Slides for Harmonized Contribution on 802.16j (Mobile Multihop Relay) Usage Models

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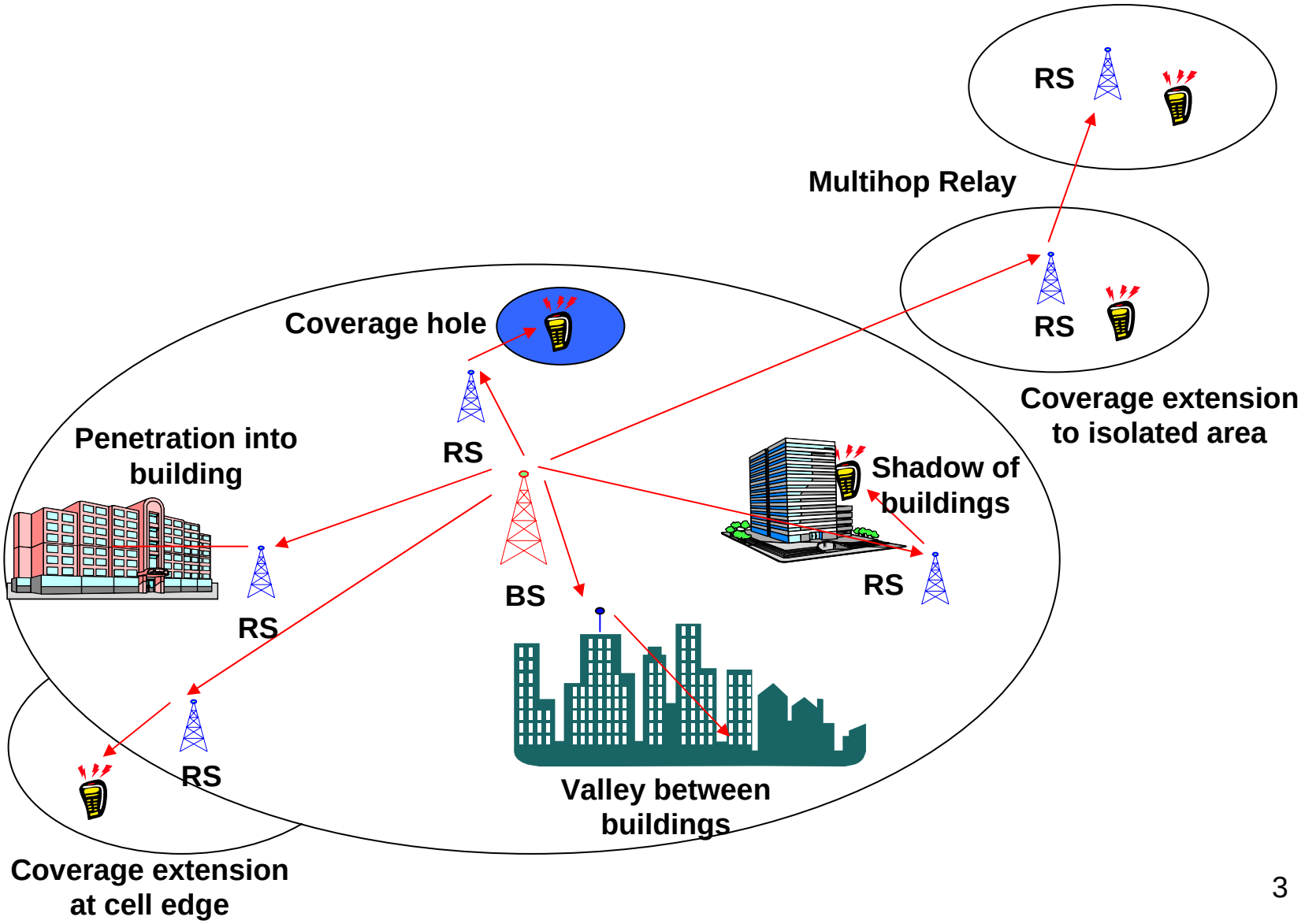
Purpose:

