Statement in support of application for merger authorisation

RE: TELSTRA CORPORATION LIMITED AND TPG TELECOM LIMITED ARRANGEMENT FOR THE SHARING OF ACTIVE INFRASTRUCTURE AND SPECTRUM IN REGIONAL AUSTRALIA (APPLICATION)

Statement on behalf of Telstra Corporation Limited

Statement of:	Christopher George Meissner
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Occupation:	Executive, Transport, IP Core & Edge Engineering, Telstra Corporation Limited
Date:	12 August 2022

This document contains confidential information which is indicated as follows:

[Confidential to Telstra] [.....] for Telstra Corporation Limited and its related bodies corporate

A INTRODUCTION

1 I hold the role of Network Engineering Executive – Customer Access at Telstra Corporation Limited (**Telstra**).

2 I am authorised to make this statement on Telstra's behalf, and I make this statement based on my personal knowledge and belief. Where I make statements based on information provided to me, I believe that information to be true.

3 I am not authorised nor do I intend to waive legal professional privilege on behalf of Telstra in relation to any subject referred to in this statement, and nothing in this statement ought to be construed as constituting a waiver of privilege.

4 On 21 February 2022, Telstra and TPG Telecom Limited (**TPG**) entered into three commercial agreements:

(a) MOCN Service Agreement dated 17 February 2022;

(b) Spectrum Authorisation Agreement – MOCN Area dated 17 February 2022; and

(c) Mobile Site Transition Agreement dated 17 February 2022,

which were subsequently varied on 28 April 2022 (**Proposed Transaction**).

5 The Proposed Transaction has been referred to internally at Telstra as Project Hannibal or Hannibal.

6 I was a member of the Project Hannibal Project Team (**Project Team**), which was the Project Hannibal team responsible for negotiation, strategic assessment, and decision-making, including attending meetings with TPG, in relation to the Proposed Transaction. I was also responsible for leading the technical stream with TPG.

7 I was involved in negotiating the above agreements with TPG. Other key Telstra persons involved in the negotiations included Andrew Penn, Nikos Katinakis, Bart Sweers, Andrew Briggs, Alex Bladenis and Ashley Hunter. As part of those negotiations I attended meetings with the following TPG personnel: Barry Kezik, Yago Lopez Sanchez, Simone Sant, Paul Tremlett, Clinton Fick, Trent Czinner, and James Ing.

8 I have reviewed the Telstra confidential version of the application made by Telstra and TPG for merger authorisation under Part VII of the *Competition and Consumer Act 2010* (Cth) (**CCA**), for TPG's grant to Telstra for use of spectrum (under the Spectrum Authorisation), deemed pursuant to section 68A of the *Radiocommunications Act 1992* (Cth) (**Radiocommunications Act**) to be a merger within the meaning of section 50 of the CCA (**Application**).

9 Where matters set out in this statement are based on my personal knowledge and belief, that knowledge and belief is based on:

(a) my experience as an engineering executive;

(b) my knowledge of Telstra's business and operations based on my experience with Telstra's business for more than 22 years;

(c) my knowledge and experience as a member of the Project Team responsible for the Proposed Transaction.

B BACKGROUND

10 I have held the role of Network Engineering Executive – Customer Access since February 2021. In this role, I am responsible for the development, resilience and operation of Telstra's Fixed and Wireless Access Networks. This includes:

(a) the delivery of new access technology and lifecycle management for Telstra's fixed and mobile networks. This includes the hardware, software, network features and configurations managed in a DevOps manner;

(b) the optimisation of Telstra's access networks from deployment until decommissioning;

(c) planning for and executing the deployment of and decommissioning of access networks to meet consumer demand; and

(d) providing engineering solutions and support for Telstra's commercial opportunities in the following fields: wideband services, customised mobile coverage and private RAN networks, public safety networks and co-funded programs.

11 In my current role I report directly to Iskra Nikolova (Network and Infrastructure Engineering Executive).

12 As a member of the Project Team, I reported directly to Nikos Katinakis (Group Executive for Networks & Information Technology).

13 My own direct reports are responsible for the following teams in Telstra:

(a) Access technology;

(b) Access network optimisation;

(c) Access network implementation;

(d) Commercial access implementation; and

(e) Access strategy.

14 I have been employed by Telstra since January 2000 and prior to being appointed to my current role, I have held various roles focused on engineering, customer delivery and operations, including Network Engineering Executive – Transport and IP, General Manager of Core and Internet Engineering, General Manager of Transport and Routing Operations and Customer Delivery Executive.

15 I hold a Bachelor in Information and Communication Technology specialising in Telecommunications Systems and a Master of Business Administration, both from the University of Wollongong.

C BACKGROUND ON MOBILE NETWORK INFRASTRUCTURE AND SPECTRUM

16 Mobile networks are made up of three primary components:

(a) a radio access network (**RAN**), which consists of cell towers (also known as base stations or cell sites), and associated electronics and antennae on those sites, that communicate with mobile devices over designated spectrum;

(b) a backhaul transmission network, commonly fibre or microwave, which connects the RAN sites to the core network and thereby transmits information between the RAN and the core; and

(c) a core network, which manages voice, SMS and/or data traffic, connects and manages the different parts of the network and connects to other networks (including the internet).

