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Re:	IEEE802.16-08/020"IEEE 802.16 Working Group Letter Ballot Recirc #28c: Announcement"
Abstract	This contribution proposes a clarification on MS context transfer for HO optimization.
Purpose	Discuss and adopt the proposed text in the TG16j draft.
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Comment on MS context transfer

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1. Introduction

This contribution proposes to clarify the operation of MS context transfer in MR system.
MS context transfer operation is described in IEEE 802.16j draft [1] to support the optimized HO of MS. In the operation description, a term 'Station' is applied to both MR-BS and RS, and it may make confusion to understand the operation. So it is better to use 'RS' or 'MR-BS' when it is needed to distinguish the entities from each other.

2. Proposed text change

[Change subclause 6.3.22.2.11.3 as follows:]

When an MS performs optimized HO in an MR network, MS context, such as MS supporting physical parameters and MAC features, Service Flow parameters and Security context (if operating in distributed security mode), should be transferred to the target station. There are two ways to transfer MS context, Serving station initiated transfer and Target station initiated transfer.

In the Serving station initiated transfer for distributed security mode, the serving station may initiate MS_Context-REQ with type=0 (notification), when it receives MOB_MSHO/BSHO-REQ or MOB_HO-IND message.
— When the serving station is the MR-BS and the target station is its subordinate RS, the MR-BS sends the MS_Context-REQ to the target RS.
— When the target station is the MR-BS of the serving station (RS), the serving RS sends the MS_Context-REQ to the MR-BS.
— When the serving RS and target RS~~station~~ are~~is another RS~~ within the same MR-BS ~~cell~~, the serving RS~~station~~ sends the MS_Context-REQ message to the target RS~~station~~ through the MR-BS.
— When the serving station is an RS, the RS shall not include MS_Context TLVs which the MR-BS also possesses. Instead, the MR-BS shall add its possessing MS_Context TLVs to the received MS_Context-REQ message and send~~t~~ it to the target station.
— In response to the MS_Context-REQ, t~~T~~he target RS~~station~~ and MR-BS send MS_Context-RSP with type=0 (acknowledgement)~~ to the sender of the MS_Context-REQ~~.
— When the target station does not exist in the same MR cell, the serving MR-BS sends MS context to the target MR-BS over the backbone network. Protocol of backbone network is out-of-scope of this document.

In the Serving station initiated transfer for centralized security mode, the MR-BS may send MS_Context-REQ with type=0 (notification) to the target RS, when it sends MOB_BSHO-REQ to MS or it receives MS context over the backbone network, or it receives MOB_MSHO--REQ or MOB_HO-IND message from MS. Then, the target RS sends MS_Context-RSP with type=0 (acknowledgement) to the MR-BS.

Figures 157e and 157f show examples of serving station initiated transfer in MS handover operation in Intra-MR and Inter-MR operating in distributed security mode, respectively. In the examples, the MS_Context-REQ message sent by the serving RSstation contains SS MAC Address TLV, BSID TLV and TLVs related to MS context. The BSID TLV represents the target station. Therefore, when the MR-BS receives the MS_Context-REQ from the serving RS, it examines the BSID TLV. If the BSID TLV indicates the MR-BS itself, the MR-BS sends back MS_Context-RSP to the serving RS. If it indicates a subordinate RS of the MR-BS, the MR-BS sends MS_Context-REQ with type=0 to the subordinate RS after removing BSID TLV. Then the subordinate RS sends back MS_Context-RSP (in response to receiving MS_Context-REQ) and the MS_Context-RSP is sent to the serving RS through the MR-BS. If the BSID does not indicate a station within the MR cell, the MR-BS sends a message to the backbone network to inform the target station of MS context.

In the case of RSs operating in centralized security mode, message exchanges between the target RS and the MR-BS in the figures are performed.

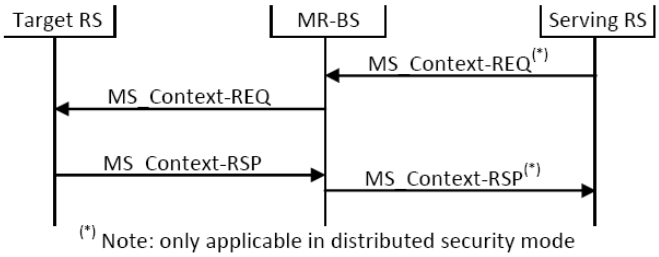

Figure 157e—Serving station initiated transfer (Intra-MR)

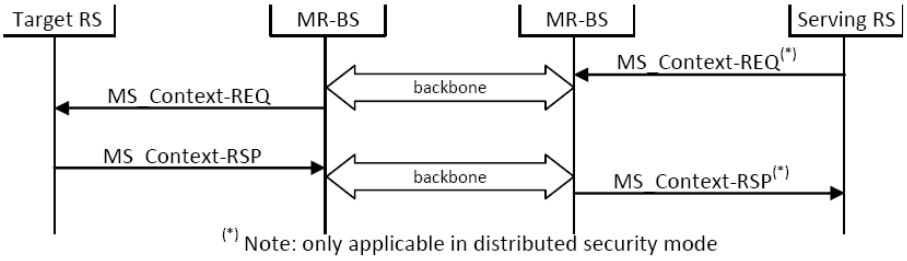

Figure 157f—Serving station initiated transfer (Inter-MR)

In the target station initiated transfer for distributed security mode, the target station may initiate MS_Context-REQ with type=1 (request), when it receives a RNG-REQ message containing the Serving BSID TLV from an MS and does not possess context of the MS.

