

IRTF mobopts

Future Mobility Discussion
---DMM summary and possible evolution

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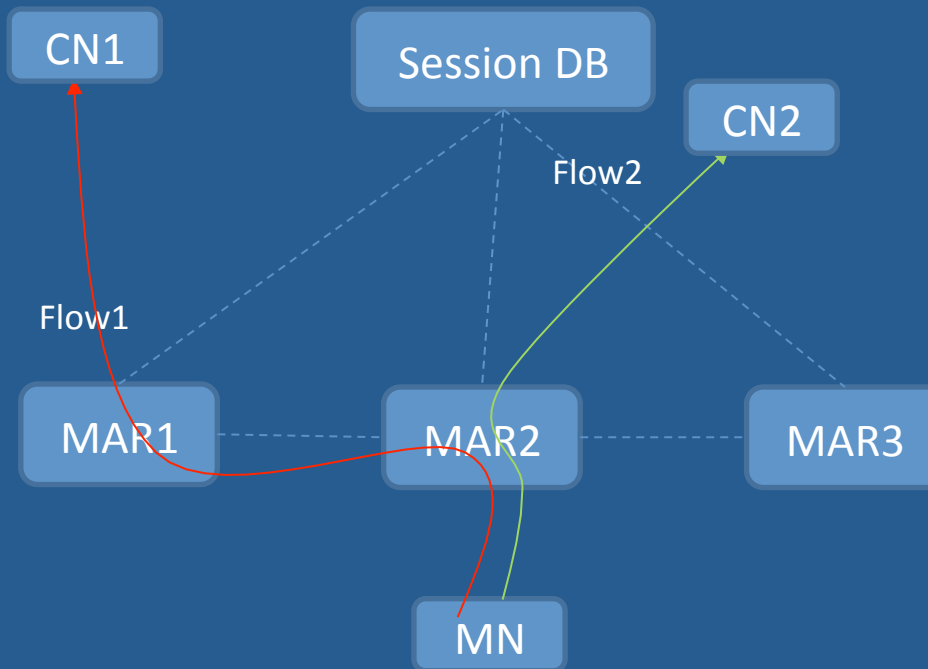
Current status of DMM

- DMM working group has been formed.
- The new DMM charter is published.
- Many proposals has been submitted recently and will be discussed in Thursday DMM session.

