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Re:	
Abstract	<u>Additional Hand over primitives for Mobile Side</u>
Purpose	Adoption
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Add an HO-Mobile Primitive

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6 Abstract

7

8 The 802.16g draft is missing the trigger for Mobile Initiated Handover. When the NCMS
9 at the MS decides to initiate a handover (as opposed to HO-Start) with the Serving BS it
10 informs the 802.16 MS entity to send a MOB_MSHO-REQ listing the candidate BS for
11 an upcoming HO-Start or HO-Cancel.

12

13 14.2.5.2.1 C-HO-REQ

14 This primitive is used by [an 802.16 entity](#)-BS or NCMS to trigger a handover procedure. The Action Type
15 included in this primitive defines the type of handover procedure to be performed. The possible Action Types for
16 this primitive are listed in Table below:

Action Type	Description
HO-Serving	Handover procedure between current serving BS and NCMS.
HO-Target	Handover procedure between target BS and NCMS
HO-Scan	Neighbor BS scanning procedure
HO-Mobile	Handover procedure between Mobile Station and NCMS

17

18

19 14.2.5.2.1.4 C-HO-REQ (Action Type==HO-Mobile)

20 Function:

21 This primitive is used by the [MS or the](#) Mobility Management Services entity in the NCMS at the MS side to
22 indicate the initiation of the HO process. In case of SHO/FBSS, it can be used to update Anchor BS or to add a
23 new Active BS to the current Active set. The NCMS in the MS can use this primitive to inform the 802.16 MS
24 entity to initiate the HO process and inform the serving BS of all the candidate BSs for HO as seen by the MS.

25 Semantics of the service primitive:

26 The following parameters are included in this primitive.

27

C-HO-REQ

```

1      (
2      Operation_Type(Action),
3      Action_Type(HO-MobileInitiate),
4      Destination(MS_or_NCMS),
5      Attribute_list:
6          Serving_BSID,
7          MS_MAC_Address,
8          HO_Type,
9          Mode,
10         Number_of_candidate_target_BSs,
11         List_of_candidate_target_BSs,
12         Service_flow_information,
13         CS_information
14     )

```

15

16 **Serving BSID**

17 Base station unique identifier (same number as that broadcasted on the DL-MAP
18 message).

19 **MS MAC Address**

20 48-bit unique identifier used by MS

21 **HO Type**

22 Indication of HO types; HHO or SHO/FBSS

23 **Mode**

24 Various modes in Anchor BS update or Active Set Update

25 **Number of candidate target BSs**

26 Number of BSs which are recommended by the MS or BS as candidate target BSs. The
27 information of each recommended BS is included in the list of candidate target BSs.

28 **List of candidate target BSs**

29 This is the list of recommended target BSs by the Mobility Management Services entity.
30 The BSs in the list may be the candidate target BSs for HHO or an Anchor BS or Active
31 BSs for SHO/FBSS according to the value of HO type and Mode. MS Access
32 Information, Newly Allocation Information, and HO Quality Information can be included
33 in this list.

34 **Service flow information**

35 Information of all the service flows that have been established between the MS and the
36 serving BS.

37 **CS information**

38 Approved IP filter rules of a service flow such as packet classification rule and IPv6 flow
39 label.

40

41 **When generated:**

42 NCMS to 802.16 MS entity:

43 This primitive is used by the Mobility Management Services entity in NCMS to inform the 802.16 MS
44 entity to initiate a handover.

45 802.16 MS entity to NCMS:

46 This primitive is used when the MS receives the MOB_BSHO-REQ from the BS.

47

48 **Effect of receipt:**

49 802.16 MS entity:

50 The MS generates MOB_MSHO-REQ MAC message to the serving BS providing it with all the
51 candidate BSs.

52 NCMS:

53 The NCMS may instruct the MS to start the actual handover procedure (i.e., sending MOB_HO_IND).

1

2 **14.2.5.2.2 C-HO-RSP**

3 This primitive is used by a 802.16 entity or NCMS to respond a handover request. The Action Type included in
 4 this primitive defines the type of handover procedure to be performed. The possible Action Types for this
 5 primitive are listed in Table below:

Action Type	Description
HO-Serving	Handover procedure between current serving BS and NCMS.
HO-Target	Handover procedure between target BS and NCMS
HO-Scan	Neighbor BS scanning procedure
<u>HO-Mobile</u>	<u>Handover procedure between Mobile Station and NCMS</u>

6 -

7 **14.2.5.2.1.5 C-HO-RSP (Action_Type==HO-Mobile)**

8 **Function:**

9 This primitive is used by the MS to inform the Mobility Management Services entity in the NCMS MS about the
 10 arrival of a MOB-BSHO_RSP MAC message in response to the previously generated MOB_MSHO-REQ
 11 message and the pruned down list of the candidate BSs selected by the Mobility Management in the NCMS for
 12 the upcoming actual HO phase.