17 Spectrum is an essential input in the supply of mobile services. Voice and data communications between mobile devices and a RAN cannot occur without the use of appropriate and compatible spectrum. Mobile network operators (**MNO**) acquire rights to use different frequencies of spectrum in order to provide mobile services to users. Different frequencies have different physical characteristics which can be exploited for different uses. I describe these in paragraph 22 below.

18 Because a MNO's customers in a geographic area all share use of the same spectrum, there is a direct relationship between the amount of spectrum that a MNO has a licence to use and the per user data speed that its mobile network can support. In effect, if two MNOs have the same number of customers in the same area, in order to deliver the same capacity (i.e. speed) to each customer, a MNO with less spectrum will need to compensate this by investing in more cell sites (i.e. densification) or through better spectral efficiency of its RAN equipment. Spectral efficiency refers to the amount of data that can be transferred over a given spectrum bandwidth with minimal transmission errors. One element of the value of spectrum is therefore that it helps

MNOs avoid the need to invest as much in infrastructure in order to achieve the same service performance for customers.

19 Most cell sites will use a number of spectrum bands to support 4G and 5G services. The major Australian MNOs can obtain spectrum for 4G and 5G deployments in a number of ways:

(a) First, some spectrum bands have been auctioned by the Australian Communications and Media Authority (**ACMA**) specifically with 5G services in mind, such as recent auctions of licences to use 850 MHz and 900 MHz spectrum bands, which was undertaken in early December 2021.

(b) Second, as older generations of mobile technology are superseded (e.g. 3G, which Telstra has announced that it will be retiring in June 2024), spectrum used for that generation can be "re-farmed" to newer generation technologies (e.g. 4G and 5G).

(c) Third, a relatively recent technological development, called "dynamic spectrum sharing" (**DSS**), allows more flexibility in allocating spectrum to 4G or 5G depending on the type of application or service customers are using (e.g. how bandwidth intensive the service is), the end user's location within the cell site, available capacity and total current demand.

20 **Table 1** below shows several spectrum bands which are currently or will be used for 5G.

Table 1: Spectrum bands which could potentially be used for 5G by MNOs

Band	Current Use	Potential future use	Comments
700 MHz	4G	4G (to 5G via DSS or dedicated spectrum allocation)	Remaining 4G for foreseeable future and this may be the final band on which 4G remains. Likely to be enabled with DSS, enabling some Standalone (**SA**) 5G use when SA 5G is launched.
850 MHz	3G	5G	Progressive re-farming to 5G from 2020.
900 MHz	4G (limited)	3G until 30 June 2024	Optus-only spectrum from mid-2024
1800 MHz	4G	4G / 5G	[Confidential to Telstra] [redacted]
2100 MHz	4G	4G / 5G	[Confidential to Telstra] [redacted]
2300 MHz	5G	Private LTE / 5G services	Optus only spectrum licences in metropolitan areas.
2600 MHz	4G	4G / 5G (via DSS)	[Confidential to Telstra] [redacted]

Band	Current Use	Potential future use	Comments
			[redacted]
3400/3600 MHz	5G	5G	Expect continued use for 5G for the foreseeable future.
26 GHz	5G	5G	Key mmWave band for high capacity 5G services.

21 Spectrum bands are generally grouped as:

(a) low band: which generally refers to bandwidths less than 1 GHz (e.g. 700, 850 and 900 MHz);

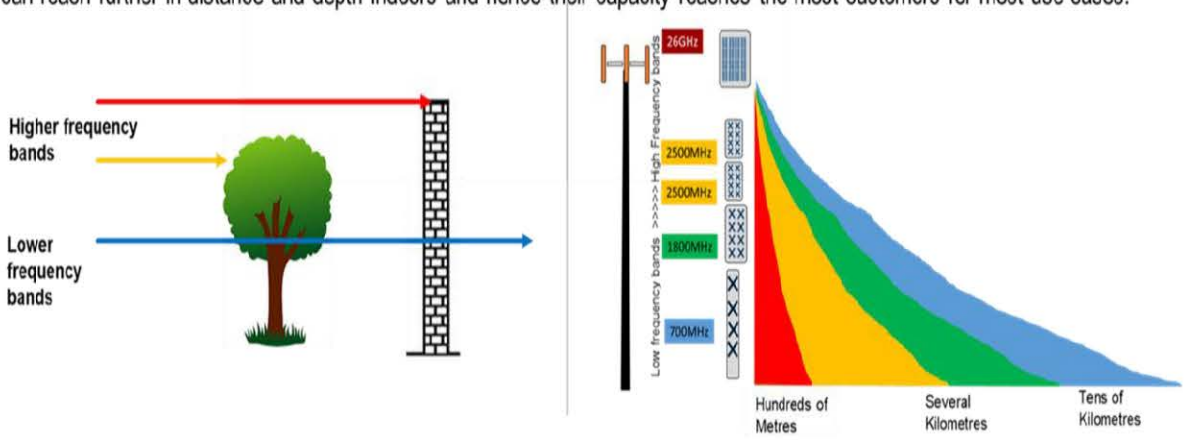
(b) mid band: which generally refers to bandwidths that are between 1GHz and 6 GHz (e.g. 1800, 2100, 2300 and 3400/3600 MHz); and

(c) high band: which are those bandwidths above 6GHz (e.g. 26 GHz).

