

# Clarifications for MMR PAR

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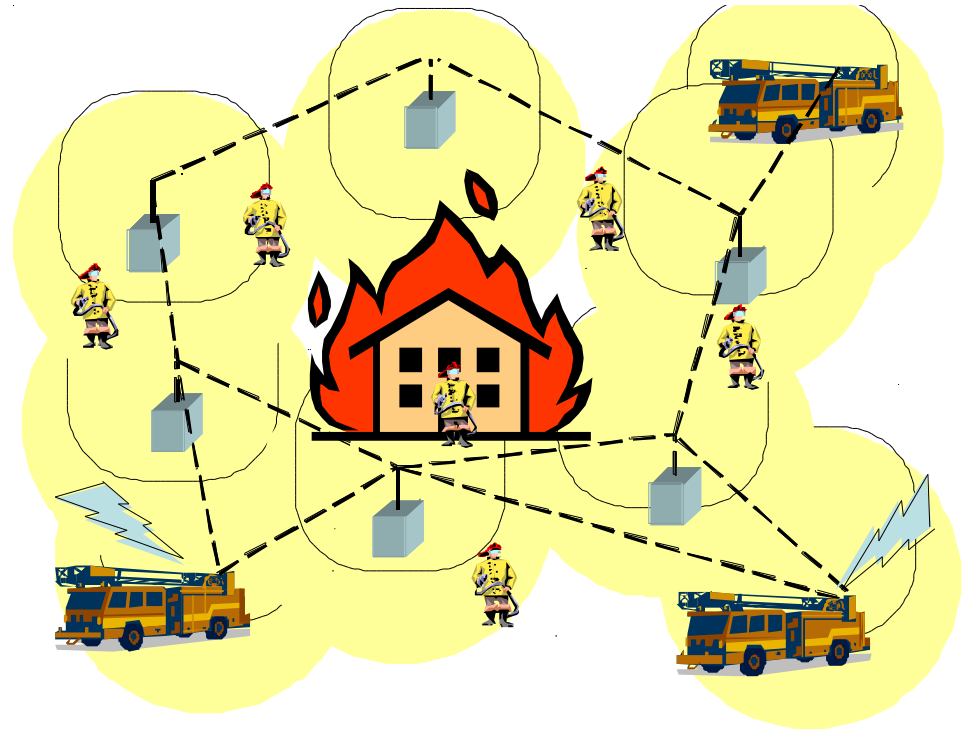
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# Motivation

- Military and public safety deployments may require higher capability relay station
  - MS cannot always communicate directly with BS
  - Requires higher capability relay stations (as presented in the tutorial)
- PAR implies that RSs are all low capability

