



Client and Network based solutions for Distributed Mobility Management

draft-bernardos-dmm-cmip-00
draft-bernardos-dmm-pmip-02

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Extending existing protocols...

- Client Mobile IP (host) based
 - Fabio Giust, Antonio de la Oliva, Carlos J. Bernardos, “*Flat Access and Mobility Architecture: an IPv6 Distributed Client Mobility Management Solution*”, 3rd IEEE International Workshop on Mobility Management in the Networks of the Future World (Mobiworld 2011) at INFOCOM 11
 - [draft-bernardos-dmm-cmip-00](#)
- Proxy Mobile IP (network) based
 - Fabio Giust, Antonio de la Oliva, Carlos J. Bernardos, Rui Costa, “*A Network-based Localized Mobility Solution for Distributed Mobility Management*”, International Workshop on Mobility Management for Flat Networks (MMFN 2011) at WPMC 11
 - [draft-bernardos-dmm-pmip-02](#)

Client-based solution

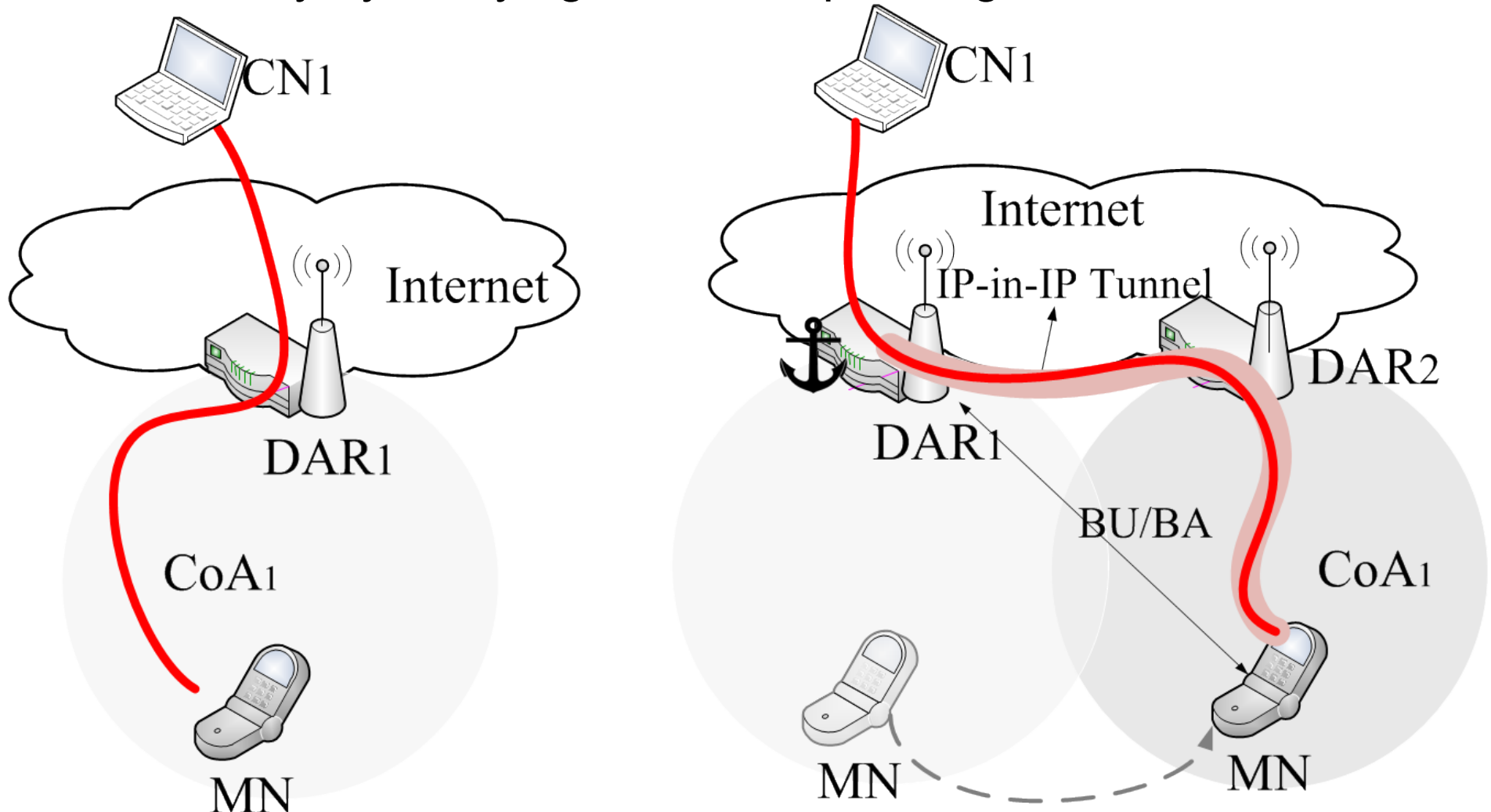
- Flat Access and Mobility Architecture (FAMA)
- Re-uses existing approaches
 - Mobile IPv6 : RFC 6275
 - Authorizing MIPv6 BU with CGAs: draft-laganier-mext-cga
- Mobility management pushed to the edge of the network
 - The HA is deployed at the access router level

