

ndn-cxx - Feature #4527

Decode v0.3 Interest format and interpret as v0.2

03/02/2018 02:12 PM - Junxiao Shi

Status: Closed	Start date:
Priority: Normal	Due date:
Assignee: Junxiao Shi	% Done: 100%
Category: Base	Estimated time: 4.50 hours
Target version: v0.7	
Description NDN Packet Format v0.3 is introducing a new Interest packet format. Compared to v0.2.1 packet format, the differences are: <ul style="list-style-type: none">• Optional CanBePrefix and MustBeFresh elements are added after Name.• Nonce becomes optional.• ForwardingHint is moved before Nonce and InterestLifetime.• Optional HopLimit and Parameters elements are added after InterestLifetime. This issue changes ndn::Interest class to recognize v0.3 format, and interpret it as v0.2 semantics. Encoder continues to emit v0.2 format, and remains unchanged under this issue. As part of Packet03Transition , this is an interim step for a forwarder or application to receive Interest v0.3 without any changes.	
Related issues:	
Blocked by NDN Specifications - Feature #4441: Replace MinSuffixComponents an...	Closed
Blocks NFD - Task #4564: Release 0.6.2	Closed 05/04/2018

History

#1 - 03/02/2018 02:27 PM - Junxiao Shi

- Description updated

- Estimated time set to 4.50 h

The superset of Interest v0.2 and v0.3 is:

```
Interest ::= INTEREST-TYPE TLV-LENGTH
  Name
  CanBePrefix-3?
  MustBeFresh-3?
  Selectors-2?
  Nonce-2?
  InterestLifetime-2?
  ForwardingHint?
  Nonce-3?
  InterestLifetime-3?
  HopLimit-3?
  Parameters-3?
```

The decoder should parse packet using this structure, but reject the packet if both 2 and 3 elements are present. Note that Nonce and InterestLifetime could be 2 or 3 when other fields are omitted, in this case: "Name Nonce InterestLifetime?" is interpreted as Nonce-2 InterestLifetime-2; "Name InterestLifetime?" is interpreted as InterestLifetime-3.

Interest v0.3 elements are mapped into v0.2 semantics as follows:

- **CanBePrefix**: if present, do nothing; if absent and the packet is conclusively identified as v0.3 (contains v0.3 elements/ordering, or Nonce is absent), set Selectors.MaxSuffixComponents to 1.
- **MustBeFresh**: set Selectors.MustBeFresh.
- **Nonce**: if absent, set to random value.
- **HopLimit**: ignore, will not appear when encoded as v0.2.
- **Parameters**: ignore, will not appear when encoded as v0.2.

#2 - 03/02/2018 02:33 PM - Junxiao Shi

- Blocked by Feature #4441: Replace MinSuffixComponents and MaxSuffixComponents with CanBePrefix flag added

#3 - 03/24/2018 05:09 AM - Junxiao Shi

- Subject changed from *Decode v0.3 Interest format with backwards compatibility to Decode v0.3 Interest format and interpret as v0.2*
- Description updated

#4 - 03/30/2018 02:08 PM - Davide Pesavento

- Blocks Task #4564: Release 0.6.2 added

#5 - 04/02/2018 06:22 PM - Junxiao Shi

- Status changed from *New to In Progress*
- Assignee set to *Junxiao Shi*
- % Done changed from *0 to 20*

<https://gerrit.named-data.net/4647> adds getter/setter for **CanBePrefix** and **MustBeFresh**. Accessors are sorted in the order the elements appear in v0.3 Interest. Selector accessors are deprecated.

Decoder changes come next.

#6 - 04/09/2018 10:50 AM - Junxiao Shi

- % Done changed from *20 to 50*

<https://gerrit.named-data.net/4670> declares TLV-TYPE numbers in encoding/tlv.hpp. Constants are sorted in the order they appear in the spec.

<https://gerrit.named-data.net/4671> implements the decoding procedures. I decide not to take note-1 approach because it is error-prone. Instead, I have separate decode02 and decode03 functions handling each format. decode02 is made more strict than the old wireDecode so that it would reject v0.3 format and leave it to decode03.

#7 - 04/13/2018 12:19 PM - Junxiao Shi

- Status changed from *In Progress to Code review*
- % Done changed from *50 to 100*

#8 - 04/17/2018 11:30 AM - Davide Pesavento

- Status changed from *Code review to Closed*

#9 - 09/22/2018 08:37 AM - Davide Pesavento

- Tags set to *Packet03Transition*