

Route Optimization with Nested Correspondent Nodes

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Current RO Proposals

- Many proposals on route optimization in Nested NEMO
 - MIP6 route optimization over NEMO
 - MIP6 route optimization over Nested NEMO
 - Route optimization over Nested NEMO
- Correspondent nodes are at the infrastructure
 - MIP6 correspondent node
 - Correspondent router
 - IPv6 node (Bi-directional tunnel with HA)

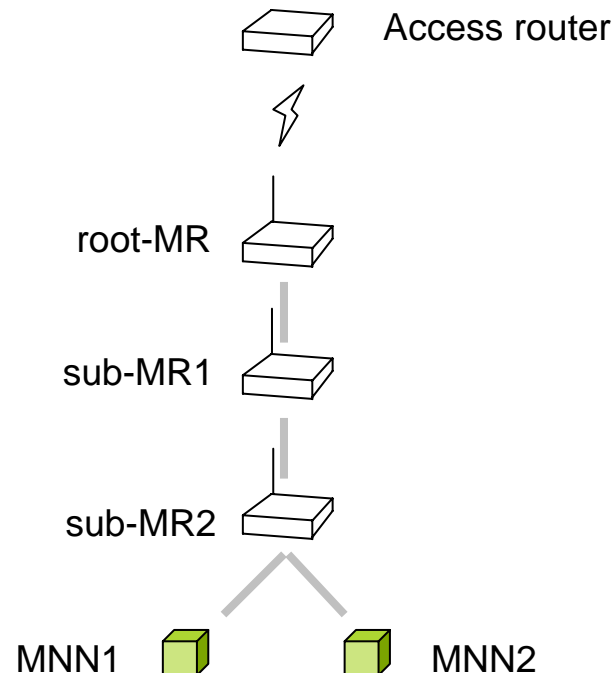
These all follow draft-thubert-nemo-ro-taxonomy-02.txt 2

RO Taxonomy draft

- Lacks consideration for CNs being attached behind Nested NEMO
 - Thus proposed solutions provide RO in limited situations
- Lacks problem statement for LFN and VMN
 - Thus proposed solutions provide RO for limited types of nodes

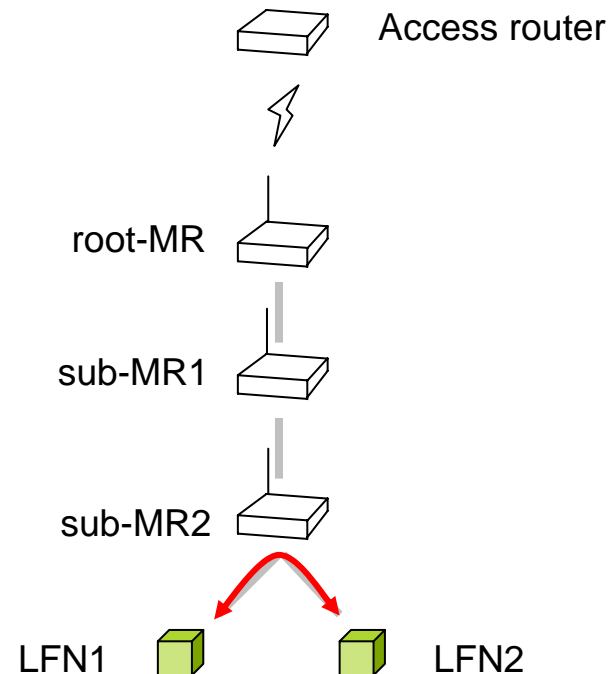
There is more: Case 1

- Route optimization between MNNs behind the same MR
 - 1.1 Both are LFNs
 - 1.2 Both are VMNs
 - 1.3 LFN and VMN