13 **Semantics of the service primitive:**

14 The following parameters are included in this primitive.

```

15         C-HO-REQ
16         (
17             Operation_Type(Action)
18             Action_Type(HO-Mobile),
19             Destination(NCMS),
20             Attribute_list:
21                 Serving BSID,
22                 MS MAC Address,
23                 HO Type,
24                 Mode,
25                 Number of candidate target BSs,
26                 List of candidate target BSs,
27         )
28
29         Serving BSID
30             Base station unique identifier (same number as that broadcasted on the DL-MAP
31 message).
32         MS MAC Address
33             48-bit unique identifier used by MS
34         HO Type
35             Indication of HO types; HHO or SHO/FBSS
36         Mode
    
```

1 Various modes in Anchor BS update or Active Set Update
 2 **Number of candidate target BSs**
 3 Number of BSs which are recommended by the MS or BS as candidate target BSs. The
 4 information of each recommended BS is included in the list of candidate target BSs.
 5 **List of candidate target BSs**
 6 This is the list of recommended target BSs that is pruned down by the serving BS. The
 7 BSs in the list may be the candidate target BSs for HHO or an Anchor BS or Active BSs
 8 for SHO/FBSS according to the value of HO type and Mode. MS Access Information,
 9 Newly Allocation Information, and HO Quality Information can be included in this list.
 10

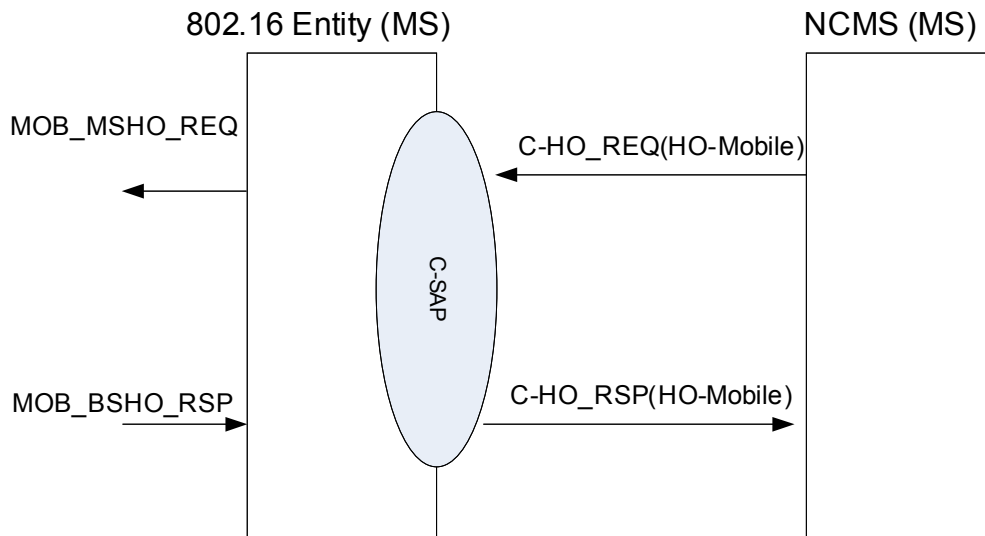
11 **When generated:**

12 802.16 MS entity to NCMS:
 13 This primitive is used by the 802.16 MS entity to inform the Mobility Management Services entity
 14 about the arrival of a response to the previously generated C-HO_Req (HO-MobileInitiate) primitive.
 15

16 **Effect of receipt:**

17 NCMS at the MS:
 18 The NCMS learns about the pruned down list of the potential candidates BS to select as the final
 19 candidate.

20
 21
 22



23
 24
 25
 26

Figure xxx – Primitive flow between NCMS at the MS and the MS when HO is initiated