Reduced Neighbor Information Generation and Customized Delivery

IEEE 802.16 Presentation Submission Template (Rev. 8.3)

Document Number:

IEEE S80216j-07/139

Date Submitted:

2007-1-16

Source:

Rakesh Taori, Misun Do   E-mail: rakesh.taori@samsung.com
Samsung Advanced Institute of Technology
Hyunjeong Kang, Hyoung Kyu Lim, Sungjin Lee, Jungje Son
Samsung Electronics

Hyunjeong Lee, Wendy C. Wong, Jerry Sydir,Kerstin Johnsson   E-mail: hyunjeong.hannah.lee@intel.com
Intel

Chie-Ming Chou, I-Kang Fu, Fang-Ching Ren, Wern-Ho Sheen   E-mail: chieming@itri.org.tw; IKFu@itri.org.tw
ITRI/NCTU

Venue:

IEEE 802.16 Session#47, London, UK

Base Document:

IEEE C80216j-07/139

Purpose:

Proposes methods for facilitating efficient delivery of the neighborhood information in the MR network.

Considerations

- Background
  - 802.16 provides the following mechanisms
    - BS transmits MOB_NBR-ADV messages to facilitate handover
    - BS receives neighbor information over the backbone

  - The goal is to extend the mechanisms to 802.16j.

  - Issues
    - Informing the RS about the neighborhood
    - Neighbor information message size
    - Not all information is relevant to all RSs and all MSs

Background

Backbone

- BS transmits MOB_NBR-ADV messages for its MSs

- BS gets the neighborhood information over the backbone network

BS

MOB_NBR-ADV
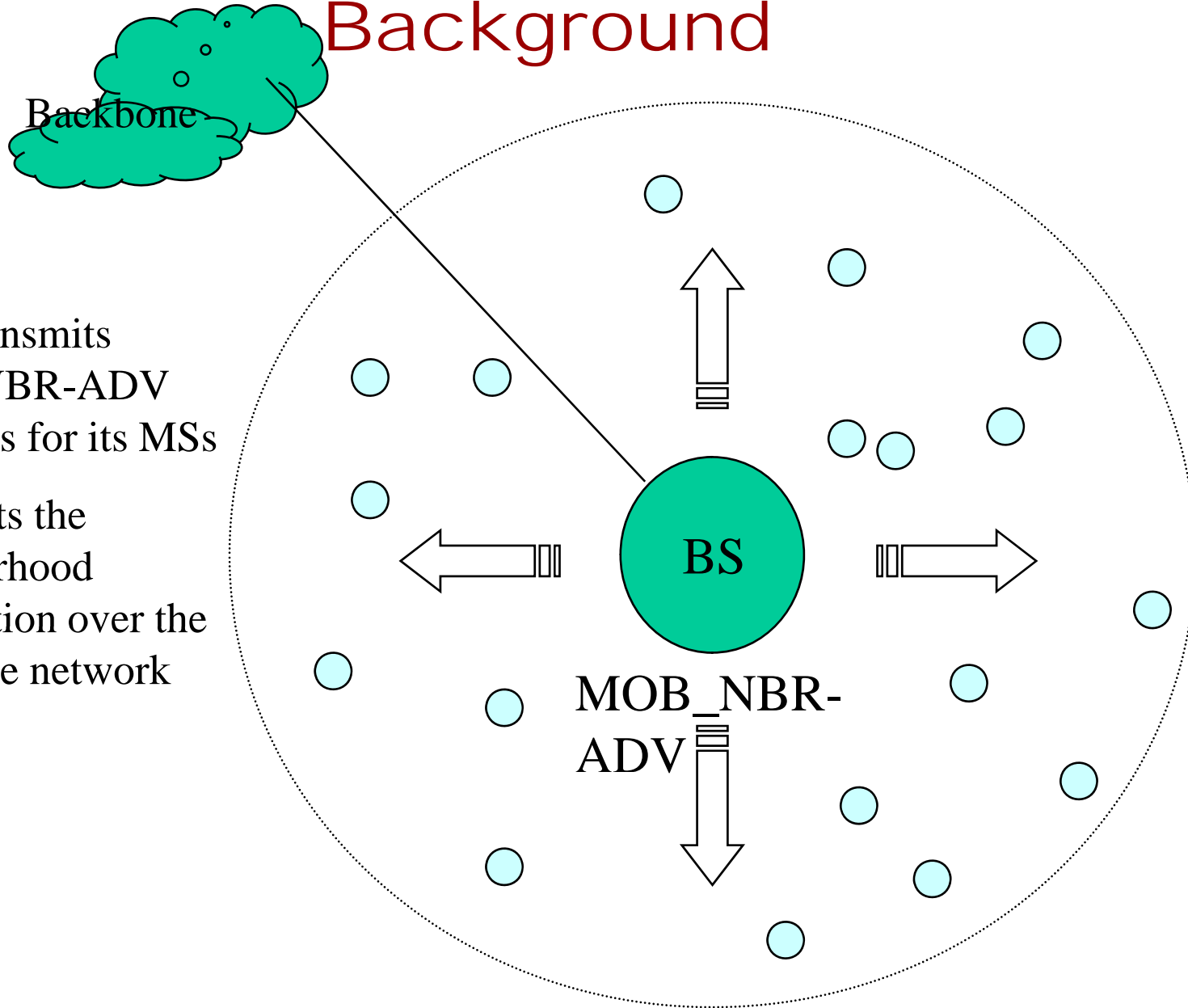
Extending the mechanisms to 802.16j

Issues

How does RS get the neighborhood information?