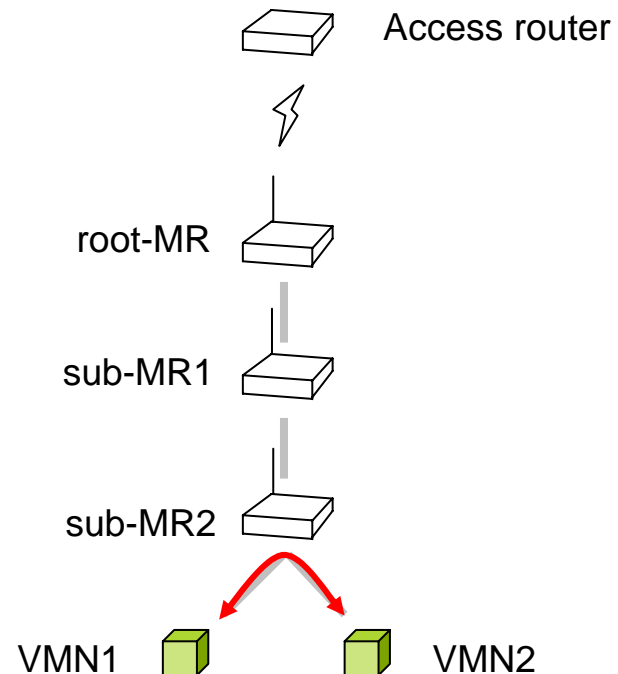
Case 1.1: Both are LFNs

- No extension is needed for MRs and LFNs



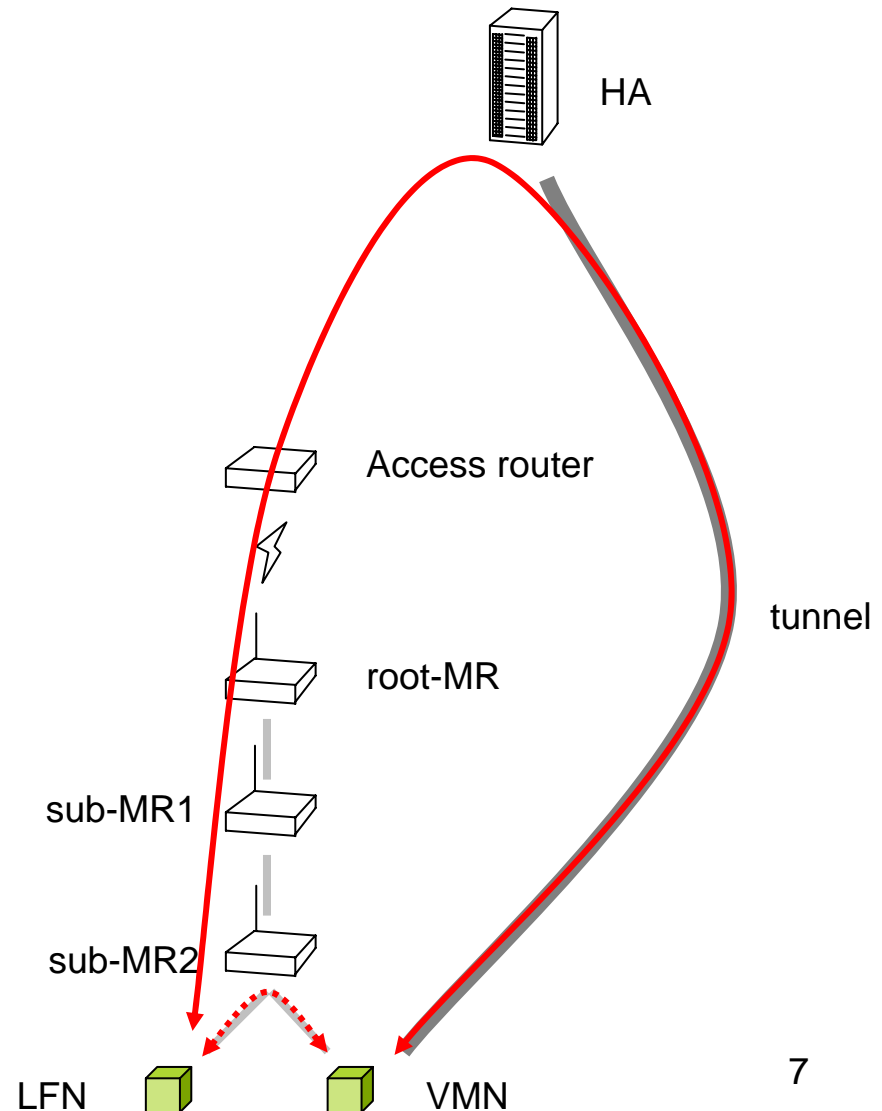
Case 1.2: Both are VMNs

- The flow will eventually be optimized with MIP6 RO



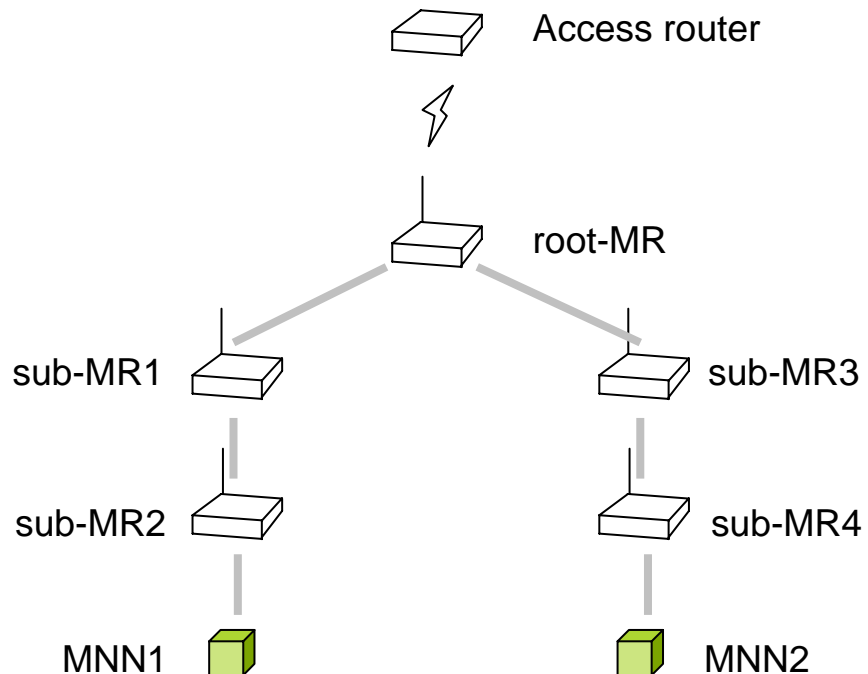
