draft-...-domain-names-

On http://tools.ietf.org/ search for "s-domain-names"

or

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
IETF 93, July 2015

• .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?
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