22 Each band has different operating or "propagation" characteristics. For example, low band spectrum has the ability to carry mobile data over longer distances (tens of kms) compared to mid or high band spectrum. This means that low band spectrum can offer real coverage benefits in geographic areas where it may not otherwise be cost effective or efficient to install a large number of sites, such as regional or rural areas – so that fewer cell sites are needed in order to provide coverage over a geographic area. Low band spectrum can also penetrate obstacles, such as trees and buildings. The different propagation characteristics of spectrum bands is set out in Figure 1.

Figure 1: Low band spectrum in regional and rural areas

Higher frequency spectrum has a smaller coverage foot print and is more susceptible to obstructions. The high capacity that comes with higher frequency bands is important but requires sites to be located in close proximity to users. Lower frequency bands can reach further in distance and depth indoors and hence their capacity reaches the most customers for most use cases.



23 Following the recent low band auctions in early December 2021, each of Telstra, Optus and TPG have spectrum in the low band and mid-band ranges in regional and rural Australia, as shown in **Table 2** for the period from 1 July 2024:

Table 2: MNO spectrum in regional and rural Australia (except Optus 900 MHz band from June 2024) (spectrum licences only, apparatus licences excluded)

Band	Telstra (MHz)	Optus (MHz)	TPG (MHz)
700MHz	2x20	2x10	2x15
850MHz	2x25	0	2x5
900MHz (from July 2024)	0	2x25	0
1800MHz*	2x35 – 2x40	2x20 – 2x25	2x10 – 2x20
2100MHz	2x10	2x5	2x5
2300MHz	0	0	0
2600MHz	2x40	2x20	0
3600MHz* (unpaired)	50 – 82.5	30 – 67.5	20 - 45
26GHz (unpaired)	1000	800	600

** Note: spectrum quantities vary in these bands in different regional areas*

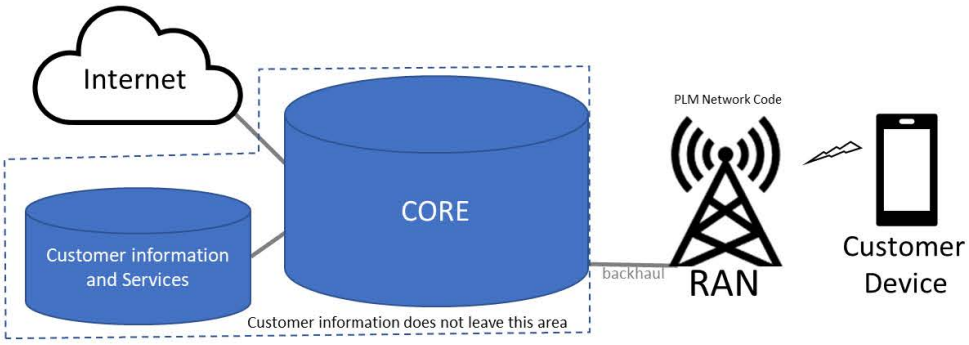
24 As described in paragraph 18 above, assuming a fixed volume of spectrum and a fixed number of sites, the data speed that can be supported by a network will decrease when the number of users increase. The number of users connected to a particular site varies, meaning that it is important to consider the amount of spectrum (i.e. MHz) held *at each site per customer*. This measure provides a more accurate reflection of the network capacity which is available to a customer for downloading or uploading data when compared to measuring a MNOs entire spectrum allocation against its entire customer base.

D DESCRIPTION OF THE MOCN AND HOW IT WORKS

(a) General overview of mobile network technology

25 Figure 2 below depicts the basic components of a mobile network.

Figure 2: Mobile network architecture



26 In Figure 2, the mobile network 'core' comprises nodes, each with specific functions. The main functions of the core are:

(a) service authentication, authorisation and mobility management;

(b) data routing – both voice and data;

(c) billing customers; and

(d) policy management, which refers to the network rules for how data packets are handled or prioritised over the RAN (this can include 'Quality of Service' (**QoS**) rules). QoS will often be used, for example, if there is congestion at a mobile site. In that case, QoS rules will usually give priority to voice calls over other kinds of data, because of the greater impact that delay in delivery of data (known as latency) can have on the quality of a voice call, relative to other types of data, which is typically not as time sensitive.

27 Only the mobile core knows the customer's mobile number and assigned IP address which it uses to direct traffic to the correct device. The core and RAN use other unique identifiers to establish and maintain connectivity between the core and the customer's device.

28 Outside of the network core, the RAN consists of base stations, towers and antennas. These are the physical sites on which radio equipment are installed and which are therefore most visible to a customer in relation to the mobile network. This equipment is also the part of the network that uses spectrum in a relevant spectrum band to wirelessly connect to a customer's mobile phone.

