Transmission of IPv6 Packets over Near Field Communication

draft-ietf-6lo-nfc-01

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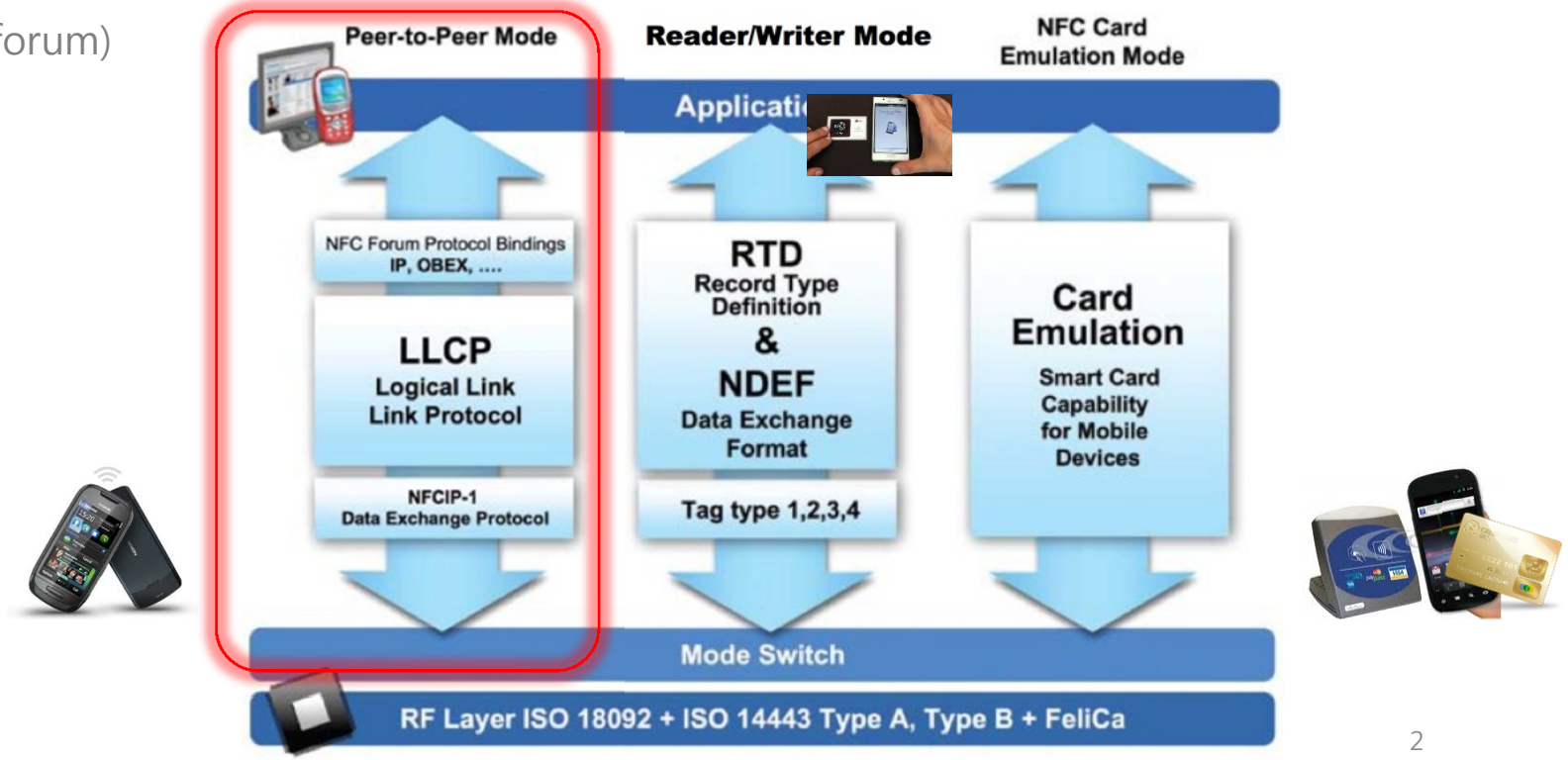
What is Near Field Communication (NFC) ?

- 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.3.2015)
  - Update Stateless address autoconfiguration (RFC7136)

- **1st revision : draft-ietf-6lo-nfc-01** (July.2.2015)
  - Updated parts
    - MAC PDU size and MTU of NFC
    - SLAAC and IPv6 link local address
    - Fragmentation and Reassembly

Update since IETF92 (1/3)

- NFC MAC PDU Size and MTU
  - NFC MAC PDU
    - Frame format of NFC Link Layer: UI PDU added

