Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Handover - Serving BS Release with Data Forwarding**
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Re:	Response to IEEE 802.16-04/19 (Recirculation Ballot #14a Announcement)
Abstract	Handover option of Serving BS release with Data Forwarding
Purpose	Enhance the handover performance during handover
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Handover - Serving BS Release with Data Forwarding

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1. Introduction

When handover is performed, the serving BS may discard MAC SDUs associated with the MSS or forward MAC SDUs for service continuation. However, MSS should decide whether the MAC SDUs will be forwarded to the target BS or not depending on the traffic type. In this contribution, we propose a new method for MSS to request the serving BS release with data forwarding.

2. Proposed Changes in Document

Remedy:

Add one HO_IND_type for MSS to decide the service continuation by forwarding MAC SDUs associated with the MSS.

Remedy1:

[Modify the paragraphs of 6.3.20.2.5 in page 48 as follows]

6.3.20.2.5 Termination with the Serving BS

After the hand-over request/response handshake has completed, the MSS may begin the actual HO. At some stage during the HO process, the MSS terminates service with the serving BS with or without option of data forwarding. This is accomplished by sending a MOB-HO-IND MAC Management message with the HO_IND_type value indicating serving BS release for without data forwarding or with the HO_IND_type value indicating serving BS release with data forwarding for data forwarding to the target BS.

If the HO_IND_type field specifies Serving BS release, the BS may ~~either~~ close all connections and discard MAC state machines and MAC PDUs associated with the MSS, and if the HO_ IND_type field specifies Serving BS release with data forwarding, ~~or~~ it may retain the connections, MAC state machine and PDU associated with the MSS to be forwarded to the Target BS for service continuation~~, or to be discarded upon reception of a backbone message from the Target BS.~~ until the Target BS requests for the Serving BS to stop forwarding over a backbone. The Target BS may buffer the forwarded data and deliver to the MSS when MSS's handover is successfully finished and at this time send a backbone message to tell the serving BS to stop forwarding.

Remedy2:

*[Modify the Table 92j in **6.3.2.3.56-MOB-HO-IND Message Format** in page 25]*

Syntax	Size	Notes
MOB_HO_IND_Message_Format() {		
Management Message Type=56	8 bits	
reserved	6 bits	Reserved; shall be set to zero
HO_IND_type	2 bits	00: Serving BS release 01: HO cancel 10: HO reject 11: ~~reserved~~ Serving BS release with data

		forwarding
Target_BS_ID	48 bits	Applicable only when HO_IND_type is set to 00 or 11
HMAC Tuple	21 bytes	See 11.4.11
}		

Remedy3:

*[Add new Inter-base station message **"D.2.XX MSS-Data-Forwarding Message";** appropriate allocation of numbering is required.]*

This message is sent from the Serving BS to the Target BS to forward the MSS's MAC SDUs during HO. This message is typically used when MSS requests the Serving BS to releases the Serving BS with data forwarding. This message's transmission shall be stopped on reception of Stop-Data-Forwarding Message.

Field	Size	Notes
Global Header	152-bit	
Length	8-bit	The length in bytes of the MAC SDU including the Global Header, MSS unique identifier, and Security field.
MSS unique identifier	48-bit	48-bit unique identifier used by MSS on initial network entry
MAC SDU	Variable	
Security field	TBD	A means to authenticate this message

Remedy4:

*[Add new Inter-base station message **"D.2.XX Stop-Data-Forwarding Message";** appropriate allocation of numbering is required.]*

This message is sent from the Target BS to the Serving BS in order to make the Serving BS stop forwarding the MSS's MAC SDUs.

Field	Size	Notes
Global Header	152-bit	
MSS unique identifier	48-bit	48-bit unique identifier used by MSS on initial network entry
Action	TBD	TBD
Security field	TBD	A means to authenticate this message

Remedy5:

*[Add new Messages Sequence Charts for **HO_IND_type** of Serving BS release with data forwarding: appropriate allocation of numbering is required.]*

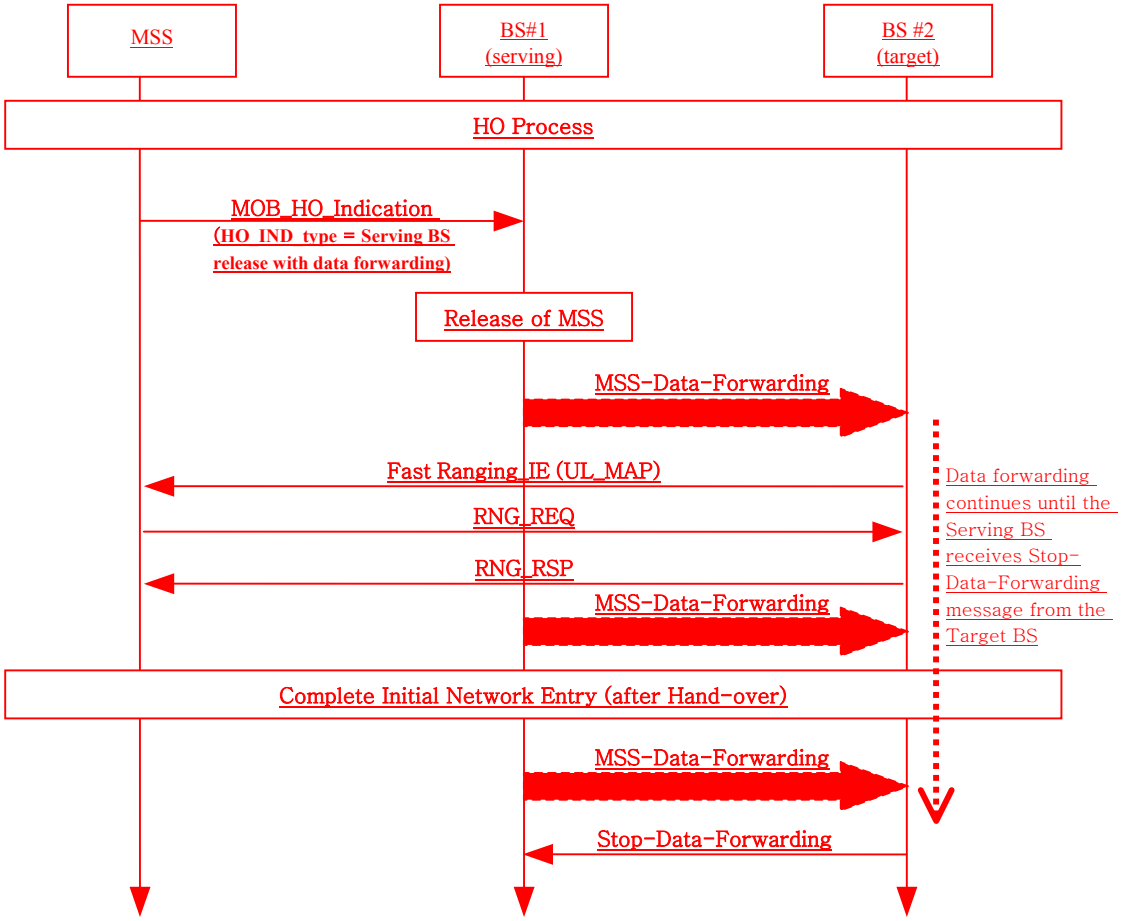

Figure E.X Example HO with Serving BS release with data forwarding