Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Problem fix for rejection response for MS initiated HO**
Date Submitted	**2005-07-14**
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Re:	Call for contribution and comments.
Abstract	This contribution identifies a race condition during HO and provides an optimized solution.
Purpose	Adoption
Notice	
Release	
Patent Policy and Procedures	

Problem fix for rejection response for MS initiated HO

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Problem Definition

In the current standard, the BS is required to respond to MS handover messaging MOB_MSHO-REQ with a MOB_BSHO-RSP. However, unlike with MS ability to reject a contemplated handover as expressed through MS use of the HO-IND with the reject code, the BS enjoys no similar rights. The BS has no method to indicate to the MS that a considered handover may not be in the best interest of network or MS performance. And the truth is that any rejection to handover the BS might make is entirely unenforceable. An MS informed by the BS that it may not handover could simply ignore the indication and conduct a handover via the 6.3.21.2.6 Drops during HO rules. But that does not mean that such indication is not useful for the BS and MS. The BS could certainly make indication that a handover is not recommended and give a delay time for MS to resend a MOB_MSHO-REQ message. The MS could evaluate its options and decide to await the timeout of the timer and send a new MOB_MSHO-REQ message or elect to conduct handover via 6.3.21.2.6 Drops during HO. But at least the BS would be giving MS information to make a more informed decision. This fix would give some degree of parity to the peer-to-peer relationship in consummating handover decisions and initiation which is certainly lacking in the current standard.

This feature would also obviate the need for the BS to produce a lengthy MOB_BSHO-RSP message with a revised target BS list that, in reality, had no value since no handover was advisable at the time.

In order to resolve this issue, a Reject flag is introduce by this contribution into MOB_BSHO_RSP message with an incorporated timer delay function using the existing Action Time message element.

Proposed Text Changes

[in section 6.3.2.3.54 , page124, line 44, some changes Table 108n—MOB_BSHO-RSP message format as below]

Syntax	Size	Notes
…..	--	--

Mode	3	0b000: HO request 0b001: SHO/FBSS request: Anchor BS update with CID update 0b010: SHO/FBSS request: Anchor BS update without CID update 0b011: SHO/FBSS request: Active Set update with CID update 0b100: SHO/FBSS request: Active Set update without CID update 0b101: SHO/FBSS request: Active Set update with CID update for newly added BS 0b110: : SHO/FBSS request: Active Set update with CID update and CQICH allocation for newly added BS 0b111: ~~*reserved*~~MS handover request not approved
….		
AK Change Indicator	1	To indicate whether the AK being used should change when switching to a new Anchor BS. If set to 0, the MS should continue to use the AK currently in use. If set to 1, the MS should use the AK derived for use with the new Anchor BS.
}		
If (Mode == 0b111) {		
Reject_reason_code	2	MS handover request not approved reason: 0b00: Handover not allowed at this time. 0b01: Recommended BSs are unavailable. 0b10: Reserved 0b11: Reserved
}		
Action time	8	—
…..		

[Modify the text p130, line 32 – 43 as:]

Action Time

For HO, this value is defined as number of frames until the Target BS allocates a dedicated transmission opportunity for RNG-REQ message to be transmitted by the MS using Fast Ranging IE. Non-zero value of this parameter means that potential Target BS estimates that channel parameters learned by the MS during Association of that BS stay valid and can be reused during actual Network Re-entry without preceding CDMA-based Initial Ranging. This parameter is decided by the Serving BS based on the information obtained from potential Target BSs over the backbone.

For SHO/FBSS, this is the time of update of Anchor BS and/or Active Set. A value of zero in this parameter signifies that this parameter should be ignored.

For MS handover request not approved (Mode == 0b111), Action Time is the number of frames which the BS suggests MS wait before transmitting a next MOB_MSHO-REQ or MOB_MSHO-IND. If the action timer is equal to 0, MS may transmit a revised MOB_MSHO-REQ or MOB_MSHO-IND immediately.

Operator Operator
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