

Uniform Resource Names (URNs) – Next Generation Internet Identifiers

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Background Information

Excerpt from “Uniform Resource Identifiers and Online Serials”, [1]:

The Internet Engineering Task Force (IETF) is the de facto standards body for defining the necessary technology infrastructure for the Internet. In 1992, it established a working group on Uniform Resource Identifiers (URIs) that was to standardize various URL schemes which were emerging at the time, as well as to consider what could be done about other related problems. That working group developed a model that allows resources to be identified by a Uniform Resource Name (URN), which would be a persistent identifier for a resource, independent of information such as protocol, host, port, etc. One of the requirements placed on URNs by the working group was that URNs be able to utilize older forms of identifiers such as ISBNs, ISSNs, LC control numbers, etc. URLs and URNs were defined to be the two classes of URI.

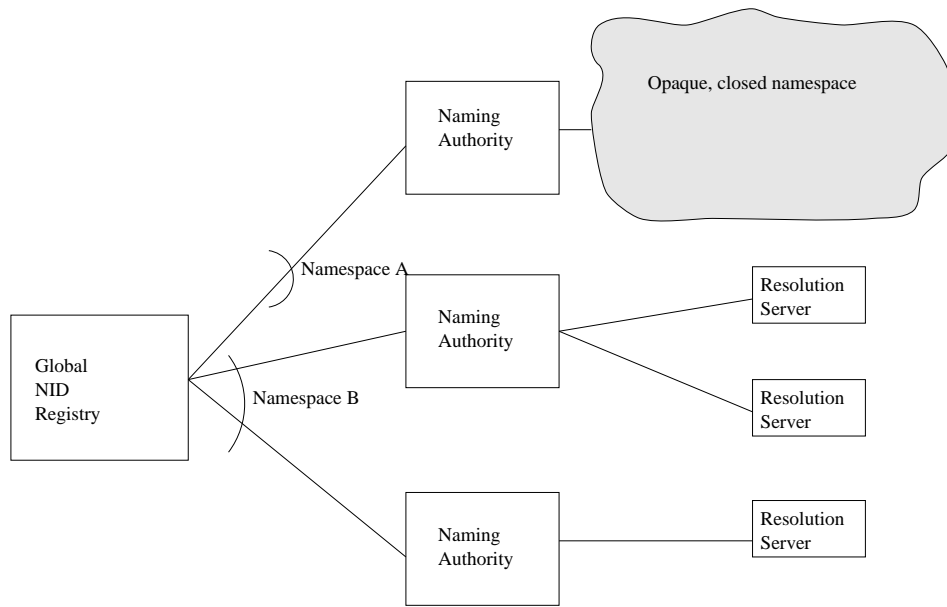
To obtain a copy of a resource, a URN would be mapped to a set of URLs that are the current locations of the resource. The browser or other client software would then pick one URL from the set and use it to fetch the resource. This would add a measure of fault-tolerance to obtaining resources. If the first server was down, the client could use one of the other URLs in the list. Replicating a resource could be achieved by copying the resource to a new location, then adding the URL for that new location to the list. Moving a resource to a new location would be like replicating it, followed by deleting the old URL and resource instance.

Graphically

See Figure 1.

Published Resources

1. Leslie Daigle, Ron Daniel Jr., and Cecilia Preston, “Uniform Resource Identifiers and Online Serials”, to appear in *Serials Librarian*, vol. 33, nos. 1-4 (1998).
2. Tim Berners-Lee, “Universal Resource Identifiers in WWW”, RFC 1630, Internet Engineering Task Force, June 1994.
3. Karen Sollins and Larry Masinter, “Functional Requirements for Uniform Resource Names”, RFC 1737, Internet Engineering Task Force, December 1994.
4. Tim Berners-Lee, Larry Masinter, and Mark McCahill, “Uniform Resource Locators (URL)”, RFC 1738, Internet Engineering Task Force, December 1994.
5. Ryan Moats, “URN Syntax”, RFC 2141, Internet Engineering Task Force, May 1997.
<http://ds.internic.com/rfc/rfc2141.txt>
6. Ron Daniel Jr. and Michael Mealling, “Resolution of Uniform Resource Identifiers using the Domain Name System”, RFC 2168, Internet Engineering Task Force, June 1997.
<http://ds.internic.com/rfc/rfc2168.txt>
7. Ron Daniel Jr., “A Trivial Convention for Using HTTP in URN Resolution”, RFC 2169, Internet Engineering Task Force, June 1997.
<http://ds.internic.com/rfc/rfc2169.txt>



Distribution of URN resolution. Different namespaces can be served by several Naming Authorities, which may lead to a namespace-proprietary software system, or to one or more generic resolution servers. Those resolution servers may divide the load for the Naming Authority, and/or provide service in different protocols (e.g., HTTP, LDAPv3, etc).

Figure 1: Distribution and Delegation of Resolution of URNs

8. Karen Sollins, “Architectural Principles of Uniform Resource Name Resolution”, RFC 2276, Internet Engineering Task Force, January 1998.
<http://ds.internic.com/rfc/rfc2276.txt>
9. Clifford Lynch, Cecilia Preston, and Ron Daniel Jr. “Using Existing Bibliographic Identifiers as Uniform Resource Names”, RFC 2288, Internet Engineering Task Force, January 1998.
<http://ds.internic.com/rfc/rfc2288.txt>,

Works in Progress

- Leslie L. Daigle, Dirk-Willem van Gulik, Renato Iannella, and Patrik Fältström, “URN Namespace Definition Mechanisms”,
<ftp://ftp.ietf.org/internet-drafts/draft-ietf-urn-nid-req-03.txt>
- Michael Mealling and Ron Daniel Jr., “URI Resolution Services Necessary for URN Resolution”,
<ftp://ftp.ietf.org/internet-drafts/draft-ietf-urn-resolution-services-06.txt>