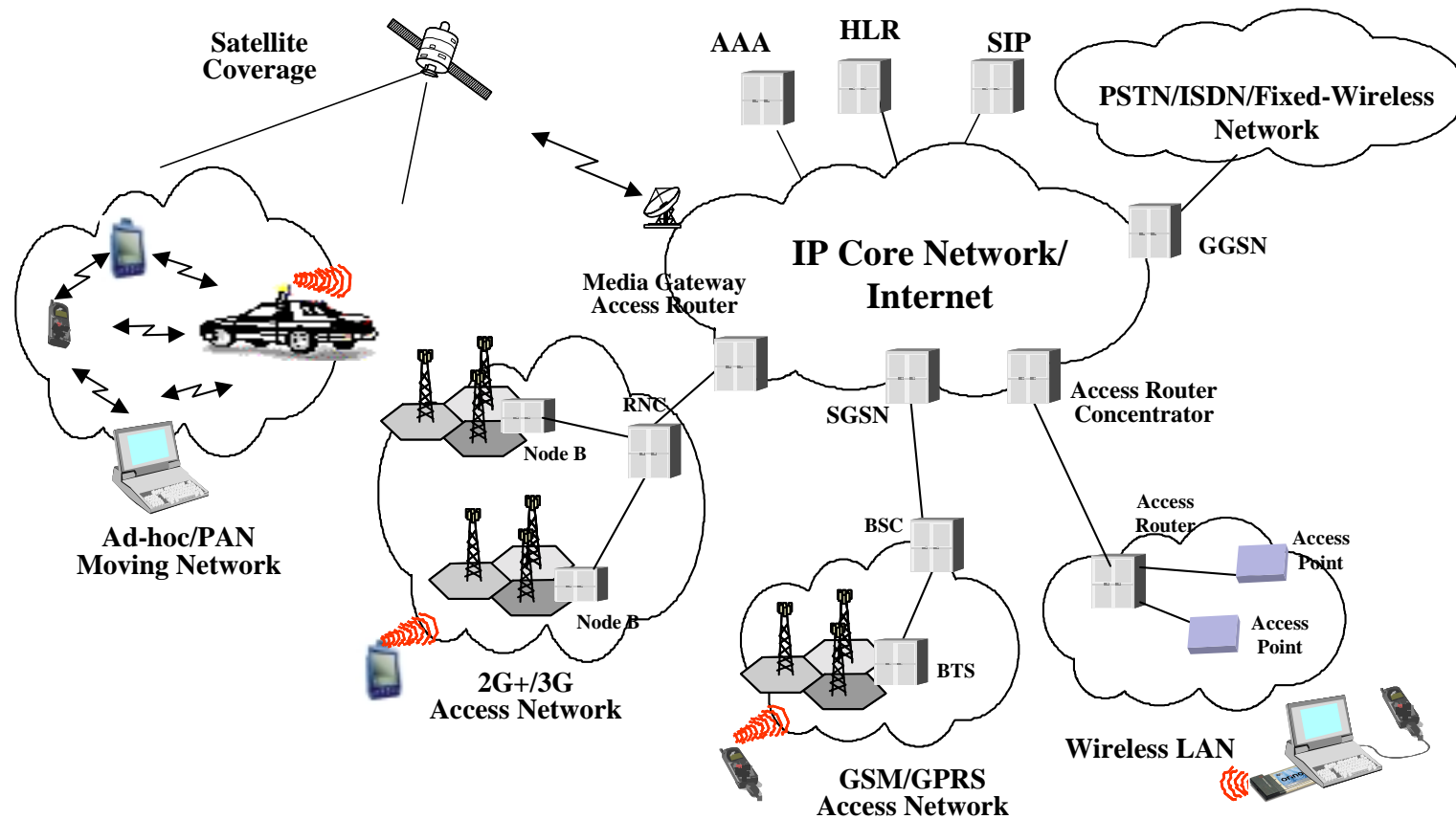


# MAC/RLC protocol design in heterogeneous networks



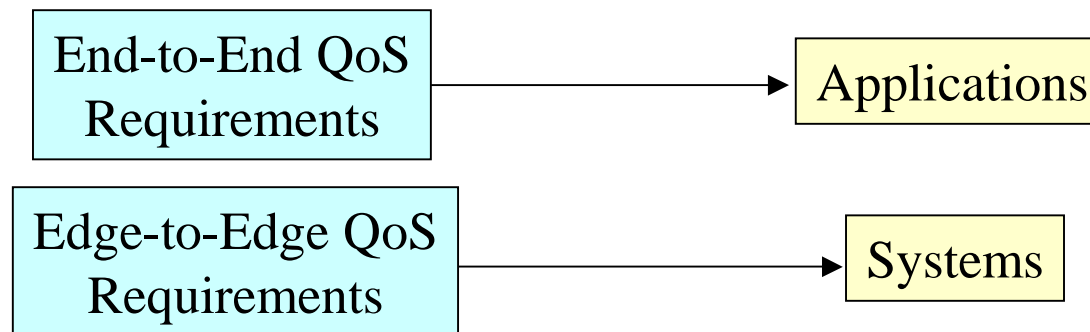
## ✓ General Framework



# *MAC/RLC protocol design in heterogeneous networks*



- Definition of QoS guarantees (jitter, bit rates,...)

