Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	Reply contribution on the comment #418
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Re:	IEEE 802.16e-2005
Abstract	This contribution provides text clarifying inconsistencies and missing functionality for optimized handover.
Purpose	Adopt proposed changes
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Reply contribution on the comment #418

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1. Problem statement

There are 2 bits related to transmission of unsolicited management message (i.e. SBC-RSP, REG-RSP) in HO Process Optimization TLV.
Bit #8 indicates that BS shall transmit the unsolicited SBC-RSP in case capabilities of Target BS are different from the ones of Serving BS. However, current standard does not restrict that BS transmits unsolicited SBC-RSP when capabilities are the same between Serving BS and Target BS.
If MS does not receive the unsolicited SBC-RSP message when bit #8 in HO Process Optimization TLV is set to 0, the MS can not distinguish the reason why between the message is lost or Target BS does not transmit message due to the same capabilities with Serving BS.
And the relation between Bit #8 and Bit#0 should be clarified.
In case of the unsolicited REG-RSP message, the same problem exists.

2. Proposed remedy

This remedy is based on C80216maint-06_018r1.doc

2.1. Changes for remedy #2 and remedy #3 -

[In 802.16e-2005, table 367, page 681, modify as follows:]

HO Process Optimization	21	2	For each Bit location, a value of '0' indicates the associated re-entry management messages shall be required, a value of '1' indicates the re-entry management message ~~may~~ should be omitted. Bit #0: Omit SBC-REQ management messages during current re-entry processing Bit #1: Omit PKM Authentication phase except TEK phase during current re-entry processing Bit #2: Omit PKM TEK creation phase during reentry processing Bit #3: Omit Network Address Acquisition management messages during current reentry processing Bit #4: Omit Time of Day Acquisition management messages during current reentry processing Bit #5: Omit TFTP management messages during current re-entry processing Bit #6: Full service and operational state transfer or sharing between Serving BS and target BS (All static and dynamic context, e.g. ARQ window contents, timers, counters, state machines) ~~(ARQ, timers, counters, MAC state machines, etc.)~~ Bit #7: ~~post-HO re-entry MS DL data pending at target BS~~ Omit REG-REQ management message during current re-entry processing Bit #8: BS shall send an unsolicited SBC-RSP management message ~~with updated capabilities information in case capabilities of target BS are different from the ones of Serving BS~~ Bit #9: ~~Omit REG-REQ management message during current re-entry processing~~	All

			post-HO re-entry MS DL data pending at target BS Bit #10: BS shall send an unsolicited REG-RSP management message ~~with updated capabilities information~~ Bit #11: (Target) BS supports virtual SDU SN. If Bit#11=1 and MS supports SDU SN, it shall issue SN_REPORT upon completion of HO to this BS. Bit #12: MS shall send ~~Bandwidth Request header with zero BR as~~ a notification of MS's successful re-entry registration. - Bit #13: If this bit is set to 1, MS shall trigger a higher layer protocol required to refresh its traffic IP address (e.g. DHCP Discover [IETF RFC 2131] or Mobile IPv4 re-registration [IETF RFC 3344]). #14–15: Reserved	

[In 802.16e-2005, 6.3.22.2.7*, page 245, insert a new paragraph after paragraph 4 as follows:]*

When optimization bit #8 is cleared (=0) the BS shall send an unsolicited SBC-RSP management message with updated capabilities information.
When optimization bit #10 is cleared (=0) the BS shall send an unsolicited REG-RSP management message with updated capabilities information.

2.2. Changes for remedy #4

[In 802.16e-2005, insert a new subclause 6.3.22.2.10, as follows:]

6.3.22.2.10 HO optimization rules and scenarios

The bitmap of the HO process optimization TLV in RNG-RSP message during HO shall be set according to the following rules :

Non-managed SS (i.e. SSs that do not support secondary management connection):
- HO process optimization bit#3 = 1 (omit DHCP)
- HO process optimization bit#4 = 1 (omit time-of-day acquisition)
- HO process optimization bit#5 = 1 (omit TFTP phase)
- All other bits: don't care (i.e. do not depend on SS management support)

SBC-REQ/RSP consistency:
When HO process optimization bit#8 is set to ~~1~~0, HO process optimization bit#0 shall be set to 1..

REG-REQ/RSP consistency:
When HO process optimization bit#10 is set to ~~1~~0, HO process optimization bit#7 ,shall be set to 1

The bitmap of the HO process optimization TLV in RNG-RSP message during HO shall be set according to the following scenarios:

Full optimized HO scenario
Both static and dynamic context are shared between the serving BS and the target BS.
HO process optimization TLV settings:
- HO process optimization bit#0 = 1
- HO process optimization bit#1 = 1
- HO process optimization bit#2 = 1
- HO process optimization bit#6 = 1
- HO process optimization bit#7 = 1
- HO process optimization bit#8 = 1
- HO process optimization bit#10 = 1
- All other bits, except reserved bits = Don't care (i.e. not dependant on optimization case).

Full optimized HO scenario with TEK updates
Both static and dynamic context are shared between the serving BS and the target BS.
HO process optimization TLV settings:

- HO process optimization bit#0 = 1
- HO process optimization bit#1 = 1
- HO process optimization bit#2 = 0 (When SA-TEK Update TLV is sent in RNG-RSP)
- HO process optimization bit#6 = 1
- HO process optimization bit#7 = 1
- HO process optimization bit#8 = 1
- HO process optimization bit#10 = 1
- All other bits, except reserved bits = Don't care (i.e. not dependant on optimization case).

Optimized HO with static context sharing scenario
Static context only (i.e. no dynamic context) is shared between the serving BS and the target BS.
HO process optimization TLV settings:

- HO process optimization bit#0 = 1
- HO process optimization bit#1 = 1
- HO process optimization bit#2 = 0 (When SA-TEK Update TLV is sent in RNG-RSP)
- HO process optimization bit#6 = 0
- HO process optimization bit#7 = 1
- HO process optimization bit#8 = 1
- HO process optimization bit#10 = 1
- All other bits, except reserved bits = Don't care (i.e. not dependant on optimization case).

Full network entry (no optimization):
No context sharing between the serving BS and the target BS.
HO process optimization TLV settings:

- HO process optimization bit#0 = 0
- HO process optimization bit#1 = 0
- HO process optimization bit#2 = 0
- HO process optimization bit#6 = 0
- HO process optimization bit#7 = 0
- HO process optimization bit#8 = ~~0~~1
- HO process optimization bit#10 = ~~0~~1
- HO process optimization bit#11 = 0
- HO process optimization bit#12 = 0
- HO process optimization bit#13 = 0
- All other bits, except reserved bits = Don't care (i.e. not dependant on optimization case).

In this scenario the RNG-RSP message carrying the HO process optimization TLV above will not be signed with HMAC/CMAC.