

Transmission of IPv6 Packets over Near Field Communication

draft-ietf-6lo-nfc-04

Y-H. Choi, Y-G. Hong (ETRI),
J-S. Youn (DONG-EUI Univ.), D-K. Kim (KNU)
J-H. Choi (Samsung)

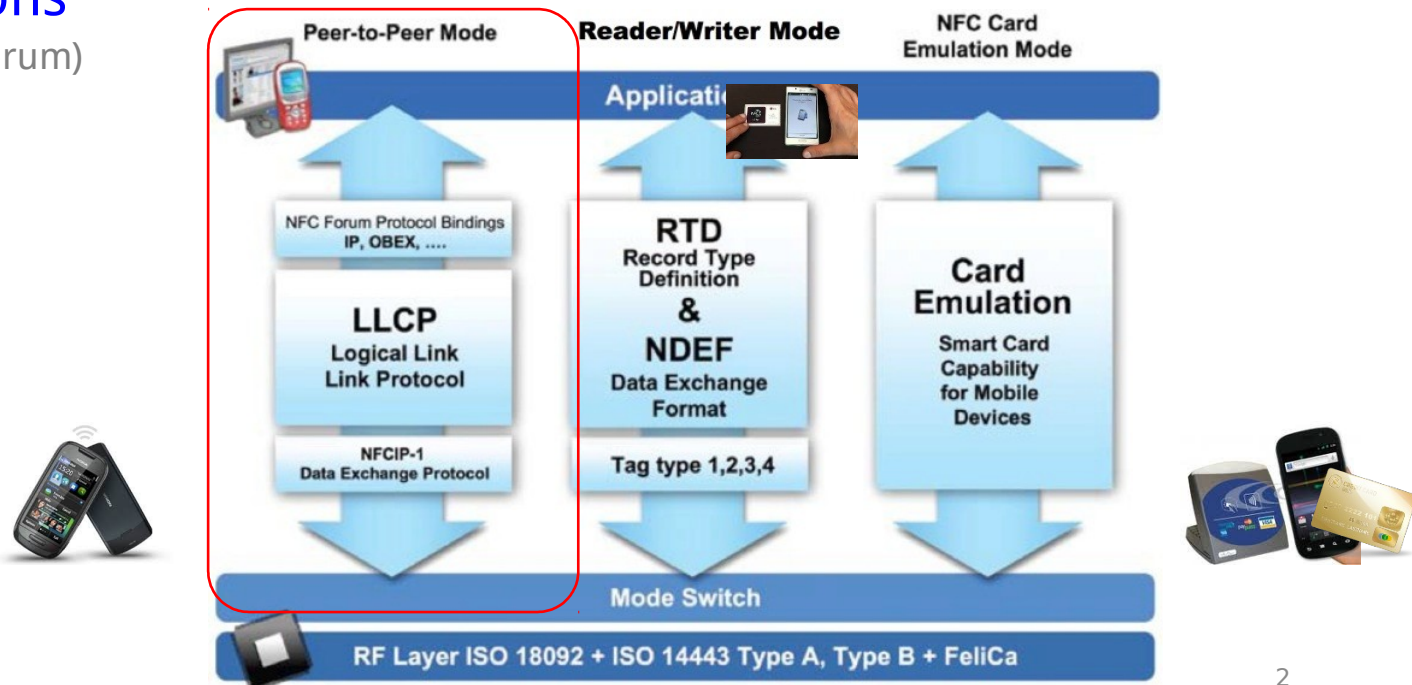
**6lo WG Meeting@IETF 96 - Berlin, Germany
2016. 7. 18.**

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”

Updates since the IETF 95 (1/3)

- **About “Simple multi-hop topology”**

(from the comment from Carles Gomez Montenegro’ comment @e-mail discussions)

Section 4.2. Link Model (9th line)

- The NFC link between two communicating devices is considered to be a point-to-point link only. Unlike in BT-LE, NFC link does not consider star topology and mesh network topology **but direct connections between two devices. Furthermore, NFC Link layer does not support mesh-under protocols.** Due to this characteristics, 6LoWPAN functionalities, such as addressing and auto-configuration, and header compression, need to be specialized into **IPv6 over NFC.**

- **Changes**

- Revise unnecessary & ambiguous phases
 - peer-to-peer topology
 - simple multi-hop topology
- Add characteristics of NFC Link Layer
 - NOT supported mesh-under

Updates since the IETF 95 (2/3)

- **About Fragmentation**

(from the comment from Carles Gomez Montenegro' comment @e-mail discussions)

Section 3.2. Protocol Stacks of NFC (8th line)

- ~~Since~~LLCP does not support fragmentation and reassembly., ~~upper layers SHO~~
~~ULD support fragmentation and reassembly.~~

Section 4.2. Link Model

- The NFC LLCP, by contrast, does not support the FAR functionality, so IPv6 over NFC needs to consider the FAR functionality, defined in RFC4944 [1] [if it is required](#). However, MTU on NFC link can be configured in a connection procedure and extended enough to fit the MTU of IPv6 packet. ([see Section 4.8](#))

- **Changes**

- Revise some phrases for clarification

Updates since the IETF 95 (3/3)

- **Typo fixed**

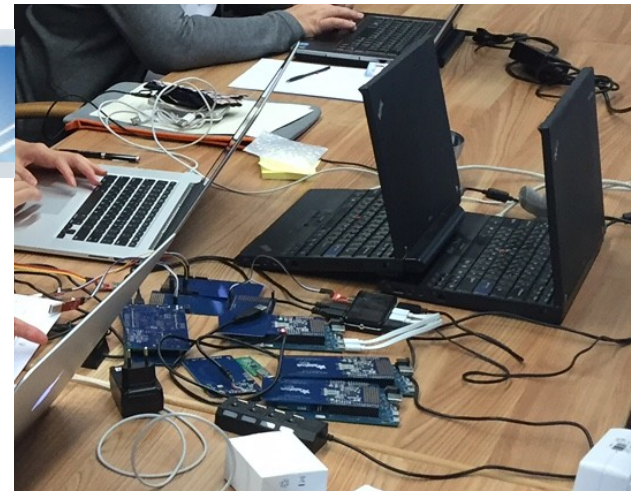
(from the comment from Carles Gomez Montenegro' comment @e-mail discussions)

Section 4. Specification of IPv6 over NFC (4th line)

- 6LoWPAN standards RFC4944 [1], RFC6775 [4], and RFC6282 [5] provide useful functionality for reducing overhead which can be applied to ~~BT-LE~~NFC.

- **Changes**

- Fixed a typo BT-LE → NFC



Others (1/2)

- **2rd ETSI 6lo & 6tisch plugtest**
 - 7/15~7/17 in Berlin (Germany)
 - A testbed between two different NFC-enabled devices
 - Intel Edison board (Yacto Linux 2.0) – PN532 chipset
 - Laptop PC (Fedora, Linux kernel 3.18) – PN532 chipset
 - **10/12 Test Cases Passed (83%)** in the description for IPv6 over NFC.
 - Checked overall operations but NOT checked detailed features (header field values) due to the unstable packet monitoring (packet dump)
- In the Further 3rd 6lo Plug-test
 1. Checking detailed features by using packet dump
 2. The rest of the test cases (2 failed cases)
 3. Processing for MAC header fields from NFC link layer
 4. Interoperability with Multi-NFC Chipsets

Others (2/2)

• 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)
 - BUT NO response
 - Still waiting..

→ The comments will be reflected on the final version of “draft-ietf-6lo-nfc” if they are received from NFC-Forum

Next Step

- Ready for WGLC?