Case 1.3: LFN and VMN

- VMN cannot perform RO with LFN
- Tunnel between VMN and HA can not be bypassed



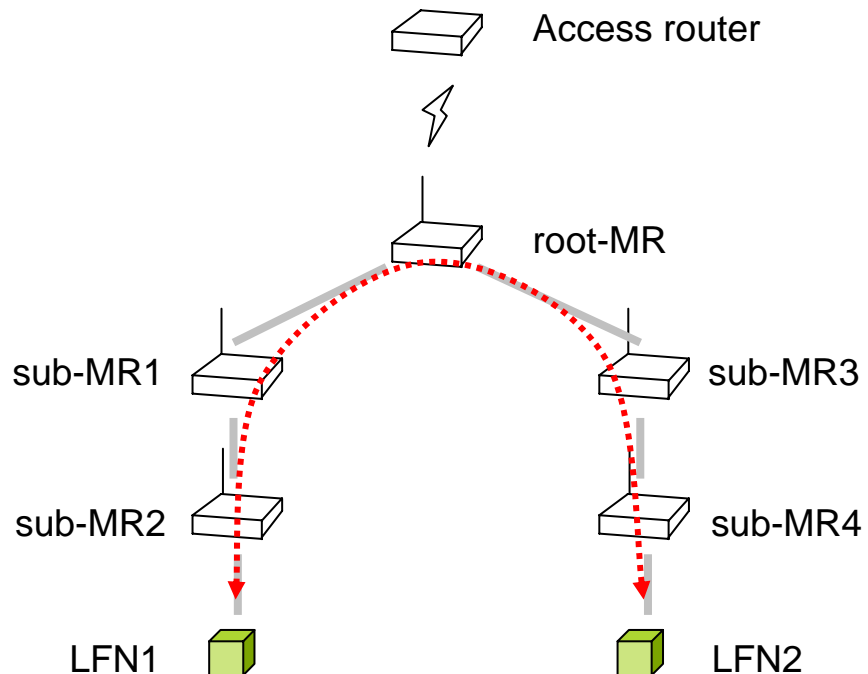
There is more: Case 2

- Route optimization between MNNs behind the same Nest
 - 2.1 Both are LFNs
 - 2.2 Both are VMNs
 - 2.3 LFN and VMN



