



International Telecommunication Union

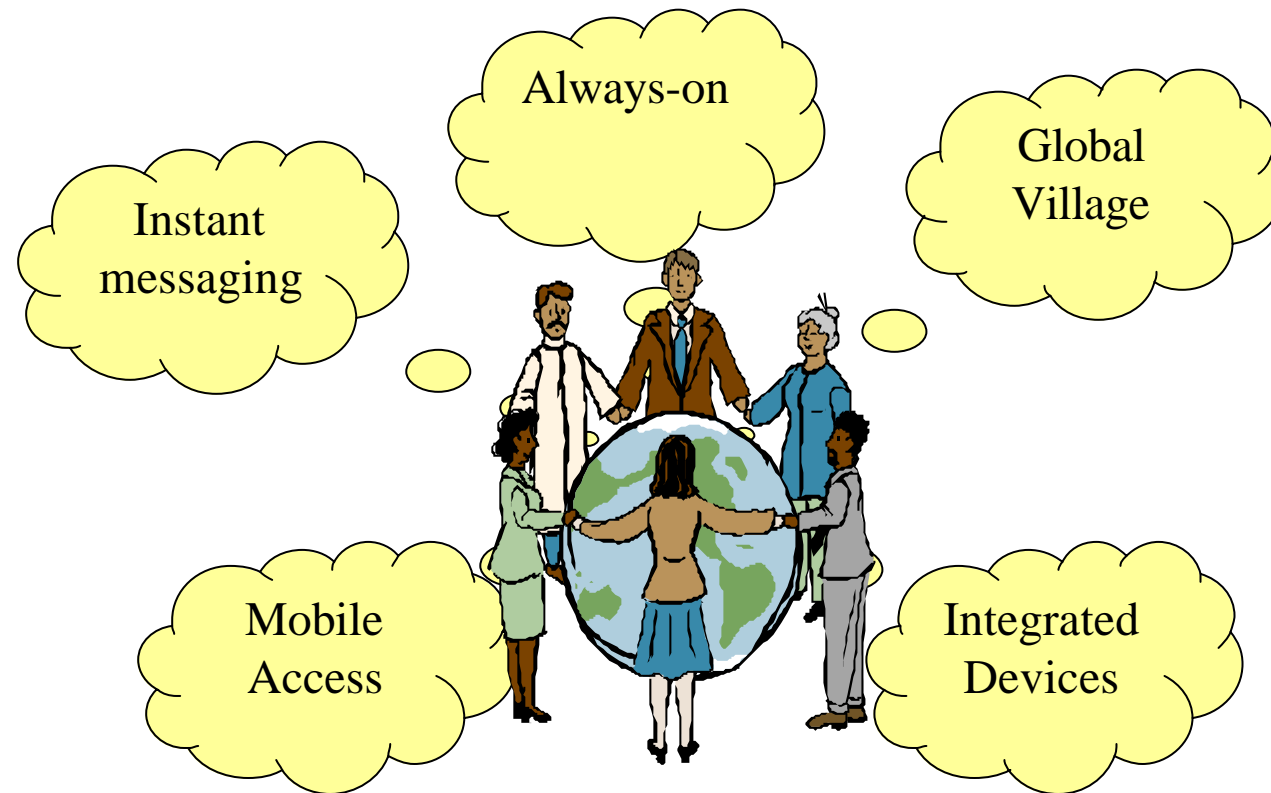
# Multi-user operation and roaming over wide area networks

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# Technology Evolution Causing Social Revolution





