RS Network Entry

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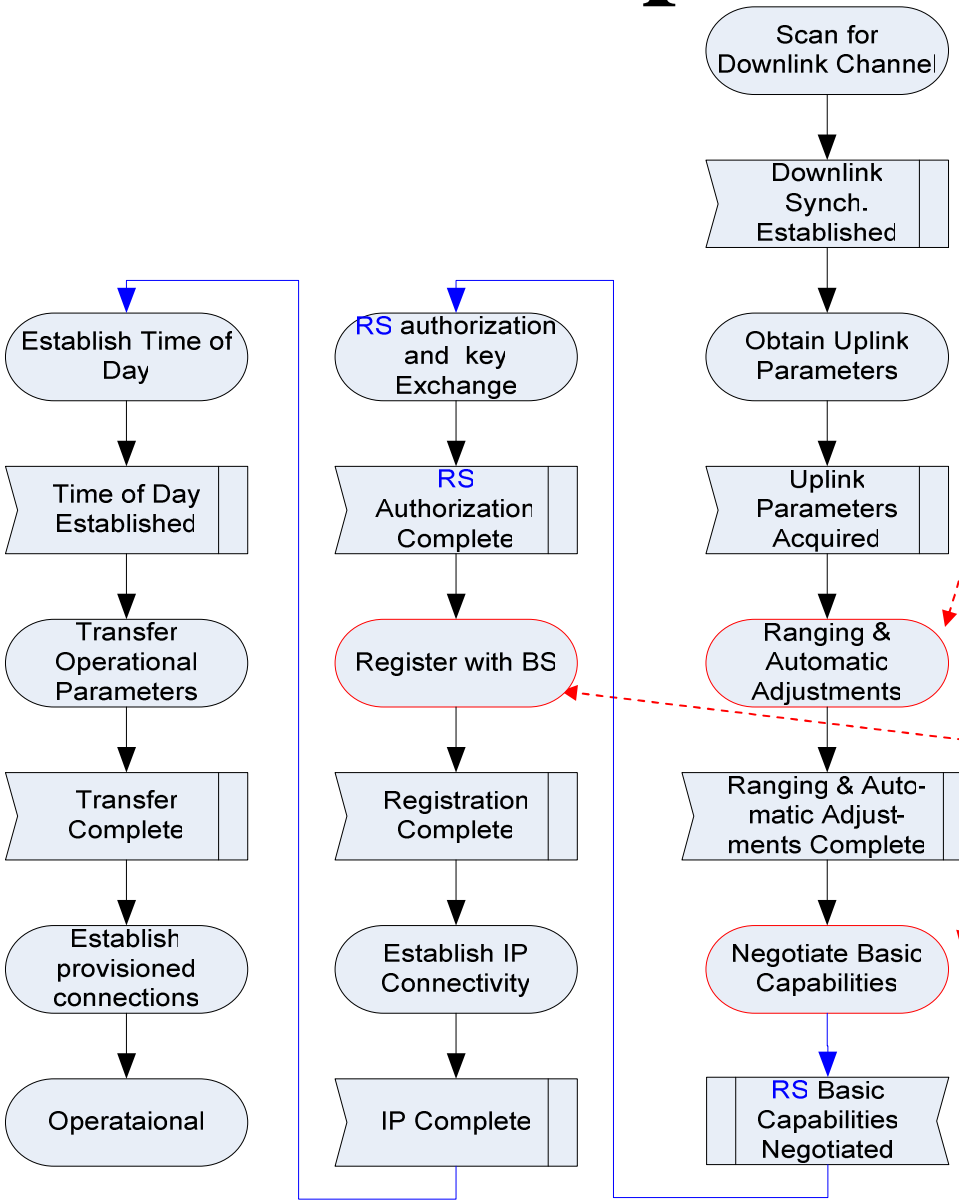
Purpose:

Propose the text regarding RS network entry

Design Objectives

- Shall support RS to join Multihop Relay network
- Should support RS to enter and register the Multihop Relay network via various RS mode
- Should be centralized controlled by the MR-BS
- The modifications to legacy Network Entry procedure should be minimized
- The mode of RS and associated parameters should be assigned during the Network Entry procedure
- The new network topology after joining an RS should be determined during the Network Entry procedure

