Proposal for MAC protocol modification for 802.16.3 Application

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Purpose:

Explain contribution

Proposal for MAC protocol modification for 802.16.3 Application

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Outline

Addition of Header Version

Unburdened Requests

Multiple Outstanding Requests

A new Dynamic Service message

Modification to Activity Detection

Addition of Header Version

Why: The addition of Header Version will make future additions to the MAC Header unburdened for parsers.

How: Using the two reserved bits which will be defined as having value zero. If the bits are not zero than the parser MUST skip the packet.

Unburdened Requests

Why: To allow the Base Station to be able to freely assign upstream physical layer parameters to the modem on a burst by burst basis, the SS should not make assumptions about the physical layer .

How:

- The requests should be made in units of bytes.
- The grants should be allocated in units of time with respect to some system time-base.
- The resolution of these time units should be finer than the time to transmit 8 bits at the maximum symbol rate and the maximum order of modulation.

Unburdened Requests

(cont.)

- Base stations in providing bandwidth grants based upon requests shall indicate the burst profile to be used.
- A reasonable number of burst profiles shall be specified in the Upstream Channel Descriptor message.
- The grants given by BS to the requesting SS shall include the physical overhead required to transmit the MAC PDU based upon the burst profile assigned.

Multiple Outstanding Requests

Why: The restriction the there can only be one outstanding request increases the perceived upstream delay .

How:

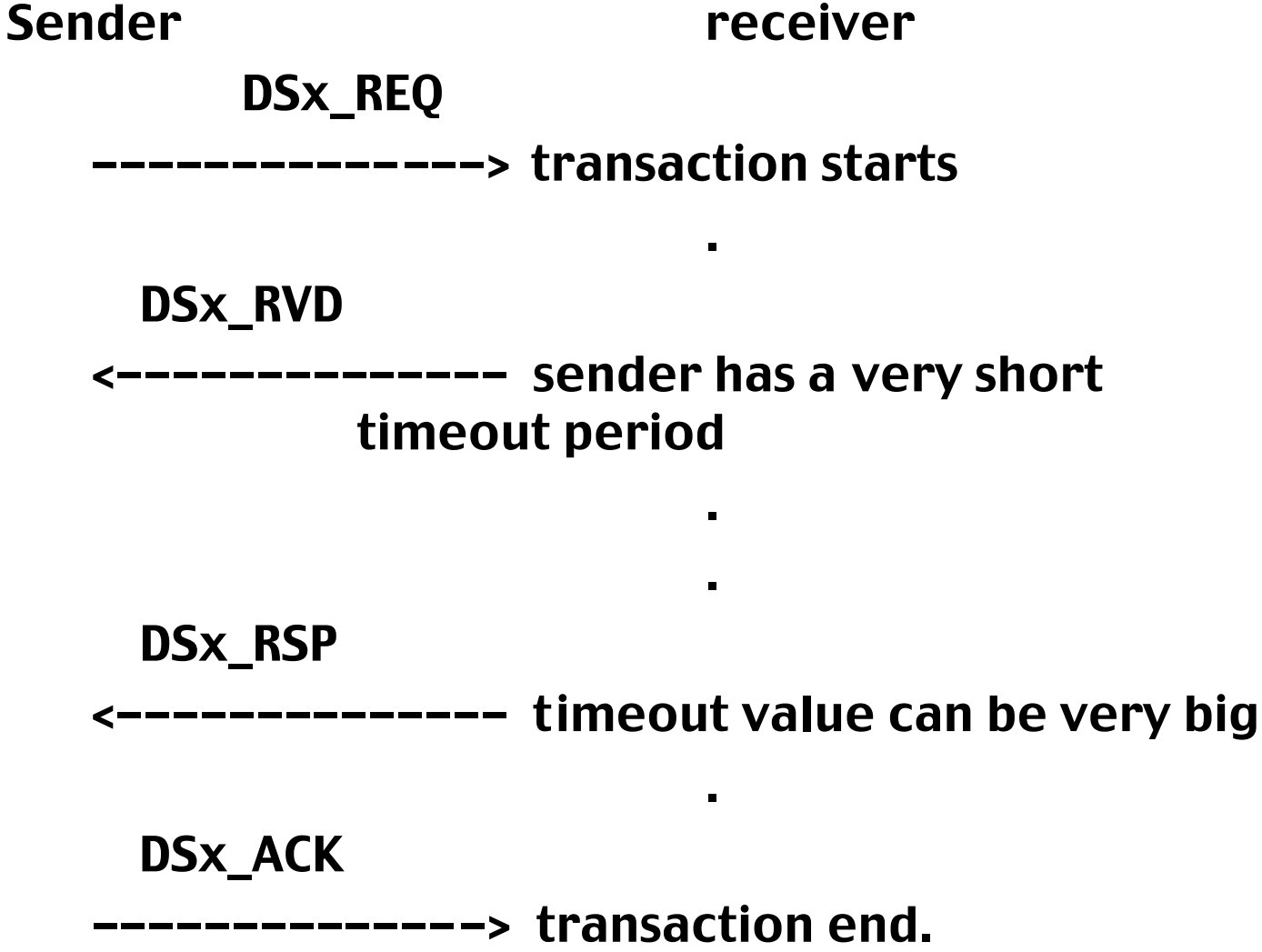
- Allow multiple outstanding requests up to MAXIMUM_OUTSTANDING_REQUESTS defined per CID.
- Acknowledge each request by inserting a new Data Grant Burst Type Pending.

