

Transmission of IPv6 Packets over Near Field Communication

draft-ietf-6lo-nfc-06

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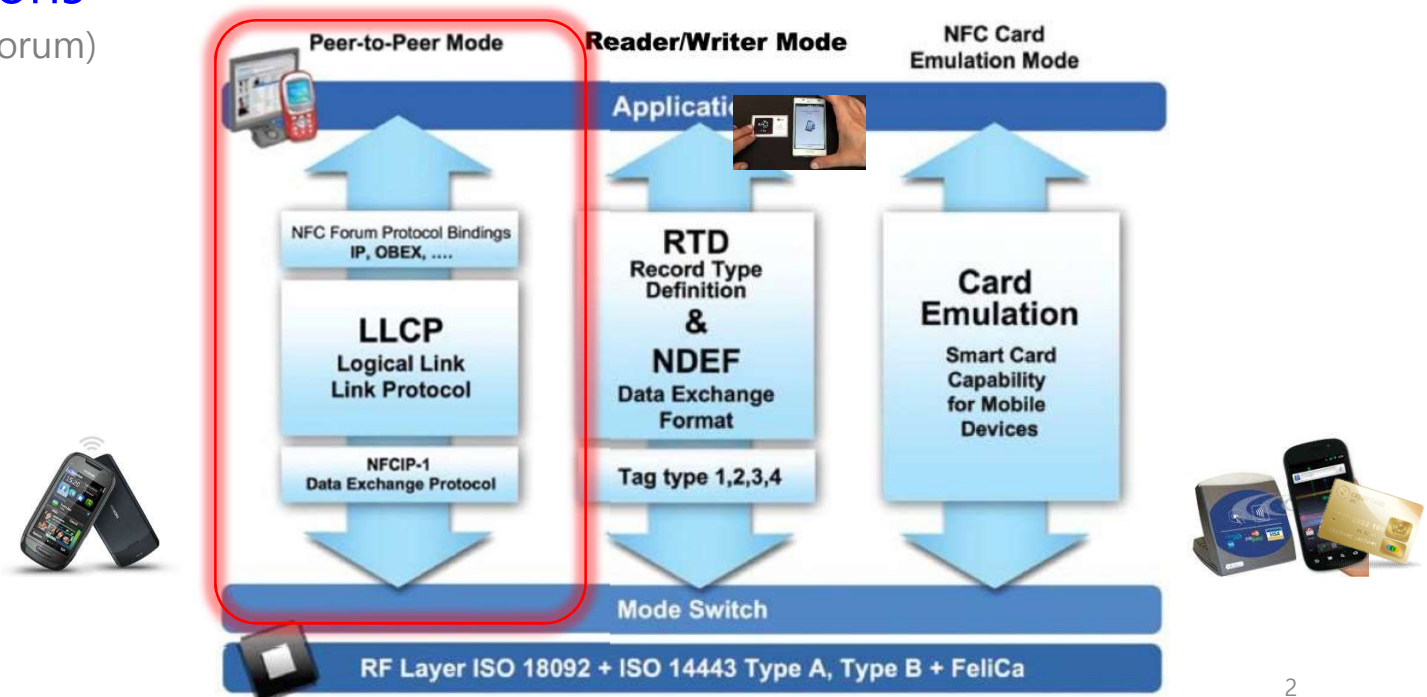
6lo WG Meeting@IETF 98 – Chicago, U.S.

2017. 3. 29.

What is Near Field Communication (NFC) ?