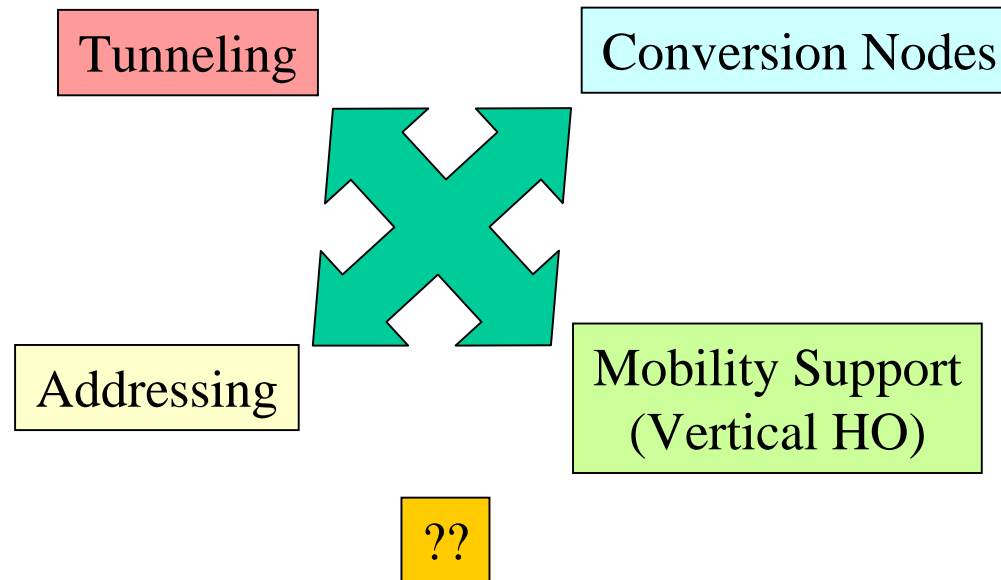


- QoS Parameters Management:
  - Mapping
  - Requirements Balance
  - Adaptability

# *MAC/RLC protocol design in heterogeneous networks*



- Impact to upper layer protocols (TCP, RSVP,...)



