

Application of a multi6 protocol to nemo

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Goals

- Analyze the possible application of a multi6 protocol to provide nemo multihoming support
- Only considers nemo basic support protocol
- Route optimization considerations are out of the scope of this work.

Multi6 basic assumptions

- A multi6 (shim) solution is far from being defined but there is some consensus about some of its main characteristics
- Multihoming => multiaddressing
- different ISPs <=> different prefixes
- Prefixes of the packet determine path (incoming and outgoing)
- Change prefix == change ISP (rehoming)

Multi64nemo: (*,*,1) cases

- Only one prefix announced on the nemo
 - Hence, basic assumption of multi6 fails i.e. it is not possible to change the prefix
- Possibility to artificially create additional prefixes paths between MR(s) and the HA(s) are associated with a different prefix, simulating the multi6 scenario.
- Overkill?? A solution running between the HA and MR would do the trick, timeframe

Multi64nemo: (*,1,n) cases

- n prefixes, 1 HA
- 1 HA => 1 home network
- n prefixes => multihomed home network
- MNN needs multi6 to benefit from multihoming of the home network
- Is this enough for nemo multihoming?
- No, selecting the prefix != selecting HA-MR path

Multi64nemo: (*,1,n) cases (cont)

- associate each of the different prefixes to a different path between the nemo and the home network
 - Reduced fault tolerance
- create additional artificial prefixes for the nemo
 - It works
 - Overkill?? : deployment timeframe, complexity
- Local mechanism between the HA and the MRs would also do the trick (easier/faster to deploy)

Multi64nemo: (*,n,n) cases

- n prefixes, n HAs
- 3 different cases:
 - All HAs served by the same ISP(s)
 - Each HA served by different ISP
 - Hybrid

All HAs served by the same ISP(s)

- similar characteristics than the (*,1,N)
- HA Distributed within the network
 - HA-HA protocol (or similar) required

Each HA served by different ISP

- configurations most similar to multi6
- home network act as ISP
- HA act as an ISP's border router
- selection of the MNP prefix used influences the HA
- Note that one home network may have multiple prefixes
- Local solutions may have problems when requiring inter HA coordination
- Reasonable to use multi6

Hybrid case

- a local mechanism can be used among the different HAs that are located within the same home network
- multi6 mechanism can be used to re-home communication between HAs that are located in different home networks.

Summary

- the only case that is susceptible to a direct application of the multi6 protocol is the (*,N,N) where the HAs are served by different ISPs
- In other cases it is possible to use the multi6 s
 - this imposes the creation of artificial MNP.
 - local mechanism that only involves the HAs and the MRs provide similar benefits with reduced deployment effort

Other comments

- Erik:
 - Consider the case between the HA and the MR
 - test which address pairs are working
 - MR to find out multiple addresses of the HA