draft-...-domain-names-

On http://tools.ietf.org/ search for

"s-domain-names"

or

https://tools.ietf.org/id/draft-lewis-domain-names-02.txt

My draft

- My draft in brief
  - Argues that DNS documents are not the "source" definition of Domain Names
  - Surveys RFC history for Domain Name evolution
  - Surveys Domain Names as Identifiers in IETF documented protocols (perhaps not complete)
  - Suggests we define Domain Name and signal how to resolve names

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- .ONION and the Special Use Domain Name registry discussions
  - A need/desire to understand how a name could have meaning yet be explicitly excluded from the DNS

- ***Does not the DNS define Domain Names?***

Personal Rule

- A "clarification" (IMHO) is needed when
  - Original definition is incomplete
  - Many non-interoperable but plausible interpretations are implemented (not bugs!)
  - There's a need to unify

- A "clarification" may alter the original definition

Not a vetted rule, based on experience writing two "clarifications" on parts of DNS

Step 1

- Is the original definition clear?

Finding "Domain Name" in RFC series

- The DNS STD 13 is RFC 1034, 1035
  - "To simplify implementations" as a clue

- First mention of "name domain" is in RFC 788
  - "SIMPLE MAIL TRANSFER PROTOCOL"
- Following (in 799, 801, 805, 819) Domain Names evolved into current "form."
  - DNS' first RFCs are 882, 883

How were Domain Names defined?

- Described at best
  - Hierarchical
  - "A composite name field" shown as label.label
- No:
  - ...formal syntax
  - ...discussion of wire formatting
  - ...rules on length, non-ascii characters, etc.
  - ...formal definition offered
- Only a notion of a hierarchy with a "top-level"

Step 2

- Are there non-interoperable but valid interpretations?

Forms of Domain Names

- Just to jog the mind – the draft has more
  - Host Names ("LDH")
  - URI Authority (as in http://host/...)
  - Address literals (192.0.2.1)
  - Names managed via Distributed Hash Tables
  - /etc/hosts (longer-than-DNS names)
  - Names that can be "commercially" registered
- In the draft, 10 are mentioned plus "others" in a catch-all section

Defining interoperability

- The ordinary interoperability test
  - Can Implementation A's client "talk" to implementation B's server for one protocol?

- For Domain Names
  - Can a client of protocol A use a Domain Name in the same way a client of protocol B

Do we have interoperability?

- Kind of, somewhat, via a general acceptance of the "intersection" of divergent definitions

- "Another layer of indirection" comes to the rescue

Step 3

- Is there a need to clarify?

As clarifications may involve a change to the original definition, clarifying something is not to be taken lightly

Permission-less Innovation

- The DNS is a protocol, a system, and an institution

    – It wasn't the first naming system, probably won't be the last

- How will DNS co-exist with new/other means of managing names and identifiers?

- This calls for an architectural solution to determining whether a Domain Name is a DNS domain name or some other

Rubber-meets-the-Road

- Client software
  - Re-use
  - Can new name management systems back-end already developed protocols and software?
  - If the client code exists, innovation is sped up

- Can client software know how to resolve a Domain Name, DNS or not?

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Time to Clarify?

- IMHO, many questions have been opened
- Reasons include
  - To accommodate permission-less innovation
  - There's a pipeline of pending requests for Domain Names that are managed via the DNS
  - To fill a gap in guidance regarding Special Use Domain Name registry management

Definition of Domain Names

- Draft has one I derived and a copy of one from Lyman Chapin

- I won't claim my definition is good, IMHO, discussion is needed

Knowing the resolution system?

- It seems to me there is a need to "signal" the resolution system
  - I'm personally not sold on a best way
  - So I'm not offering one

- This too needs discussion

Next Step

- Define Domain Name
- In the draft I float one and copied one from Lyman Chapin

- How specific should the definition be?
- Just "hierarchical" or "separated by dots" or "fits into fixed width constraints" or …

Why this is architectural

- Interoperability across protocols and the software implementing them