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Recursive Binding Update for Route Optimization in Nested Mobile Networks

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(network mobility) (Mobile IP) (host mobility) (mobile network)
(mobile host) 가 (nested mobile
network) 가 가 Triangular Routing
Pinball Routing 가 (Correspondent node) Home Agent
가 (Binding Update)

1. 가 triangular pinball routing
가

(IP mobility support) 2
IETF(Internet Engineering Task Force) 3
mobileip WG(Working Group) Mobile IP pinball routing, 4
[1]. (Host mobility) 5
IETF nemo WG 6

(Network mobility)
Mobile IP
[2,3].

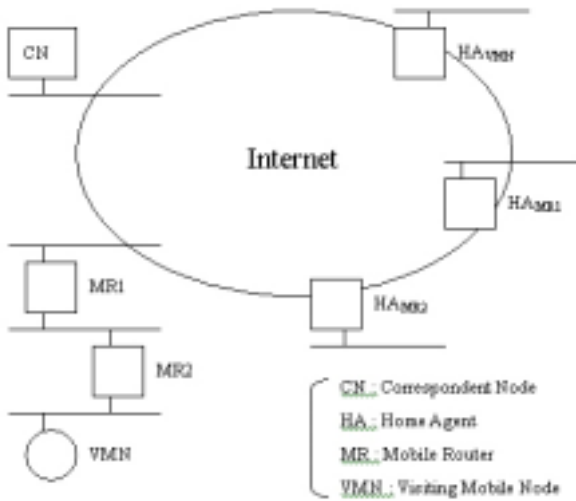
가 (mobile network) [4]. 가 Optimization) 가 [5].
Home Agent Binding Cache (Route Binding Cache (NEMO) (MR, Mobile Router)가

(PAN, Personal Area Network)

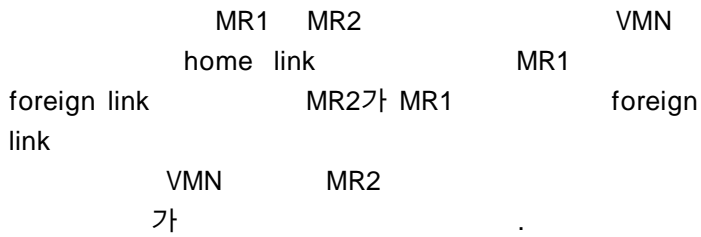
Mobile IP 가 (CN, Correspondent node) 가 (MN, Mobile Node) Binding Cache Mobile IP

가
 Mobile IP가
 Binding
 Cache Binding Update Message
 Cache가 prefix(NEMO prefix)
 가

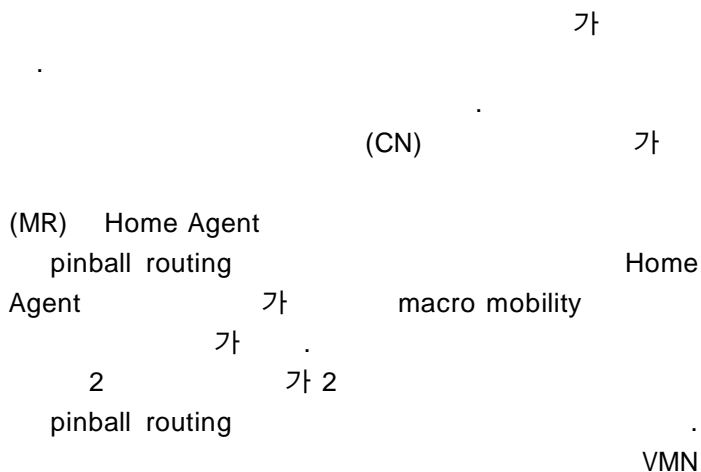
Mobile IP
 1



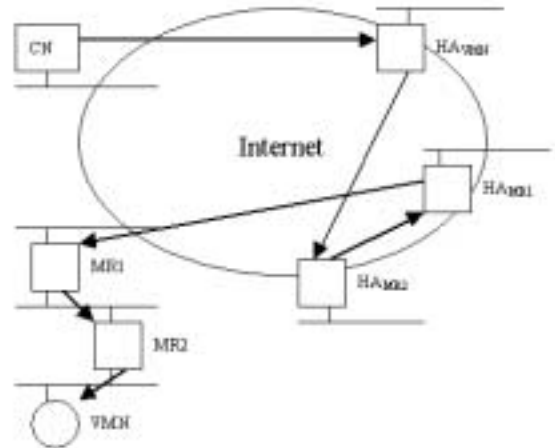
1. Nested Mobile Network.