Entities

- Distributed Anchor Router (DAR)
 - Deployed in the MN's default gateway
 - First hop router
 - It assigns a topologically valid address to MNs
 - An on-link MN can send/receive traffic using the address from the DAR
 - DAR forwards such packets as a plain router
 - A DAR anchors the address it assigned when the MN is not on-link (HA role)
 - The MN's address is reachable through a bi-directional IP tunnel

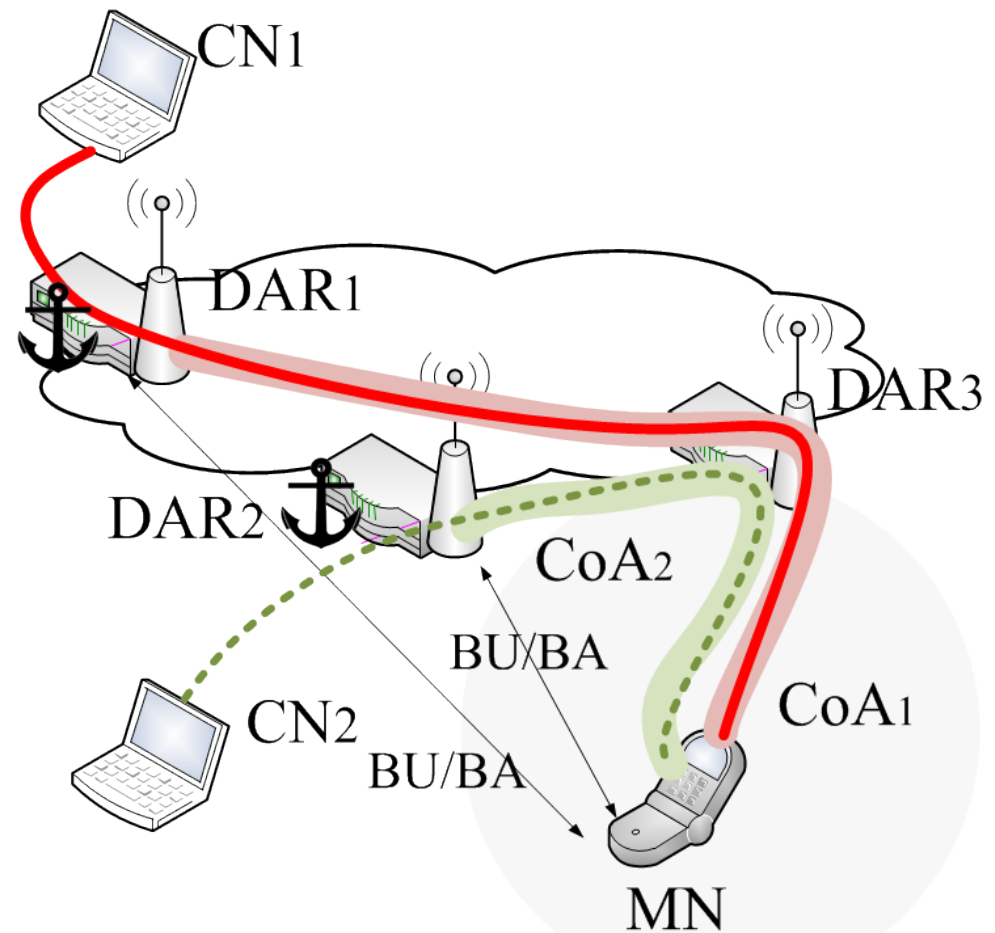
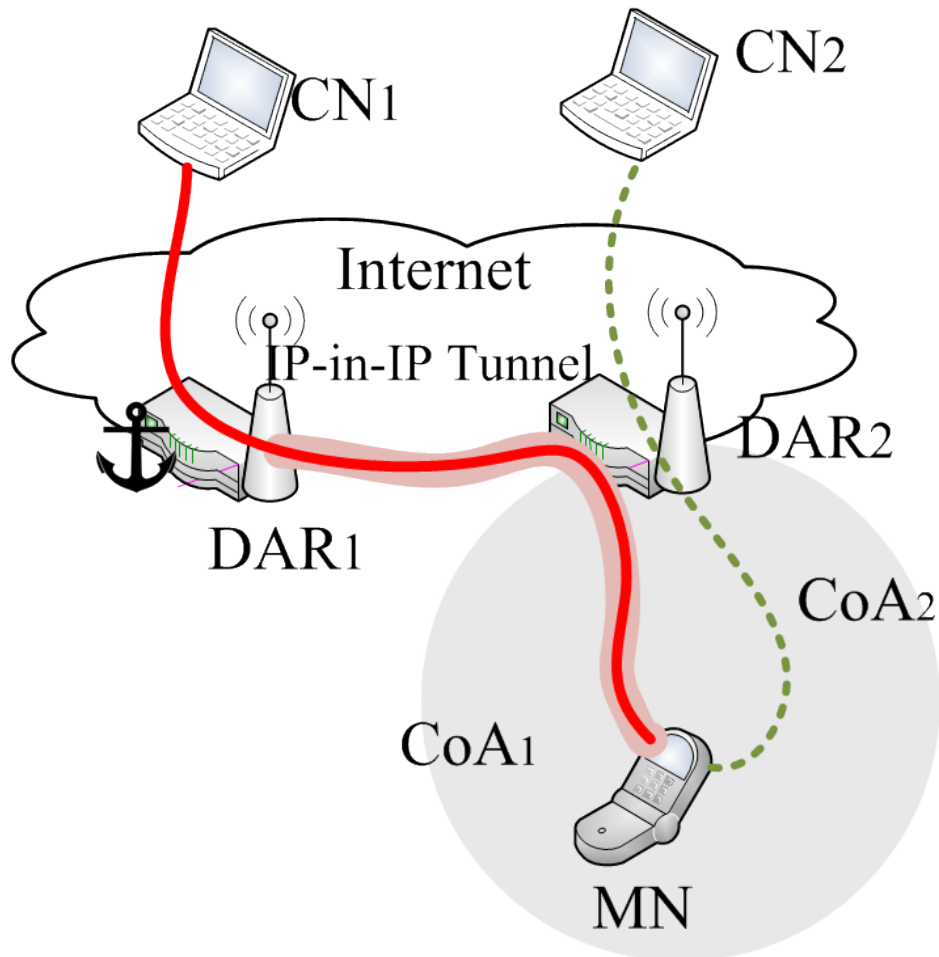
Operations (i)

- When the MN moves to a new DAR, it can keep the old address reachability by notifying the corresponding DAR with a BU



Operations (ii)

- The address configured at the new DAR is used for new sessions
- Old sessions are redirected through the IP tunnel