- **NFC technology enables** (Source: NFC Forum)
 - simple and **safe two-way interactions** between electronic devices, allowing consumers to perform contactless transactions, access digital content, and connect electronic devices **with a single touch**.
- **NFC Functions**

(Source: NFC forum)



History and Status

- **WG document: draft-ietf-6lo-nfc-00** (Mar 03, 2015)
 - Update Stateless address autoconfiguration (RFC7136)
- **1st Revision: draft-ietf-6lo-nfc-01** (July 05, 2015)
 - MAC PDU size and MTU
 - SLAAC and IPv6 link local address
 - Fragmentation and Reassembly
- **2nd Revision: draft-ietf-6lo-nfc-02** (Oct. 17, 2015)
 - Dispatch Header (added)
 - Header Compression (modified for GHC)
- **3rd Revision : draft-ietf-6lo-nfc-03** (Apr. 07, 2016)
 - Some typos fixed
 - Section 7. Security Considerations
- **4th Revision : draft-ietf-6lo-nfc-04** (Jul. 08, 2016)
 - Section 3.2. a NFC FAR-related sentence updated
 - Section 4. a typo fixed
 - Section 4.2. Related to "multi-hop topologies"
- **5th Revision : draft-ietf-6lo-nfc-05** (Oct. 11, 2016)
 - Feedback from NFC forum
 - IID generation (feedback from Dave)
- **6th Revision : draft-ietf-6lo-nfc-06** (Mar. 7, 2017)
 - IID generation (2nd rev.)

Updates since the IETF97

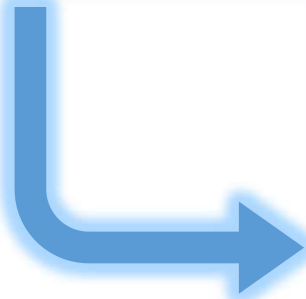
- IID generation (feedback from the last meeting)

```

0           1           3           4           6
0           6           2           8           3
+-----+-----+-----+-----+
|000000u000000000|0000000011111111|11111110RRRRRRRR|RRRRRRRRRRRRRRRR|
+-----+-----+-----+-----+
  
```

Figure 3: Formation of IID from NFC-enabled device address

The 'R' bits are random values which MAY be created by mechanisms like hash function with the SSAP as an input value because the 6-bit address of SSAP is easy and short to be targeted by attacks of third party (e.g., address scanning). In addition, the "Universal/Local" bit (i.e., the 'u' bit) of an NFC-enabled device address is set to 0 RFC 4291 [7].



```

0           1           3           4           6
0           6           2           8           3
+-----+-----+-----+-----+
|RRRRRRRuRRRRRRRRR|RRRRRRRR11111111|11111110RRRRRRRR|RRRRRRRRRRRRRRRR|
+-----+-----+-----+-----+
  
```

Figure 3: Formation of IID from NFC-enabled device address

The 'R' bits are output values which MAY be created by mechanisms like hash functions with input values, i.e., the SSAP and other values (e.g., prefix) because the 6-bit address of SSAP is easy and short to be targeted by attacks of third party (e.g., address scanning). Figure 4 shows an example for IID creation. The F() means a mechanism to make a output value for 64-bit IID, and an parameter, "offset" is an example input value for making the different output values.

$$IID = F(SHA-256(6\text{-bit SSAP}, 64\text{-bit Prefix}), 'u' \text{ bit}, \text{offset})$$

Figure 4: An example of an IID creation mechanism

Others

- **Technical Review Request to NFC Forum**

- (28/05/2015) **Firstly Informed** IPv6 over NFC in IETF 6lo working group
- (09/05/2016) **request for technical review** of "draft-ietf-6lo-nfc"
 - Issues
 - IID generation by using NFC node ID
 - MTU extension of NFC Link Layer
 - NO liaison process between NFC Forum and IETF
- (11/05/2016) **BoD meeting** (of NFC Forum)
 - discussed the review request
 - Replied: (conf-call & F2F meeting) with Technical committee
- (15/06/2016) **NFC Forum Member meeting** (@Dallas)
 - Decided to accept the review request
- (04/07/2016) **request for the discussion results** (by e-mail)
- (19/08/2016) **received Feedback from NFC Forum** (by e-mail)
- (12/10/2016) **resolution of Feedback to NFC Forum** (by e-mail)
- **(so far) No more feedback from NFC forum**
 - after the last resolution (@IETF97)

Next Step

- Ready for WGLC?