Solution categories

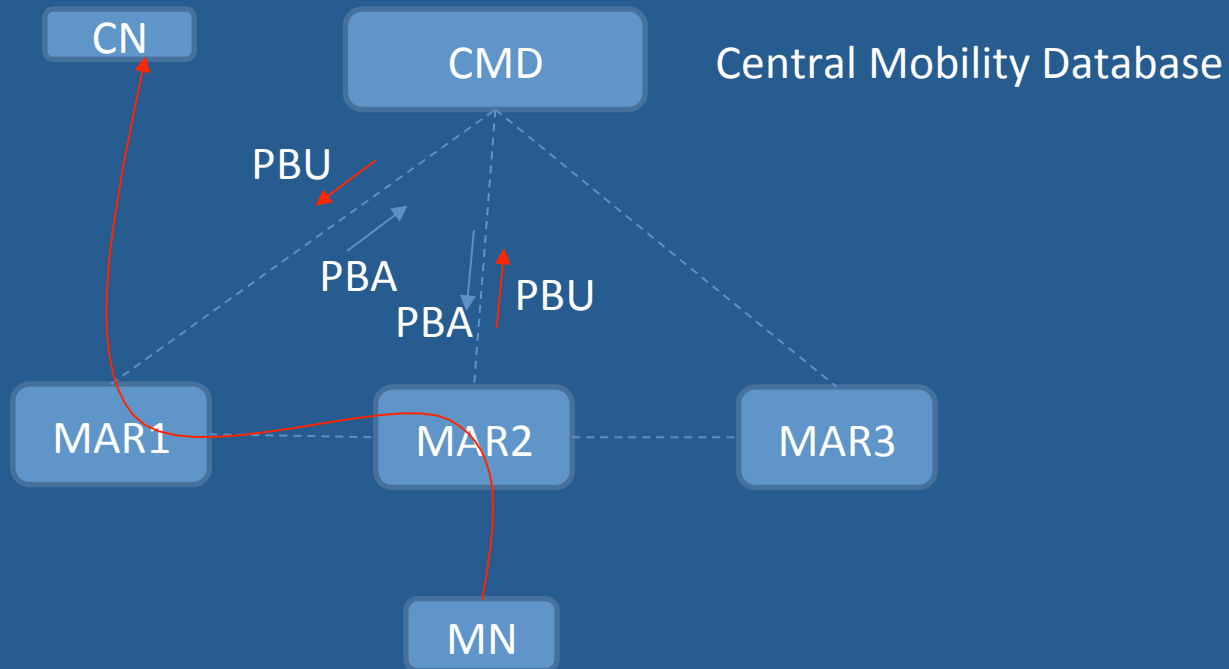
- **Dynamic anchoring based on PMIP.**
 - draft-seite-dmm-dma-00 - Distributed Mobility Anchoring
 - draft-korhonen-dmm-prefix-properties-01 - IPv6 Prefix Mobility Management Properties
 - draft-korhonen-dmm-local-prefix-00 - Local Prefix Lifetime Management for Proxy Mobile IPv6
 - draft-liu-dmm-address-selection-01 - Address Selection for DMM
 - draft-liu-dmm-dynamic-anchor-discussion-00 - DMM Dynamic Anchor Discussion
 - draft-liu-dmm-mobility-api-00 - Mobility API Extension for DMM
 - draft-chan-dmm-architecture-00 - A architecture of distributed mobility management using mip and pmip
- **Control/data plane separation based on PMIP.**
 - draft-bernardos-dmm-distributed-anchoring-00 - PMIPv6-based distributed anchoring
 - draft-bernardos-dmm-pmip-01 - A PMIPv6-based solution for Distributed Mobility Management
 - draft-jaehwoon-dmm-pmipv6-00 - PMIPv6-based Distributed Mobility Management
 - draft-liu-dmm-pmip-based-approach-02 - PMIP Based DMM Approaches
 - draft-luo-dmm-pmip-based-dmm-approach-01 - PMIP Based DMM Approaches
- **CMIP based DMM proposal.**
 - draft-sarikaya-dmm-dmipv6-00 - Distributed Mobile IPv6
 - draft-chan-dmm-architecture-00 - A architecture of distributed mobility management using mip and pmip
- **Routing based DMM proposal.**
 - draft-mccann-dmm-flatarch-00 - Authentication and Mobility Management in a Flat Architecture
- **Loc/ID separation based DMM proposal.**
 - draft-liebsch-mext-dmm-nat-phl-01 - Per-Host Locators for Distributed Mobility Management

Dynamic anchoring based on PMIP



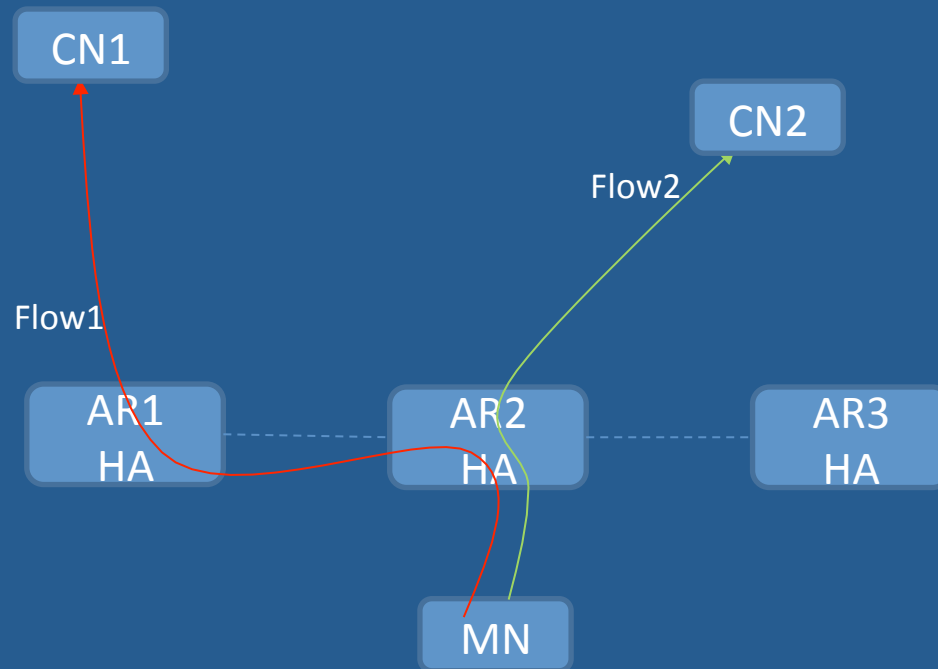
- MN was formerly anchored at MAR1, when move to MAR2, for the on-going traffic, will still be tunneled back to MAR1
- The newly started traffic, go directly through MAR2
- Problems need to be solved:
 - Address management
 - Address selection