29 Each site within the RAN is then connected to the core network through physical links referred to as "backhaul". In modern mobile networks, backhaul for a 4G or 5G network typically involves optical fibre links.

(b) 5G network and services

30 Since its inception, mobile network technology has evolved over several 'generations' of network. Each generation of technology has been faster than the previous generation as well as delivering other benefits (for example, the very first generation of mobile technology introduced in the 1970s and 1980s was an analogue form of technology and was replaced by digital technology with the arrival of 2G in the 1990s).

31 Telstra closed its 2G network in 2016. In October 2021, Telstra announced that it intends to close its 3G network on 30 June 2024.

32 Telstra therefore has two primary mobile network investment objectives:

(a) to build out its 4G network coverage footprint so that it is equivalent to the current 3G footprint by the time that its 3G services close (so that Telstra's 3G customers do not lose service at the edge of our network, from 2024); and

(b) to invest strongly in the continued rollout of its 5G network and services.

33 Telstra has a long history of seeking to be an early adopter of mobile network technologies in Australia and to be 'first to market' in rolling out new generations of mobile technologies and services to customers. Telstra's 'T25 Strategy' reinforces this and commits Telstra to maintaining its position as offering the leading mobile network in terms of coverage, speed, latency, resiliency and domestic core connectivity, including ensuring 95% population coverage for 5G services by 2025.

34 Telstra expects that by the end of FY25, approximately 80% of all mobile traffic will be on 5G.

35 5G has the following benefits:

(a) Faster speeds: while 5G speeds will vary by area, 5G will be up to 10 times faster than 4G with speeds of 10Gbps or more potentially achievable in future;

(b) Lower latency: in the single digit milliseconds compared to several tens of milliseconds for 4G. This will enable 5G to support more advanced cloud and data applications;

(c) More bandwidth: capacity to support up to 100 times more devices within a cell area than 4G, which will enable 5G to support a high density of Internet of Things applications.

36 One of the major design features of 5G, that differs from earlier generations of mobile technology, is that more of the intelligence of the network and associated data is held and managed through software that operates in the core network, while the RAN operates with largely generic equipment. This has the benefit of enabling services to be introduced, upgraded

or configured quickly and flexibly by a mobile operator through upgrades or software changes in the core, limiting changes on RAN sites to the deployment of either software or new features.

37 Another benefit of 5G technology is its capacity to enable 'network slicing'. By this I mean that capacity of the 5G network can be allocated into virtual 'slices' of the network. Each slice is able to be configured to provide different service performance and network capacity characteristics (e.g. capacity, speed, latency, security and resilience) – and therefore make that slice suited for a particular customer use. Examples of how the same 5G network can be configured through network slicing to deliver different use cases are set out in Figure 3 below:

Figure 3: Use cases for network slicing

38 5G can be deployed in 2 configurations:

(a) Non-Standalone (**NSA**) 5G: 5G spectrum and traffic is managed through the existing 4G network, essentially as an 'add-on'; and

(b) Standalone (**SA**) 5G: 5G operates as an independent layer from 4G.

39 Telstra is initially deploying a NSA 5G network, which will then be upgraded to a SA 5G network over time. Under the Proposed Transaction, TPG will have access to these 5G networks on a non-discriminatory basis.

(c) What is a Multi Operator Core Network (MOCN)?

40 A 'Multi-Operator Core Network' (**MOCN**) allows multiple cores to connect to one shared RAN.

41 Deploying a mobile network, of any kind, involves very high fixed costs, which are made increasingly challenging in rural areas. This is due to Australia's highly urbanised population, which means revenues from the provision of mobile services to regional and rural customers diminish, as customer density decreases. MNOs have historically used infrastructure sharing as

a method of reducing capital costs, while being able to expand and improve the quality of the network. There are many forms of infrastructure sharing that vary in terms of the degree of sharing, and what type of assets are being shared.

42 The more common form of infrastructure sharing is passive infrastructure sharing, which is when MNOs share the non-electrical components of their network such as the physical sites and towers. Sometimes this is referred to as co-location or site sharing. The MNOs benefit from reducing the cost of constructing their own towers.

43 Active infrastructure sharing involves MNOs sharing the electrical components of their networks such as the base station, antennas and cables. Active sharing can take various forms, but in general terms there are:

(a) Neutral host arrangement: the 'neutral host' is a third party that is not one of the sharing MNOs, but whose role is to build, operate and maintain the infrastructure. There are variations in a neutral host arrangement such as whether spectrum is to be shared.

(b) Multi-Operator Radio Access Network (**MORAN**): in contrast to a neutral host arrangement, the 'host' is one MNO (usually referred to as the access provider) who shares its RAN infrastructure (i.e. antenna, tower, site and power but does not include radio carriers) with another MNO (usually referred to as the access seeker). In a MORAN arrangement, spectrum is not shared between the MNOs, and the sharing parties are able to maintain their existing distinct core networks.

(c) MOCN**:** in addition to the RAN infrastructure shared in a MORAN arrangement, spectrum is also shared by the MNOs. As with a MORAN arrangement, MNOs are able to keep their core networks separate.