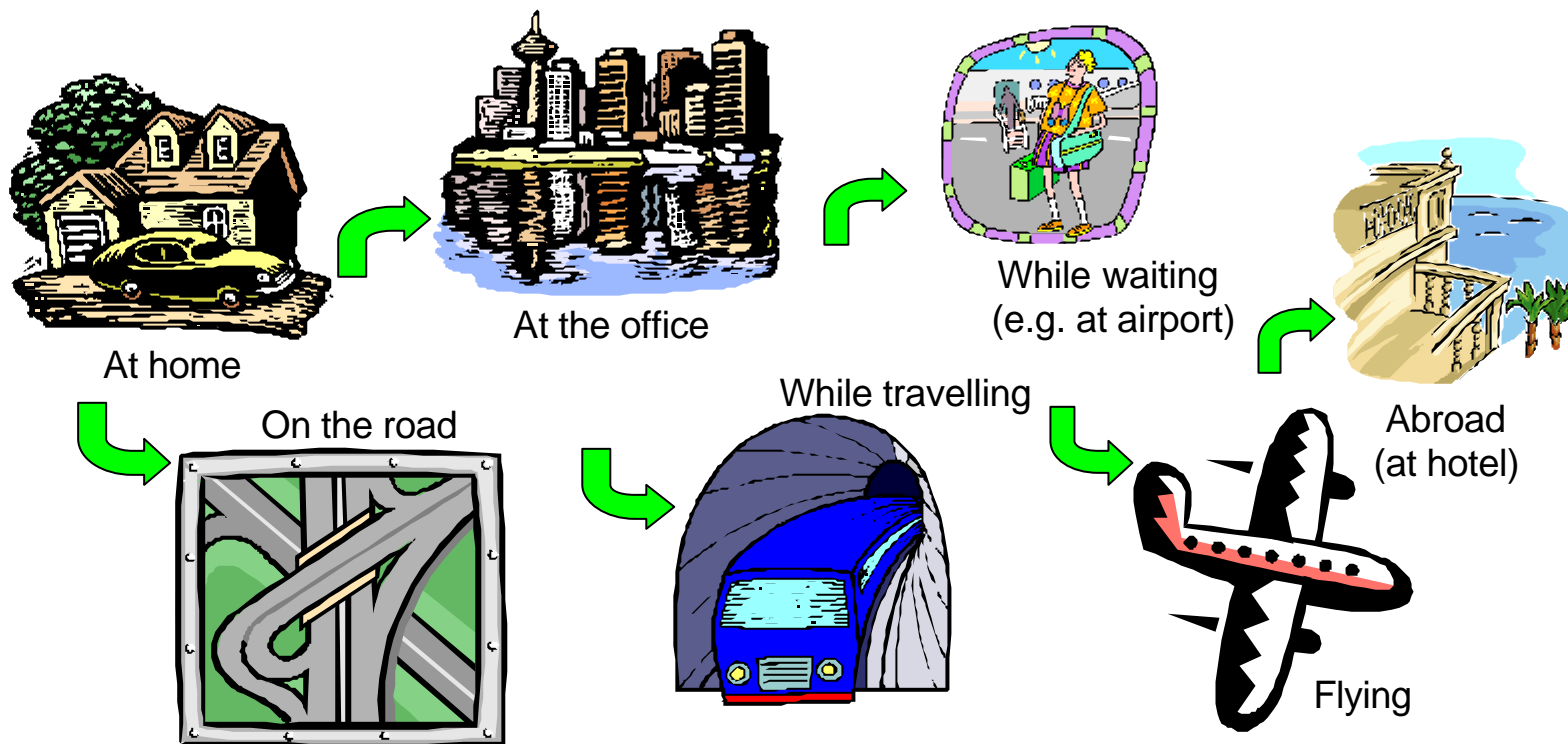
# Personal Communicator - Product Evolution

Future personal communication devices will gain functionality,  
and support all access technologies





