

IPv6 Readiness

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Introduction

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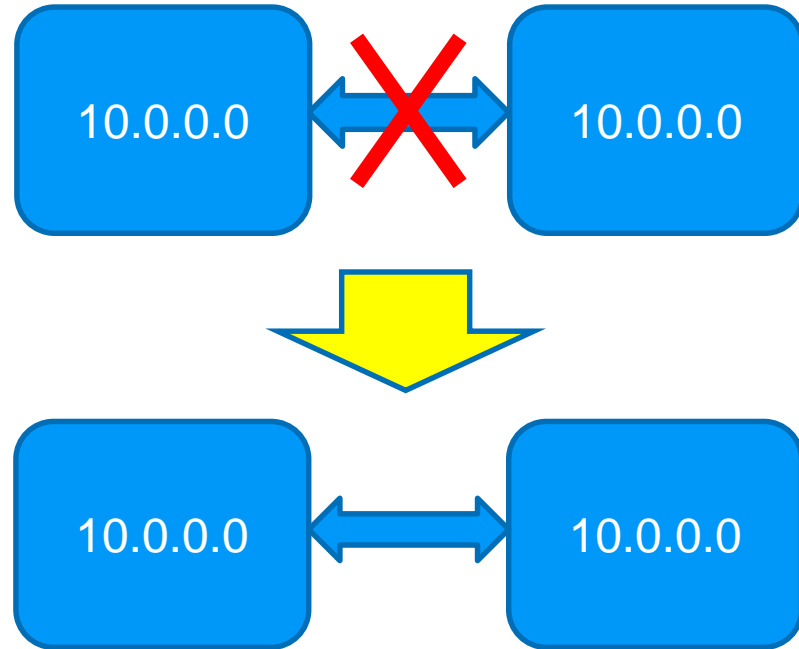


Business and Technical Considerations



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Non-interworking private IPv4 address ranges duplicated between domains, that now require interworking

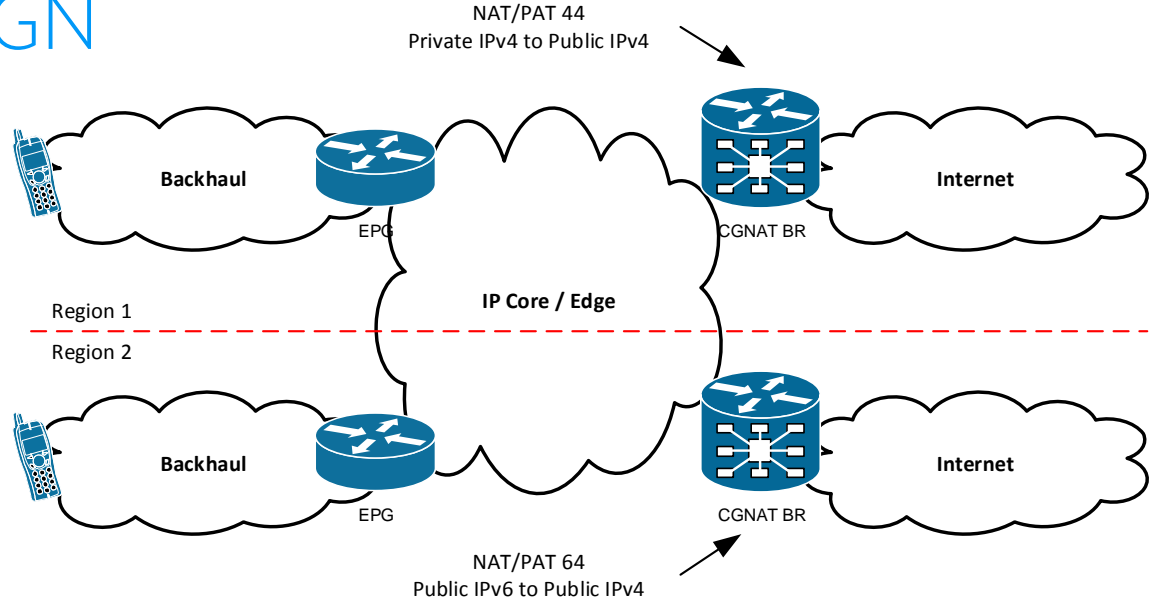


Network Architectures



IPv6 Implementation

Centralised CGN



- CGN performs NAT/PAT 44 and NAT/PAT 64
PAT substantially reduces Public and Private IPv4 address demand, but does not prevent IPv4 address depletion.