Control/data plane separation based on PMIP



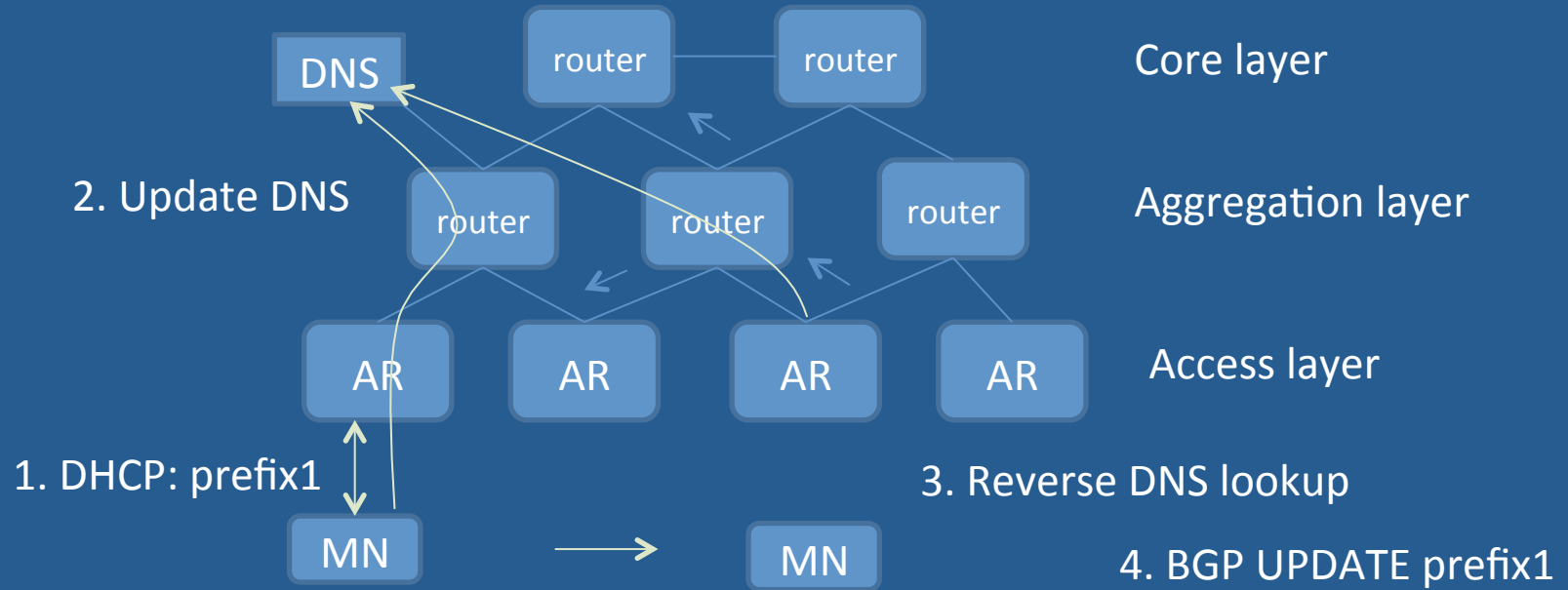
- Control plane: CMD is the central binding cache database
- Data plane: traffic is routed through MARs, CMD is not involved
- PMIP signaling is extended to support this architecture
- Problems need to be solved:
 - Address management
 - Address selection

CMIP based DMM proposals



- Each AR has HA functionality
- MN associates multiple ARs, the ongoing session is kept through previous AR
- Problems need to be solved:
 - Address management
 - Address selection