(d) Resale/MVNO services and domestic roaming involve the access provider supplying a service which bundles the full vertical network stack, including its core network with the access seeking MNO.

44 MORAN and MOCN differ markedly from other kinds of infrastructure sharing. On one hand, MOCN/MORAN allows the sharing MNOs to retain a degree of independence as their cores remain separate, but at the same time save more on infrastructure costs than a passive sharing arrangement where each MNO still has to build out their electrical components. A MOCN/MORAN represents a middle ground that realises significant cost reduction while maintaining network independence.

(d) Benefits of a MOCN

45 As I mention in paragraph 41, deploying a mobile network, of any kind, involves very high fixed costs. In the case of 5G, this is accentuated because the higher data speeds associated with 5G typically also require a larger number of sites (i.e. higher density) than earlier 3G and 4G networks.

46 The Proposed Transaction concerns Telstra's existing infrastructure assets in the population coverage area between 81.4% and 98.8% of the Australian population (**17% Regional Coverage Zone**).

47 In general terms, under the MOCN arrangements between Telstra and TPG (as set out in paragraphs 90 to 109 of the Application):

(a) The MOCN RAN sites broadcast different service identifiers for TPG and for Telstra. This means that TPG devices and Telstra devices will both recognise the MOCN as their own network (for example, TPG branding on its device may indicate that the phone is connected to the Vodafone network). This is different to a roaming arrangement, where the device typically shows the customer that it is roaming on to another operator's network.

(b) As mentioned in paragraph 27 above, customer information such as mobile numbers and billing information is kept at each MNO's core. This means that TPG and Telstra will not be able to see or access other's customer information. Again, this differs to mobile roaming. Typically, under a roaming arrangement, the roaming provider can capture within its systems information identifying individual roaming customers, their movements and their service usage.

(c) As the core controls how traffic is treated, and Telstra's and TPG's cores remain separate, TPG continues to be able to offer services that are differentiated from Telstra. Maintaining a separate core means TPG retains control over their customer lifecycle, from ordering, through to activation and the ongoing management of customer services. TPG therefore has complete control over the end-to-end integration of their IT systems, meaning Telstra has no impact on how their customer journey is managed, at any point. Handover between a MOCN RAN site (within the 17% Regional Coverage Zone) to a TPG-only or Telstra-only site (not within the 17% Regional Coverage Zone) is expected to be seamless.

(d) Each of TPG and Telstra will independently 'drive' their own traffic and manage their own customers within the shared RAN. This means TPG will remain responsible for connecting traffic between its end users in the shared RAN and third-party networks.

This differs from a roaming agreement, where TPG would be limited by the service quality limitations and capabilities of the host's network.

48 The basic elements of how the proposed MOCN arrangement would work and are depicted in Figure 4 and Figure 5, taken from pages 38 and 39 of the Application.

Figure 4: Telstra-TPG MOCN architecture overview

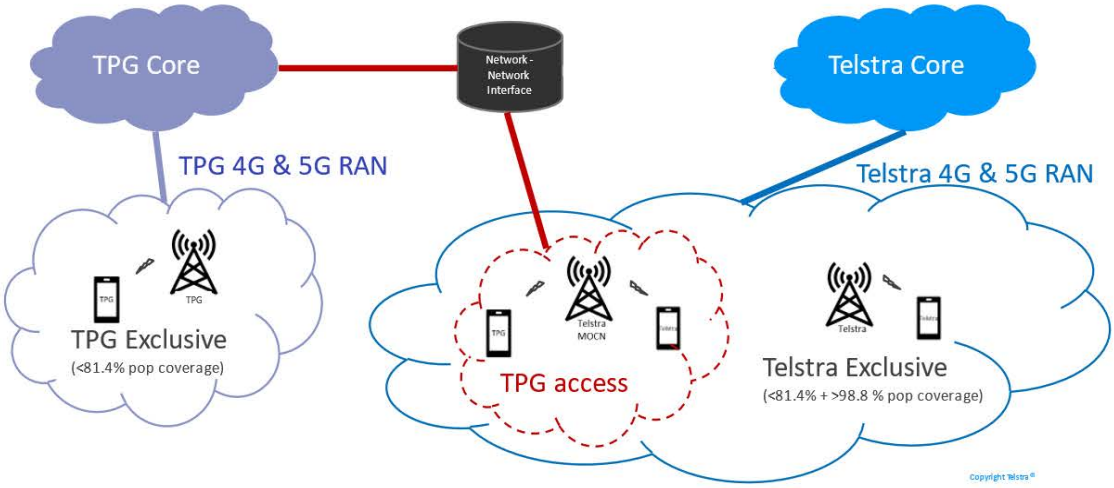
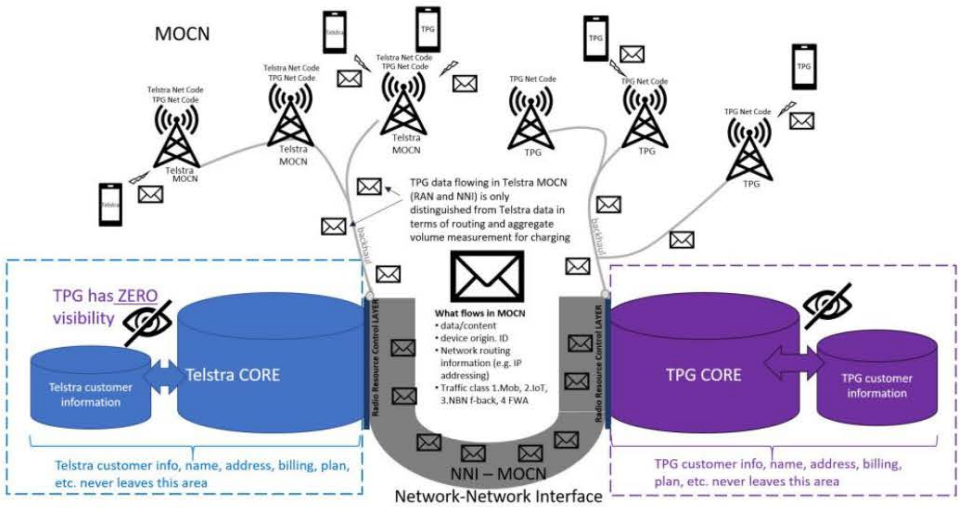


