

Configuring CPE for IPv6 Transition Mechanisms

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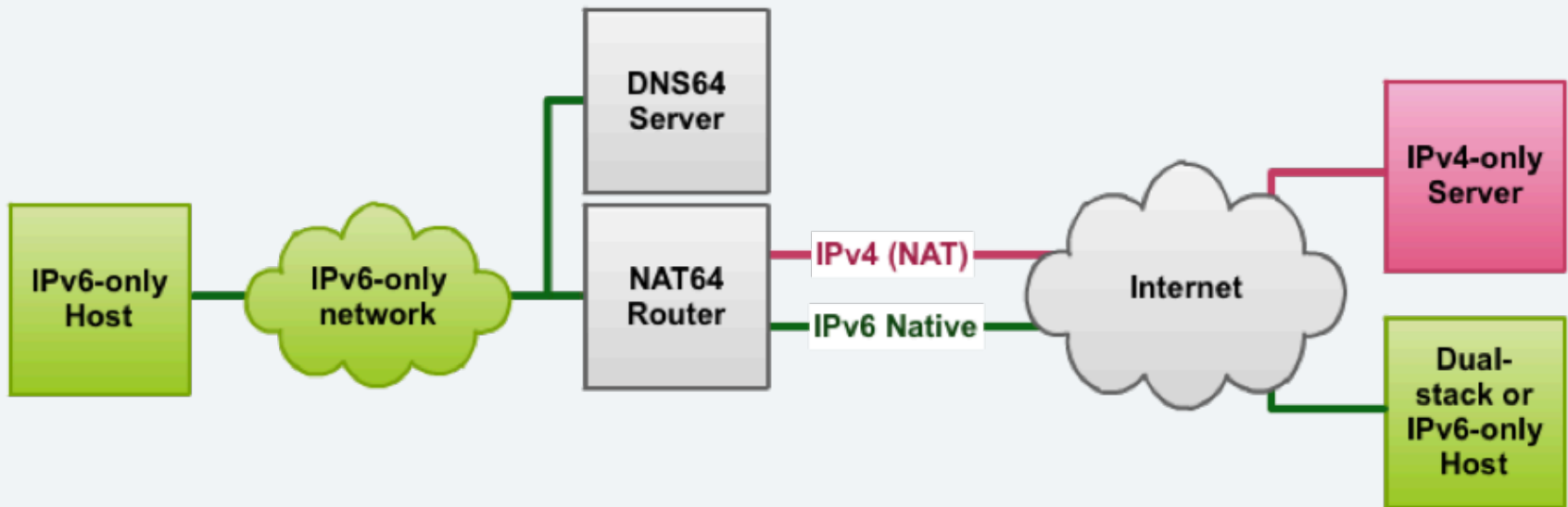
Recap

	NAT64	464xlat	DS-Lite	MAP-T MAP-E
Supports IPv4 Apps	No	Yes	Yes	Yes
CPE Support is Common	N/A	No	Yes	No
BR/plat/AFTR (PE) Cost	High	High	High	Low

Guide to DHCP Examples

- Examples assume the provider equipment is already in place and configured
 - DNS64/NAT64
 - DS-Lite AFTR
 - MAP BR
- Using ISC DHCP for examples
 - Any DHCP server can send custom options

NAT64 + DNS64



NAT64

- Provision your DNS64 server as customer's DNS resolver

```
/etc/dhcp/dhcpd6.conf
```

