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CCNinfo: Discovering Content and Network Information in Content-Centric Networks

draft-irtf-icnrg-ccninfo-04

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Summary of Changes

- Node identifier
 - Use node name (not IP address) as a node identifier
- Information reported in sub-block
 - Clarify that CCNinfo allows to omit complex function implementations
- Regular request and full-discovery request
 - Clarify the regular request (default) and full-discovery request (optional)
- Editorial correction/improvement

Node Identifier

- Old (in 3.1.2. Report Block)
 - “This field specifies the CCNinfo user or the router identifier (e.g., IPv4 address) of the Incoming face on which packets from the publisher are expected to arrive, or all-zeros if unknown or unnumbered.”
- New (in 3.1.2. Report Block)
 - “This field specifies the node identifier (e.g., node name or hash-based self-certifying name [9]) or all-zeros if unknown. This document assumes that the Name TLV defined in the CCNx TLV format [1] can be used for this field and the node identifier is specified in it.”

Information Reported in Sub-Block

■ 3.2.1.1. Reply Sub-Block

- “Note that some routers may not be capable of reporting the following values such as Object Size, Object Count, # Received Interest, First Seqnum, Last Seqnum, Elapsed Cache Time, and Remain Cache Lifetime, as shown in Figure 15, or do not report these values due to their policy. These values therefore MAY be returned with null.”

Regular and Full-Discovery Requests

- 5.3.1. Regular Request
 - “The router forwards the Request message upstream toward the publisher or caching router based on the FIB entry like the ordinary Interest–Data communications.”
- 5.3.2. Full Discovery Request
 - “Unlike the ordinary Interest–Data communications in CCN, if routers that accept the full discovery request receive the full discovery request, the routers SHOULD NOT remove the PIT entry created by the full discovery request until the CCNinfo Reply Timeout value expires.”
 - “Note that the full discovery request is an OPTIONAL implementation of CCNinfo; it MAY NOT be implemented on routers. Even if it is implemented on a router, it MAY NOT accept the full discovery request from non–validated CCNinfo users or routers or because of its policy. If a router does not accept the full discovery request, it rejects the full discovery request as described in Section 6.11. Routers that enable the full discovery request MAY rate–limit Replies, as described in Section 10.8 as well.”