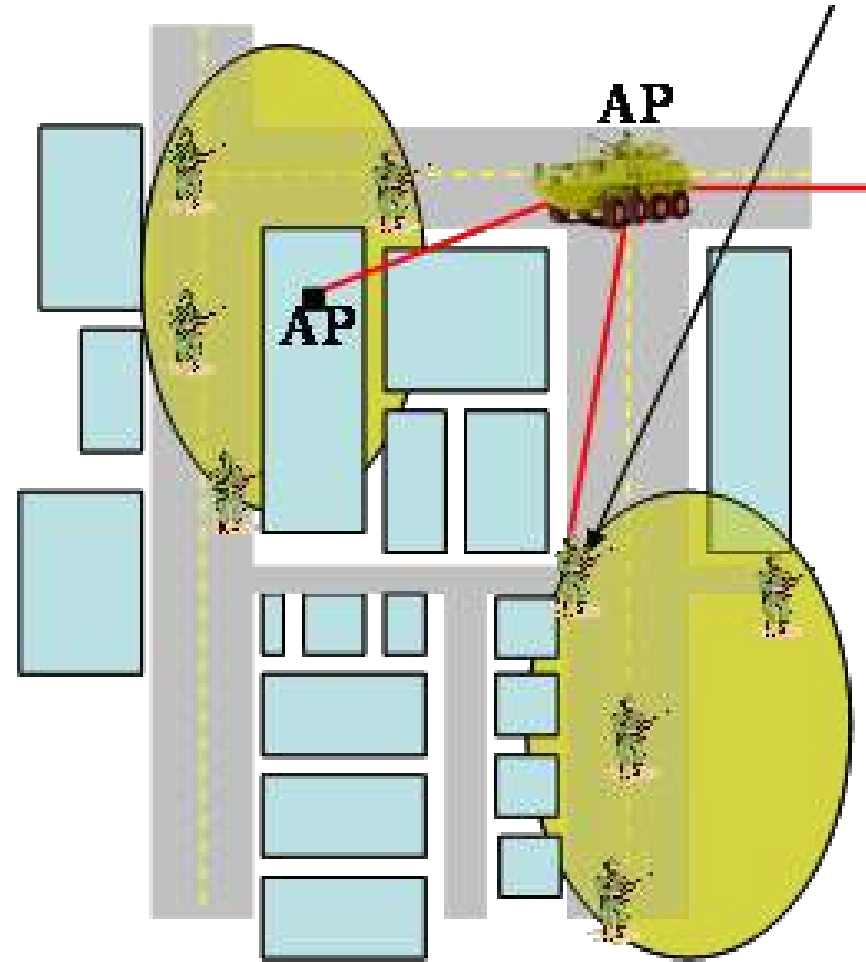
# Public Safety (Disaster Recovery) Scenario\*

- deployed over a wide range of scales
- combination of semi-permanent and mobile infrastructure
- Need for 'deployable' infrastructure is clear
  - World Trade Center
  - Katrina
  - Etc.

