



Multi-Radio Access

Efficient and cost-effective use of heterogeneous radio access technologies (legacy and new) under varying business and spectrum management regimes

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Motivation/Drivers of Multi-Radio Access



❖ User perspective

- Flexibility to choose access according to needs
- Freedom to access “any” network without fixed subscription
- Service continuity during user movement
- Enhanced QoS and service coverage at lower cost

❖ Provider perspective

- Better service & access offers to the end-users
- Increased customer base
- Resource efficiency
- Efficient integration and migration of new technologies

❖ Regulator perspective

- Increased competition
- Efficient spectrum utilisation

Required capabilities

Overall resource management

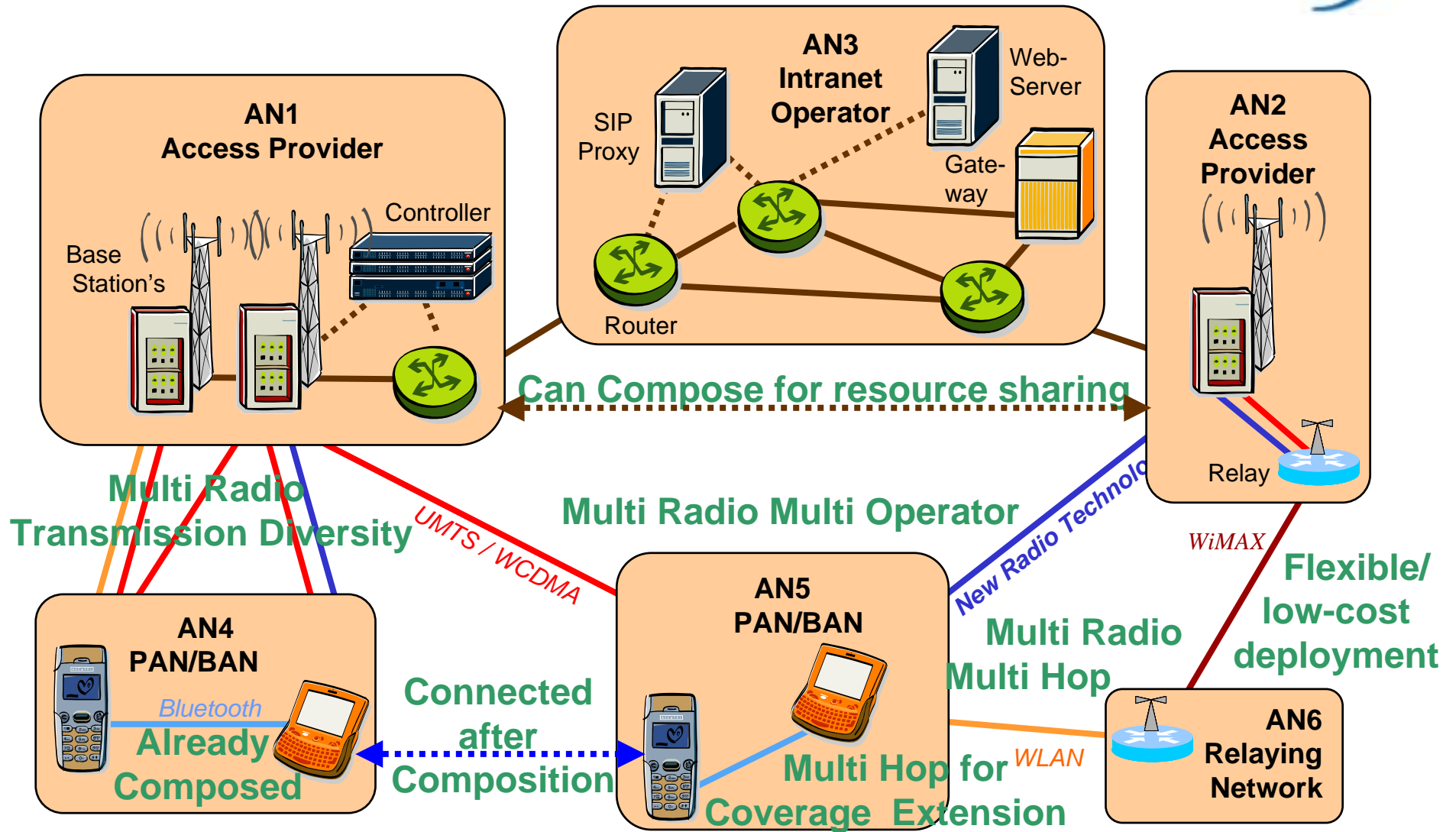
Dynamic roaming

Efficient access advertising
/discovery/selection

Efficient user plane
integration of accesses

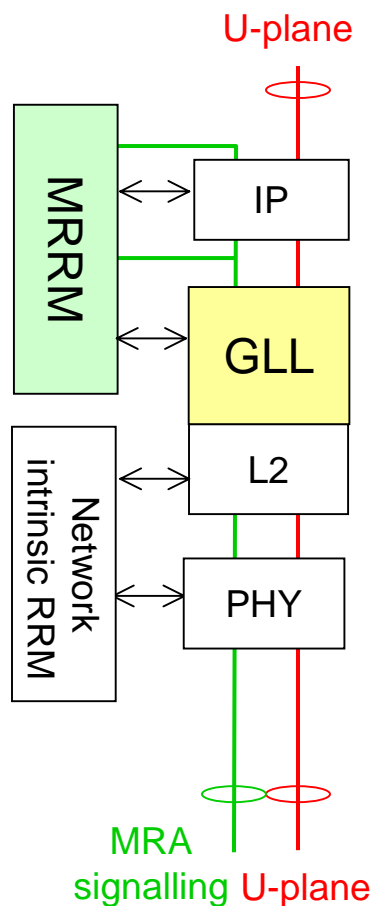
Flexible and low-cost
deployment concepts

