

RS Network Entry, Topology Establishment and Initialization for IEEE 802.16j

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Purpose:

- Propose RS network entry, topology establishment and initialization for IEEE802.16j

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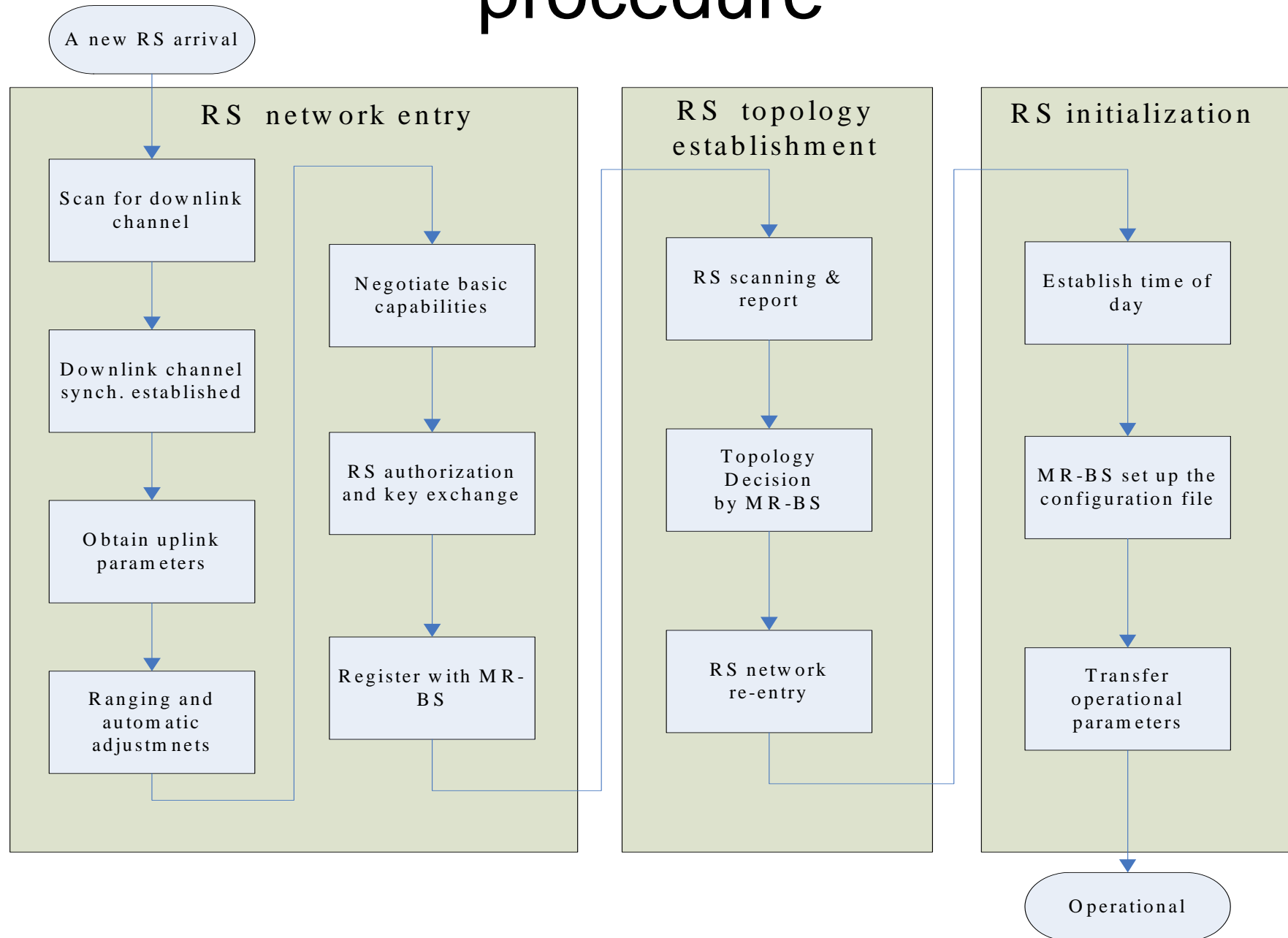
General Description (1)

- A network entry procedure is proposed for RSs. We focus on the MR network where RSs act like BS to MSs.
- In addition to the functionalities of network entry and Initialization, a relay path selection is considered necessary. The path selection shall be done at the MR-BS because it has the full knowledge of the network condition, including traffic load, topology etc.
- Firstly, the new coming RS performs an initial network entry as an MS to
 - obtain a temporal relay path in order to communicate with the MR-BS
 - obtain authorization and registration from the MR-BS

General Description (2)

- However, the temporary relay path may not be the best for the MR network
 - RS makes a decision by itself based only on RSSI at this stage.
- Secondly, the path selection is done by the BS through topology establishment procedure after the initial network entry, and the RS performs an network re-entry if necessary. Finally, the RS initialization follows.
- New messages and signaling flows have been designed to achieve the purpose.
- The proposed path-selection procedure can also be used for RS reconfiguration.

The proposed RS network entry procedure



Proposed MAC Messages (1)

Type	Message name	Message description	Connection
69	RLY_SCN-REQ	Relaying mode RS scanning interval allocation request	Basic
70	RLY_SCN-RSP	Relaying mode RS scanning interval allocation response	Basic
71	RLY_SCN-REP	Relaying mode RS scanning result report message	Primary management
72	RLY_TPY-IND	Relaying mode topology indication message	Basic
73	RLY_CFG-IND	Relaying mode configuration indication message	Basic

Proposed MAC messages(2)

- RLY_SCN-REQ
 - transmitted by an RS to trigger the neighborhood discovery
 - Modified from the legacy MOB_SCN-REQ
- RLY_SCN-RSP
 - transmitted by the MR-BS in response to RLY_SCN-REQ or unsolicited trigger of the scanning
 - Modified from the legacy MOB_SCN-RSP
- RLY_SCN-REP
 - Transmitted by an RS to report the scanning results
 - Modified from the legacy MOB_SCN-REP
- RLY_TPY-IND
 - Transmitted by the MR-BS to indicate the network re-entry
- RLY_CFG-IND
 - Transmitted by the MR-BS to indicate RS the operational parameters

Messages Exchange for RS scanning and report

