NDN Messages and NDN Packets

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Messaging Overview

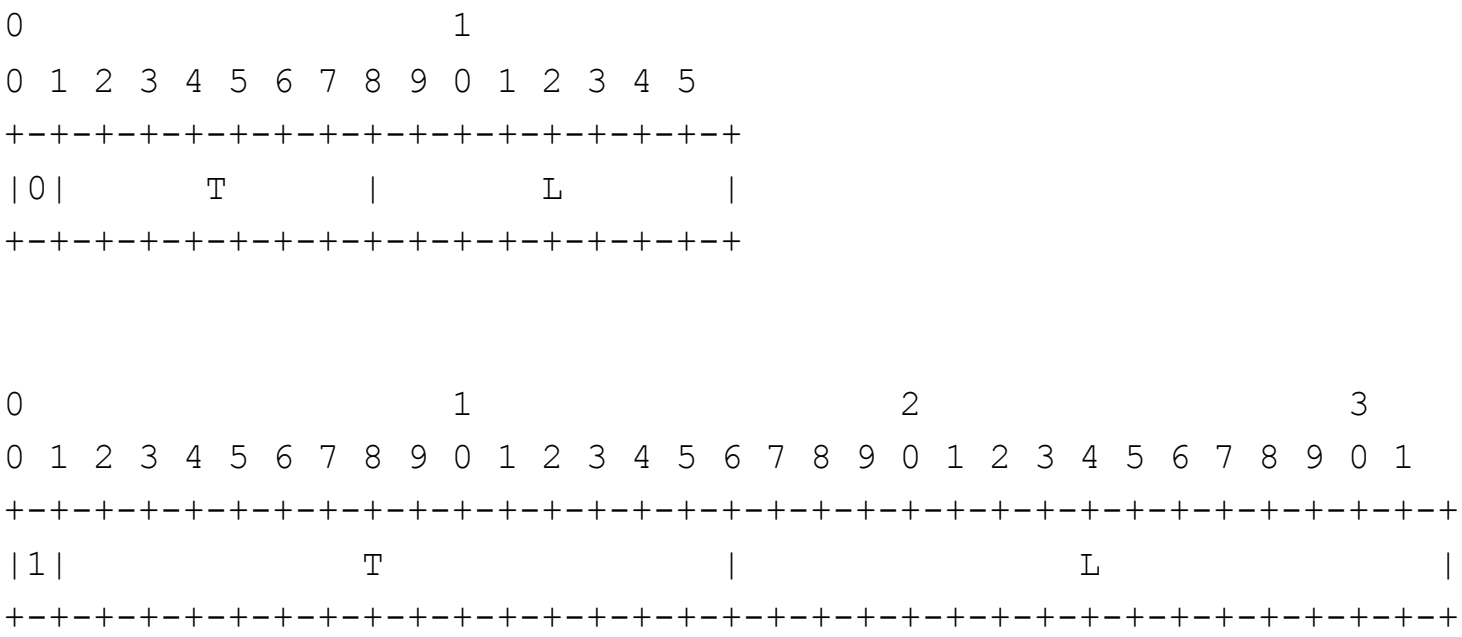
- NDN Objects
  - determined by application, “entire” object, may be large, may be “live”,
- Messages
  - think PDU, unit of architectural specification, application data is signed in each Content message
- Packets
  - frame on-the-wire
- Clients express interest in content by name; no addresses; routing on names
- NDN Interest ‘request’ messages solicit Content replies, 1-to-1
- All data is signed – trust associated with data, not a channel
- Stateful forwarding plane with symmetric paths
- Receiver flow- and congestion control
- Lots of areas for experimentation; goal is to enable experimentation

Messaging Overview (2)

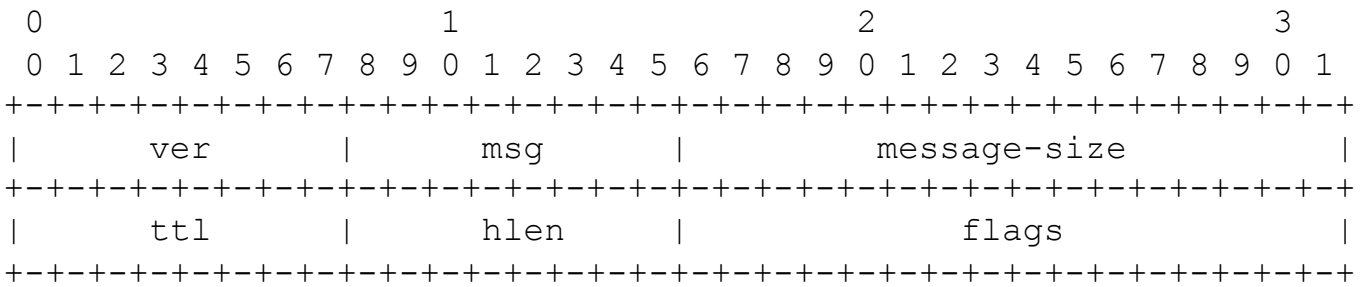
- Working with three NDN message types: Interest, Content, Nack
  - Messages begin with a fixed-size header, including a protocol version, the header size, and the size of the entire message
  - Optional header TLVs designed for hop-by-hop processing: loop detection (Nonce), QOS (DSCP, Flow) e.g.
  - After the header and header options, the rest of the message is composed of TLVs
  - The Name TLV always appears first in the message body, immediately after the message header

TLV Format

- 1 + 1 and 2 + 2



Message Header



Where:

ver	The protocol version. The current value is 1.
msg	The message type. The current message types are Interest (1), Content (2), and Nack (3).
message-size	The number of octets in the message that follows, encoded as a 16-bit integer in network byte-order.
ttl	A time-to-live field available for loop detection.
hlen	The number of octets in the header area, including any header option TLVs.
flags	Header bitflags field.

Message Format