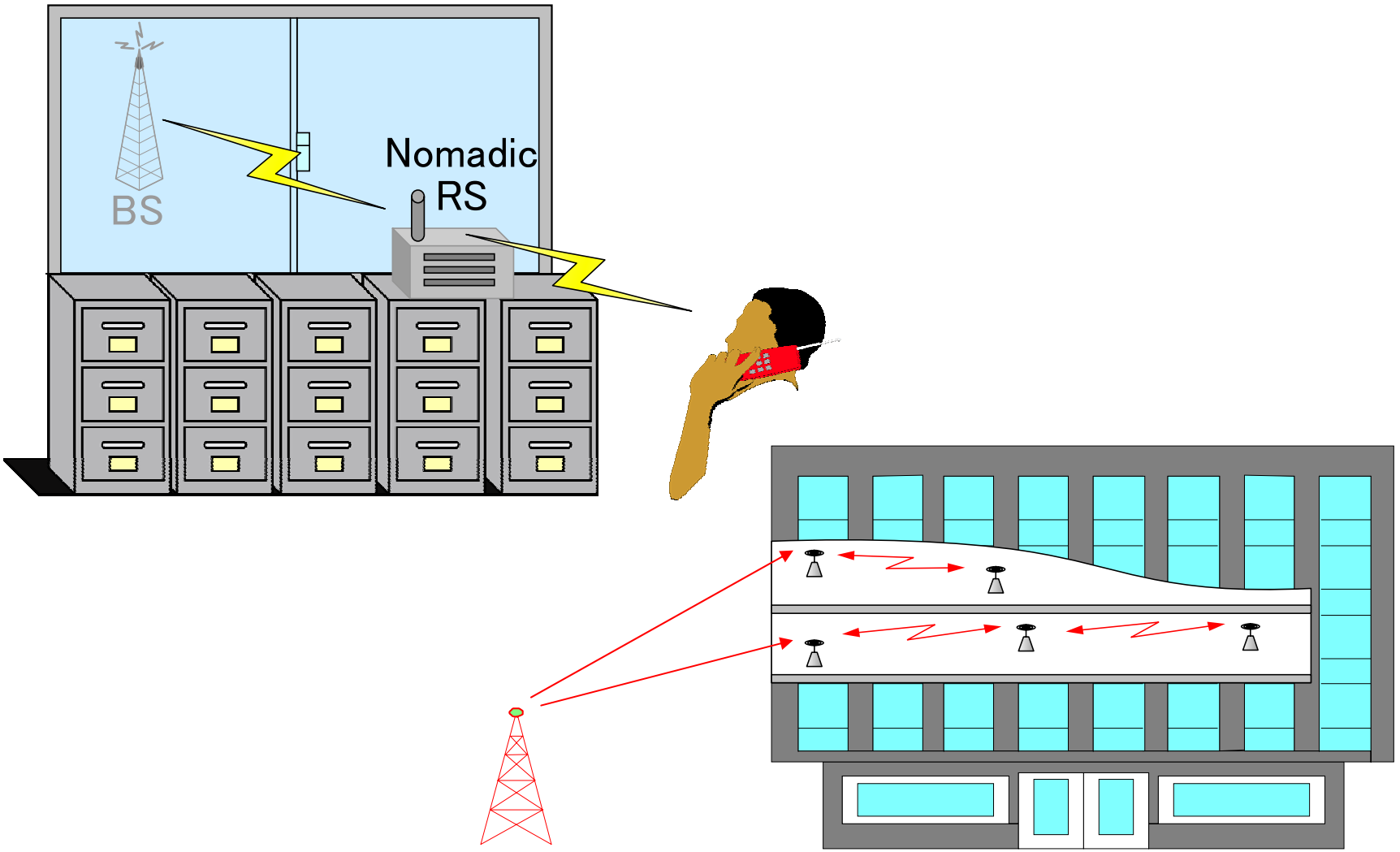
This contribution is contains the slides associated with contribution C80216j-06_043. This is the harmonized contribution on Usage Models that was created by the Usage Model Ad Hoc Group.

