CCNx Publisher Clock Time Versioning draft-mosko-icnrg-timeversion-00

Abstract

This document specifies the use of a timestamp as a name segment in a CCNx Name as a versioning specifier. It defines the name segment label, encoding, and semantics.

Status of this Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at http://datatracker.ietf.org/drafts/current/.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as “work in progress.”

This Internet-Draft will expire on July 13, 2015.

Copyright Notice

Table of Contents

TOC

1. Change Log

Date	Version	Changes
Jan. 5, 2015	3	References to path segment replaced with name segment.

Table 1: Change Log

TOC

2. Introduction

This document specifies the use of an RFC 3339 UTC timestamp in a CCNx Name as a version identifier. It specifies a new Name segment label and a TLV encoding. The use of a timestamp in a Name to denote a version is limited to clock synchronization and in general should not be used to compare versions between multiple publishers.

Packets are represented as 32-bit wide words using ASCII art. Because of the TLV encoding and optional fields or sizes, there is no concise way to represent all possibilities. We use the convention that ASCII art fields enclosed by vertical bars "|" represent exact bit widths. Fields with a forward slash "/" are variable bitwidths, which we typically pad out to word alignment for picture readability.

TODO -- we have not adopted the Requirements Language yet.

TOC

2.1. Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 (Bradner, S., “Key words for use in RFCs to Indicate Requirement Levels,” March 1997.) [RFC2119].

TOC

3. Protocol Description

A timestamp in a CCNx Name name segment indicates an ordering on names based on the UTC timestamp. The timestamp is encoded as an RFC3339 UTC string in the Interest date/time format, for example "1985-04-12T23:20:50.52Z". This format allows a direct strcmp() of two strings to determine their time ordering. Note that we allow fractions of a second.

An example Name using this format is "lci:/Name=parc/Name=presentation.pdf/Time=1985-04-12T23:20:50.52Z".

A publisher assigns a timestamp to indicate the time ordering of the prior Name name segments. It does not imply any specific temporal meaning such as the time of content creation or the time of Content Object signature. It is simply used to order a set of objects.

A "GONE" PayloadType means that this version is a terminal version. All prior versions should be interpreted as deleted. A user, however, may publish more "DATA" after the terminal version, if he decides to un-delete it.

Type	Name
'Time'	UTC Timestamp, in RFC 3339 format for human-readable format, of milliseconds since the epoch.

Table 2: Labeled Content Information Types

Type	Symbol	Name	Description
%x0012	T_TIME	UTC Timestamp	UTC timestamp in network byte order.

Table 3: CCNx Name Types

TOC

4. Acknowledgements

TOC

5. IANA Considerations

This memo includes no request to IANA.

All drafts are required to have an IANA considerations section (see Guidelines for Writing an IANA Considerations Section in RFCs (Narten, T. and H. Alvestrand, “Guidelines for Writing an IANA Considerations Section in RFCs,” May 2008.) [RFC5226] for a guide). If the draft does not require IANA to do anything, the section contains an explicit statement that this is the case (as above). If there are no requirements for IANA, the section will be removed during conversion into an RFC by the RFC Editor.

TOC

6. Security Considerations

All drafts are required to have a security considerations section. See RFC 3552 (Rescorla, E. and B. Korver, “Guidelines for Writing RFC Text on Security Considerations,” July 2003.) [RFC3552] for a guide.

TOC

7. References

TOC

7.1. Normative References

[RFC2119] Bradner, S., “Key words for use in RFCs to Indicate Requirement Levels,” BCP 14, RFC 2119, March 1997 (TXT, HTML, XML).

TOC

7.2. Informative References

[CCNx] PARC, Inc., “CCNx Open Source,” 2007.

[RFC3552] Rescorla, E. and B. Korver, “Guidelines for Writing RFC Text on Security Considerations,” BCP 72, RFC 3552, July 2003 (TXT).

[RFC5226] Narten, T. and H. Alvestrand, “Guidelines for Writing an IANA Considerations Section in RFCs,” BCP 26, RFC 5226, May 2008 (TXT).

TOC

Author's Address

Marc Mosko
PARC
Palo Alto, California 94304
USA
Phone: +01 650-812-4405

Email: marc.mosko@parc.com