

IPv6 deployment



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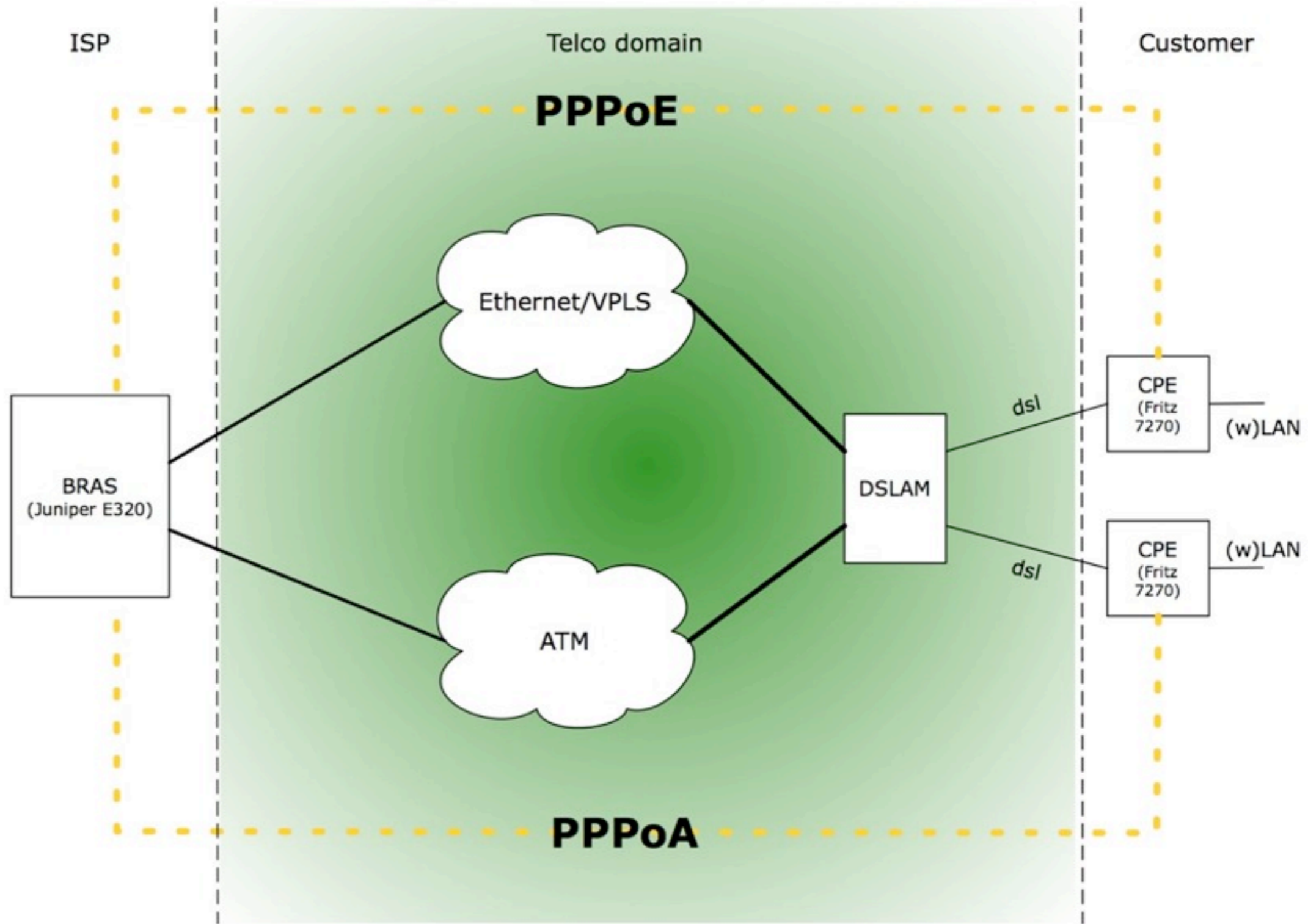
- Oldest Dutch ISP, founded May 1st 1993
- Origins in Hacktic
- co-founder AMS-IX
- Ltd since 1996
- 100% KPN subsidiary since Dec 1998
- 200 employees
- 300.000 customers
- DSL, hosting and co-location



- Sixbone space in Oct 2001 (3FFE:8280::/28)
- PA block in Aug 2002 (2001:888::/32)
- Tunnel server
- Free IPv6 Usenet in Oct 2002 (newszilla6.xs4all.nl)
- Hack with PPTP on DSL
- Google-over-ipv6
- Approx 300 mbit/s (content heavy)



Network setup



Initial requirements

- Platform/vendor independent
- PPP link local scope only
 - No untraceable addresses
- /48 per customer
- No NAT requires firewalling

- First working attempt May last year
- Problems:
 - Crashes on E320
 - CPE too expensive
 - No loadbalancer

```
interface loopback 1
    ipv6 address 2001:888:0:4601::1/64
profile "PROFILE_ATMPPP"
    ipv6 virtual-router default
    ipv6 unnumbered loopback 1
    ipv6 mtu 1500
    ipv6 sa-validate
ipv6
ipv6 route 2001:888:0:4600::/56 null0
ipv6 route 2001:980:3000::/36 null0
service dhcpv6-local
ipv6 dhcpv6-local prefix-lifetime 1 0 0 0
ipv6 dhcpv6-local dns-server 2001:888:0:6::66
ipv6 dhcpv6-local dns-server 2001:888:0:9::99
```