Do all RSs need to advertsise all the neighbors in the whole network?

How large is the Message length?

BS

RS

RS

RS

RS

MOB_NBR-ADV

MOB_NBR-ADV

MOB_NBR-ADV

MOB_NBR-ADV

MOB_NBR-ADV
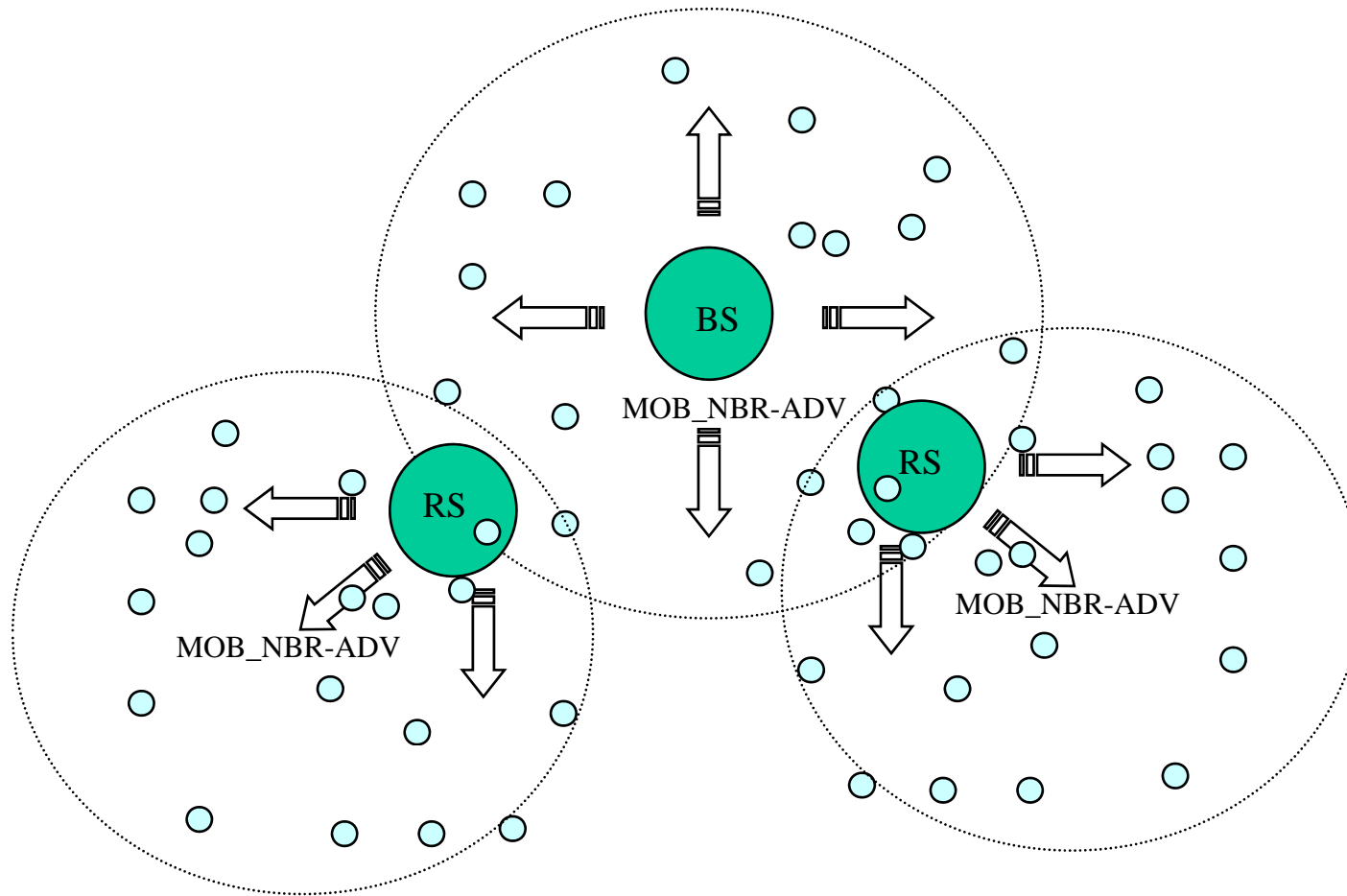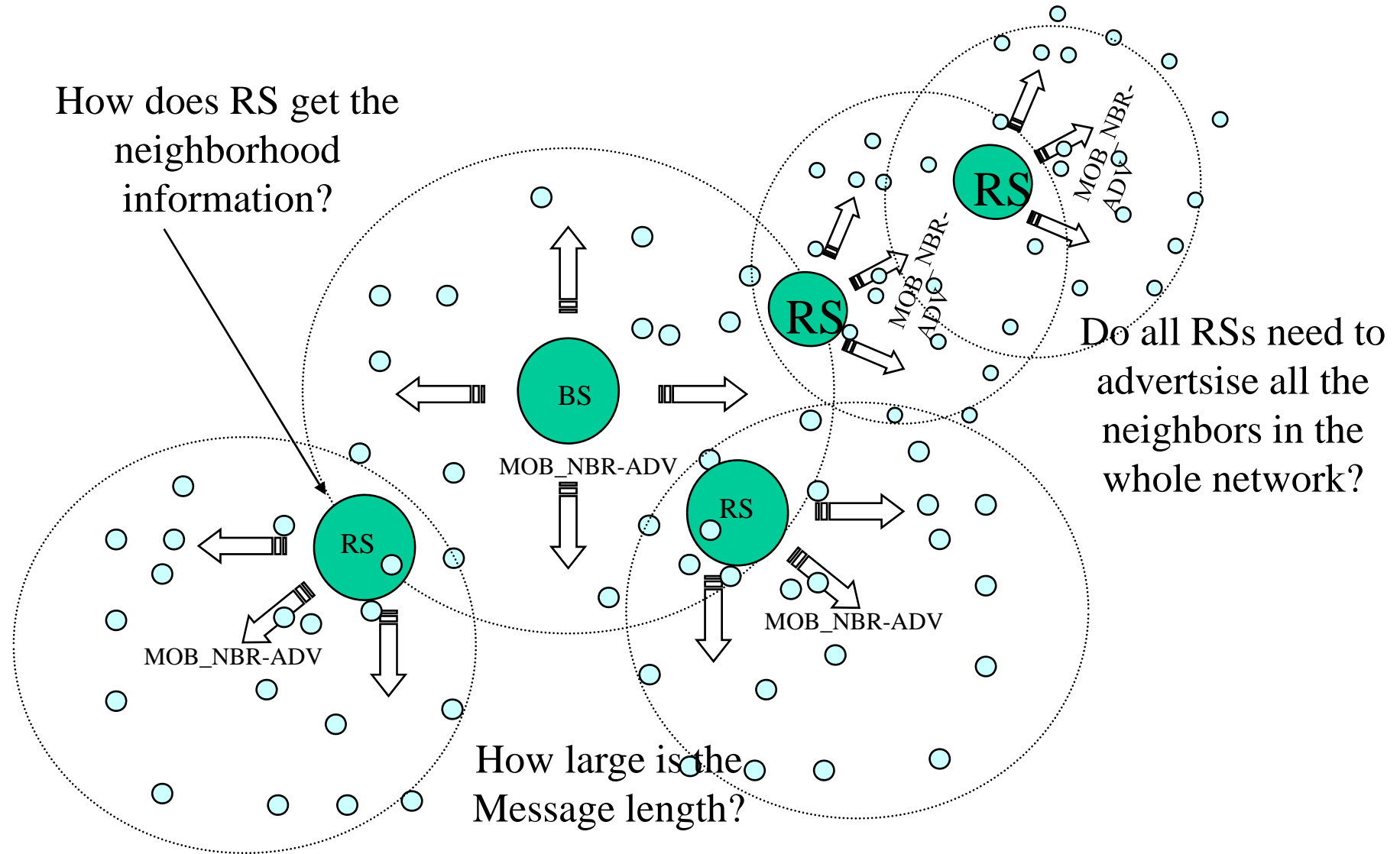
In scope of the 802.16j specification

