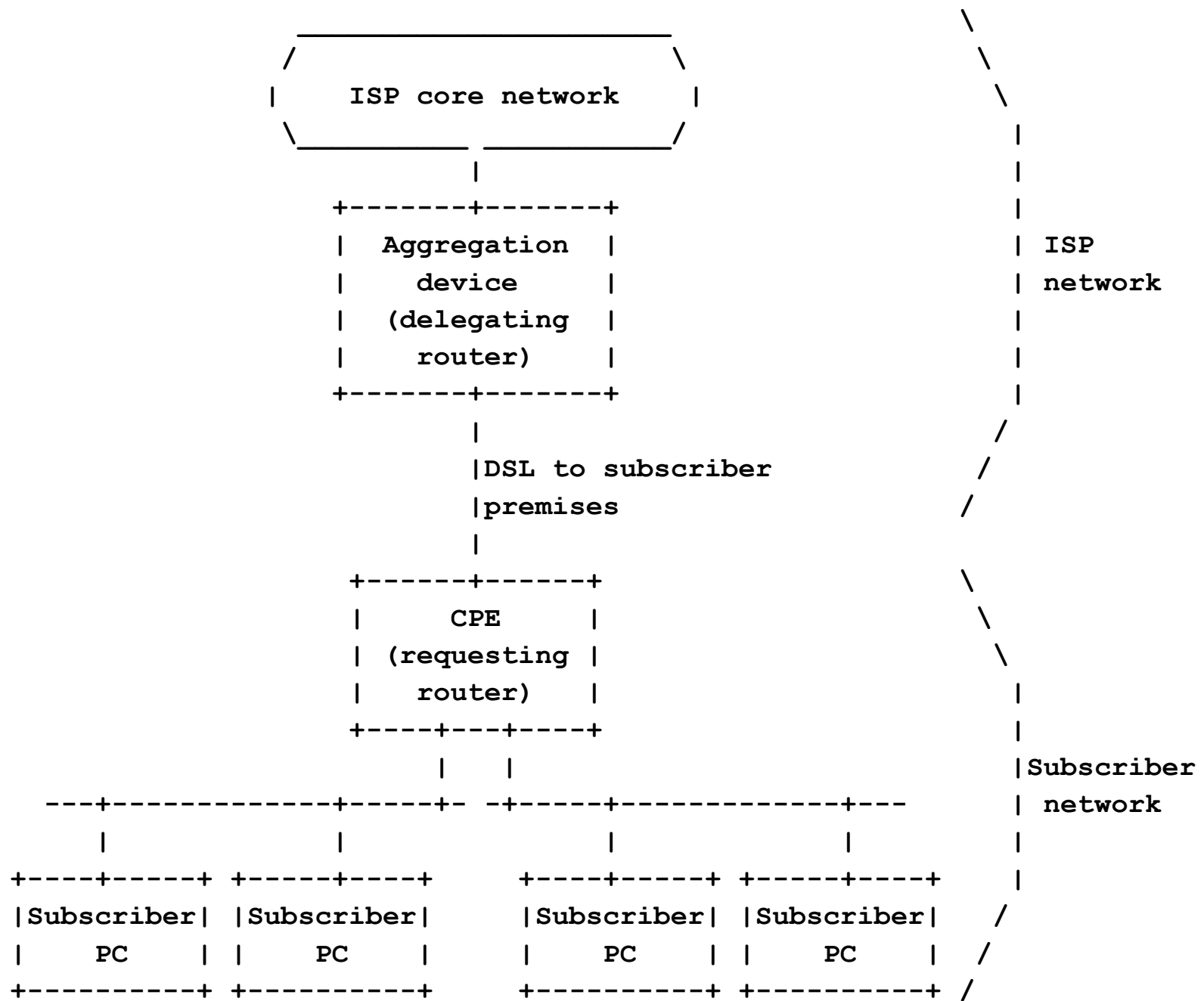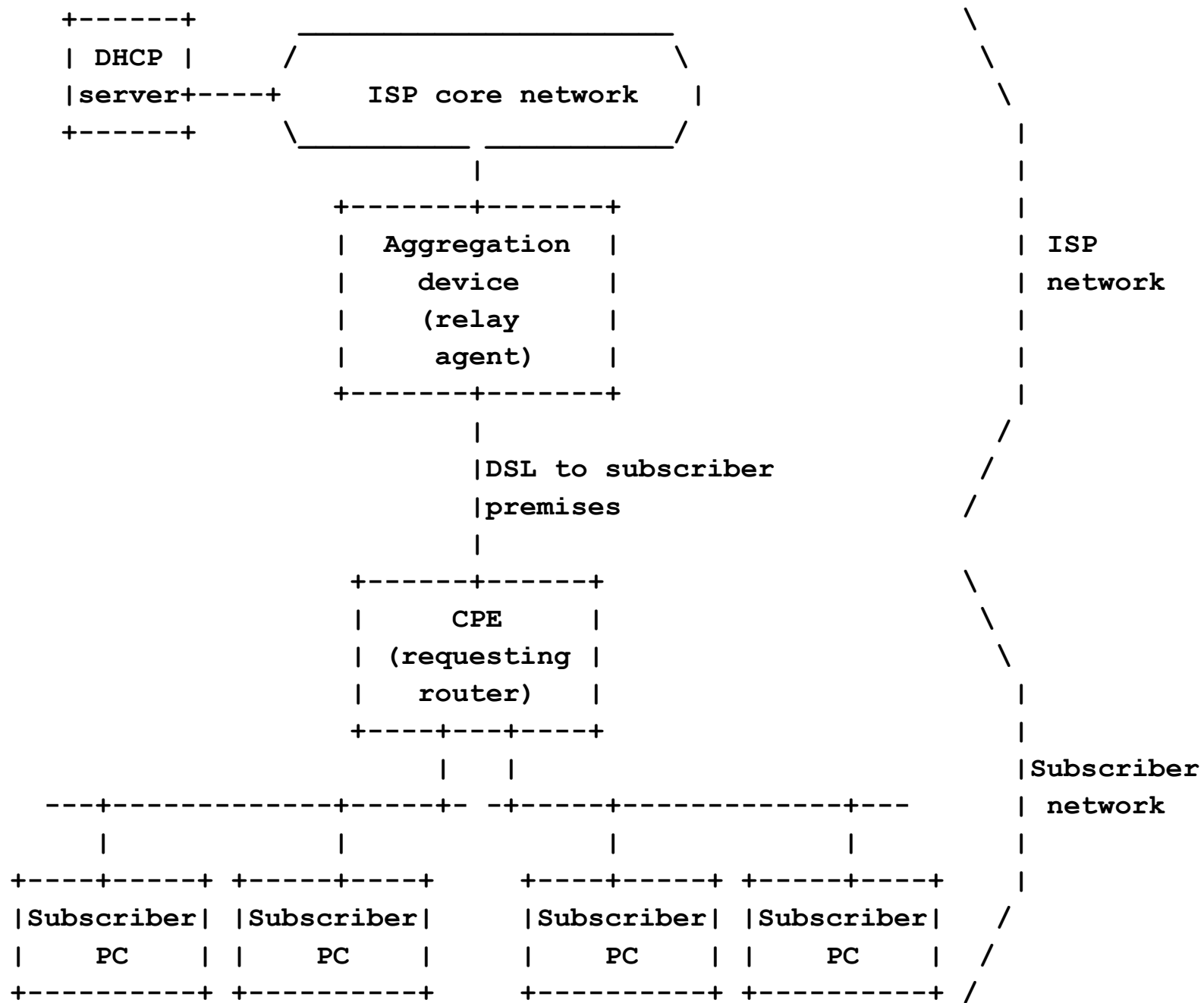# Route Injection for DHCPv6 Prefix Delegation