Document Outline

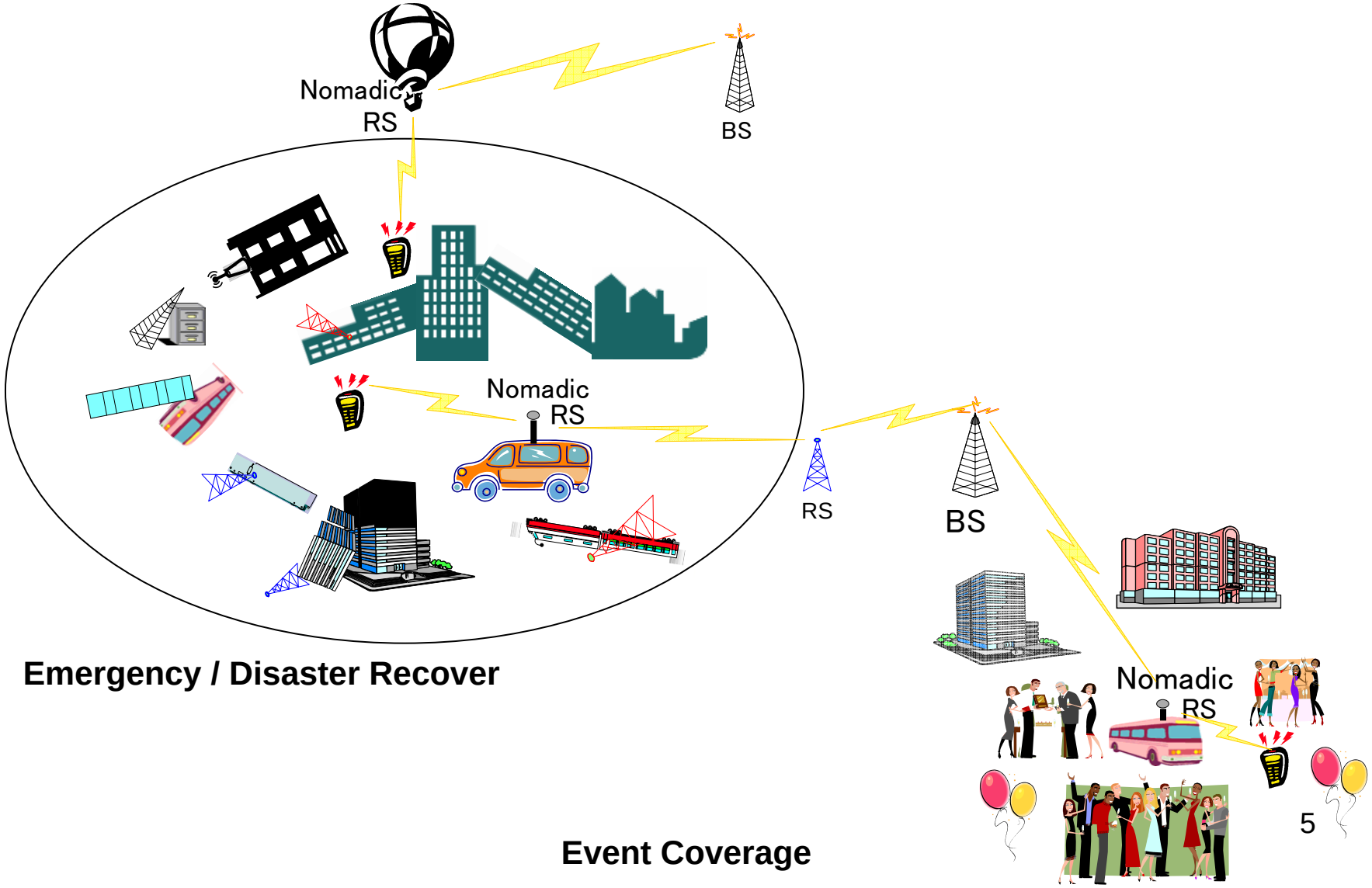
Fixed Infrastructure Usage Model



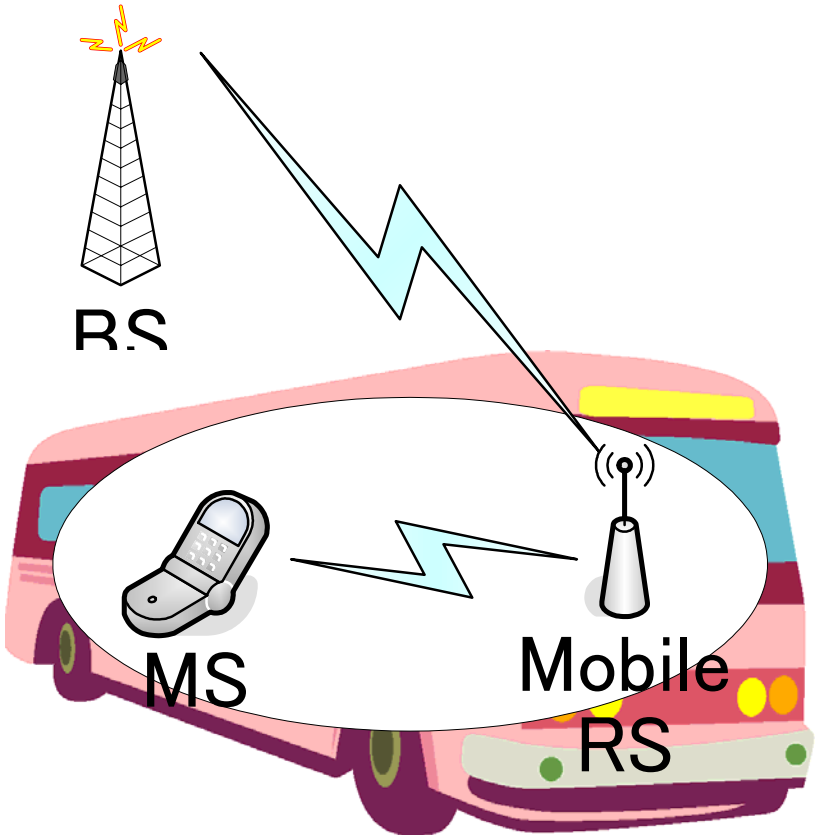
In-Building Usage Model

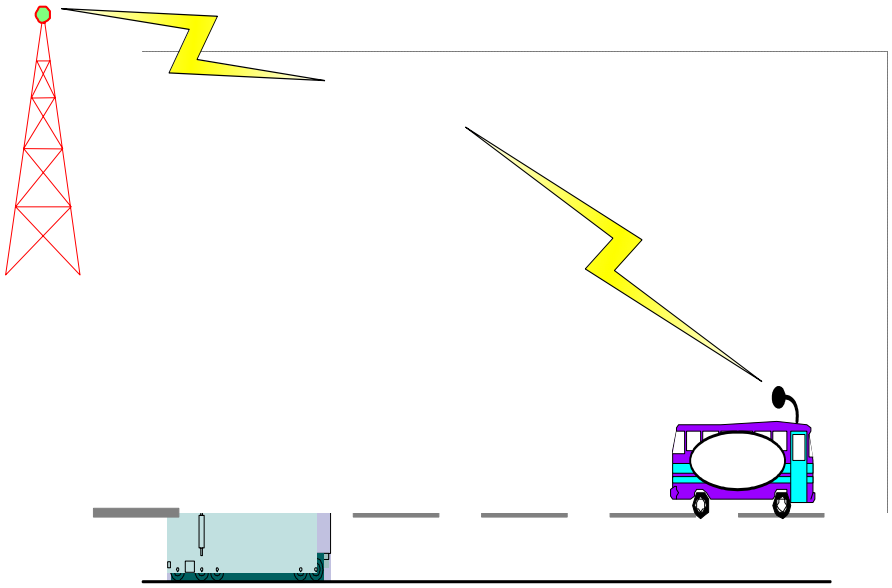


Temporary Coverage Usage Model



Coverage On Mobile Vehicle Usage Model



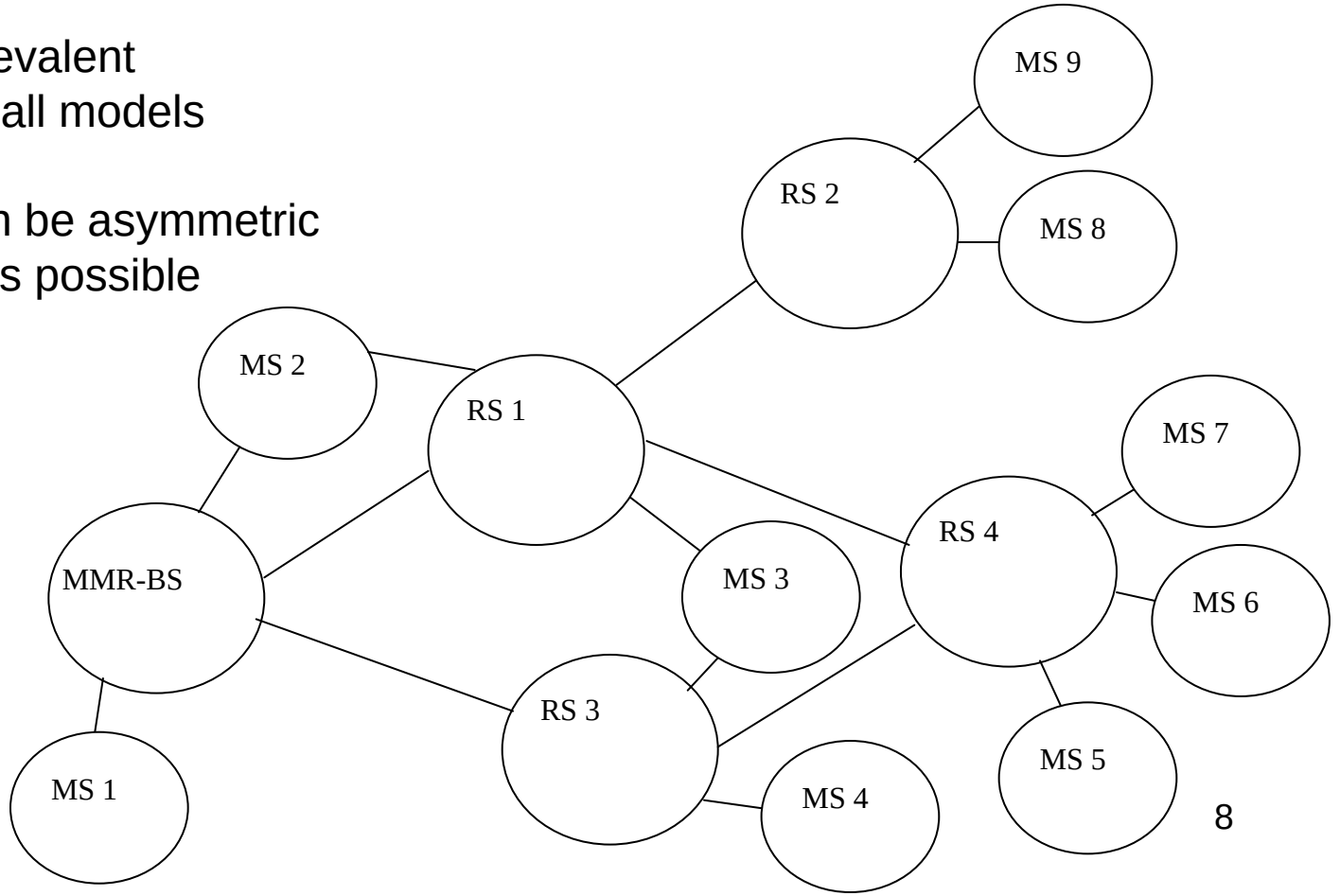


Performance Objectives

- In all Usage Models RSs deployed to provide:
  - Per-User Throughput and/or Capacity and/or Reliability Enhancement
    - Replace single low SINR link with multiple high SINR links
    - Deploy in dense topology (small cells) to improve the capacity
  - Coverage and/or Range Extension
    - Coverage to users in a coverage hole
    - Coverage in isolated areas that are outside the reach of any BS
    - Coverage to MS riding on mobile vehicles
    - Deployment of mobile RSs to provide coverage in an area not directly served by a BS

