

DMM Framework based on Functional Elements

draft-liebsch-dmm-framework-analysis-01

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DMM WG

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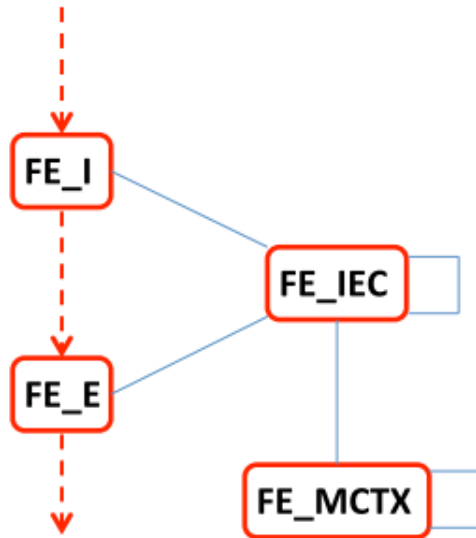
Preamble..

- Increasing visibility and deployment of SDN technology
- Proven technology available in operators' TN
- Solutions for (Distributed) Mobility Management may consider inter-working with SDN and other non-mobility protocols to enable service optimization
 - Performance (path)
 - Costs (transport, encapsulation, path)
- Mitigates the need of extensions to different mobility protocols
 - Mobile IPv4/6, Proxy Mobile IPv6, ..
- (D)MM solutions should consider hooks to opt for inter-working with other protocol architectures

Methodology

- Define protocol agnostic **Functional Framework** to build DMM solutions around existing mobility protocols
 - This draft defines **4 specific DMM Functional Entities** (FE), **reference points** between FEs and **clear function of the reference point**
 - Can apply to solutions that are solely based on existing mobility protocols
 - Can apply to solutions which get support from non-mobility protocols
- DMM FE may be accomplished by an existing protocol or an extension to an existing protocol
 - Identify and close gap by mobility protocol extension or other (non-mobility) protocol!
- Extensions to mobility protocols may be self-contained, but should **expose attributes** to external protocols for optimization according to specified reference points

Existing vs. DMM functional entities



DMM specific functional entities

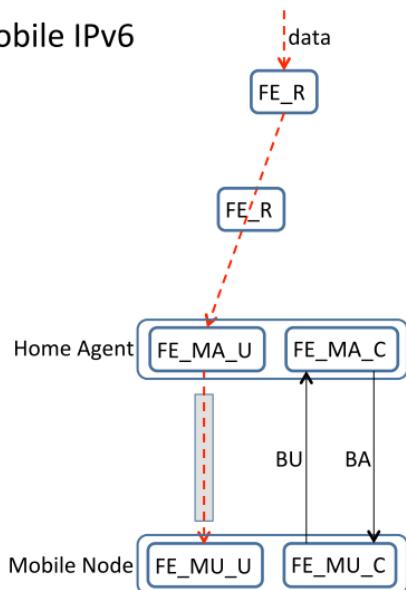
FE_I: Ingress for DMM indirection

FE_E: DMM Egress Function

FE_IEC: Control to establish states for DMM indirection

FE_MCTX: Function to transfer/establish context for IP address continuity (HNP, HoA)

Mobile IPv6



Existing functional entities:

FE_R: FE of a standard IP Router/Switch

FE_MA_C: FE Mobility Anchor, Control Plane

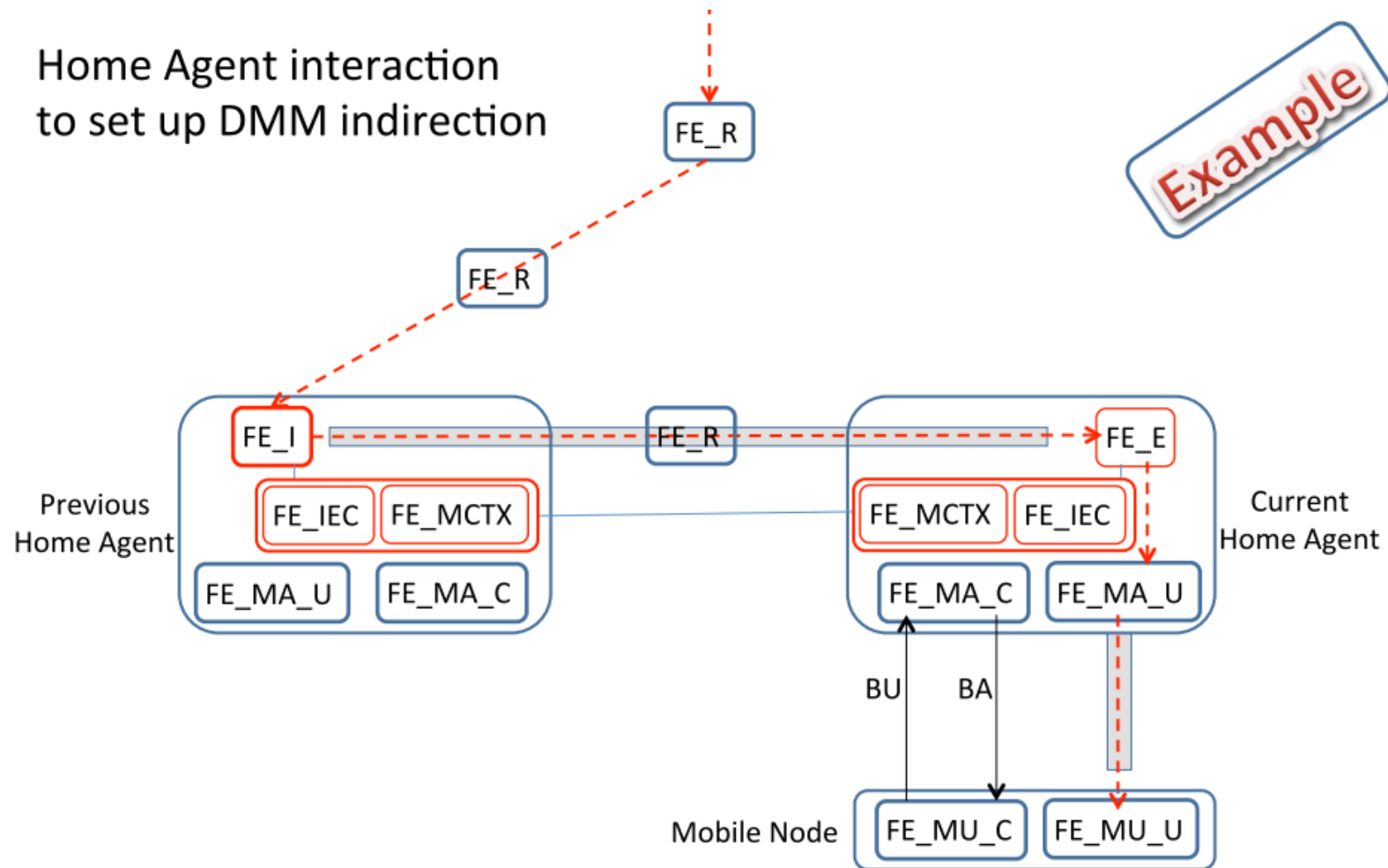
FE_MA_U: FE Mobility Anchor, User Plane

FE_MU_C: FE Mobile User Client, Control Plane

FE_MU_U: FE Mobile User Client, User Plane

Mobility Protocol Centric Solutions

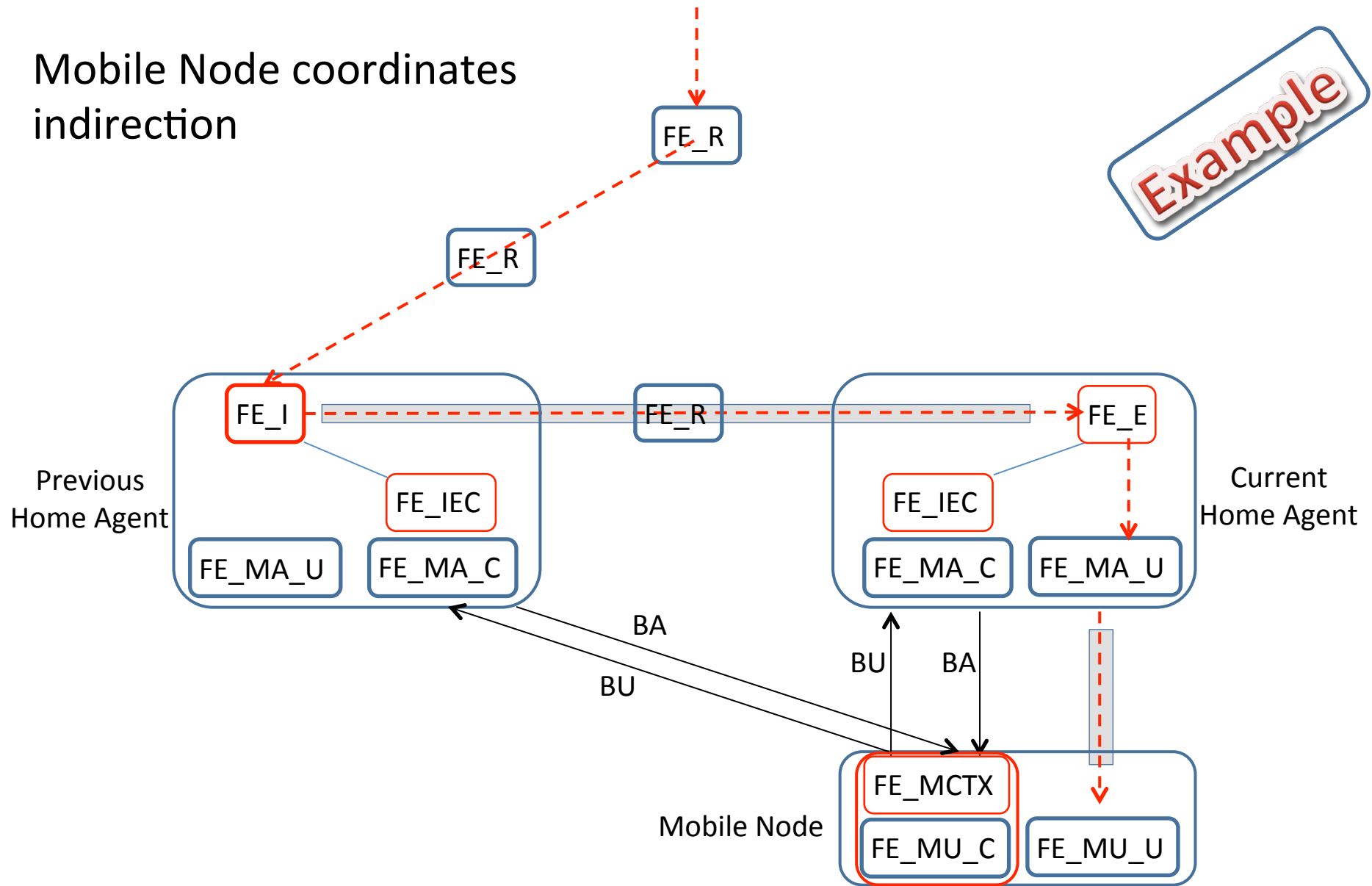
Home Agent interaction to set up DMM indirection



MN Centric Model – Mobile IPv6

Mobile Node coordinates
indirection

Example



Conclusions

- DMM analysis and specification of extensions should be done on a functional level
- Proposed functional framework enables analysis and specification beyond mobility protocol level
 - Keep DMM solution extensible and deployable
 - Apply DMM solution to a variety of mobility protocols

Next Steps

- DMM Unicast Framework considered mature
 - Further feedback appreciated
- Adopt this framework in the DMM WG?

Document history

- -00 presented in Atlanta
- Changes in version 01:
 - Included User Equipment C-/U-Plane functions to the set of available functions where DMM functions can be added for DMM support
 - Added uplink routing considerations
 - Added examples about how to use the framework for a gap analysis and for the design of optimized DMM solutions
 - Description of a first DMM Multicast framework
 - Clearer structure with framework as document core and valuable applications of the framework in the appendix