Private Addresses for Mobile IP

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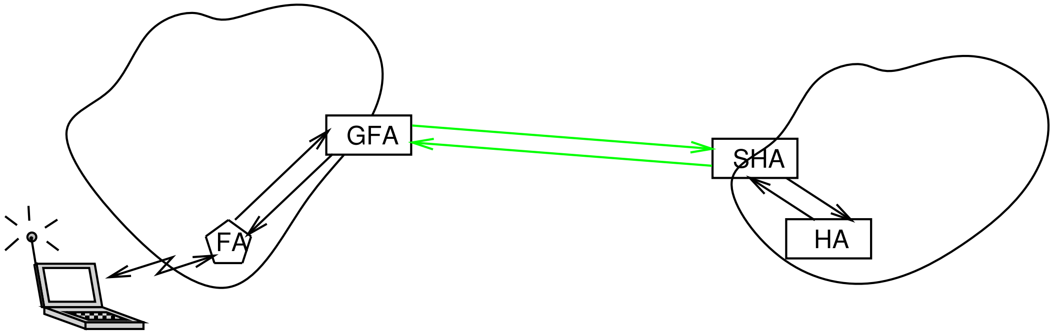
http://www.svrloc.org/~charliep/txt/ietf45/privaddr.ps

Private Addresses



Private Addresses should be hidden.

If HA has private address, a Surrogate HA (SHA) is needed.

If HA has private address, MN does too – but not necessarily vice versa.

A routable care-of address is needed, and provided by the Gateway Foreign Agent (GFA)

If one FA has private address, all FAs in local domain do too
→ (COA == GFA) in advertisement! Or, perhaps, (COA == 0).

FA-NAI

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
|     Type      |    Length     | Network Access Identifier ...
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
```

If the foreign agent has a private address, it can still identify itself by appending the FA-NAI extension to its Agent Advertisements. This will be especially beneficial for smooth handoffs.

Tunneling Private Addresses

For IP-within-IP, SHA IP address is used as a *tunnel-ID*

- Each FA stores the *tunnel-ID* along with MN's private address
- Tunnel source is the SHA's global IP address

Visitor lists organized by (MN,SHA) IP address ordered pair.

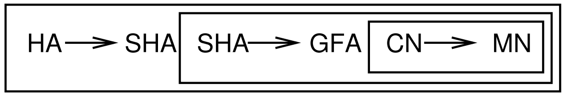
GRE already has tunnel-ID

Minimal encapsulation is enough like IP-within-IP

Reverse tunneling (RFC 2344)

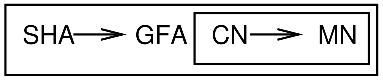
Route Optimization?

Private Addresses - HA to SHA



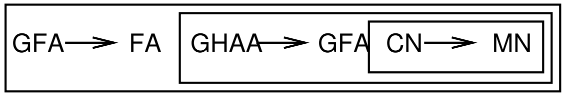
In order to get packets across the Internet, the home agent has to prepare them for ingress by way of the SHA. The home agent believes that GFA is the actual care-of address.

Private Addresses - SHA to GFA



When SHA decapsulates, the result is easily forwarded to the care-of address known to the home agent.

Private Addresses - GFA to FA



Here, GHAA means either the home agent or the SHA, depending upon whether the home agent has a globally routable IP address.

When GFA decapsulates, it has to know what the true care-of address is. It also has to keep the existing encapsulation, so that the next tunnel endpoint can use GHAA as an index into its visitor list.