Our Experience



Our Experience

iPad Dual-Stack Carrier Settings

Significant IPv6 takeup on iPads since carrier update was made available with Dual-Stack.

Update made via iOS patch. Users are not immediately aware IPv6 is available on their iPads. Transparent migration.

IPv6 take up occurs when iPads are patched to the latest version

Single Stack will come later this year



Our Experience

Use DNS64 as a migration step from dual stack to single stack

Dual stack devices without DNS64 are least impacted with a migration towards single stack as applications will continue to use IPv4

Enabling DNS64 will extend IPv6 usage for the devices and can be disabled easily if customers applications are impacted

The number applications, protocols and specific implementations continues to make a migration to IPv6 single stack a challenge

Check NGP / SMP behaviour



Our Experience

Tethered devices to remain on DS APN for time being

Ensure all internal services IPv6 enabled

464xlat – is it still required ? H323 breaks but is it required ?

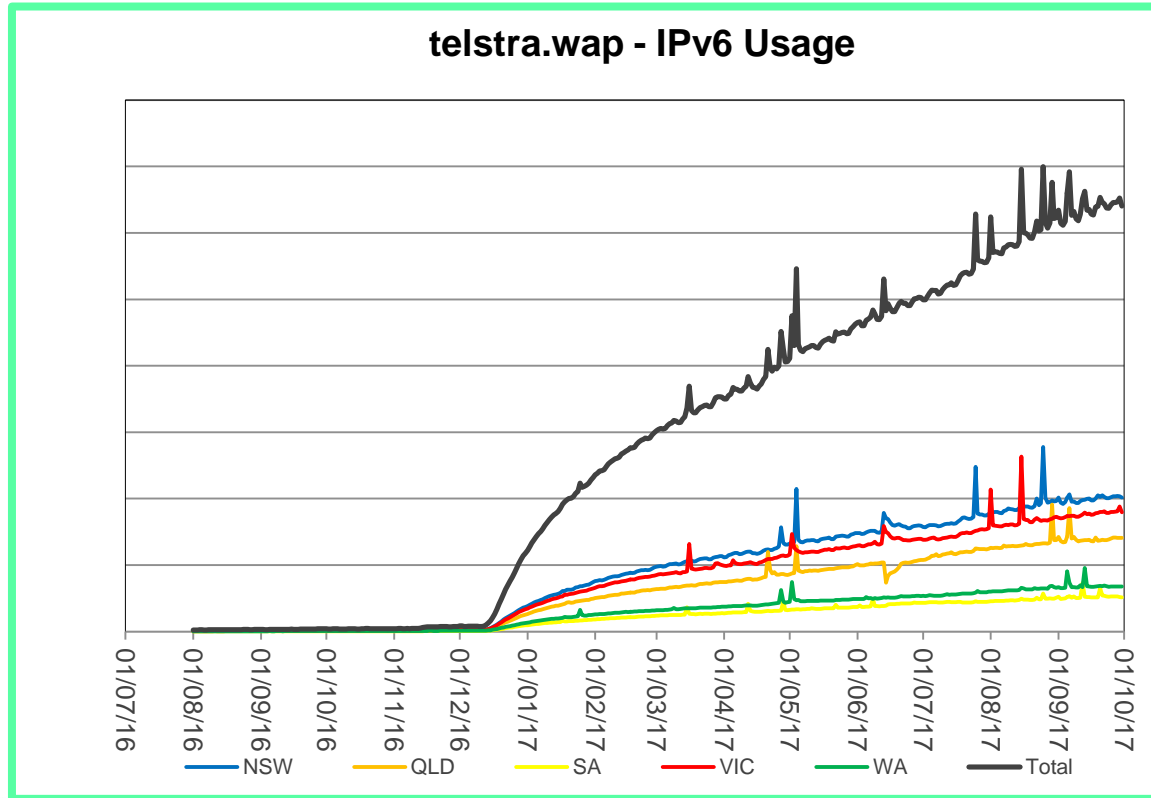
Corporate VPNs are a challenge due to range of solutions and specific implementations