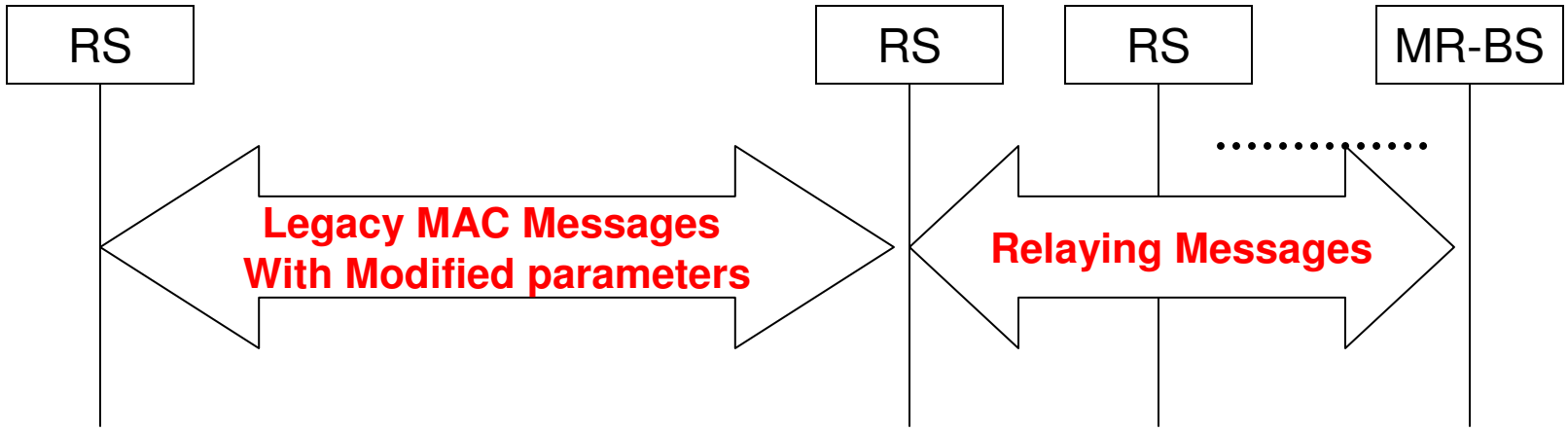
Proposed Remedy



1. The phases of "Ranging & Automatic Adjustment" and "Negotiate Basic Capabilities" should be modified for various RS modes
   - After RS completed the procedures of the two phases, the new network topology could be determined
2. The mode of RS and associated parameters could be assigned in the phase of "registration"

Proposed Remedy

- The 16d/e MAC request & response messages should be used with modifications on parameters required for RS
- Relaying messages are defined to transport the information in the relay path required for completing the Network Entry procedures.



Proposed Relaying Messages

Same as C80216j-06_207

Message name	**Message description**	**Connection**
RLY_CFG-MAP	MR-BS configure associated RS for RS broadcasting	Broadcast/Multicast /Basic
RLY_Transship-CIRC	RS transport RS/MS CDMA initial ranging code to associated MR-BS	Basic
RLY_Transship-DATA	RS transport RS/MS data to associated MR-BS	Primary
RLY_CIRC-IND	MR-BS notify candidate RS to accept the new coming RS/MS CDMA initial ranging code	Basic
RLY_IR-IND	MR-BS notify candidate RS to accept the new coming RS/MS	Basic

Key Points & Benefits

- The procedures of RS entering a Multihop Relay network are centrally controlled by the MR-BS
- Use legacy 16e network entry procedures and associated messages (with modified parameters for RS) for RS entering a Multihop Relay network
- Define five relaying messages in the relay path for completing RS joining a Multihop Relay network
  - Reuse same messages defined in C80216j-06_207(MS network entry with RS)
- After RS completed the procedures of initial ranging and capacity negotiation, the new network topology could be determined