Figure 5: Flow of data through the MOCN



(d) Traffic management under the MOCN arrangement

49 Under the Proposed Transaction, TPG and Telstra have agreed to set the same QoS parameters to cover four types of data (**Traffic Classes**). As Telstra is the operator of the RAN, TPG as the access seeker is required to use the same Traffic Classes as Telstra so that Telstra can operationalise and TPG can monitor the non-discrimination requirement which applies to

Telstra's supply of the services. The parameters do not set how much traffic can flow through the network, but how the network will treat the traffic. The Traffic Classes are:

(a) General Mobility – mobile broadband data. I expect that this Traffic Class will form most of the traffic that is handled by the MOCN for both Telstra and TPG.

(b) Narrow Band Internet of Things (**NBIoT**) – class of technologies designed to communicate wirelessly over relatively long distances using lower power than in case of other networks.

(c) NBN fallback – failover to a mobile service in the event of an outage in the NBN fixed line or wireless service.

(d) Fixed Wireless Access (**FWA**) – refers to providing wireless broadband by wirelessly connecting the RAN to a fixed receiver close to the customer's premises.

50 The QoS parameters of each Traffic Class are programmed in the core but are then applied across the sites in the RAN (through the base stations located at the sites). The RAN manages the traffic based on those parameters.

51 As the parties have agreed to use the same Traffic Classes with the same QoS parameters irrespective of whether the device is a Telstra SIO or TPG SIO, the base stations in the MOCN cannot discriminate as to the treatment applied to customers of one network over the other.

52 Under the MOCN arrangements the following special services will take priority over the Traffic Classes:

(a) 'LANES' service on its 4G network, which is used for emergency and critical industry services; and

(b) Network-optimised products such as Telstra's 'speed optimiser' that include a level of QoS applied over other traffic classes, which are products where existing Telstra customers have considered it necessary to have, and have paid for, superior network performance.

53 While the additional classes identified in paragraph 52 will not be made available to TPG under the MOCN arrangement, I note that:

(a) Telstra's and TPG's traffic in the Traffic Classes is treated equally after these additional classes;

(b) when designing LANES and speed optimiser classes, Telstra took precautions to ensure that the Traffic Classes would not be disadvantaged. This included service/product

design rules and ensuring that only a small number of Telstra customers could use the additional classes;

(c) when Telstra transitions to SA 5G, the network will be able to support more dynamic and detailed specialist services beyond the QoS parameters on a 4G network. On the SA 5G network, TPG will have greater flexibility to offer high quality enterprise products; and

(d) TPG can request additional service types.

(e) Telstra's non-discrimination obligation

54 Under the Proposed Transaction Telstra has agreed to a principle that it must supply the MOCN Services so as not to discriminate on QoS provided by the MOCN as between TPG end users (including end users of TPG wholesale customers) and Telstra's retail customers.

55 The non-discrimination obligation is broadly framed. It applies to current services, but also to the technical upgrade or evolution of the shared RAN, to the evolution of 4G and 5G standards and to future service capabilities introduced into the shared RAN.

56 The principles of non-discrimination are embedded in the Service Description which stipulates how the obligation should be applied to technical and operational design of the MOCN Service. Specific non-discrimination requirements in the Service Description include agreed QoS, RAN features, intercell handover in the RAN, and common backhaul routes for TPG and Telstra traffic.

57 TPG will automatically derive the benefit of changes Telstra makes to its RAN as these will form part of the MOCN or MOCN Service and be made available to TPG on a non-discriminatory basis. TPG will automatically get access to new sites in the 17% Regional Coverage Zone, new RAN Features and other operational changes to the Telstra network that Telstra makes available to its Comparison Customers.

58 Telstra does not need to make 5G available to TPG at a particular site in the 17% Regional Coverage Zone until 6 months after the site was activated for 5G for Telstra Comparison Customers (subject to some limited exceptions). This staggered approach is to provide Telstra with a limited first-mover advantage in 5G and other technologies which is consistent with the commercial framework i.e. Telstra owns and is substantially funding the network upgrades and within 6 months TPG will gain equivalent access to 5G services using the pooled spectrum.