Test via test APNs

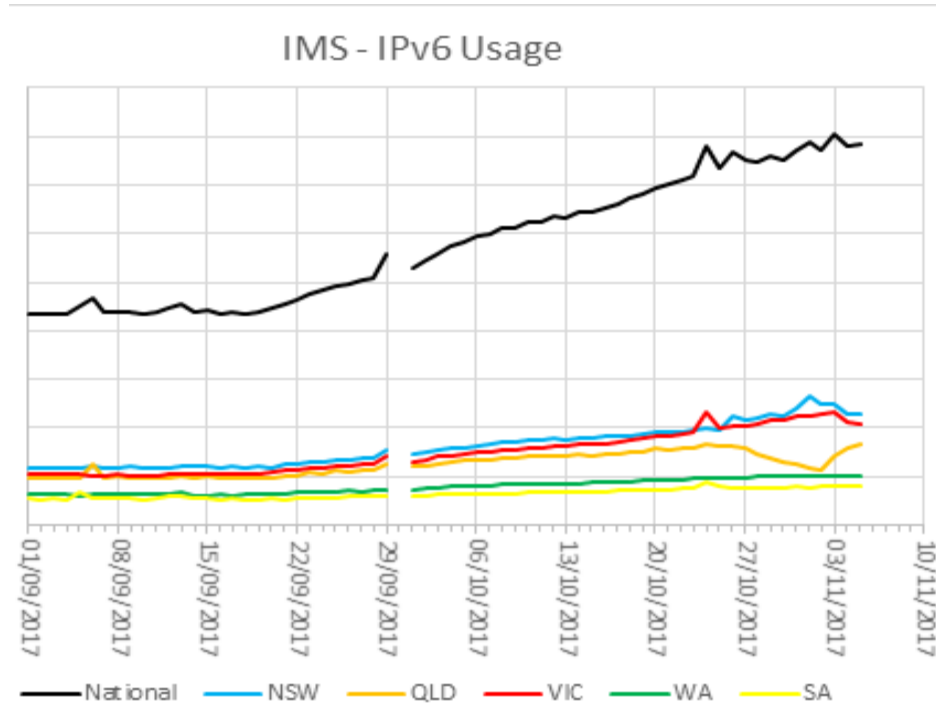


Our Experience

Step increases in IPv6 address usage as device types move to IPv6 ie iPad dual stack



More devices built to support VoLTE on by default



Our Experience

Mail services failing ie smtp

IPv6 smtp packets not leaving PGW, IPv4 service works – PGW bug ?

Bugs relating to IPv6 are becoming less common



Our Experience

APN can control IPv4, IPv6 or dual stack services

Some wireless devices restrict the use of APNs to control access to services ie wholesale products, corporate access

Ensure device testing validates access to various differentiated services from various device types, don't assume APN control is available through device



Migration Strategy to get to IPv6 single stack

Device by device migration via carrier configuration

Test APN, internal trials

Dual stack on a single device type

Turn on DNS64

Single stack on a less common device ie android device type x

Tethering APN last as there less control over applications and OS running on tethered devices



Customer Support

Engage the community early so they know what's coming. They will appreciate you are still developing and they will want to be part of the journey!

We receive support email through our contact points and reply as soon as possible. Don't keep your customers waiting

Skip the red tape – let customers engage engineering directly

Keep management happy! Report SIO and bandwidth usage!



Q&A



CONTACT



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