

CCNx Name Index Extensions

draft-mosko-icnrg-nameindexext-00

Abstract

A CCNx Name is a TLV encoded sequence of segments. This document specifies two optional mechanisms to enable rapid access to segments of a CCNx Name: one provides a set of indices mapped to each Name segment; the other provides a single index to the chunk number segment of a CCNx Name.

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 September 7, 2015.

Copyright Notice

Copyright (c) 2015 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to BCP 78 and the IETF Trust's Legal Provisions Relating to IETF Documents (<http://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

Table of Contents

1. Introduction
 - 1.1. Requirements Language
2. Protocol Description
 - 2.1. Name Segment Offsets
 - 2.2. Chunk Name Segment Offset
3. Acknowledgements
4. IANA Considerations
5. Security Considerations

- 6. References
 - 6.1. Normative References
 - 6.2. Informative References
- § Authors' Addresses

 TOC

1. Introduction

A CCNx Name is a TLV encoded sequence of segments. This document specifies two optional mechanisms to enable rapid access to segments of a CCNx Name: one provides a set of indices mapped to each Name segment; the other provides a single index to the chunk number segment of a CCNx Name.

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

1.1. 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

2. Protocol Description

There are two additional CCNx Message Types covered in this document:

Type	Abbrev	Name	Description
%x0009	T_NAMEOFFSETS	Name Segment Offsets (Name Segment Offsets)	The offsets into the Name TLV for each Name segment.
%x000A	T_CHUNKOFFSETS		

Chunk Name Segment Offset The offset into the Name TLV for the
(Chunk Name Segment Offset) Chunk number segment.

Table 1: Additional CCNx Message Types

These message TLVs SHOULD directly follow the Name TLV in the CCNx Message.

TOC

2.1. Name Segment Offsets

A CCNx Name is a TLV encoded sequence of segments. The Name Segment Offsets TLV comprises a set of 2 byte offsets into the Name TLV, each jumping directly to a Name segment. The first segment (offset 0) is assumed and NOT included.

For example, given the CCNx Name TLV:

1										2										3											
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
+-----																															

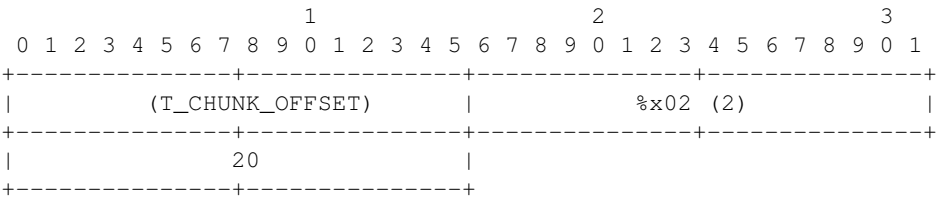
the Name Segment Offset TLV would look be:

1										2										3											
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
(T_NAME_OFFSETS)										%x06 (6)																					
7										14																					
20																															

The first segment starts at offset 0 and is not included; the second T_NAME_SEGMENT with value "bar" starts at offset 7; the third T_NAME_SEGMENT with value "yo" starts at offset 14; and the last segment - a T_CHUNK segment - starts at offset 20.

2.2. Chunk Name Segment Offset

The Chunk Name Segment Offset provides the index to the T_CHUNK segment of a CCNx Name. In the above example, this TLV would look like:



3. Acknowledgements

4. IANA Considerations

TODO: Work with IANA to define the type space for CCNx messages types.

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.

5. 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.

6. References

TOC

6.1. 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

6.2. 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

Authors' Addresses

Marc Mosko
PARC
Palo Alto, California 94304
USA

Phone: +01 650-812-4405
Email: marc.mosko@parc.com

Massimo Gallo
ALcatel-Lucent