(20 lines, 648 bytes)

Config sample cisco CPE (87x)

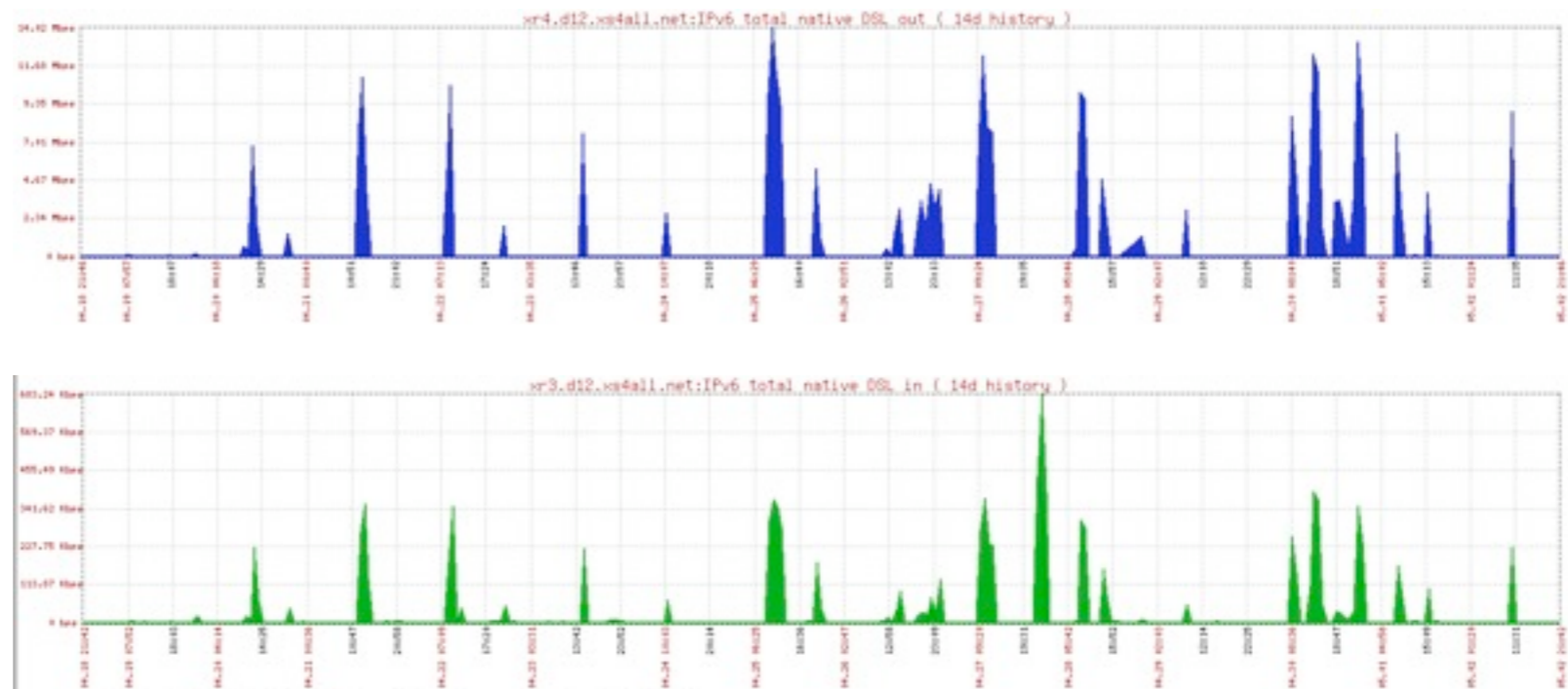
```
ipv6 unicast-routing
ipv6 cef
interface Dialer0
    ipv6 enable
    ipv6 dhcp client pd DHCPPREFIX
interface vlan1
    ipv6 address DHCPPREFIX 0:0:0:1::/64 eui-64
    ipv6 enable
ipv6 route ::/0 Dialer0
```


- Announced CEBIT 2009
- 6to4 and Native
- It Works!!! [1]
- Retails for approx 190 euro (inc VAT)



- Beta release (7270 only)
 - Interface in German(ish)
 - Requires RA on WAN
 - No firewall
 - Drops all incoming connections
 - No manual configuration
- Requires hardware upgrade for install base

- Provisioning tool called 'vi'
- 12 out of 15 active
 - 9 employees
 - 1 supplier
 - 1 paying customer (2nd expected)
- 14 mbit/s peak (600 kbit/s incoming)



- CPE specifications document
- Fix main issues (RA, Firewall)
- Backport to hardware in install base
- Get services working (mail, dns, web, etc)
- Monitoring and containment (abuse)
- Basic database support (provisioning)
- Small pilot group (100 ~ 500 customers)
- Hands-on for colocation customers

Create public awareness

- Use our role as opinion leader and media contacts
- Press release today
- Fact sheet
- Participate (IPv6 Taskforce, RIPE, etc)
- Seminars

Why (not)?

- No customer demand
- No positive business case

- Necessity
- Create our own demand
- Be ready

Because we can!

Because we care!

Questions/Comments ?
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