# *MAC/RLC protocol design in heterogeneous networks*



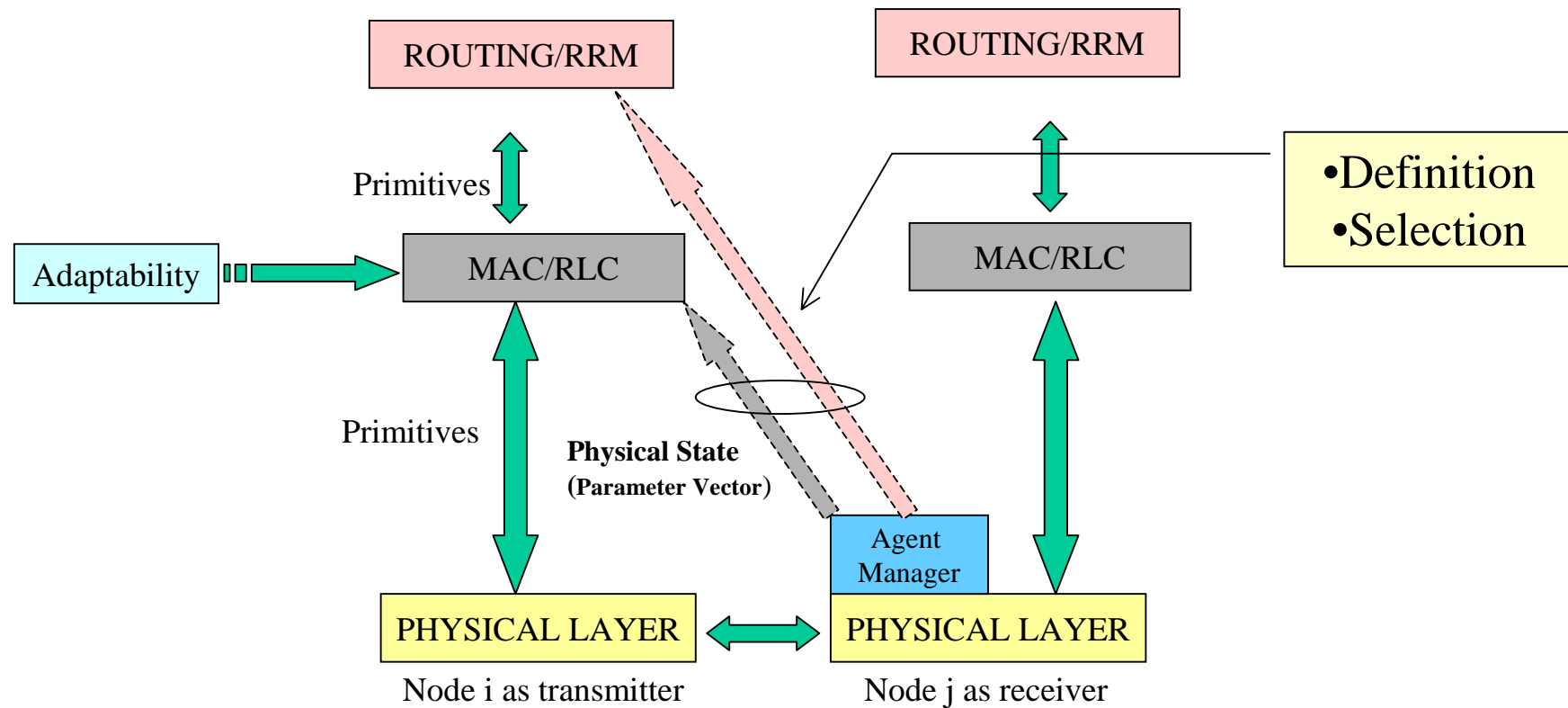
- Decentralised MAC to reduce signalling
  - Definition of minimum information for the nodes to efficiently operate
  - Distributed Transmission and Control