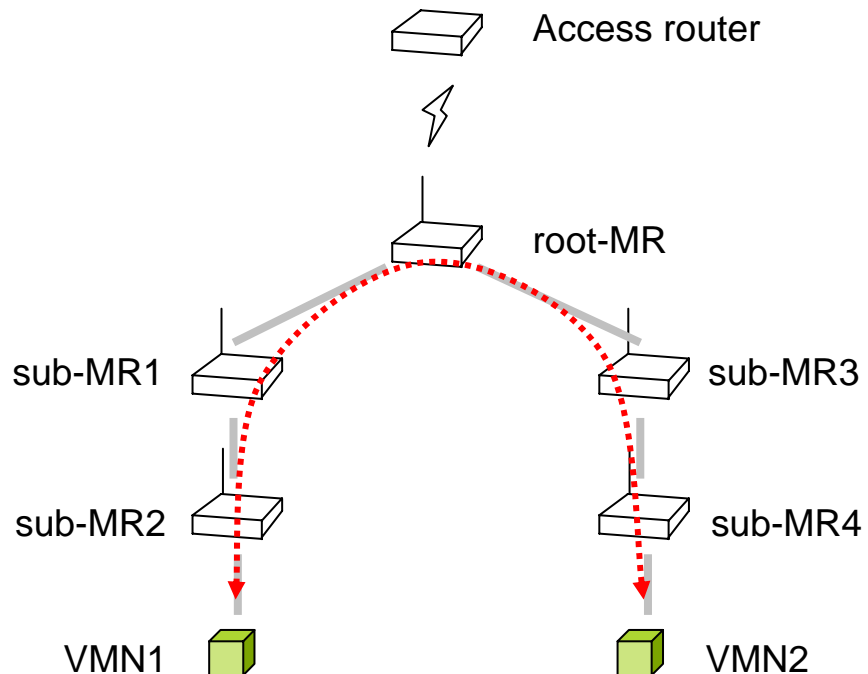
Case 2.1: Both are LFNs

- Cannot perform RO without optimization at each MR
- root-MR may need to know sub-MRs