— When the target station is the MR-BS and the serving station is its subordinate RS, the MR-BS sends the

MS_Context-REQ to the serving RS.
— When the target station is the RS and the serving station is its MR-BS, the target RS sends the MS_Context-REQ to the MR-BS.
— When the serving RS and target RS arestation is another RS within the same MR-BS cell, the target RSstation sends the MS_Context-REQ message to the serving RS station through the MR-BS.
— The serving RSstation and MR-BS send MS_Context-RSP with type=1 (response) in response to the MS_Context-REQto the sender of the MS_Context-REQ.
— When the serving station is an RS, the RS shall not include MS_Context TLVs which the MR-BS also possesses. Instead, the MR-BS shall add its possessing MS_Context TLVs to the received MS_Context-RSP message and sendt it to the target station.
— When the serving station does not exist in the same MR cell, the target MR-BS sends request to the serving MR-BS over the backbone network to obtain MS context. Protocol of backbone network is out-of-scope of this document.

In the target station initiated transfer for centralized security mode, the target RS may send MS_Context-REQ with type=1 (request) to the MR-BS, when it receives a RNG-REQ message containing the Serving BSID TLV from an MS and does not possess context of the MS. Then, the MR-BS sends MS_Context-RSP with type=1 (response) to the target RSstation. When the serving station does not exist in the same MR cell, the MR-BS sends request to the serving MR-BS over the backbone network to obtain MS context. Protocol of backbone network is out-of-scope of this document.

Figures 157g and 157h show examples of target station initiated transfer in MS handover operation in Intra-MR and Inter-MR operating in distributed security, respectively. In the examples, the MS_Context-REQ message sent by the target station contains SS MAC Address TLV, BSID TLV. The BSID TLV represents the serving station. Therefore, when the MR-BS receives the MS_Context-REQ from the target RS, it examines the BSID TLV. If the BSID TLV indicates the MR-BS itself, the MR-BS sends back MS_Context-RSP to the target RS. If it indicates a subordinate RS of the MR-BS, the MR-BS sends MS_Context-REQ with type=1 to the subordinate RS after removing the BSID TLV. Then the subordinate RS sends back MS_Context-RSP in response to the MS_Context-REQ and the MS_Context-RSP is sent to the target RS through the MR-BS. The MS_Context-RSP should contain TLVs related to MS context. If the BSID does not indicate a station within the MR cell, the MR-BS sends a message to the backbone network to inform the servingtarget station of the request for MS context. The message sent to the backbone is out of scope of this specification.

In the case of RSs operating in centralized security mode, message exchanges between the target RS and the MR-BS in the figures are performed.

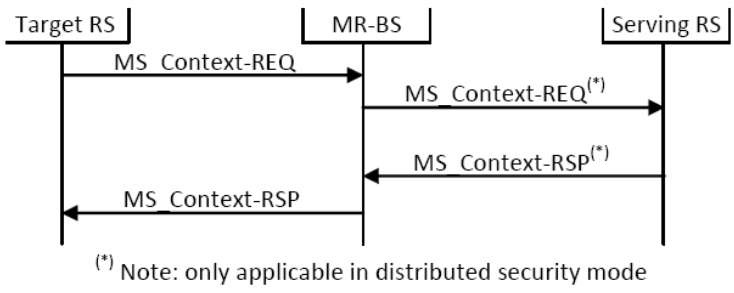

Figure 157g—Target station initiated transfer (Intra-MR)

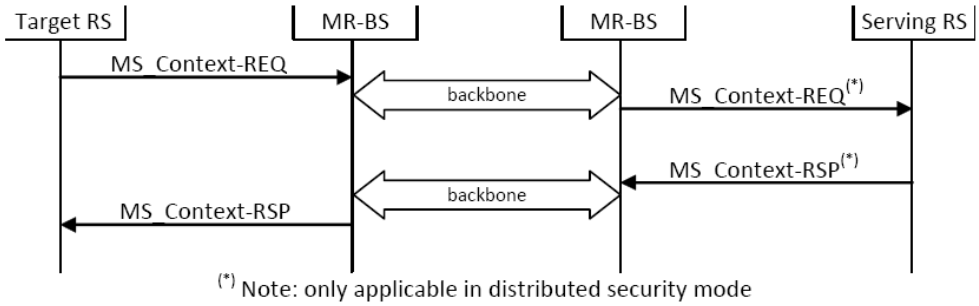

Figure 157h—Target station initiated transfer (Inter-MR)

Reference:

[1] IEEE P802.16j/D4 April 2008