# Evolution of Service Provider Focus

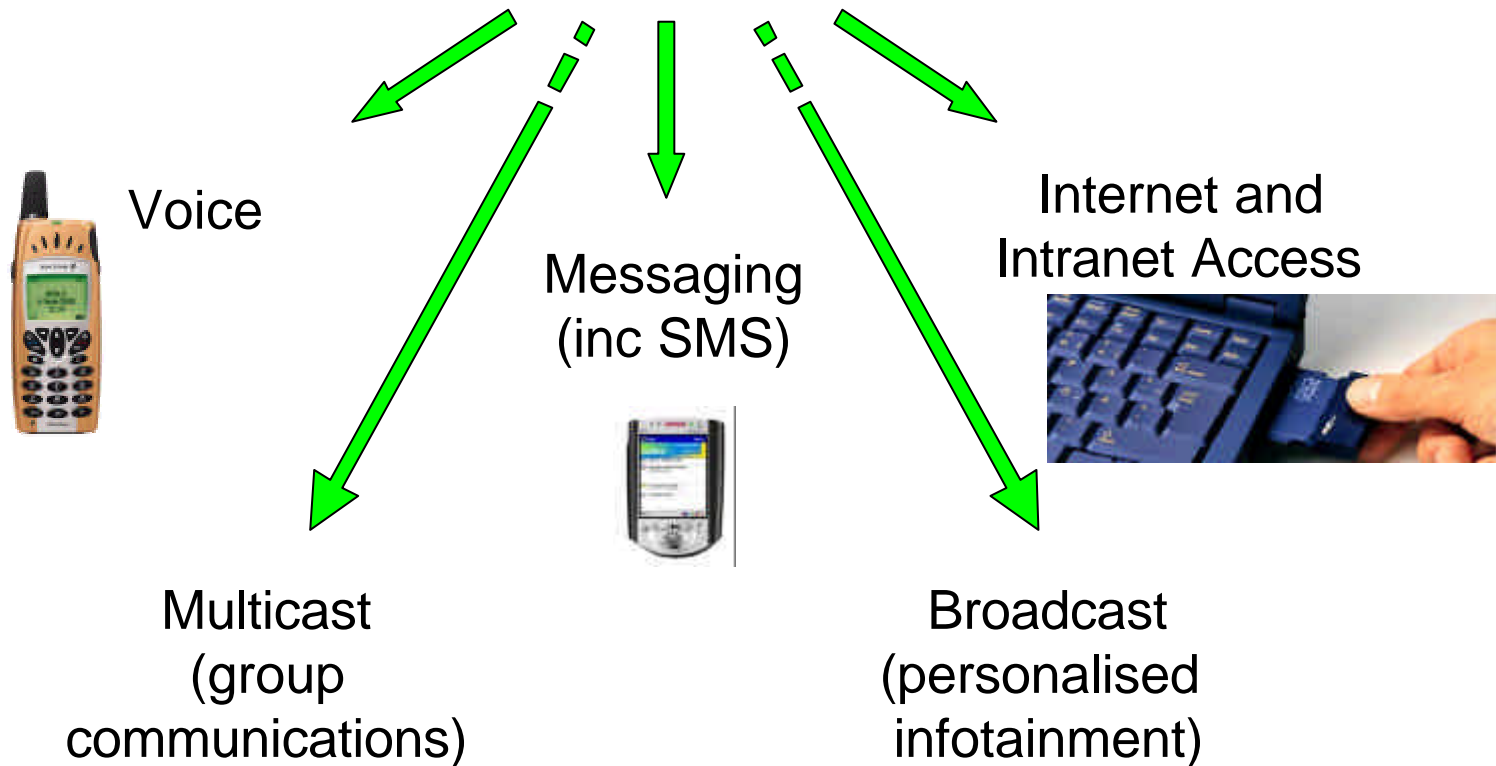


**Communications service provider focus is changing from network to service**



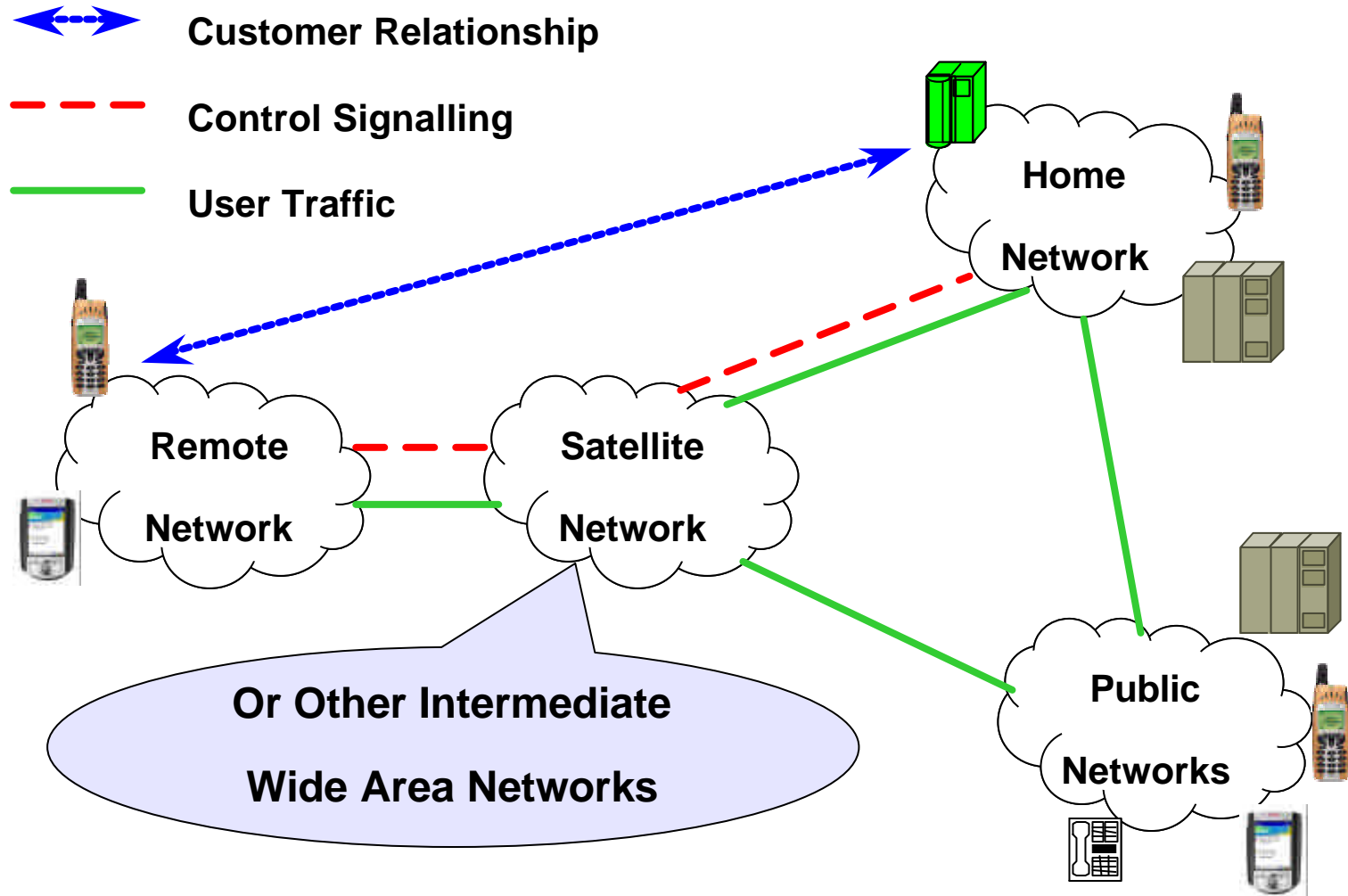
# Increasing User Expectations

Users will expect a minimum set of basic services from *their* service provider via *their* preferred personal communicator





