Open problems in Mobile Multi-hop Relay System

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Handoff Scenario

- Intra BS handoff
  - Intra BS, Inter RS Handoff
    - RS 1 → RS 2
    - BS → RS
    - RS → BS
  - BS 1 → BS2
  - BS1.RS → BS2
  - BS 1 → BS2.RS
  - BS1.RS → BS2.RS
Intra BS, Inter RS Handoff
(RS 1 $\rightarrow$ RS 2)
Intra BS Handoff

BS $\rightarrow$ RS or RS $\rightarrow$ BS
Inter BS Handoff
BS1.RS → BS2
Inter BS Handoff

BS1 $\rightarrow$ BS2.RS
Inter BS Handoff

BS1.RS $\rightarrow$ BS2.RS
ARQ scheme

- Problem definition
  - ARQ is specified during connection setup between BS and MS
  - When RS is introduced, the function of RS related to ARQ should be defined for efficient data delivery and ARQ feedback
  - Example: ARQ selective ACK map
ARQ : Error recovery per hop

- Error recovery per hop
  - Different blocks may be used for each ARQ
    - Different block sizes
    - Different sequence number

- Protocol Stacks
ARQ: Error recovery for multi-hop route

- Error recovery for complete multi-hop route
  - The same blocks are used in multi-hop links
    - The same block sequence number
    - The same block sizes
    - The number of blocks used in one transmission of RS may be changed

- Protocol Stacks

```
   L3       L2       L1       L3
  BS--------RS--------MS(SS)
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