Topology

- Link Types:
  - MMR-BS to MS
  - RS to MS
  - MMR-BS to RS
  - RS to RS
- Number of Hops
  - 1 or 2 most prevalent
  - >2 possible in all models
- Types of Routes
  - DL and UL can be asymmetric
  - Multiple Routes possible



Topology Section – Point of Contention

- The Ad Hoc group was not able to reach consensus on the first sentence in this section (shown in red below).
- Some of the arguments made for removal of this sentence were:
  - *The sentence unnecessarily restricts the scope of the project beyond what is stated in the PAR scope. We should not narrow the scope in the usage model document.*
  - *There are usage models which call for communication from MS to RS to MS. This usage appears in the military usage scenarios and also can provide more efficient communications in commercial scenarios when MSs connected to the same RS wish to communicate.*
- *Some of the arguments made for inclusion of the sentence were*
  - *Allowing MS->RS->MS communications violates the project scope as it makes this a mesh*
  - *Allowing MS->RS->MS communications violates the project scope because it requires changes to the MS (is not backwards compatible) because it requires connections (CIDs) between the MS and another MS or between the MS and an RS.*
  - *There is only one usage case in which this type of communication is identified (the military usage case).*

In all of the usage models described in section 4, all data communications occur between the MMR-BS and MSs through zero or more RSs.

RS Characteristics

- Mobility
  - Fixed
  - Nomadic (portable)
  - Mobile
- Ownership
  - Provider-owned
  - Client-owned
- Antenna Usage
  - No restrictions on antenna type were identified
  - Antenna heights may vary depending on the scenario