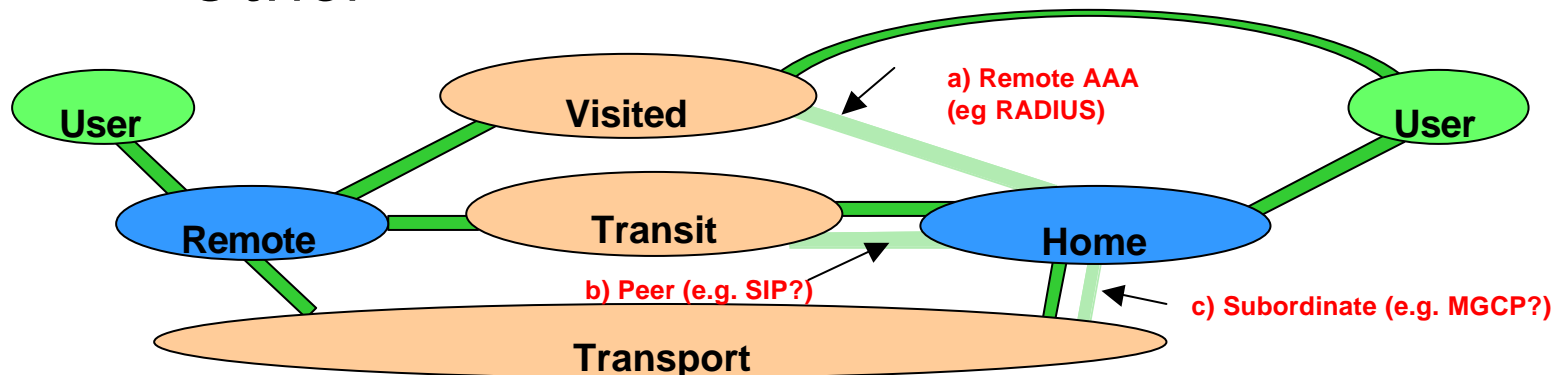
# Service Model Considerations





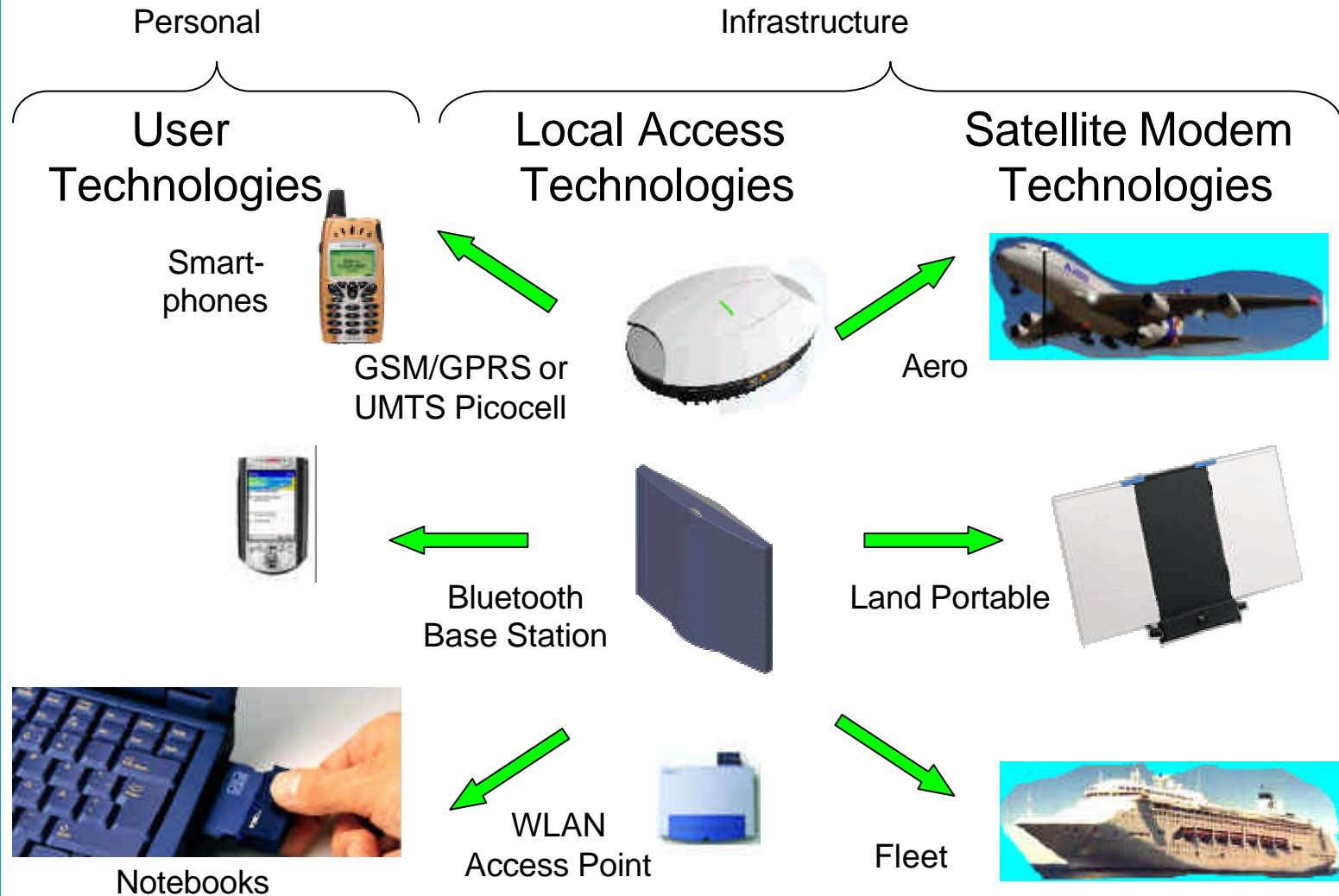
# Network Relationships

- o Intermediate Network Role
  - Visited Network (Trusted peer)
  - Transit Network (Un-trusted peer)
  - Transport Network (Subordinate)
  - Other





