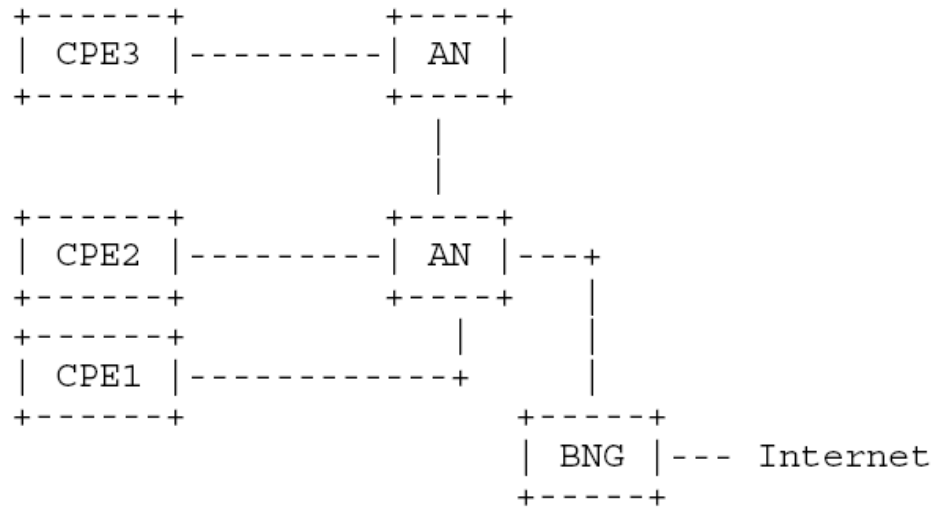# DAD Proxy
## draft-costa-6man-dad-proxy-01

Hongyu Li

Jean-Michel Combes

- Background
- Current IETF solutions
- DAD Proxy
- Security
- Interaction with BBF

# Background

- split-horizon model

```
+-------+              +----+
| CPE3  |---------| AN  |
+------+               +----+
                          |
                          |
                          |
+-------+              +----+
| CPE2  |---------| AN  |---+
+------+               +----+  |
+------+                 |    |
| CPE1  |-----------+    |
+------+                      |
                      +-----+
                      | BNG |--- Internet
                      +-----+
```

# Current IETF solutions

- DAD [RFC4862]
  - Direct exchanges between hosts not allowed
- ND Proxy [RFC4389]
  - Link-local scoped messages must not be forwarded
- draft-ietf-6lowpan-nd
  - Requires modifications in hosts
- IPv6 Mobility Manager [RFC3775]
  - Multicasted messages to hosts not allowed

# DAD Proxy (1/4)

- DAD-Proxy Data structure
  - One per VLAN
  - For each entry:
    - IPv6 Address
    - Link-layer Address

# DAD Proxy (2/4)

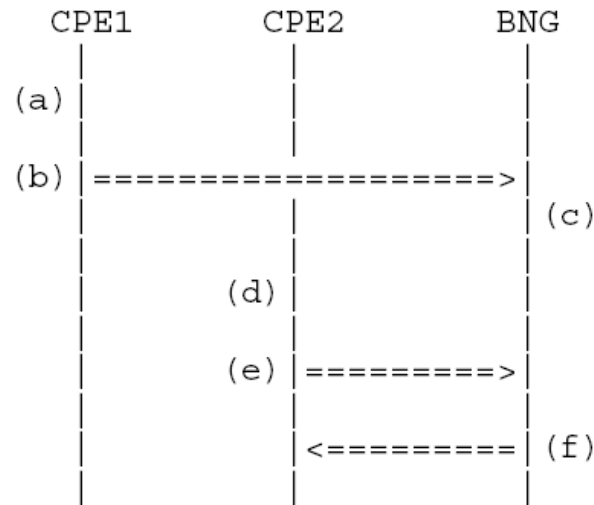When a host performs DAD (i.e. sends a NA)

- Case (1) No entry for the tentative address
    - One entry is created
- Case (2) An entry already exists for the tentative address

# DAD Proxy (3/4)

- Case (2) An entry already exists for the tentative address
  - (2.a) The same host is still performing DAD
  - (2.b) Another host is performing DAD for the same tentative address

# DAD Proxy (4/4)

- (2.b) Another host is performing DAD for the same tentative address

```
          CPE1        CPE2        BNG
           |           |           |
      (a)  |           |           |
           |           |           |
      (b)  |===================>   |
           |           |           |  (c)
           |           |           |
           |       (d) |           |
           |           |           |
           |       (e) |========>  |
           |           |           |
           |           | <========| (f)
           |           |           |
```

(a)  CPE1 generated a tentative address
(b)  CPE1 performs DAD for this one
(c)  BNG updates its Binding Table
(d)  CPE2 generates a same tentative address
(e)  CPE2 performs DAD for this one
(f)  BNG informs CPE2 that DAD fails

# Security

- Interaction with SEND [RFC3971]
- IP spoofing prevention
  - Linked with SAVI WG works

# Interaction with BBF

- Reviews/comments from BBF community
- DAD-proxy accepted in WT-177

# Next steps

- Adoption as WG document?
- Reviews/comments are welcome!

# Questions?