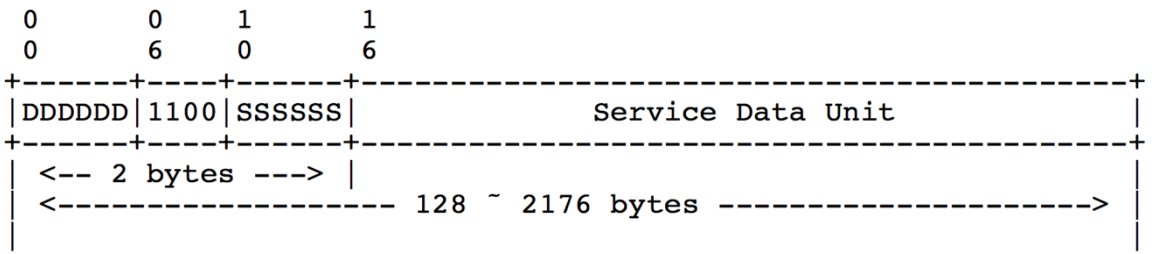


Figure 2: Format of the UI PDU in NFC

  - MTU
    - MIU = 128 bytes + MIUX
    - MIUX (Maximum Information Unit Extension) : 0 ~ 2047 bytes
    - MTU: 128 ~2176 bytes

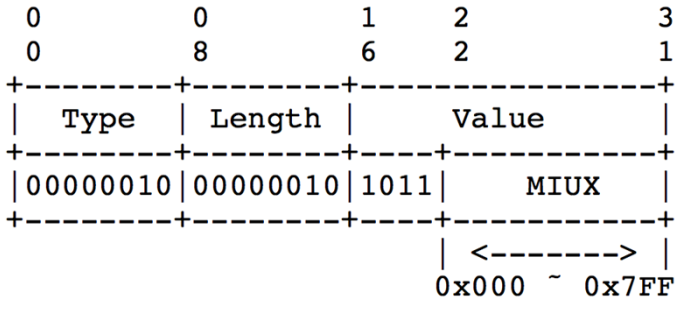


Figure 4: Format of the MIUX Parameter TLV

Update since IETF92 (2/3)

- Stateless Address Autoconfiguration
  - Modified EUI-64 format

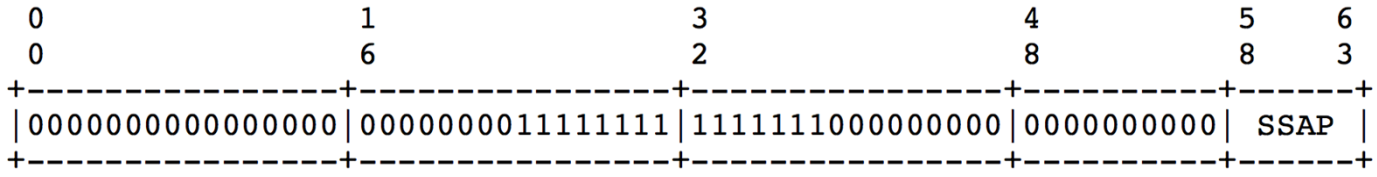


Figure 6: Formation of IID from NFC-enabled device adddress

- IPv6 Link Local Address

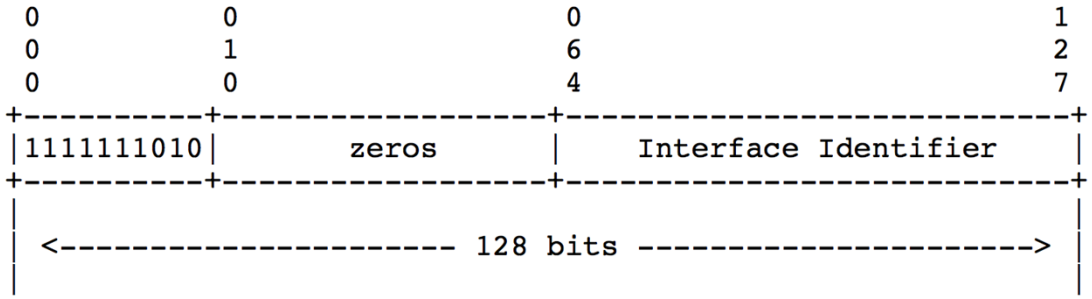


Figure 7: IPv6 link-local address in NFC

Update since IETF92 (3/3)

- Fragment and Reassembly (FAR)
  - NFC provides payloads from 128 bytes to 2176 bytes
  - The MTU of a general IPv6 packet can fit into a single NFC link frame
  - the FAR functionality as defined in RFC4944, which specifies the fragmentation methods for IPv6 datagrams on top of IEEE 802.15.4, **NOT REQUIRED** as the basis for IPv6 datagram FAR on top of NFC
  - The NFC link connection for IPv6 over NFC MUST be configured with an equivalent MIU size to fit the MTU of IPv6 Packet.
  - However, the default configuration of MIUX value is **0x480** in order to fit the MTU (1280 bytes) of a IPv6 packet.

Next step

- **Updates for “draft-ietf-6lo-nfc-02”**
  - Considerations for header compression

- **Implementations**
  - Verification for Header Compression & Packet Fragmentation
  - Simplification & Enhancement for NFC Network Device Driver