Conclusion

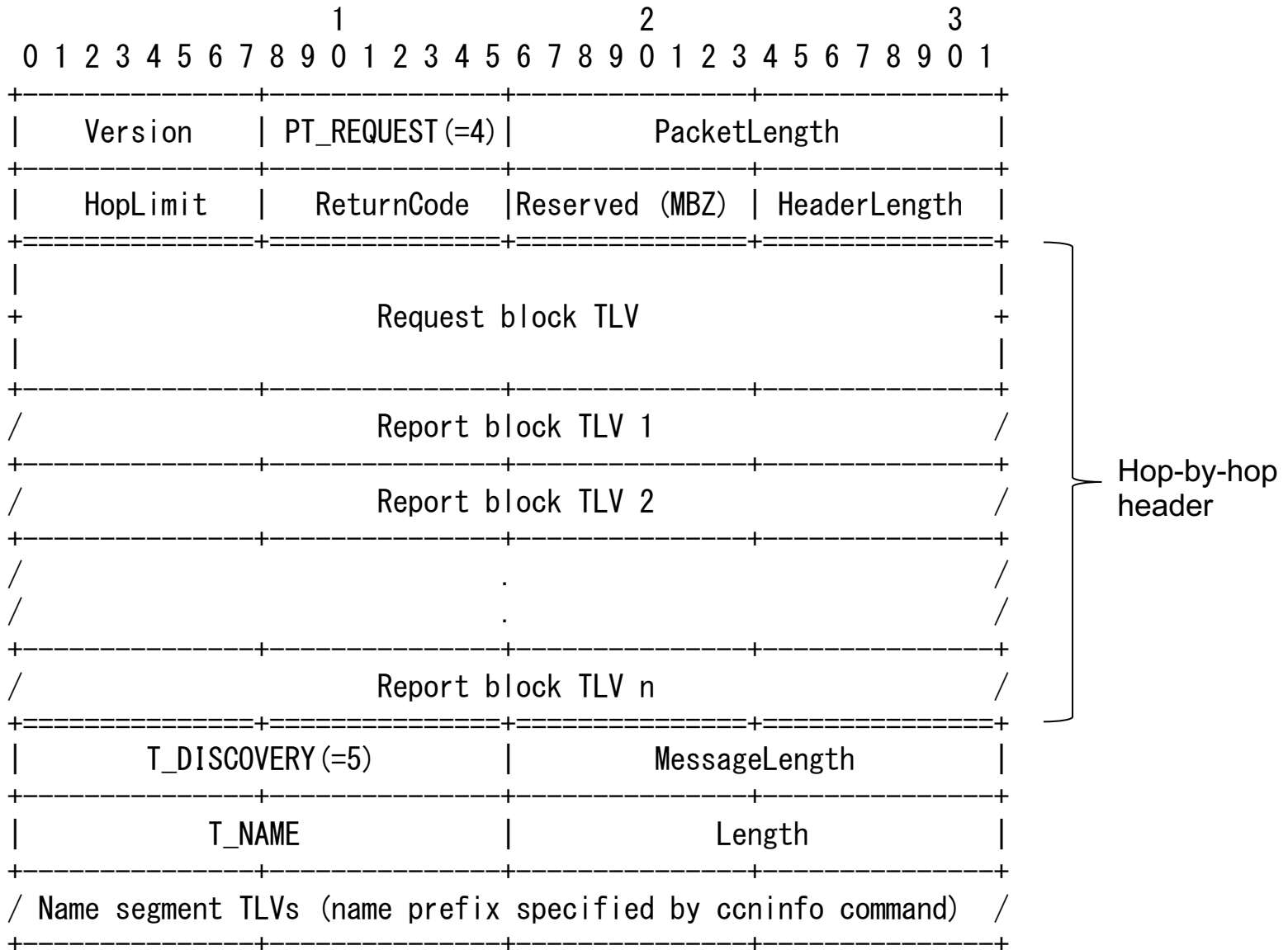
- CCNinfo, which is compatible with CCNx-1.0 TLV format, is a powerful network tool providing various information in CCN.
- CCNinfo implementation is included in a CCNx-1.0 compatible forwarding daemon software, named *Cefore*.
 - <https://cefore.net/>
- We will submit -05 revision in this week.
- Last call?

Reference: CCNinfo Messages

CCNinfo Request/Reply Messages

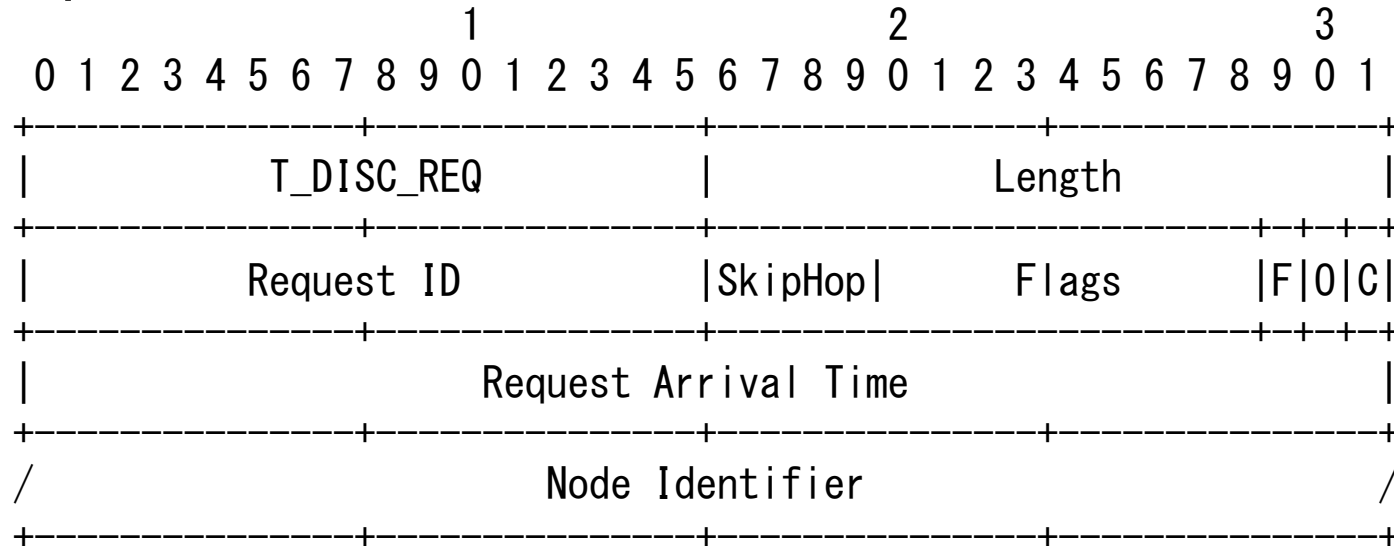
- Compatible with CCNx-1.0 TLV format
- CCNinfo Request Message
 - Request message consists of a fixed header, Request block TLV, Report block TLV(s), and Name TLV
- CCNinfo Reply Message
 - Reply message consists of a fixed header, Request block TLV, Report block TLV(s), Name TLV, and Reply block/sub-block TLV(s)
- Type values used by CCNinfo
 - Packet type: PT_REQUEST and PT_REPLY
 - Top level type: T_DISCOVERY
 - Hop-by-hop type: T_DISC_REQ and T_DISC_REPORT
 - CCNx message type: T_DISC_REPLY