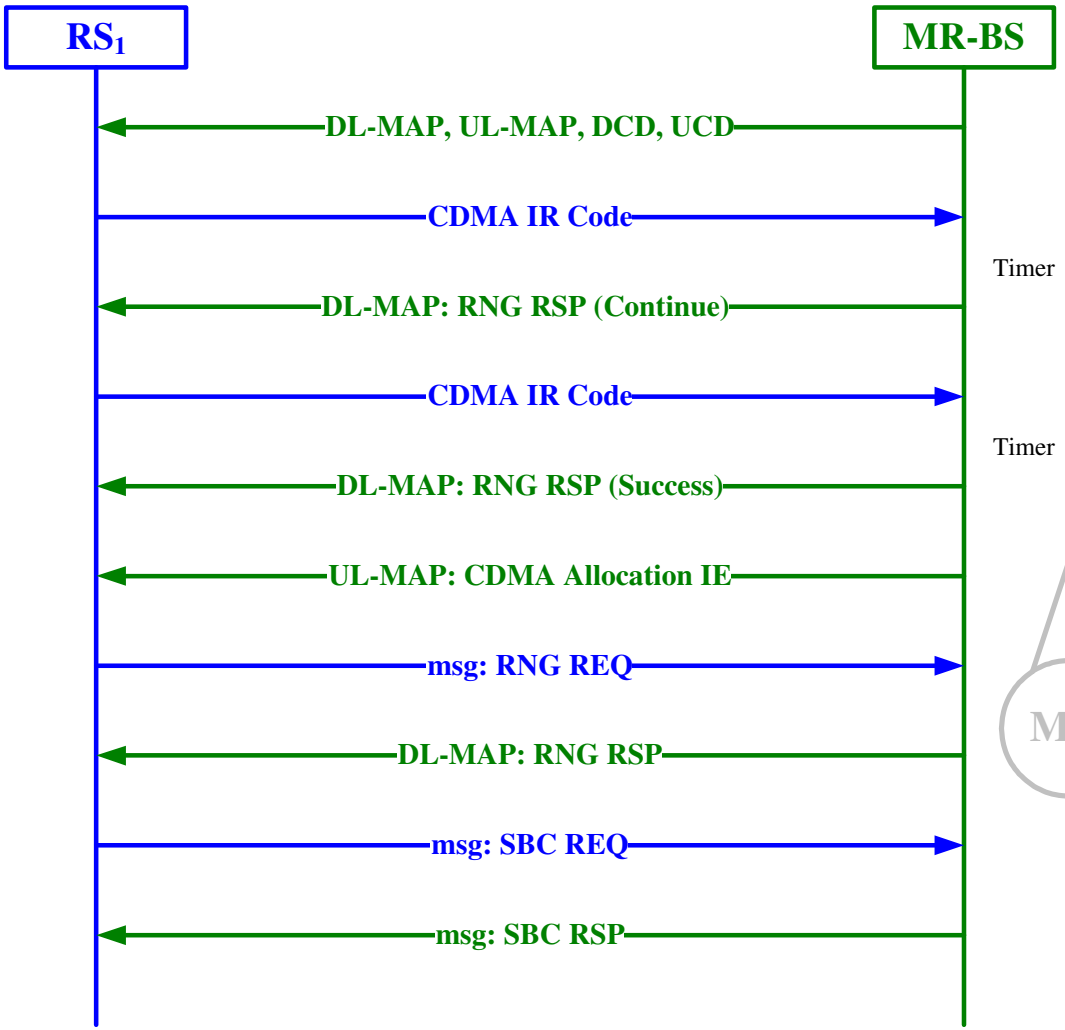
Backup

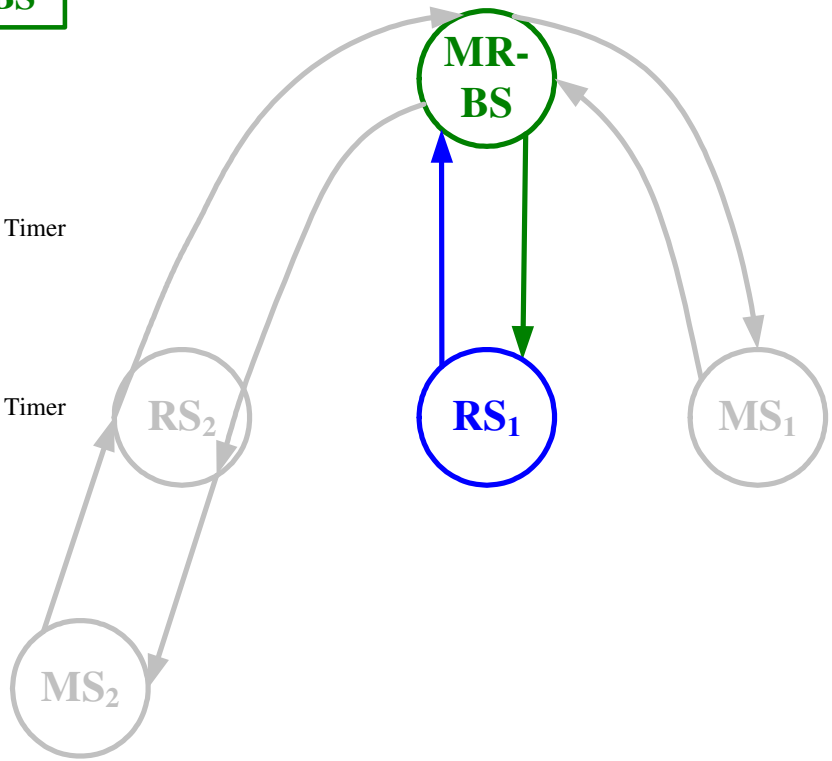
Initial Network Topology Establishment after Joining an RS