# Local Access Technologies







# Tight vs Loose Coupled Architectures

## o Tight-coupled

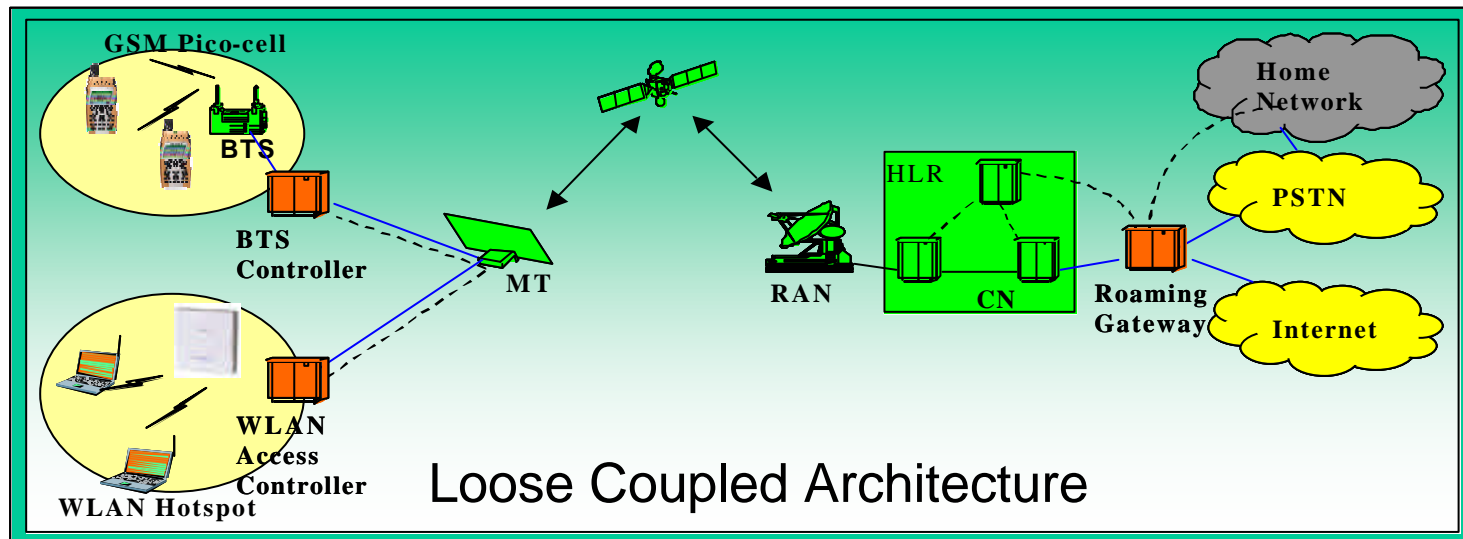
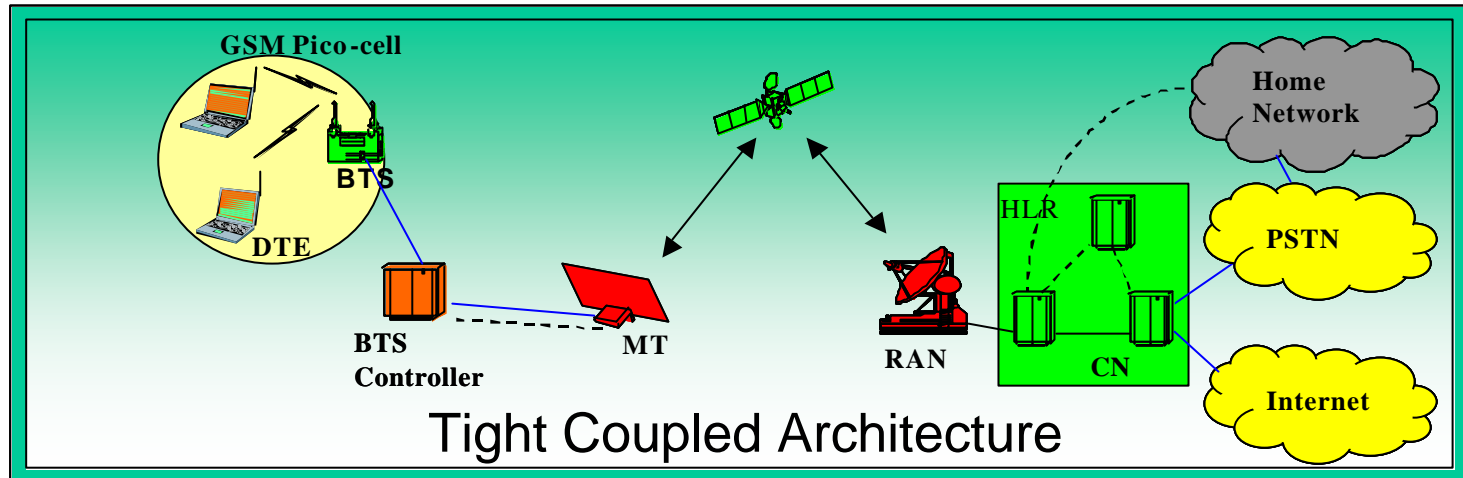
- Remote Network is extension of Satellite Network
- Satellite Network appears as Visited Network
- Changes to satellite network required for each new remote network technology
- QoS an internal resource problem
- Native Routing

## o Loose Coupled

- Remote Network reached across Satellite Network
- Satellite Network is a Transit or Transport Network
- Changes to gateways required for each new remote network technology
- QoS an external interface problem!
- Routing at edge