Multi-Radio Access Features Exemplified



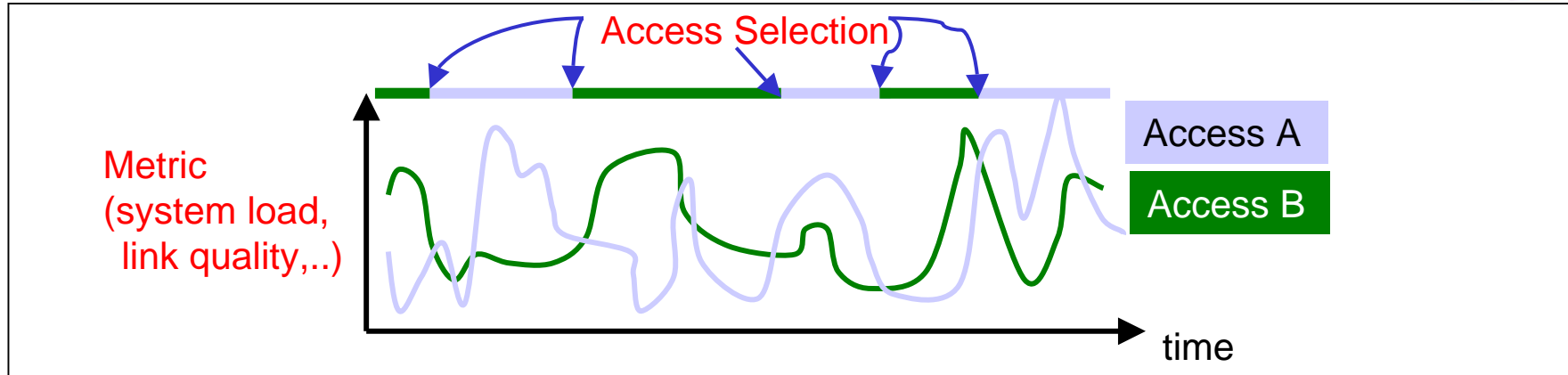
Multi-Radio Resource Management (MRRM)

- ❖ Coordination of radio accesses
 - Joint management of radio resources for e.g. load sharing
 - Access advertising / discovery / selection
 - over multiple hops
 - over administrative boundaries
- ❖ Complementing RRM functions
 - Provided to underlying radio access when missing

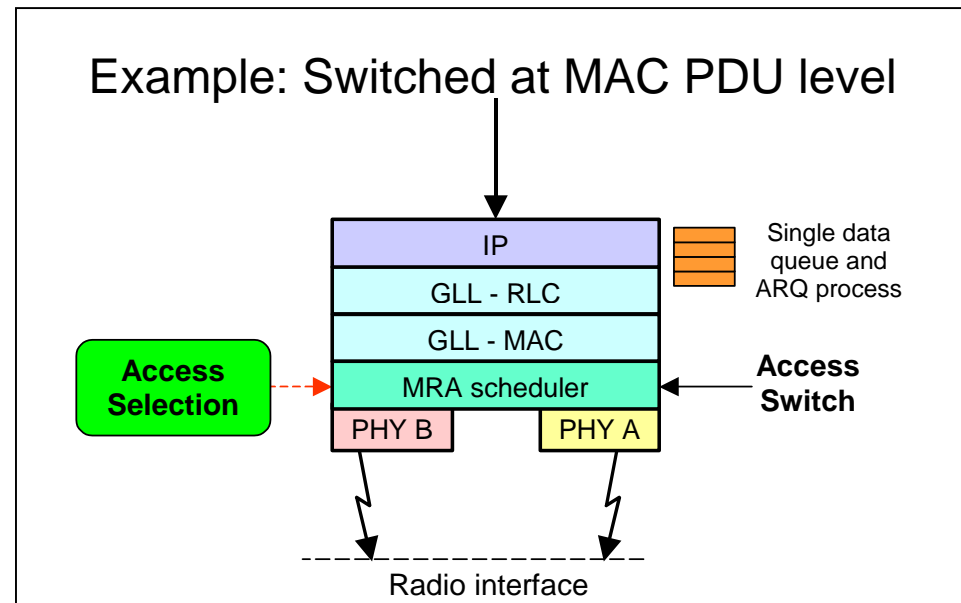


Generic Link Layer (GLL)

- ❖ Unified interface towards higher layers
- ❖ Adaptation to underlying radio accesses
 - Toolbox of generalised link layer functions
- ❖ Link-Layer Context Transfer at handover
- ❖ Multi-Radio Transmission Diversity
 - Sequentially or in parallel
- ❖ Multi-Radio Multi-Hop
 - Link layer support including multi-hop ARQ
- ❖ Multi-Route Transmission Diversity
 - MRTD and MRMH combined



- ❖ Dynamic assignment of user flows to multiple accesses
- ❖ Improved and more robust service support
- ❖ Alternatives/modes
 - Parallel / Switched
 - IP packet level / MAC packet level





Conclusions



- ❖ Motivation/Drivers for users, providers and regulators
- ❖ Snapshot of features
- ❖ Main components
 - Multi-Radio Resource Management
 - Generic Link Layer