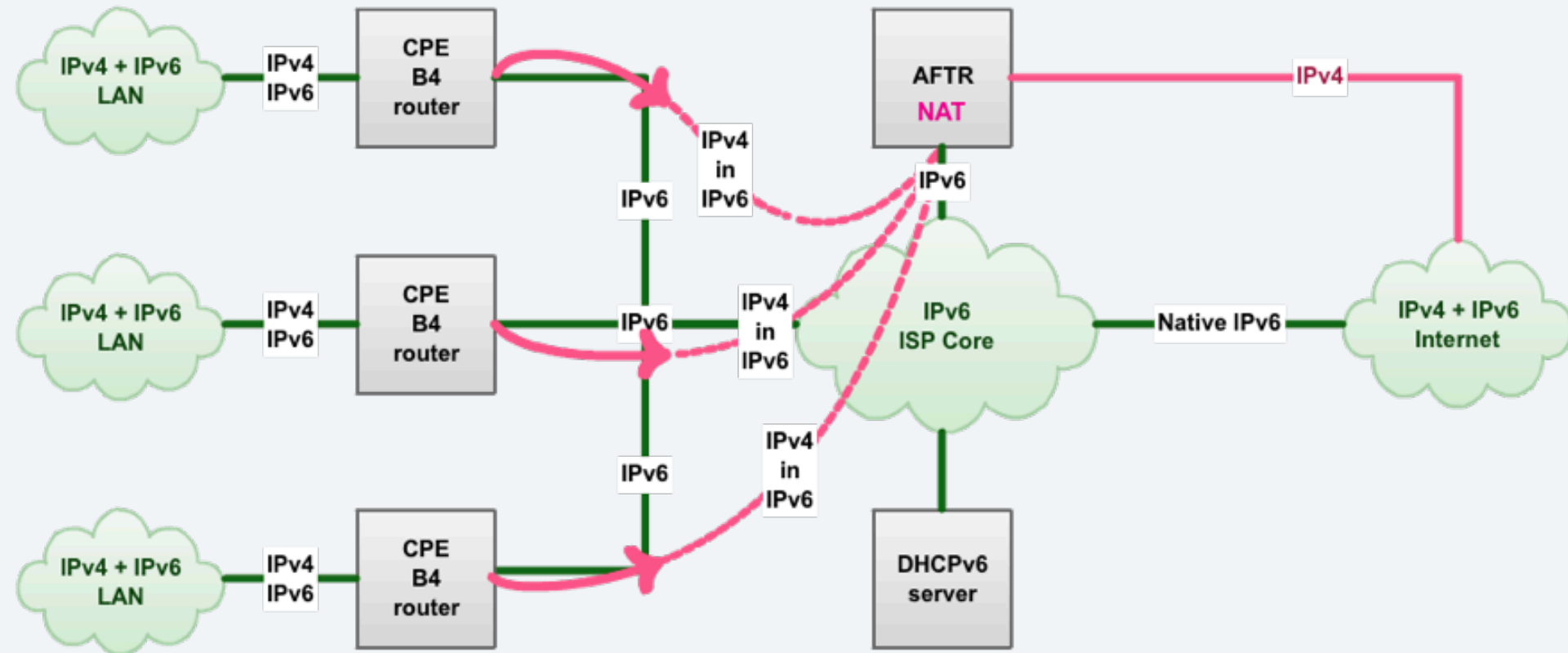
```
subnet6 2001:67c:64:fefe::/64 {  
option dhcp6.name-servers 2a00:8642:2000::53 ;  
}
```

- Prefix assigned to user
- DNS64 server

464xlat

- First, configure NAT64
- On OpenWRT 15.05:
`/etc/config/network`
`config interface clat`
`option proto 464xlat`

