

# NAT64 in Enterprise Deployment

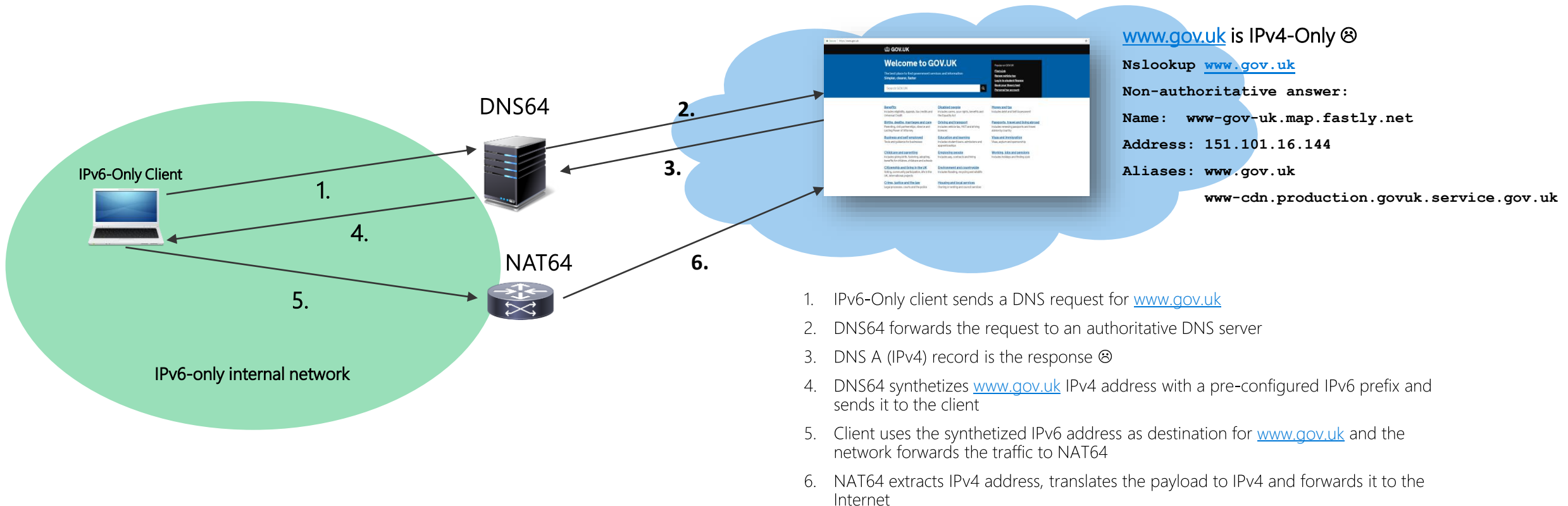
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# How does IPv6-Only speak to IPv4-Only??

- 76% of the Internet is IPv4-only, some your internal applications will be IPv4-only too...



# Client view of IPv6-only

- IPv6-only is pretty and simple
- Remember a self-assigned IPv4 address is always present (aka link-local IPv4/ZeroConf in MacOS)

```
wireless LAN adapter Wi-Fi:
Connection-specific DNS Suffix . : europe.corp.microsoft.com
Description . . . . . : Marvell AVASTAR wireless-AC Network Controller
Physical Address. . . . . : BC-83-85-04-99-0C
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
IPv6 Address. . . . . : 2a01:110: [redacted] :3bd1:bc41(Preferred)
Temporary IPv6 Address. . . . . : 2a01:110: [redacted] :ef65:def2(Preferred)
Link-local IPv6 Address . . . . . : fe80::711e:55df:3bd1:bc41%4(Preferred)
Autoconfiguration IPv4 Address. . : 169.254.188.65(Preferred)
Subnet Mask . . . . . : 255.255.0.0
Default Gateway . . . . . : fe80::200:5eff:fe00:241%4
DHCPv6 IAID . . . . . : 79463301
DHCPv6 Client DUID. . . . . : 00-01-00-01-20-96-89-62-BC-83-85-04-99-0C
DNS Servers . . . . . : 2a01:110: [redacted] :6464
NetBIOS over Tcpi. . . . . : Enabled
Connection-specific DNS Suffix Search List :
    europe.corp.microsoft.com
    redmond.corp.microsoft.com
    corp.microsoft.com
```

# Operational experience with NAT64/DSN64

- Translation of TCP/UDP/ICMP, nothing else
- No Application Layer Gateways (ALGs) as in NAT44
- Doesn't work
  - IPv4 literals in payload (L2TP)
  - Connections to IPv4 address instead of domain lookup
  - IPsec VPN establishment
  - Connection initiated from IPv4 to IPv6! (NAT64 ≠ NAT46)
- We will have to **change** habits (user=developer education)
- The more services we enable with IPv6 the less CAPEX on NAT64/DSN64 => ROI of IPv6 enablement 😊
- [RFC 6586](#) Experiences from an IPv6-only network
- [RFC 7269](#) NAT64 Deployment Options and Experience