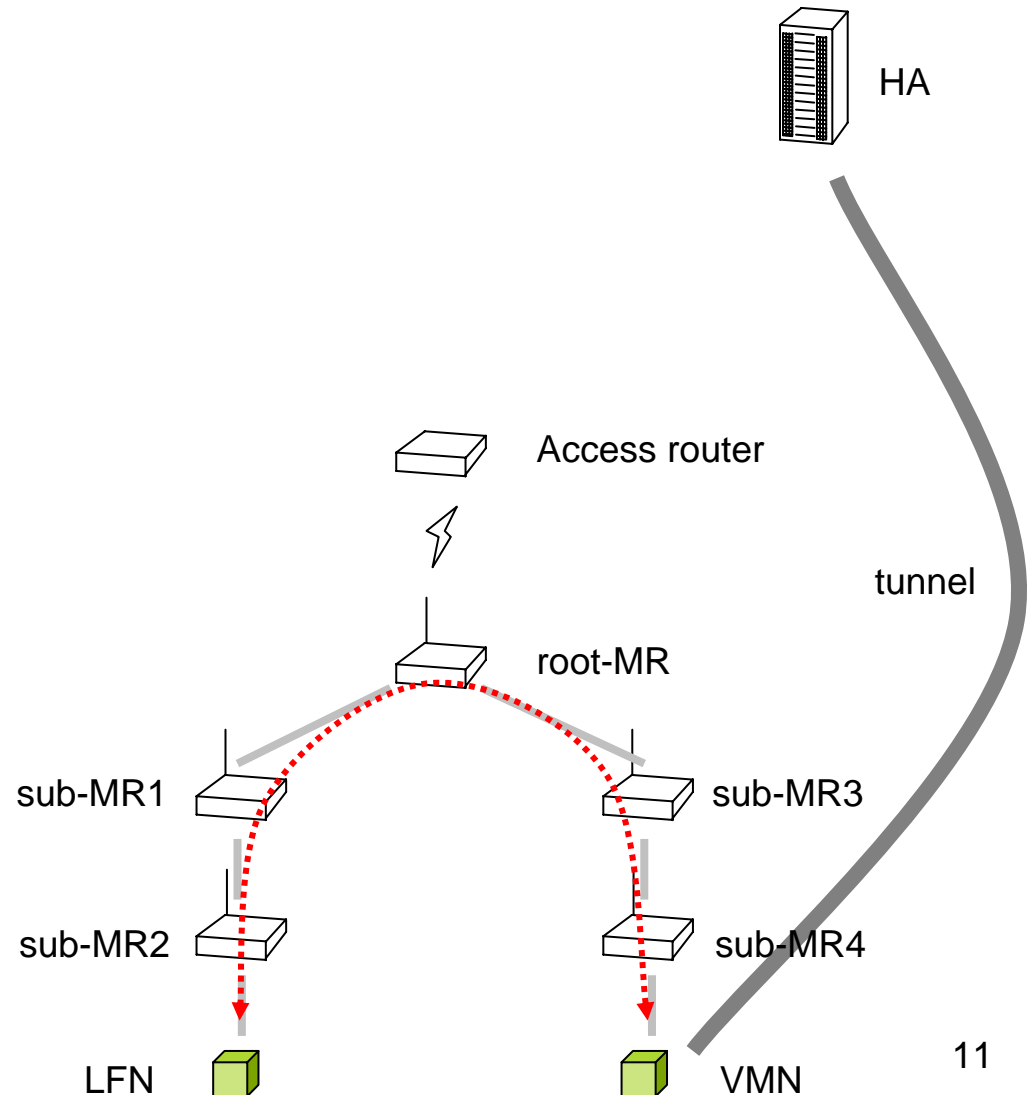
Case 2.2: Both are VMNs

- VMNs can perform MIP6 RO, but still requires optimization at each MR
- root-MR may need to know all sub-MRs



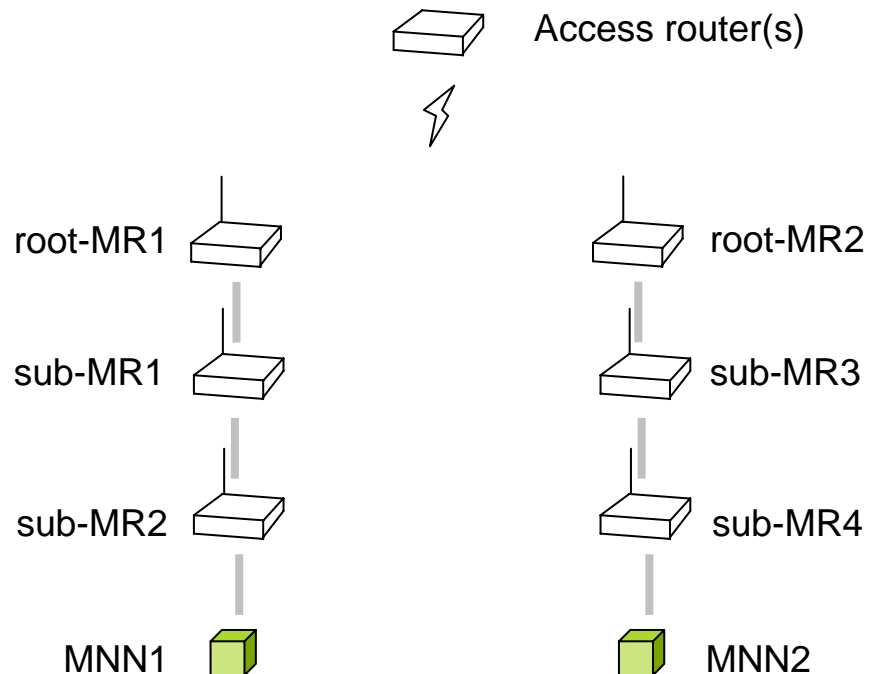
Case 2.3: LFN and VMN

- VMN cannot perform MIP6 RO with LFN
- Tunnel between VMN and HA can not be bypassed
- root-MR may need to know all sub-MRs