59 Under the Service Description:

(a) non-discrimination does not apply to NBIoT due to complexity in product constructs for these types of services; and

(b) Fixed Wireless Access (**FWA**) will only be supplied to TPG over 3.6GHz spectrum on a 5G standalone basis. The FWA non-discrimination exception reflects the more challenging capacity demands of FWA. Within the 3.6GHz band, the spectrum which is made available for FWA will be shared equally and service qualification will be applied on an equivalent basis between individual TPG and Telstra customers.

E TELSTRA'S CURRENT LEVELS OF CONGESTION AND THE EXTENT TO WHICH THIS CAN BE ADDRESSED BY THE MOCN

60 I am aware that data usage is increasing exponentially across mobile networks nationally, particularly in rural and regional areas. For example, the '*2021 Regional Telecommunications Review - A step change in demand*' (**RTIRC Report**) recognised that growth in data consumption on rural, regional and remote mobile networks has been a long-standing phenomenon which has been further exacerbated by the COVID-19 pandemic. In Telstra's experience, Customers living in regional areas are more reliant on mobile data than metro users. On average Telstra's customers living outside of metropolitan areas use approximately **[Confidential to Telstra]** [redacted] more mobile data than the average metro customer. This level of data usage, and growth in that usage over time, means demand is increasing more rapidly than capacity in rural areas. The RTIRC Report states that many attendees to the public consultations noted extremely slow download and upload capacity during peak periods of use, and an inability to access both data intensive services like streaming, as well as basic functionality like emails, websites, apps and phone calls.

61 Telstra faces, and anticipates heightened levels of, network congestion due to increased demand for data. This will have a greater impact on Telstra's customers in rural areas. Telstra tracks data usage and congestion weekly through its 'Weekly Traffic Management Report'. The prioritisation of our planning decisions are linked to the same source data in the weekly reporting.

62 Telstra's network congestion is measured by the extent to which a site's broadband speeds drop below certain internal benchmarks. When speeds drop below the speed benchmark, customers experience significant declines in service quality. For example, where 4G services drop below the **[Confidential to Telstra]** [redacted] benchmark during defined hours within a 4-week period, a site will be deemed to be congested. For context, Netflix recommends a minimum of 3Mbps to be able to stream in high definition (720p). When services fall below this benchmark it can affect user experience of high bandwidth activities especially during peak times, for example:

(a) video streaming will experience stalling and reduce resolution; and

(b) applications requiring high bandwidth or real-time connection may become unstable, or unusable. These applications include live streaming, e-health and remote learning.

Customers living in remote areas often rely on a digital platform to access services such as e-health and remote learning, however the economic challenge of delivering mobile services to these areas mean applications such as these are currently, often unusable.

63 Despite the higher per capita investment, based on our regular network monitoring, Telstra's rural and regional customers still experience greater levels of network congestion on average than our metropolitan customers. Telstra's monitoring shows that customers from regional and remote areas are [**Confidential to Telstra**] [redacted] more likely to suffer from congestion than those in major metropolitan and larger regional cities.

64 As at March 2022:

(a) around [**Confidential to Telstra**] [redacted] of Telstra's 4G sites in major cities were congested, impacting approximately [**Confidential to Telstra**] [redacted] of active 4G users; and

(b) around [**Confidential to Telstra**] [redacted] of Telstra's 4G sites in regional and remote areas were congested, impacting approximately [**Confidential to Telstra**] [redacted] of active 4G users.

65 I have reviewed Table 14 of the Application which sets out the sources of Telstra network congestion as at 29 March 2022 and confirm that it is true to my knowledge. Table 14 shows the RAN as the main source of congestion, as opposed to backhaul. RAN congestion can only be rectified through additional spectrum resources or RAN densification (i.e. including capital equipment upgrades).

66 In the course of developing the Proposed Transaction and preparing the Application, I was involved in analysing the likely effect of the MOCN (including access by Telstra to pooled spectrum) on our network performance. This involved understanding the current performance of the network in the MOCN area and sites with congestion, forecasting the traffic growth expected with TPG customers in the coverage area and mapping the expected capacity that the additional spectrum would provide.

67 Based on that analysis, the Proposed Transaction is expected to deliver the following:

(a) Improvement in Telstra's low band spectrum by around 50% in the 17% Regional Coverage Zone with the addition of TPG's 4G and 5G spectrum, which will give Telstra the ability to use this spectrum to alleviate Telstra's current service quality and congestion issues.

(b) Improvement in the depth and extent of coverage through incorporation of up to 169 TPG sites. I have reviewed Figure 14 of the Application which shows the indicative TPG sites that Telstra is considering using under the Site Agreement and I confirm that Figure 14 is

accurate to my knowledge. Having access to these sites will allow Telstra to provide coverage to Telstra customers in areas where Telstra currently has limited or no coverage. This will reduce gaps and improve depth of coverage.