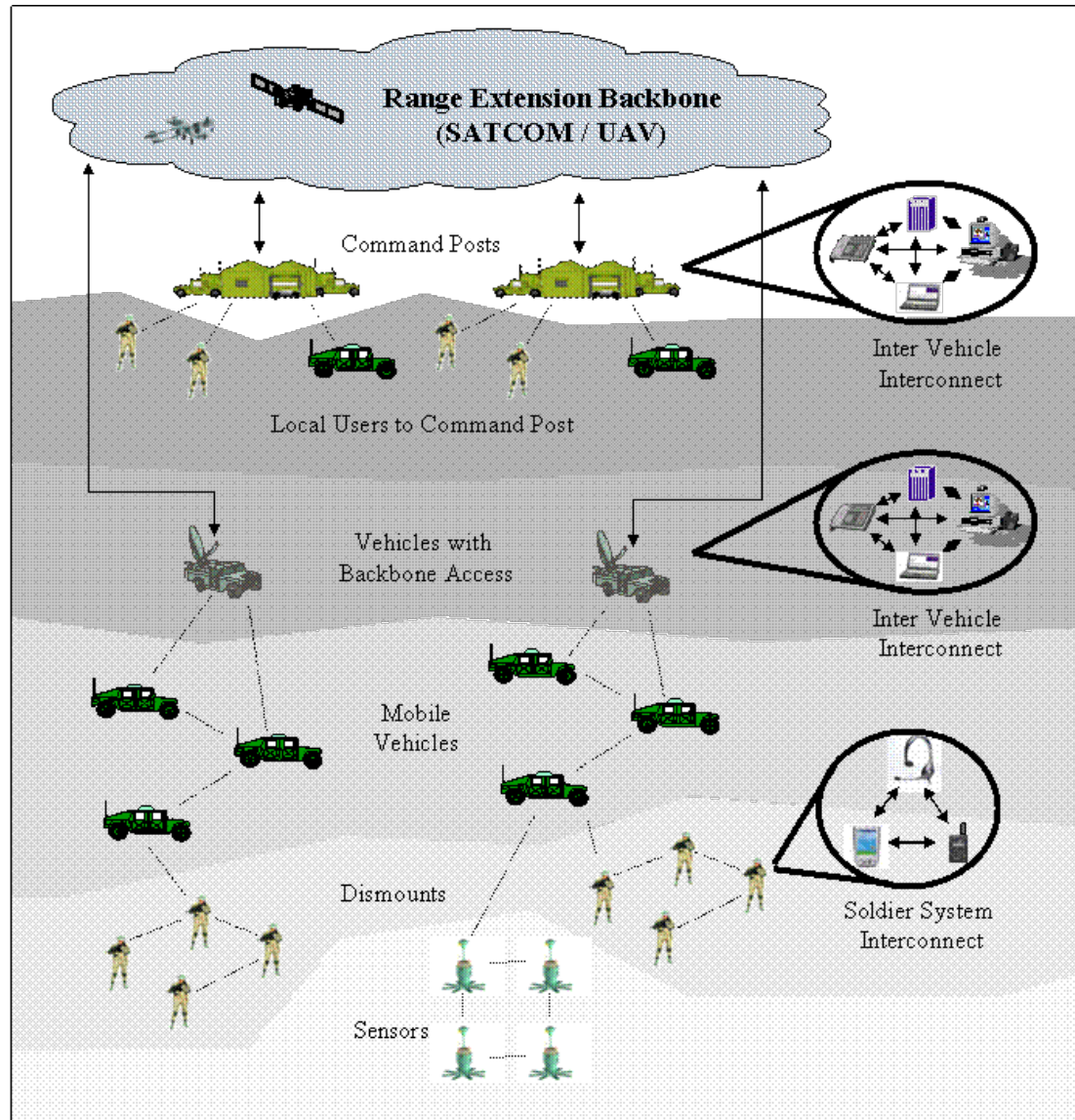


# Military Usage Scenario\*

- Non-tactical use similar to other scenarios
- Special needs for tactical use
  - Node mobility
  - Automated network management
  - Accommodate disadvantaged nodes
  - ‘Energy’ aware



# Military Usage Scenario for 802.16 MMR\*



\* IEEE C802\_16mmr-05/030: Military Usage Scenario for 802.16 MMR

# Implications of Scenarios

*Support of nomadic / mobile base stations is required for public safety and military applications!*

*Ability to coordinate between BS*

*Ability to provide backhaul via relay*

*Ability to interoperate with PMP mode*

*Ability to support multiple hops*

# Text Extracts from Current Draft PAR and 5 Criteria

*It is expected that the complexity of relay stations will be considerably less than the complexity of legacy IEEE 802.16 base stations.*

*High density of base stations to enhance coverage in shadowed or underserved area is not a feasible solution, resulting in considerably higher deployment costs.*

*the relay stations with the point-to-multipoint (PMP) mode can provide wireless relay function with simpler and more compact station configuration when compared to the base station,*

*It is well known that it is possible to use cost effective relay stations to improve coverage, and probably increase throughput as an alternative to using more costly base stations.*

*MMR technology provides a more cost effective solution to extending a service area than deploying more base stations because relay stations will be of lower cost than base stations due to their lesser complexity and they do not need the backhaul communication cabling cost for themselves,*

*Relay stations will be installed more easily than base stations due to their smaller size, lower power consumption and elimination of backhaul communication cable. Furthermore, antenna structures for relay stations are expected to be less costly than antenna structures for conventional base stations, and as they can incorporate intelligent algorithms such that once deployed they self-configure, the cost associated with planning a deployment of base stations and relay stations is significantly reduced compared to an all base stations deployment.*

# Implication of PAR language comparing Relay and base station

- Relay and base stations are strongly differentiated by language in PAR and Five Criteria
  - Implies Relay station MUST be much simpler than base station
- A range of solutions may exist that are closed out by this assumption
  - How much ‘base station’ functionality may be included in relay station?
- To avoid misinterpretation of SG’s intent by new comers need to be more explicit about range of functionality to be considered for relay station



# PAR Comments

- In Clause 15 replace ‘*will be considerably less*’ with ‘*can be considerably less*’
- In Clause 21 replace ‘*the base station*’ with ‘*a base station.*’
- In Clause 21 add ‘*Control functions can be centralized at the base station or some control functions can be distributed among the relay stations with central coordination from a base station.*’