- Techniques/methods to facilitate RS to broadcast NBR-ADV message for its neighborhood
  - Backward compatibility requirement

- Techniques/methods to facilitate BS/RS to inform subordinate RSs of their neighborhood

- Techniques/methods to make the neighbor information delivery process efficient.

Messages

- From BS/RS to MS: Unchanged (Just use MOB_NBR-ADV message)

- BS to RS
  - Customized messages regarding NBR-ADV for MS
  - Messages regarding RS neighborhood (replacing what was done using the wired backbone in case of BS)

- RS to RS (depending on the capability)
  - Customized messages regarding NBR-ADV for subordinate RSs
  - Messages regarding subordinate RSs neighborhood

Results of the Harmonization Effort
(Captured in C802_16j-139.doc)

- MR-BS and RS shall broadcast MOB_NBR-ADV message in their cell
  - Access Zone

- Agreed on centralized method for neighborhood information delivery
  - MR-BS will provide customized information to each RS about its neighborhood
    - Unicast message
    - MR_NBR-INFO
    - Transmitted on relay link

- Message format for the neighborhood information delivery
  - Full or incremental (add/delete/update)
  - Location information and interference measurement reports may be used by the MR-BS to compose the MR_NBR-INFO message.

- Composition of MOB_NBR-ADV message
  - Shall broadcast MOB_NBR-ADV message
  - Copy all the neighbors as informed by the BS
  - Further customize (reduce) the neighbors based on its own information