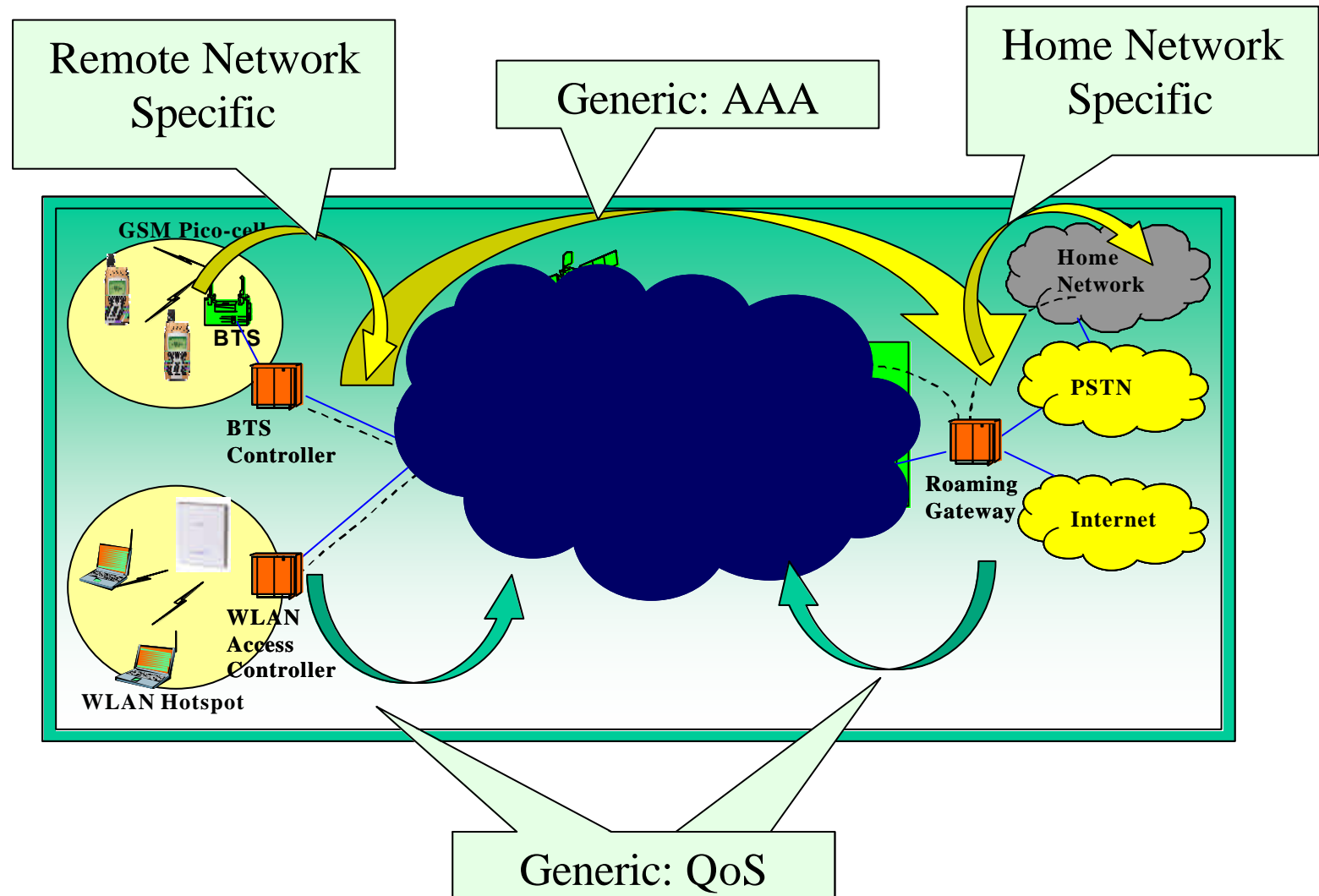


# Tight vs Loose Coupled Inmarsat BGAN Example





# Inter-Network Interfaces





# Inter-network Protocols (Examples)

## o AAA

- Should be extensible, eg. RADIUS
- Intermediate Network may act as a Proxy if operating as a Transit Network

## o QoS

- Session Description (SDP) to allow Resource Optimisation
  - SIP → Transit
  - Megaco → Transport
- Generic QoS
  - RSVP



# Opportunities

- A solution to this problem is a solution to the generic problem of supporting roaming across multiple domains, where resources are constrained in the wide area network for example:
  - 2G/3G over 3G (eg on trains)
  - 3G over fixed ISDN/ ADSL (eg in remote office / hotel / home)



## Challenges?

- There is one overriding challenge...
- Interfaces at mobile domain...
  - How should applications running on an external device request services from a mobile network?
    - This problem exists in all current mobile networks → all current interface definitions are inadequate!

**STANDARDISATION IS REQUIRED**