A New Dynamic Service Message

Why: Due to additional work that has to be carried out by the BS the timeout value for the DSx_RSP (which should carry out a decision) is very big. Which if the DSx_REQ message is corrupted makes retransmission time very long.

How: Separate the decision from the acknowledging of the request by adding a new DSx_RVD message which only acknowledges the correct reception of the request with a very shot timeout.

A New Dynamic Service Message



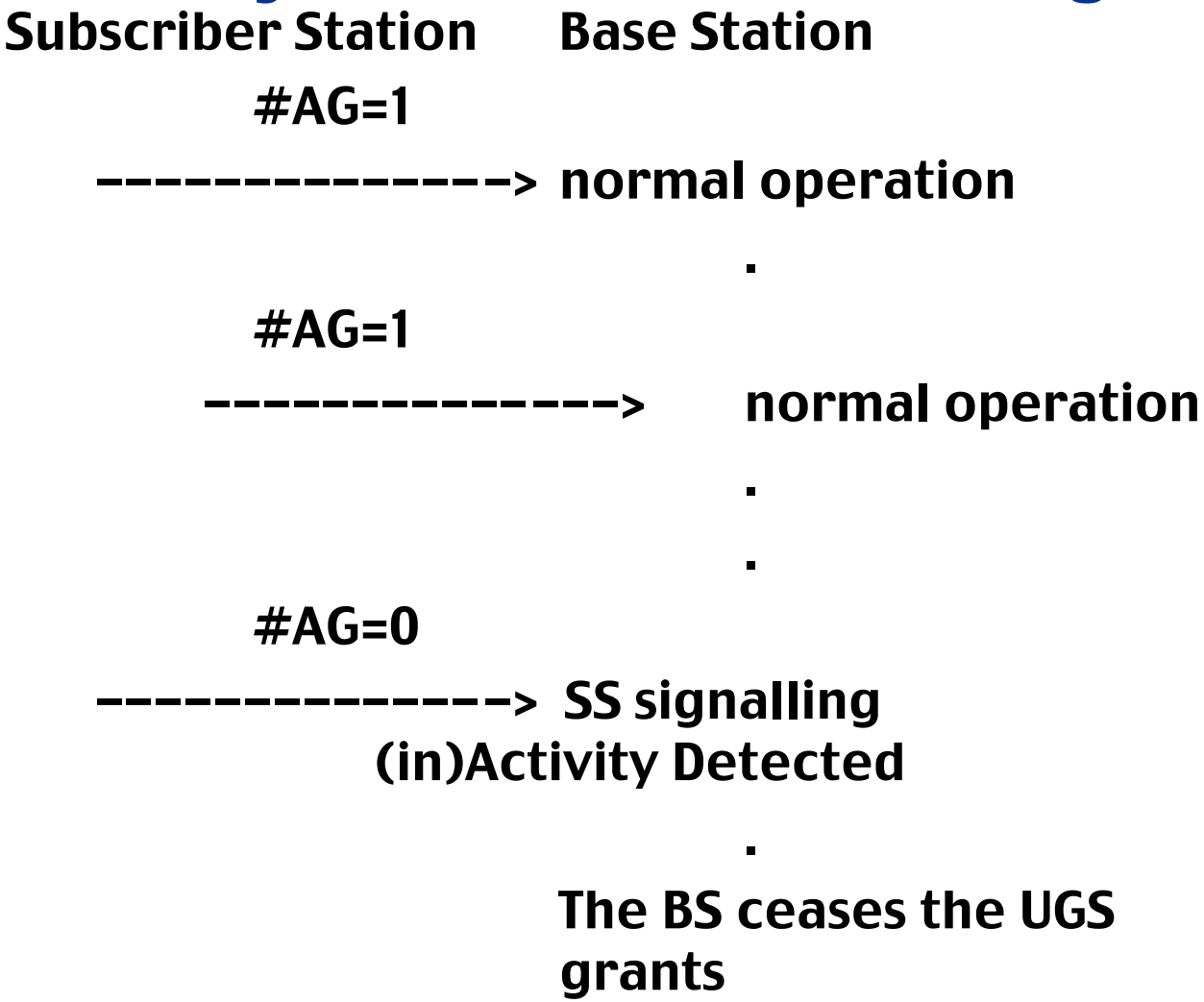
Modification to Activity Detection

Why: The determination of (in) Activity Detection is left to the BS which is both general and does not necessarily knowledgeable about the application the (in)activity is detected.

How:

- Make (in) activity detection a SS issue.
- Clearly define how the (in)activity is communicated to BS.

A New Dynamic Service Message



Questions?

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