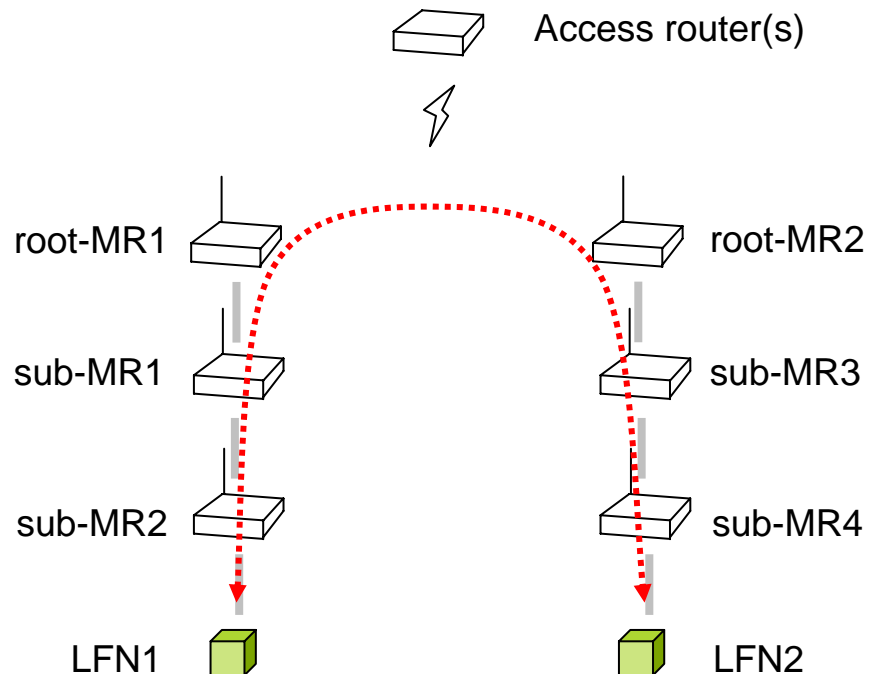
There is more: Case 3

- Route optimization between MNNs behind a different Nest
 - 3.1 Both are LFNs
 - 3.2 Both are VMNs
 - 3.3 LFN and VMN



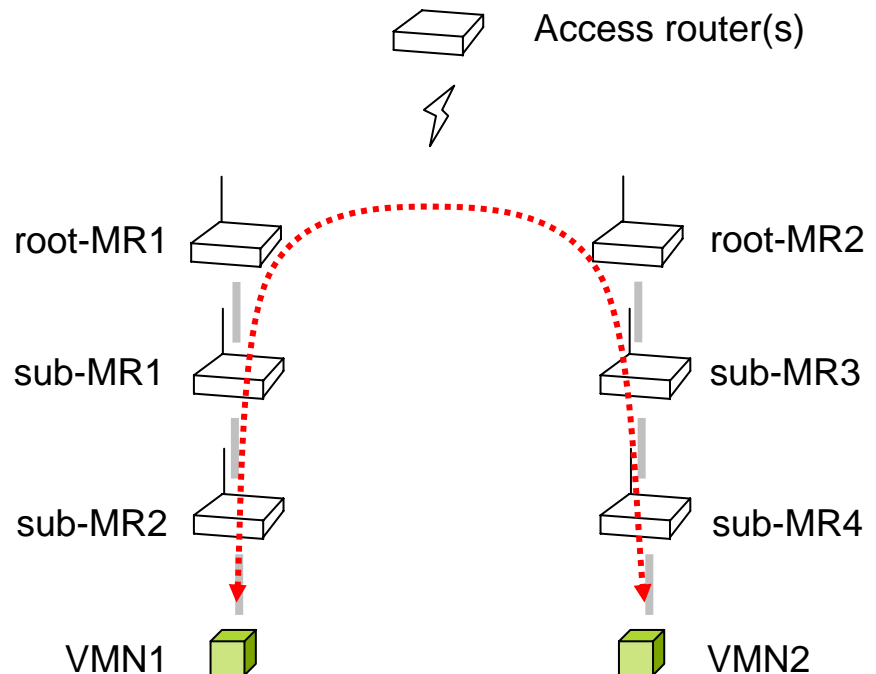
Case 3.1: Both are LFNs

- RO cannot be performed without optimization at each MR and between the two nest