Net-based DMM solution

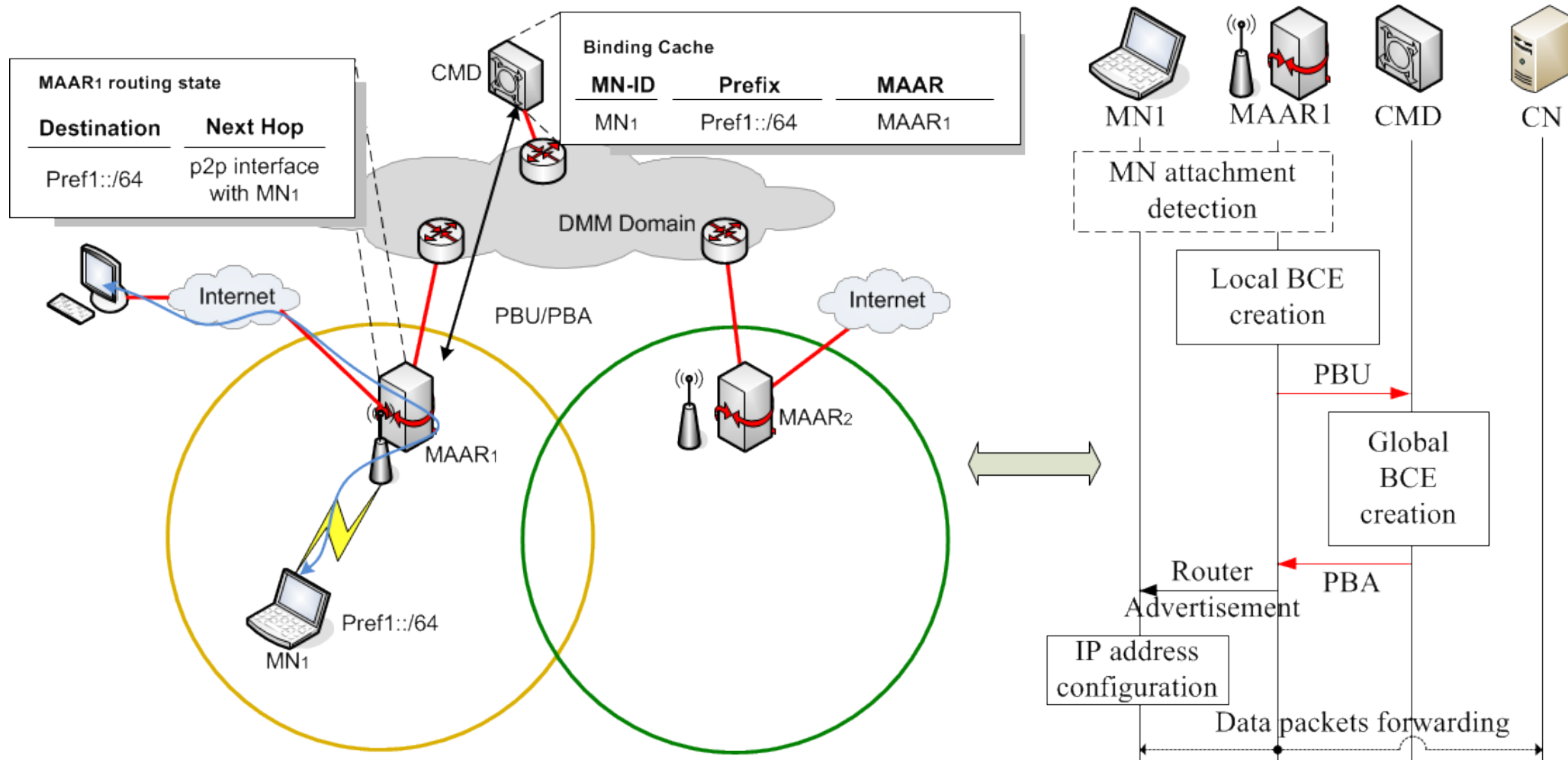
- Network based DMM approach
 - Based on Proxy Mobile IPv6
- Mobility management pushed to the edge
 - Access router level
- Partially distributed solution
 - Centralized control plane kind-of LMA
 - A central node stores the mobility sessions of all the MNs
 - Distributed data plane
 - Only the edge routers handle the data forwarding

Entities

- Mobility Anchor and Access Router (MAAR)
 - One IP hop distance from the MN
 - Concentrates AR, LMA and MAG functionalities on a per-MN, per-prefix basis
 - Delegates and anchors an IP prefix to each MN attached
 - Serving MAAR (S-MAAR): MAAR which the MN is currently attached to
 - Anchor MAAR (A-MAAR): previously visited MAAR anchoring a prefix used by an active flow of the MN
 - Forwards data packets to/from IP networks
- Central Mobility Database (CMD)
 - Central node storing the BCEs of all the MNs in the domain
 - It plays the role of the LMA for the control plane
 - Not traversed by data packets