Request Message

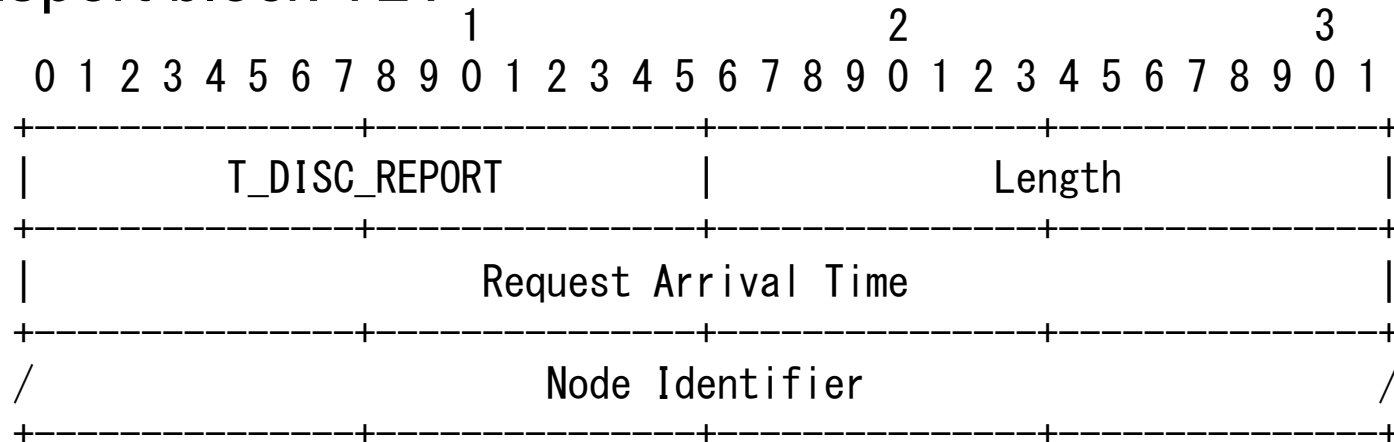


Request Block and Report Block

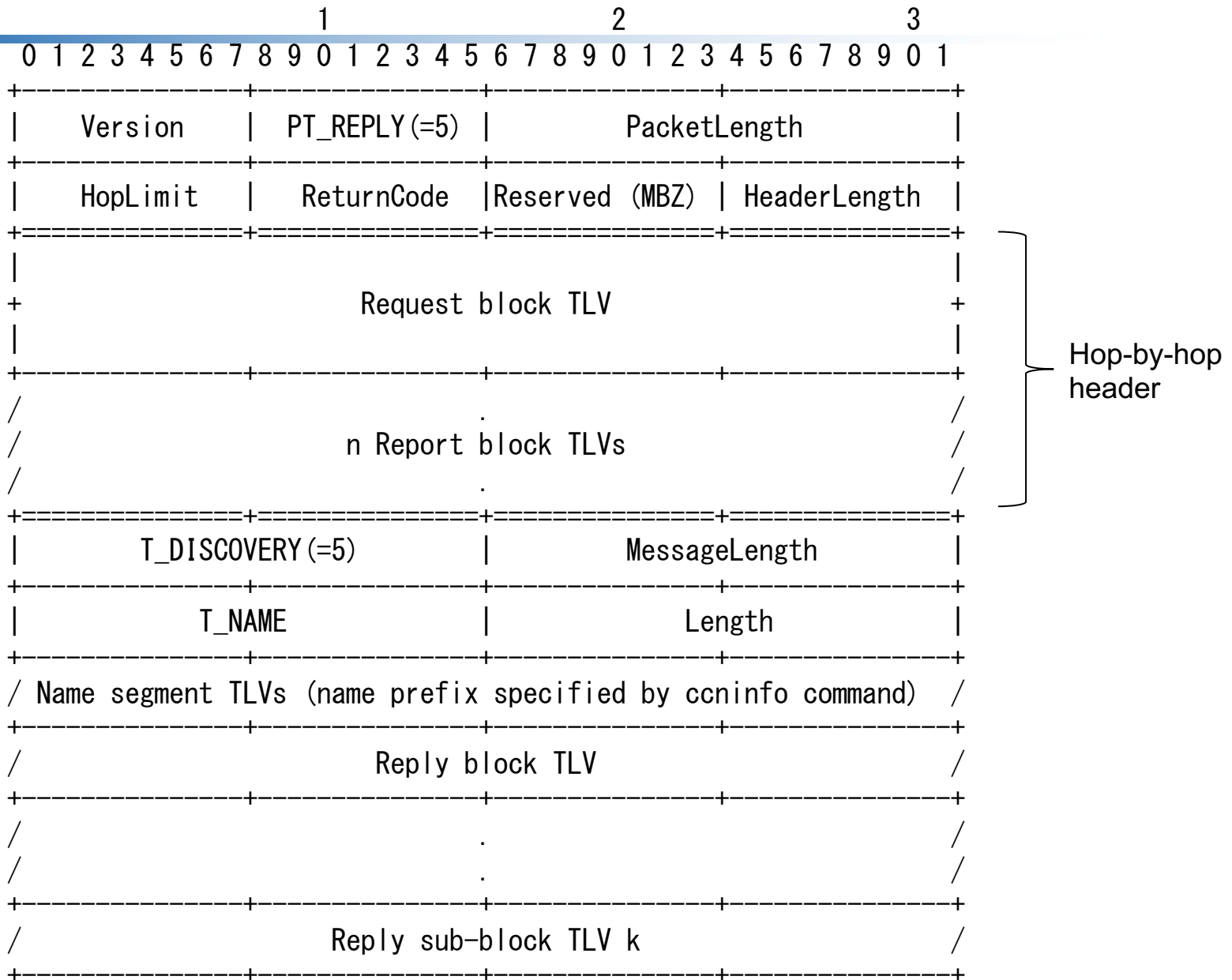
