and with no eligibility or nexus requirements

- Most object provisioning is done machine-to-machine rather than manually
1. Contact Reuse

• ~18,257,000 (41%) contact objects had at least one association with a domain

• ~86% of all linked contact objects (35% of all contacts) have a single link to single a domain

• A further ~11% of all linked contacts (5% of all contacts) have exactly four links

• Only ~3% of linked contacts (1% of all contacts) are linked to more than one domain.
2. Contact Reuse
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2. Contact Duplication

• ~7,832,000 unique email addresses
  • ~671,400 unique domains

• ~896,000 unique [cc,sp] pairs

• ~483,000 [cc,sp] pairs (~53%) have no duplicates
  • ~47% have at least one duplicate
  • a handful have millions of duplicates
2. Contact Duplication
3. Contact Management

• ~36,000 new contact objects created each day

• 64,000 contacts updated each day

• Only ~25 contacts deleted each day!
4. Contact Transfers

• Around 200,000 inter-registrar domain transfers carried out since 2005

  Zero contact transfers carried out in the same period!
Conclusions

• Most registrars do not follow the "one-to-many" relationship between contacts and domains that is implicit in the RFC series.

• Registrars usually create a new contact object for each contact type for each domain

• Registrars rarely delete contacts and never transfer them

Contact objects are treated as cattle, not pets
Cattle vs pets

• A “pet” contact object has a meaningful ID. It is often manually created. The user takes time to maintain it and keep it up-to-date, and uses it whenever they can:

```xml
<domain:infData xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
  <domain:name>rolls-royce.bar</domain:name>
  <domain:roid>D4177625-CNIC</domain:roid>
  <domain:status s="clientTransferProhibited"/>
  <domain:registrant>Rolls-Royce-Admin</domain:registrant>
  <domain:contact type="tech">Rolls-Royce-Admin</domain:contact>
  <domain:contact type="admin">Rolls-Royce-Admin</domain:contact>
  <domain:contact type="billing">Rolls-Royce-Admin</domain:contact>
  <domain:clID>H74247</domain:clID>
  <domain:crID>H74247</domain:crID>
  <domain:crDate>2014-07-14T09:42:12.0Z</domain:crDate>
  <domain:upDate>2015-06-08T11:57:20.0Z</domain:upDate>
  <domain:exDate>2017-07-14T23:59:59.0Z</domain:exDate>
</domain:infData>
```
Cattle vs pets

• A “cattle” contact object has a randomly generated ID. It’s created by a machine. If its details change then it’s casually discarded.
Implications: Operational

• Contact management is an externality for registrars that registries have to deal with

• Doing nothing results in a DB where number of contacts >>> number of domains

• Forcing registrars to do it for you is not going to make you any friends
Implications: Compliance

• EU Data Protection Directive: there is an obligation to delete data that's no longer needed

• If you aren't managing contacts then you have a problem

• General Data Protection Regulation (GDPR) makes this an expensive problem!