Fast Handover with Mobile SCTP

on Single-home nodes

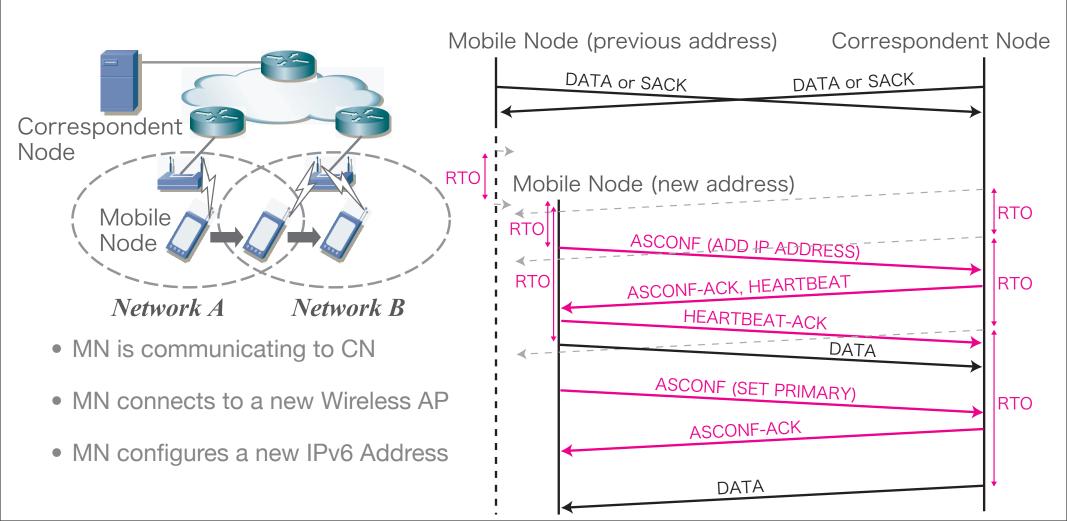# draft-micchie-tsvwg-fastmsctp-00.txt

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Overview

- Indication of handover issues in current Mobile SCTP

  - Especially, when Mobile Node (MN) is Single-home

Correspondent Node

Mobile Node

Network A

Network B

- MN is communicating to CN

- MN connects to a new Wireless AP

- MN configures a new IPv6 Address

Mobile Node (previous address)

Correspondent Node

DATA or SACK

DATA or SACK

RTO

Mobile Node (new address)

RTO

RTO

RTO

ASCONF (ADD IP ADDRESS)

RTO

RTO

ASCONF-ACK, HEARTBEAT

RTO

HEARTBEAT-ACK

DATA

ASCONF (SET PRIMARY)

RTO

ASCONF-ACK

DATA

Propositions (1)

- When "ADD IP ADDRESS" is sent ?

  - Current: Implementation dependent

    - BSD implementation: After the current RTO expiration

    - It occurs long delay when the RTO value increased while the disconnection

  - Proposition: Immediate after the notification of a new IP address

- When does MN recover data transfer after the reception of ASCONF-ACK ?

  - Current: After the remaining RTO expiration

    - Handover event is not considered as change of communication path

    - The RTO might be increased quite long during the lower layer disconnection

  - Proposition: Considering handover event as change of communication path

    - MN restarts data transfer immediately after the handover event

    - These transmissions SHOULD be performed with slow-start

Propositions (2)

- How does MN make CN retransmit DATA chunks to new address immediately ?

  - CN does not know MN's disconnection

    - CN continues to retransmit DATA to MN's old address

    - RTO value is increased

  - CN does not retransmit DATA to MN's new address until the RTO expiration

  - Proposition: New ASCONF parameter: "RECOMMEND RETRANSMISSION"

    - Make peer retransmit unacknowledged DATA chunks to specified address

    - This retransmission is performed with SCTP congestion control mechanism

Conclusion

- Indicating handover issues in the current Mobile SCTP

  - Especially, MN is single-homed

    - Single-homed MN disconnected during the handover process

- Propose elements to achieve smooth transport layer handover

  - Immediate transmission of ASCONF

  - MN restarts data transfer immediately after the reception of ASCONF-ACK

    - Considering handover event as change of communication path

      - Restart of data transfer is performed with slow-start algorithm

  - Recommend Retransmission ASCONF parameter

    - make CN retransmit unacknowledged DATA to the specified address