- It could be determined in “Ranging & Automatic Adjustment” and “Negotiate Basic Capabilities”
- If RS uses same CDMA initial ranging code set as MS
  - MR-BS cannot identify if a new node is MS or RS until the phase of “Negotiate basic capabilities” (SBC)
  - Because MR-BS controls the network topology, MR-BS should admit in SBC phase if the new RS can join the network and determine which RS the new RS should attach to
- If RS uses distinct CDMA initial ranging code sets
  - MR-BS could determine the identity of the new node to be MS or RS in the phase of “Perform ranging” (IR)
  - MR-BS could apply different policies for initial network topology establishment in IR phase. For example, the serving MR-BS can configure an RS to be the endpoint of a relay link. When the RS receives a CDMA initial ranging code from a new RS, the RS could ignore the code right away.

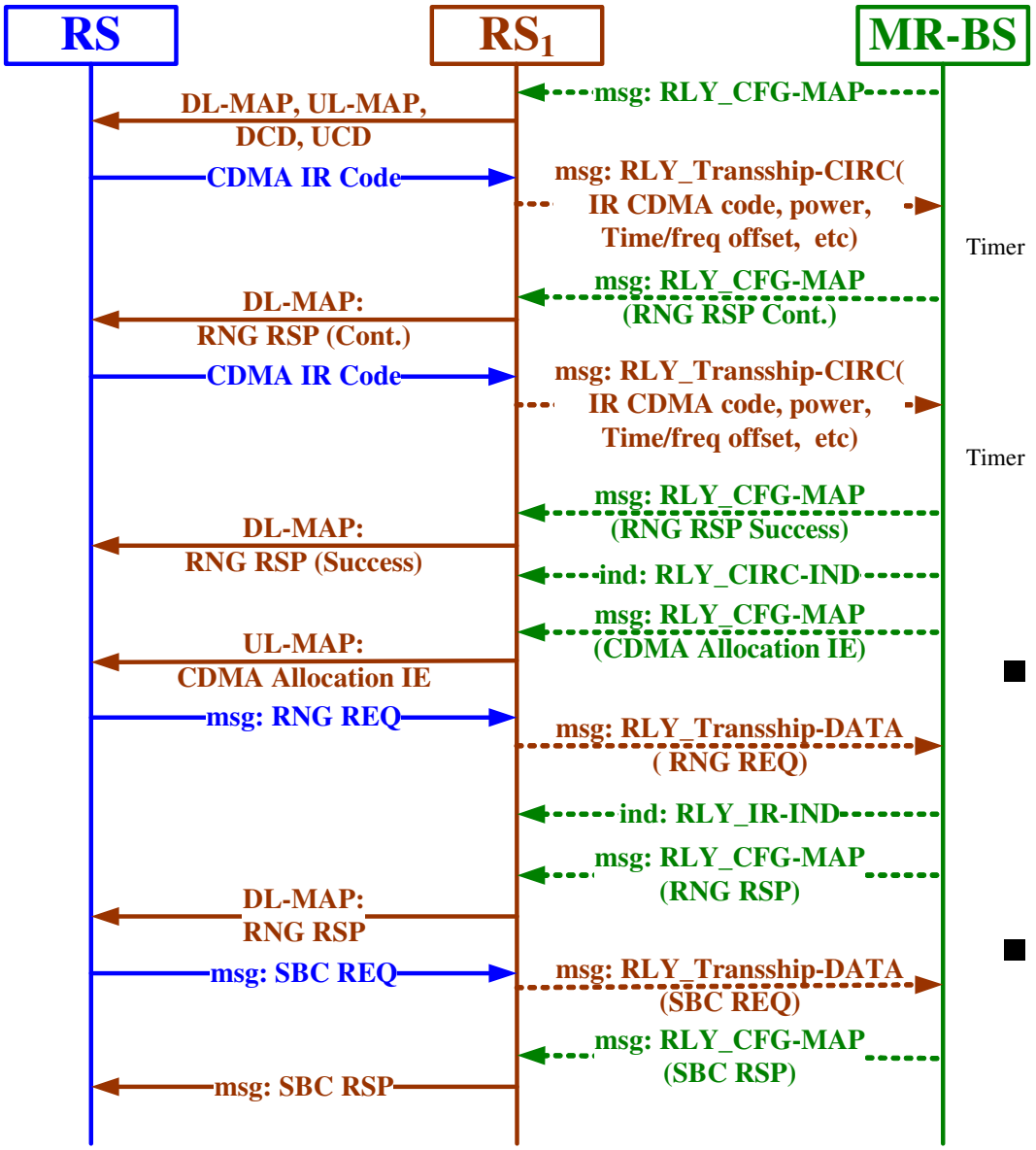
RS joining Multihop Relay Network
Example 1