DS-Lite



Dual-Stack Lite

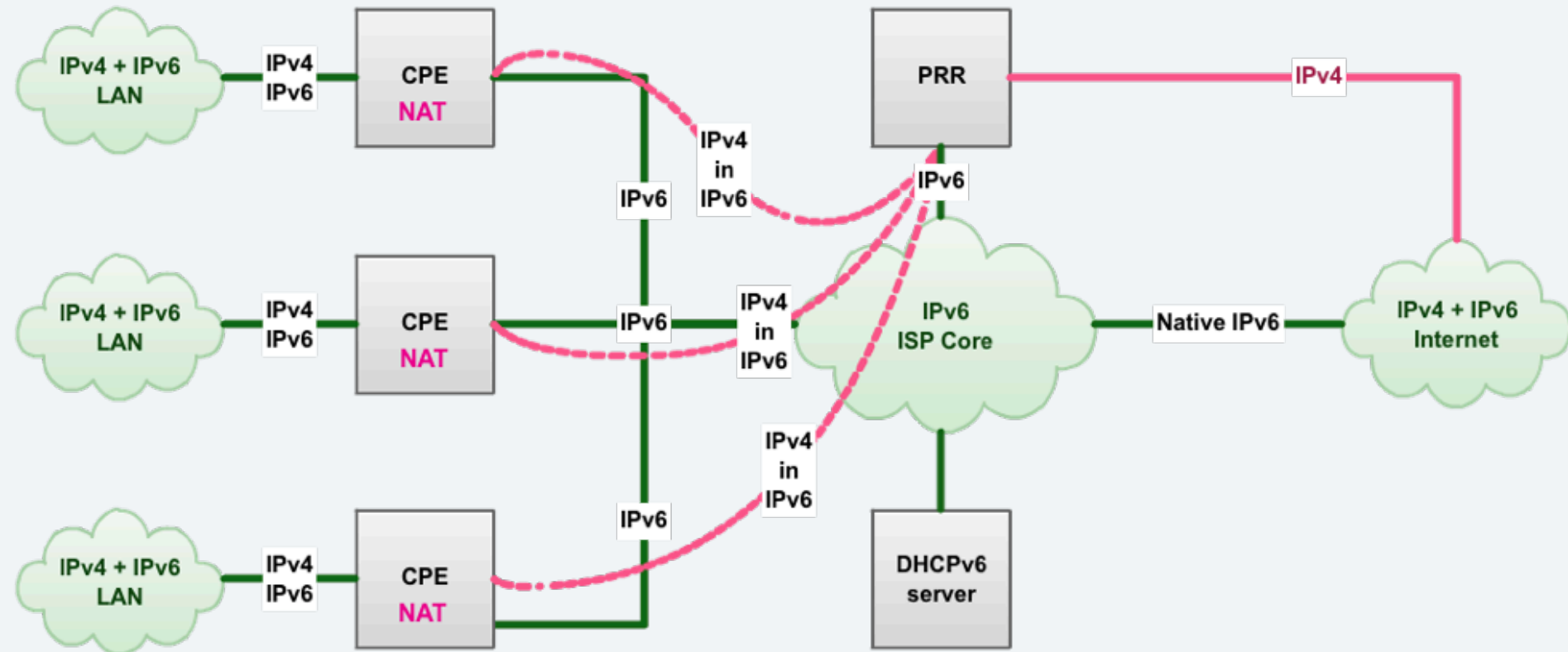
- Provision customer with DS-Lite BR

```
/etc/dhcp/dhcpd6.conf
```

```
subnet6 2001:67c:64:fefe::/64 {  
    option dhcp6.aftr-name aftr1.nl.retevia.net;  
}
```

- Prefix assigned to user
- Name of AFTR (with a AAAA record)

MAP



MAP-T

```
/etc/dhcp/dhcpd6.conf
```

```
subnet6 2001:db8:0:1::/64 {  
    option dhcp6.map-option code 95 = string;  
    option dhcp6.map-option  
00:59:00:18:00:04:20:c0:00:02:0f:40:20:01:06:7c:00:64:fe:fe:5d:00:04:06:00:00:00:00:5b:00:09:40:2a:00:86:42:20:00:af:55;  
}
```

- Outside IPv4 address (192.0.2.0) and mask (32)
- IPv6 prefix assigned to user 2001:67c:64:fefe::/64
- Prefix of MAP BR Default Mapping Rule
- EA bits (Embedded Address bits)

<http://6lab.cisco.com/map/MAPnew.php>

MAP-E

```
/etc/dhcp/dhcpd6.conf
```

```
subnet6 2001:db8:0:1::/64 {  
    option dhcp6.map-option code 95 = string;  
    option dhcp6.map-option  
00:59:00:18:00:04:20:c0:00:02:0f:40:20:01:06:7c:00:64:fe:fe:5d:00:04:06:00:00:00:00:5a:00:10:2a:00:86:42:20:00:af:55:00:00:00:00:00:00:00:01;  
}  
}
```

- Outside IPv4 address (192.0.2.0) and mask (32)
- IPv6 prefix assigned to user 2001:67c:64:fefe::/64
- Address of MAP-E BR
- EA bits (Embedded Address bits)

<http://6lab.cisco.com/map/MAPnew.php>

Summary

- CPE configuration through normal provisioning systems
- Vendor support is an issue, getting better



DISCUSSION

Further discussion
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