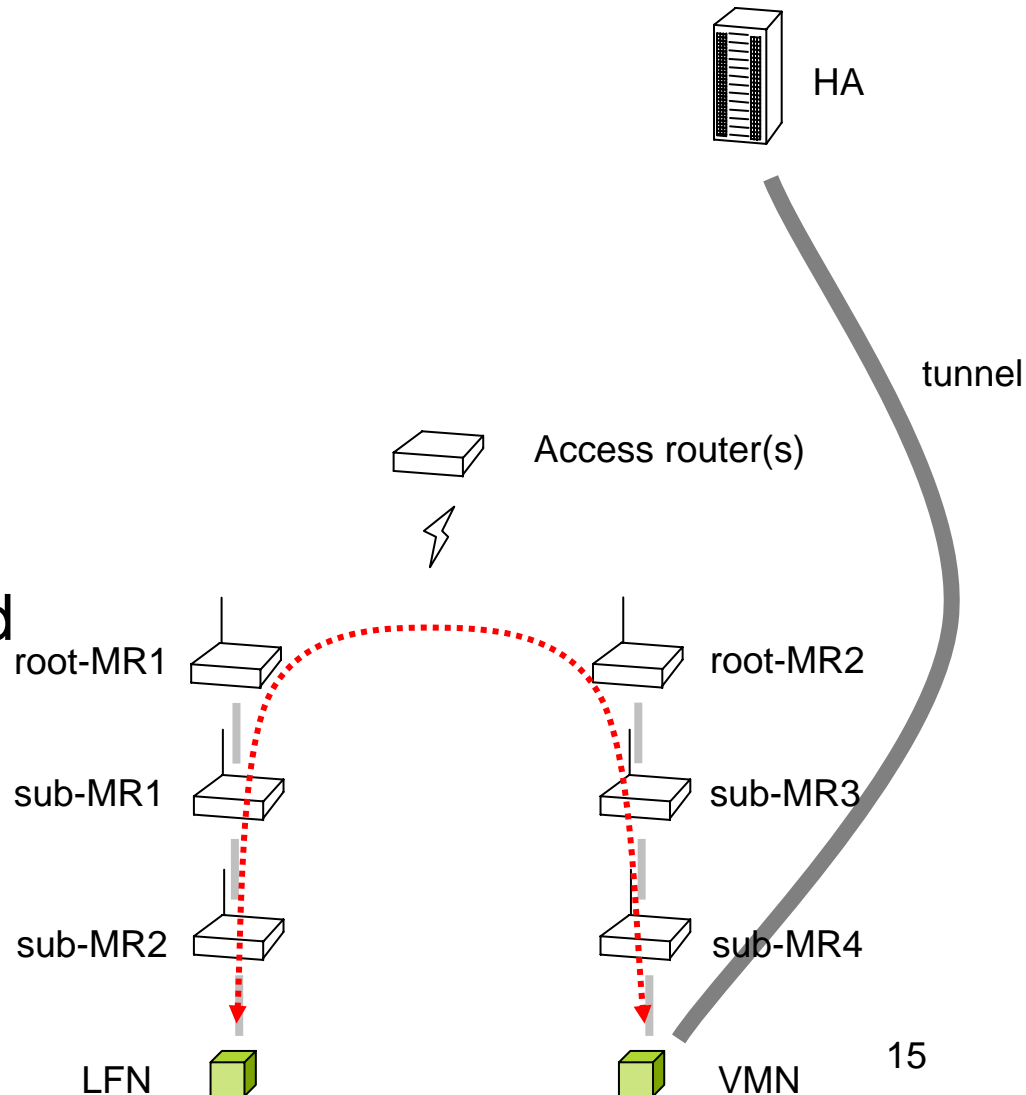
Case 3.2: Both are VMNs

- VMNs can perform MIP6 RO, but still requires optimization at each MR and between the two nest
- root-MR may need to know all sub-MRs



Case 3.3: LFN and VMN

- VMN cannot perform MIP6 RO with LFN
- Tunnel between VMN and HA is caused
- RO cannot be performed without optimization at each MR and between the two nest



Conclusion

- Nested NEMO issue
 - Is route optimization in Nested NEMO within the scope of the WG?
 - Or use ad-hoc routing approaches?
- Problem statement in route optimization
 - Should we consider the 3 cases?