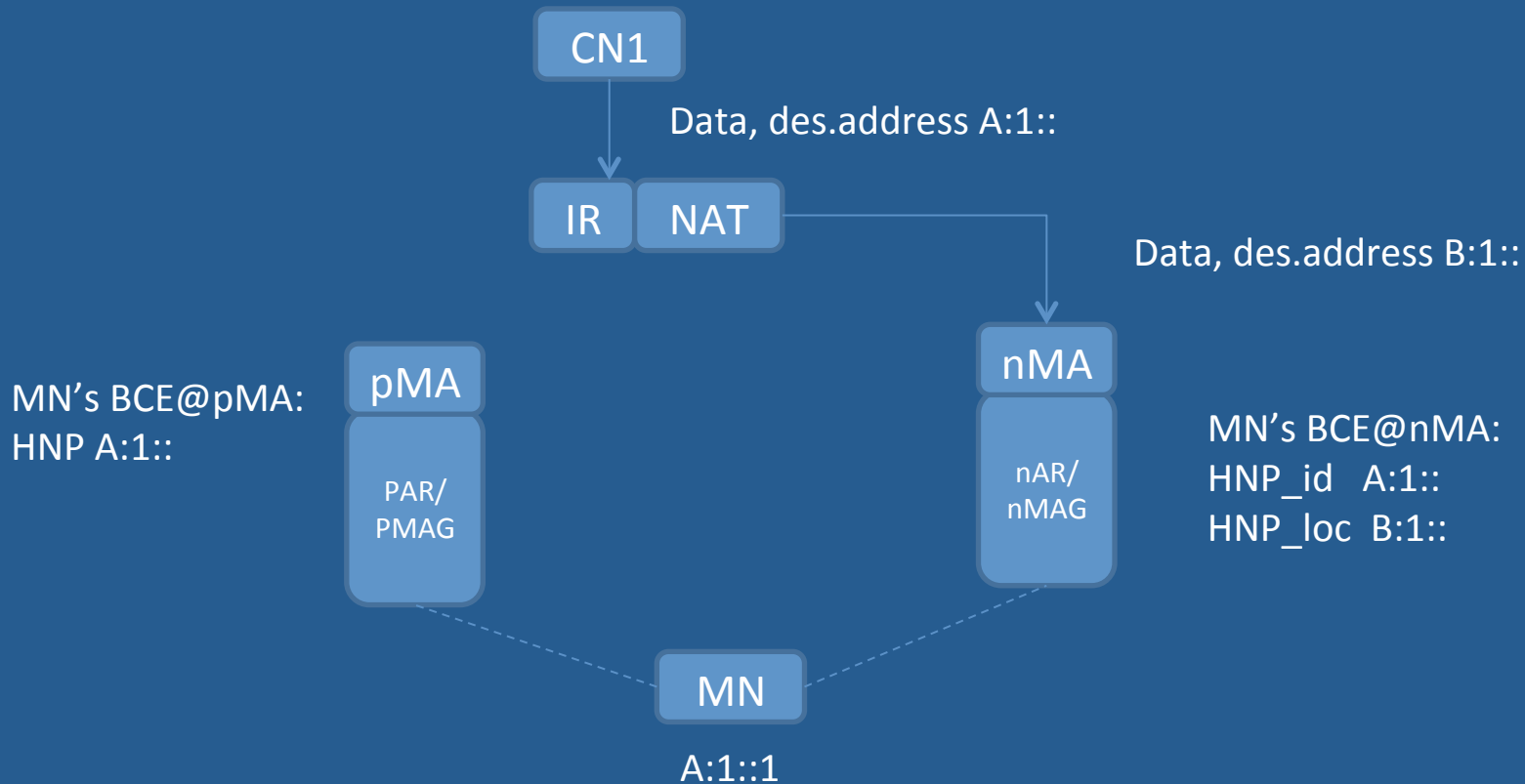
Routing based DMM proposal



- Keep IP address unchanged during handover, rely on BGP UPDATE announcing the new route.
- For initial attachment, AR allocate IP address using DHCP.
- MN updates its DNS record using the IP address (e.g. prefix1).
- When handover happens, new AR confirms that the MN has already have an IP address (DNS lookup), then using BGP to announce prefix1 in the routing system.
- By careful IP address planning, confine the routing update in a domain.
- Problems:

How previous AR revocation the prefix

Loc/ID separation based DMM proposal



- Use Loc/ID separation mechanism to solve DMM problem
- For uplink traffic, Mobility anchor convert MN's ID to Loc; using NAT instead of encapsulation
- For downlink traffic, IR convert MN's ID back to Loc

Discussion: DMM and mobility evolution

- DMM WG is chartered to specify solution based on existing IP mobility protocols.
 - Some DMM solutions proposed so far maybe more suitable in mobops:
 - E.g. Loc-ID separation/ routing
- Possible mobility evolution:
 - **Evolutionary:** Combine DMM and mobile network
 - Provide new mobility service that current mobile network can not provide:
 - e.g. better offloading support..
 - simplified mobility support..
 - Help IETF mobility adopted by the industry
 - **Revolutionary:** Enhance application/transport protocol, make them tolerate IP changing
 - API/HTTP..

- Q&A?