# MAC/RLC protocol design in heterogeneous networks



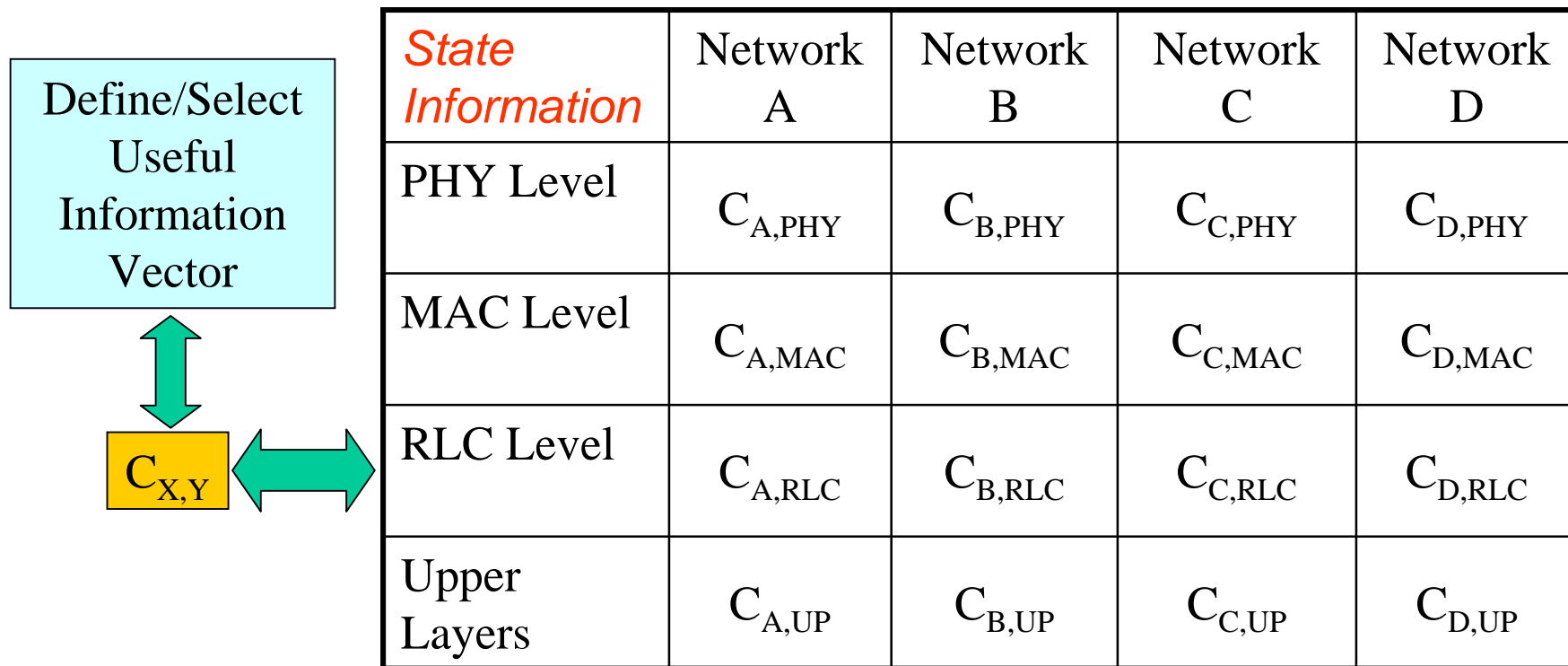
## ➤ Cross-layer design



# MAC/RLC protocol design in heterogeneous networks



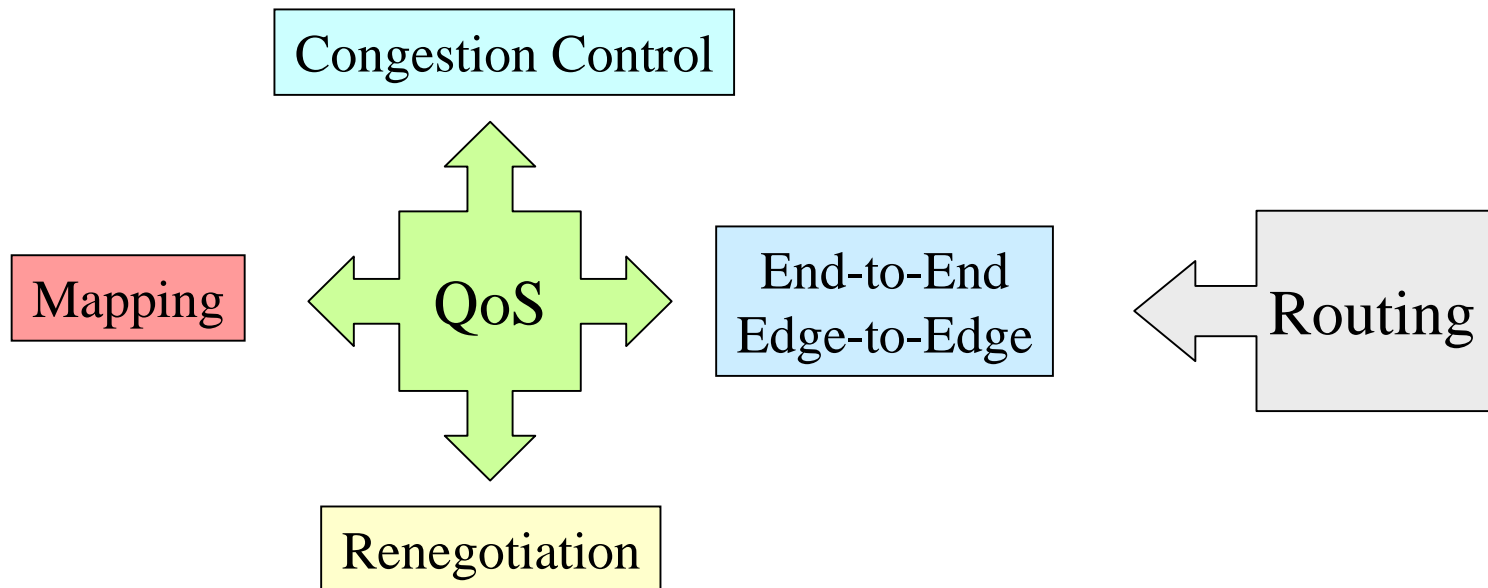
## ➤ Context-aware MAC:



# MAC/RLC protocol design in heterogeneous networks



## ➤ Scheduling algorithms



# *MAC/RLC protocol design in heterogeneous networks*

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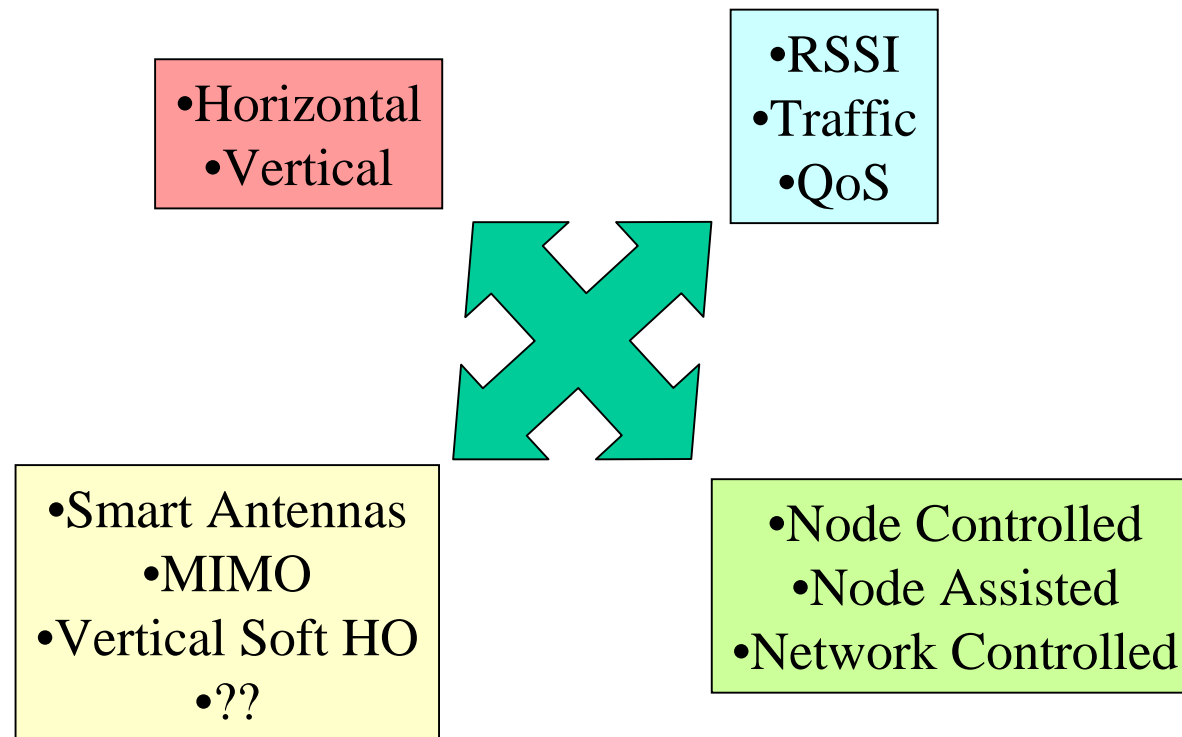
- Power Control:
  - Energy Saving
    - Discontinuous reception
    - Electro-chemical Battery Behaviour
    - Packet-switched Implications
  - Interference Reduction
    - Inter-cell
    - Intra-cell
    - Intra-system



# MAC/RLC protocol design in heterogeneous networks



## ➤ Handover algorithms



# *MAC/RLC protocol design in heterogeneous networks*



- Admission Control:
  - Access Point (System)
  - Parameters: Local/Global
  - Mobility: Prediction/Management
  - Policy Control-> Everywhere?
  - Decision strategy: Optimistic/Conservative
  - Heterogeneous traffic patterns/flows

# *MAC/RLC protocol design in heterogeneous networks*

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## ➤ Congestion Control

- Source Control
- Network Control: Priority/Difficulty
- QoS Renegotiation
- QoS Remapping (between systems)
- End-to-End Application adaptability