(c) The Proposed Transaction represents an incremental revenue stream for Telstra that contributes towards the large upfront costs associated with implementing new infrastructure in rural areas.

(d) As part of the Proposed Transaction, TPG has authorised Telstra to use TPG's spectrum in more remote areas beyond the 17% Regional Coverage Zone. Having access to TPG's spectrum will allow Telstra to offer higher quality and higher bandwidth services more efficiently, which is particularly important given the importance of mobile data to remote customers.

F RESPONSE TO CRITICISM OF THE PROPOSED TRANSACTION

68 I have read some of the interested party submissions, including from Optus, responding to the Application and set out my responses below.

(a) Optus's contention that Telstra is not efficiently using its current spectrum holdings

69 I have reviewed paragraphs [2.22], [4.46] and [5.52] to [5.59] of the Optus submission. In these paragraphs, Optus contended that there is no evidence to suggest that Telstra faces significant network congestion, or that congestion could not be addressed through efficient use by Telstra of its current spectrum assets. In particular, Optus suggests that Telstra is underutilising its spectrum by not using its mid-band spectrum in regional areas.

70 In relation to the use of mid-band spectrum, Telstra considers that mid-band spectrum is not suitable for use in regional areas because of the shorter distance it can be transmitted. Optus' statement at paragraph [5.59] of its submission is correct in this respect. At paragraph [5.57], Optus suggests that the fact that a large proportion of the population lives within 6.6km or 14.5km of a tower means that Telstra could use mid-band spectrum to effectively service customers in regional areas. This is not correct. While a large proportion of the population may live within an appropriate distance of a tower, that does not mean that a mobile service can effectively be provided to those customers using mid-band spectrum. That is because customers do not only use their mobile services where they live. They use them where the go. In my experience, customers in regional areas require continuity of coverage across a large area and not just small islands of coverage near where they live. Only low band frequencies provide the necessary continuity of coverage. Mid-band spectrum is not suitable for this purpose.

71 In addition, mid-band spectrum does not have good in-building propagation characteristics. If Telstra were to start using mid-band spectrum in regional Australia there would be frequent circumstances where customers could not access high quality signals inside their homes and other buildings.

72 If Telstra were to start using mid-band spectrum in regional Australia, it would need to build more towers to achieve the same level of coverage as its current network using low band spectrum. The cost of building and operating towers is not commercially viable in many locations in regional and rural Australia. However, by gaining access to additional low-band spectrum Telstra can take advantage of its existing infrastructure and provide additional capacity where it would otherwise be unviable to do so.

73 I have also reviewed paragraphs [5.61] to [5.64] of the Optus submission in which Optus states that the additional low band spectrum that Telstra will gain in June 2024 will address any issues. Telstra will gain access to additional low-band spectrum when it decommissions its 3G network in June 2024. This increased capacity is not sufficient because our current strategy will see this spectrum utilised for 5G, with our existing 700MHz holdings being a primary 4G band across the MOCN coverage area.

74 There are also limited opportunities for Telstra to obtain more low-band spectrum in the short to medium term given that the only remaining low-band spectrum which could be auctioned by the ACMA is in the 600MHz band, and there is no certainty or timeframe around an auction for that spectrum or any limits that may apply to it.

(b) **TPG's reliance on Telstra**

75 I have reviewed paragraph [4.10] of the Optus submission in which Optus states that the MOCN agreements will provide Telstra with an "overriding degree of control" in the MOCN NaaS network configuration. As a member of the Project Team I was across not only the technical discussions but also the drafting work and I am therefore familiar with key terms of the agreements that provide TPG with a level of influence and input. For example:

(a) TPG can request products to support special services it develops;

(b) TPG can request technical changes to the MOCN, including in relation to hardware;

(c) Telstra can remove a technology generation (e.g. 4G), but only on 5 years' notice;

(d) increasing or decreasing the coverage area requires TPG's agreement.

76 The terms I refer to in the preceding paragraph provide TPG with a greater level of influence and input than would ordinarily be afforded to an access seeker in a typical roaming arrangement.

(c) **Non-discriminatory commitments**

77 I have reviewed paragraph [3.77] of the Optus submission in which Optus states that TPG appears to only be offered a residential-grade service. This is not correct. Telstra's key non-discrimination obligation applies to all customers on retail customer grade plans, which includes many enterprise customers. That is to say, the non-discrimination commitments apply to the services that are consumed by the vast bulk of enterprise customers.

G VERIFICATION OF SELECTED SECTIONS OF THE APPLICATION

78 I have reviewed paragraphs 63-77 of the Application to the extent that it does not contain information that is confidential to TPG, which contain an overview of mobile networks infrastructure and spectrum and in Australia. They are true to my knowledge.

79 I have reviewed paragraphs 90-109 (Section 6 'What is MOCN and how does it work?') of the Application, which provides an overview of the typical architecture of a mobile network and how the MOCN works. They are true to my knowledge.

80 I have reviewed paragraphs 255-268 of the Application, which set out the improvements to Telstra's network coverage in the MOCN area. They are true to my knowledge.

Signed on behalf of Telstra Corporation Limited by

Signature of Christopher Meissner

Date: 12 August 2022