Operations: initial registration

- The S-MAAR registers the MN at the CMD through a PBU/PBA handshake

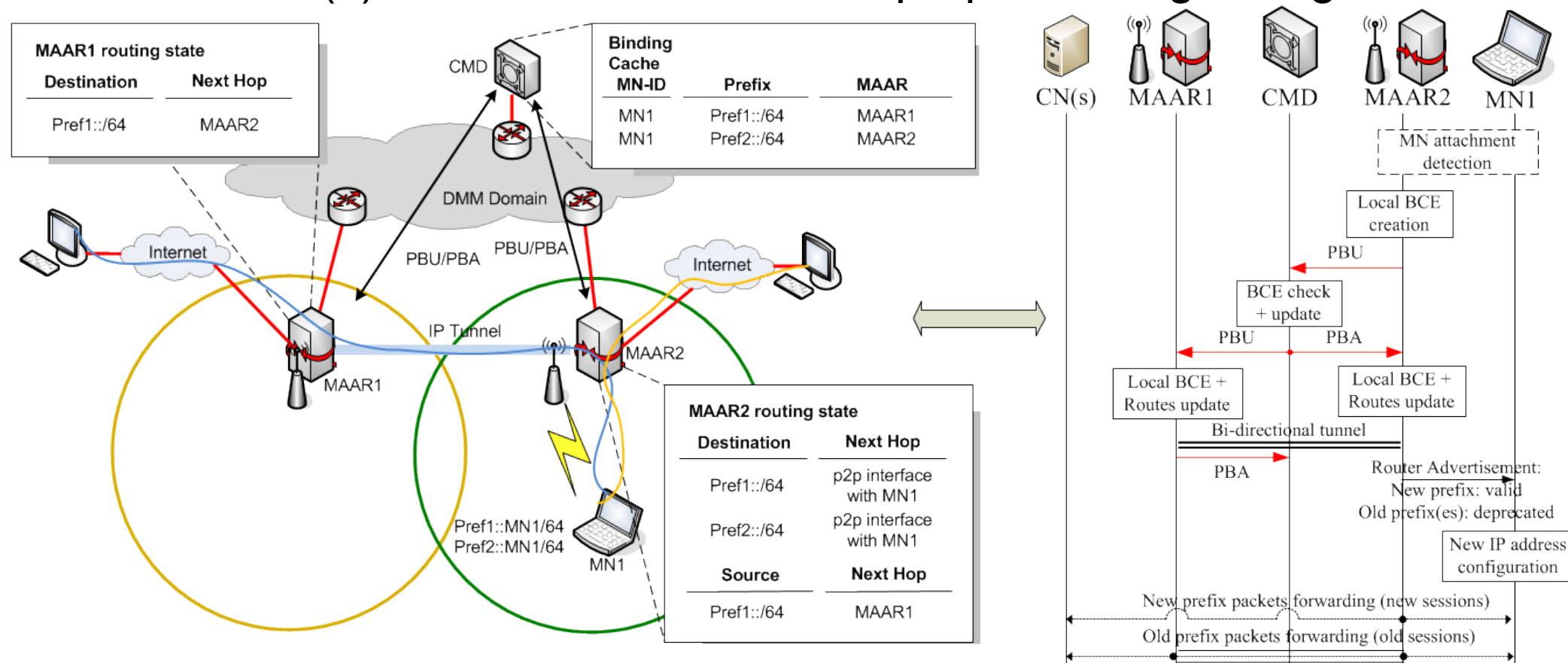


Operations: handover

- 3 operational modes:
 - CMD as PBU/PBA relay
 - CMD as MAAR locator
 - CMD as PBU/PBA proxy
- Conceptually they are similar
 - The difference mainly consists on the message order
- We focus on the “proxy” mode
 - Already implemented

CMD as PBU/PBA proxy

- The CMD receives a PBU from the new S-MAAR announcing the MN attachment
- The CMD sends instructions to the S-MAAR and A-MAAR(s) on how to establish the proper routing configuration



Questions?