3. NEMO pinball routing



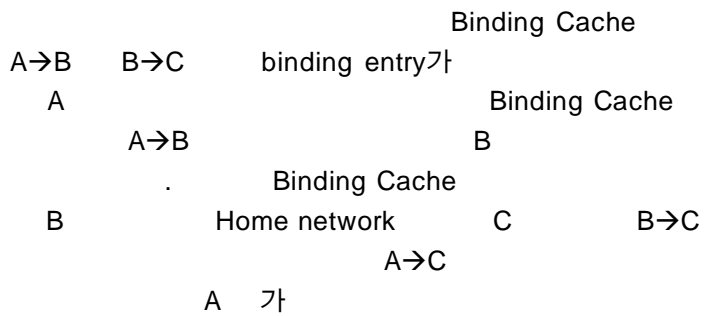
Home Agent HA_{VMN}
 Binding Cache VMN MR2
 가 HA_{MR2}
 Home Agent HA_{MR2}
 Home Agent
 MR2



2. Pinball Routing Problem.

4.

(MN)
 (MR) (CN) Binding
 Update Message (CN)
 Binding Cache
 binding entry 가



Binding Cache
 가
 Cache Binding Update

```

received BU(HoA:CoA)
foreach BE(HoA:CoA) binding entry in BC
    if BE.CoA equals BU.HoA
        BE.CoA ← BU.CoA
insert BU(HoA:CoA) to Binding Cache

```

Binding Cache(BC) (BE) Binding Update Message(BU) Home Address(HoA) Care of Address(CoA)

BU BC BE

BE CoA가 BU HoA

BE CoA BU CoA

5.

Binding Cache Mobile IP (CN)

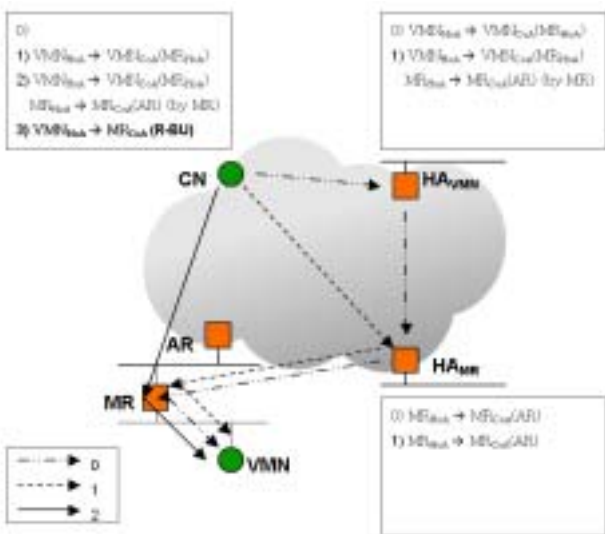
가 Home Agent pinball routing

(MR) (MN)

Binding Update Message

3 (convergent time)

가



3. Recursive Binding Update.

. CN

HA HA MR VMN 가

가 pinball routing

가 pinball routing macro mobility

Binding Update 가 pinball routing

6.

InternetCar[6]

가

가 pinball routing

가 Binding Cache

Cache 가 Binding Cache pinball routing

Home Agent 가 가

가

[1] D. Johnson, C. Perkins, and J. Arkko, "Mobility Support in IPv6", draft-ietf-mobileip-ipv6-20.txt

[2] Thierry Ernst, Alexis Olivereau, and Ludovic Bellier, "Mobile Networks Support in Mobile IPv6", draft-ernst-mobileip-v6-network-03.txt

[3] T. J. Kniveton, Jari T. Malinen, Vijay Devarapalli, and Charles E. Perkins, "Mobile Router Tunneling Protocol", draft-kniveton-mobtr-03.txt

[4] Thierry Ernst, and Keisuke Uehara, "Connecting Automobiles to the Internet", WIDE project, InternetCAR

[5] C. Perkins, and D. Johnson, "Route Optimization in Mobile IP", draft-ietf-mobileip-optim-11.txt

[6] InternetCAR web page at WIDE, <http://www.sfc.wide.ad.jp/InternetCAR/>