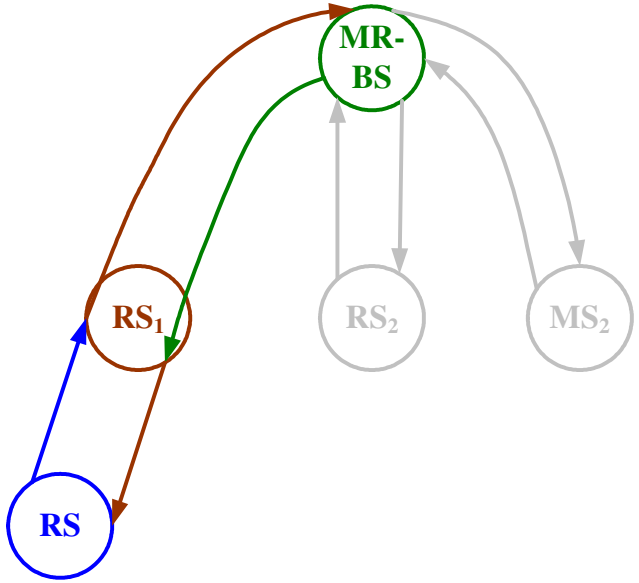
Legacy 16e procedure is applied





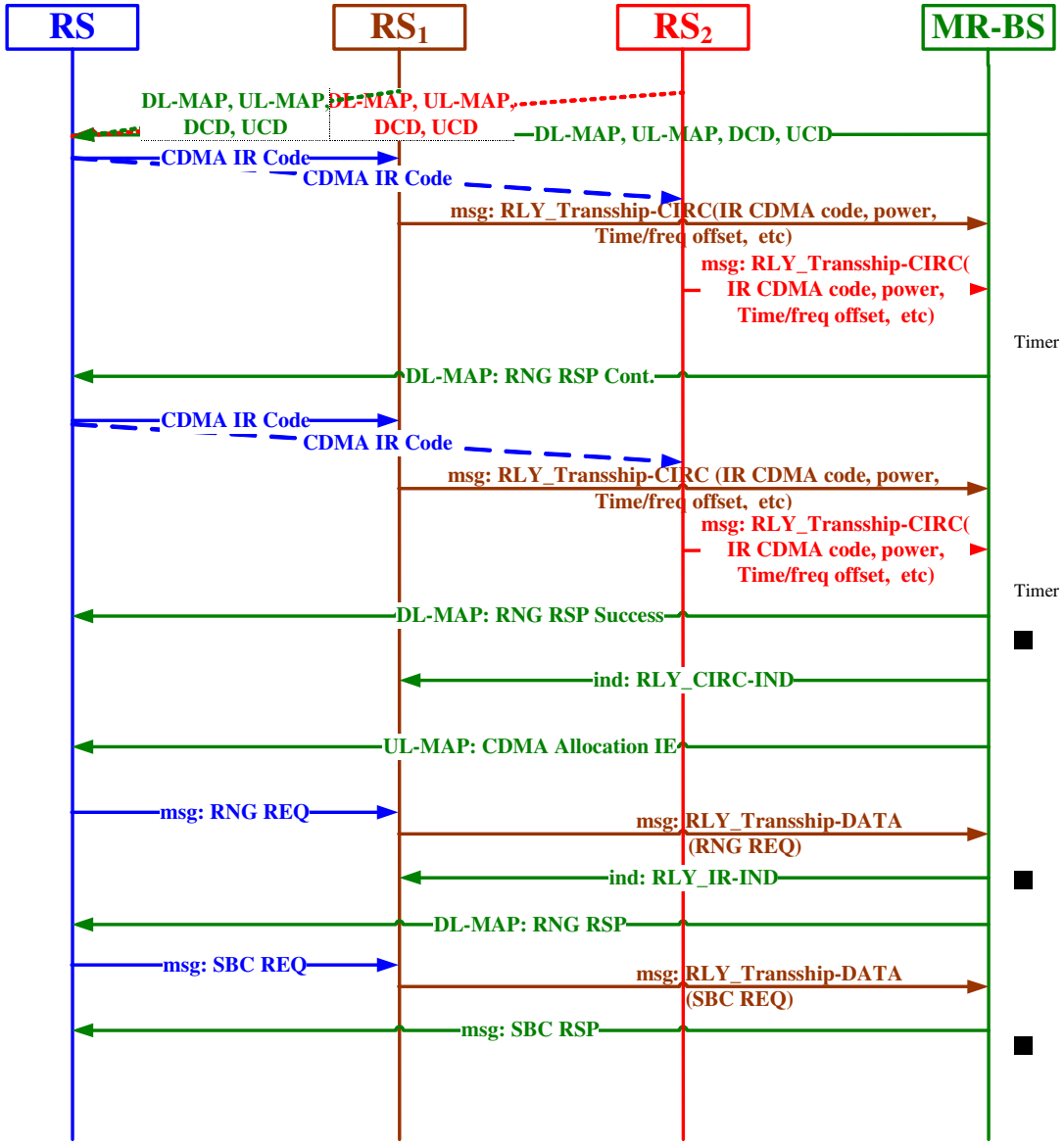
RS joining Multihop Relay Network via RS Example 2

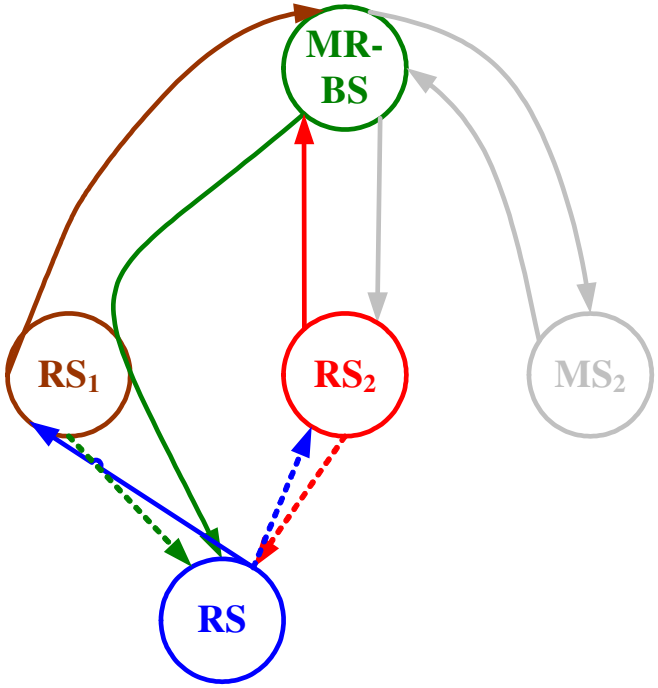




- Only RS1 can decode messages from the new RS and vice versa
- MR-BS assigns the new RS to join the network via RS1

RS joining Multihop Relay Network via RS Example 3





- Both RS1 and RS2 can decode messages from the MS and vice versa
- The new RS can also decode messages from MR-BS
- MR-BS assigns the new RS to join the network via RS1