#### Vodafone IPv6 deployment for Fixed-Line Consumer Broadband

Presented by Kester Paine

# Background

#### Background

- Vodafone has had a fixed-line broadband platform for many years, mainly offering Wholesale and Enterprise services
- The Consumer Broadband product was launched in 2015, with various other accesstypes being added in the following years.



### **Business drivers**

#### **Business drivers for IPv6 deployment**



IPv4 address scarcity and purchase price



Need to become 'sustainable' with regards IPv4 addressing



Future use of CGNAT to recoup public IPv4 addressing, but desire to constrain proportion of customer traffic that passes through NAT function.



## **Deployment touchpoints**

#### **Deployment touchpoints**



## **Service Design**

## **Service Design**

 Providing dual-stack, with existing IPv4 allocation methodologies

- Dynamic IPv6 allocation
- Prefix-delegation of /56 by BNG to CPE
- CPE allocates /64 to each interface and hosts use SLAAC to generate Global Unique Addresses
- Considered using PD and WAN-host, but this consumed another 'host-resource' on BNG, which would reduce scaling
- At present using IPv4 reachable DNS to provide AAAA records.



## Challenges

# Challenges

Some of the challenges faced thus far:

 IPv6: Not just a different addressing structure, but a different way of working.

• At point of deployment, difficult to know how much IPv6 knowledge is required by different business areas, especially in customer-facing roles.

• Using Prefix-Delegation to CPE means that BNG doesn't know what address CPE has allocated to WAN interface. So if using this address for diagnostics, need to determine via different means.

- Large number of public-peering connections (>450) to implement IPv6 on
- Desire to increase proportion of IPv6 customer traffic:
  - Continued rollout of dual-stack to peering and CDN
  - Much else outside of our control, e.g. support in home devices, cloud content.

Very few proven IPv6 issues have been reported by customers



## **Interesting Stats**

### **Interesting Stats**



### **Feedback from the floor**

#### **Feedback from the floor**



Are there other things that we should be considering to improve uptake of IPv6, or improve customer experience when using IPv6?

Any questions?