Ralph Droms

PD and Route Injection

- RFC 3633 describes prefix delegation when no DHCP relay agents are used.

- Same device that hosts the DHCP server can inject routes for delegated prefixes

- When there is a DHCP relay agent between the server and the requesting router, there's no device that can announce the delegated routes.

```
                 _____
                /                        \
               |     ISP core network     |
                _____   _____/
                          |
                   +------+------+
                   |  Aggregation |            | ISP
                   |   device     |            | network
                   |  (delegating |            |
                   |   router)    |            |
                   +------+------+            |
                          |                   /
                          |DSL to subscriber /
                          |premises         /
                          |
                   +------+------+
                   |    CPE      |          \
                   | (requesting |           \
                   |   router)   |            |
                   +---+---+----+            |
                       |   |                 |Subscriber
   ---+-----------+-----+- -+-----+-----------+---  | network
      |           |         |                 |     |
  +---+----+ +----+---+   +---+----+ +----+---+    |
  |Subscriber| |Subscriber|   |Subscriber| |Subscriber|   /
  |   PC   | |   PC   |   |   PC   | |   PC   |  /
  +--------+ +--------+   +--------+ +--------+ /
```

```
+------+                 _____              \
| DHCP |          /                          \            \
|server+----+         ISP core network    |            \
+------+          _____  _____/               |
                            |                           |
              +------+------+                           |
              |  Aggregation  |                      | ISP
              |    device     |                      | network
              |   (relay      |                      |
              |    agent)     |                      |
              +------+------+                         |
                     |                                /
                     |DSL to subscriber              /
                     |premises                      /
                     |
              +------+------+                       \
              |     CPE       |                      \
              | (requesting |                        \
              |    router)    |                       |
              +---+---+----+                          |
                  |   |                               |Subscriber
    ---+-----------+-----+- -+-----+-----------+---   | network
       |           |         |           |           |
  +---+----+ +----+---+  +---+----+ +----+---+       |
  |Subscriber| |Subscriber|  |Subscriber| |Subscriber|    /
  |   PC   | |   PC    |  |   PC    | |   PC    |  /
  +--------+ +---------+  +---------+ +---------+ /
```

Previous Discussion and Next Steps

- Reviewed in dhc WG (Prague, IETF 68)
- Draft (since expired):

`http://tools.ietf.org/html/draft-stenberg-pd-route-maintenance-00`

- Solution might not involve DHCP; requires broader discussion
- Heads up to v6op to participate