- Request block TLV



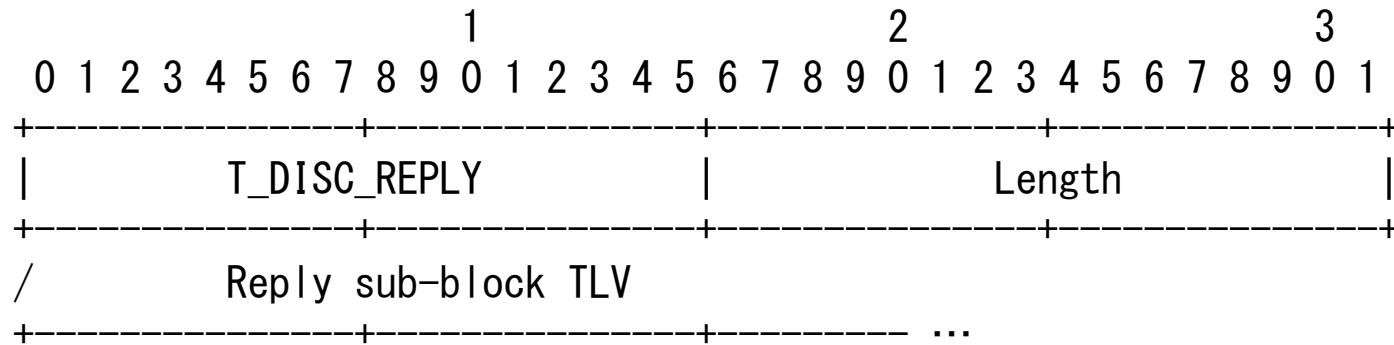
- Report block TLV



Reply Message



Reply Block



Reply Sub-Block

