STATEMENT OF [redacted]

I, [redacted] of [redacted], [redacted], state as follows:

1 I am [redacted] for Telstra Corporation Limited ("**Telstra**") and am authorised to make this statement on behalf of Telstra.

2 This statement is structured as follows:

(a) confidentiality;

(b) position and experience;

(c) the public switched telephone network;

(d) delivering voice services using Telstra's PSTN;

(e) Telstra's supply of ADSL broadband services;

(f) the unconditioned local loop service;

(g) the line sharing service;

(h) connecting ULLS and LSS;

(i) ULLS and LSS networks; and

(j) delivering voice services using ULLS and LSS.

(A) Confidentiality

3 The information in this statement is confidential to Telstra. I have prepared this statement on the basis that the information in it will be treated as confidential.

(B) Position and experience

4 I have obtained the following qualifications relevant to the role I perform at Telstra (which I describe below) and the evidence I give in this statement:

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

5 [redacted]

6 [redacted]

7 [redacted]

[redacted]

[redacted]

[redacted]

8 [redacted]

9 [redacted]

10 [redacted]

11 [redacted]

12 [redacted]

[redacted]

13 [redacted]

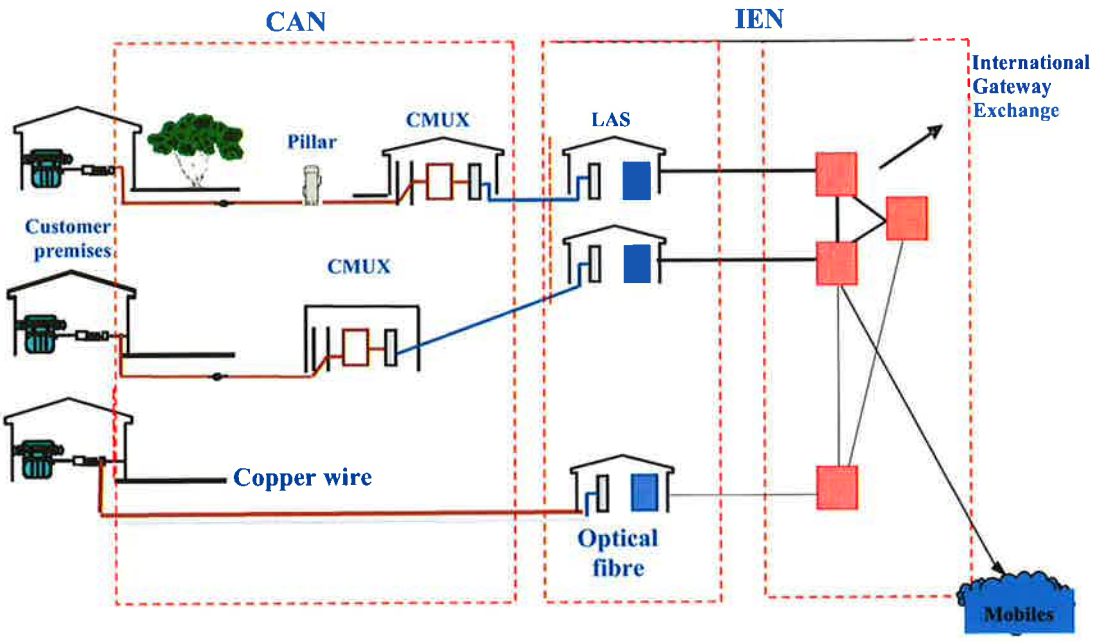
14 [redacted]

(C) The Public Switched Telephone Network

15 Telstra's PSTN is a nation wide fixed line telecommunications network. The PSTN is used to provide voice telephony and data (for example, facsimiles and dial-up and broadband internet access) services. It is connected to, though separate from, Telstra's wireless networks which provide, for example, mobile telephony.

16 The PSTN consists of the Customer Access Network (known as the "**CAN**") and the Inter-Exchange Network (known as the "**IEN**"). The CAN is that part of the PSTN that connects a "customer" (also referred to as an "end-user") to an "exchange". The IEN is that part of the PSTN that connects exchanges together so that a call can be routed from a calling-party to a called-party where those parties are connected to different local exchanges. Telstra has approximately 5,116 exchanges located throughout Australia.

17 A simplified representation of the basic architecture of Telstra's PSTN is set out below.



18 In the above diagram, the acronyms used, which have not already been described in this statement, have the following meanings:

(a) Pillar - is a cross connection point which connects cables directly to the end-user with those to the exchange;

(b) CMUX - Customer Multiplexer, which enables a number of customers to be connected via an optical fibre transmission system to a LAS.

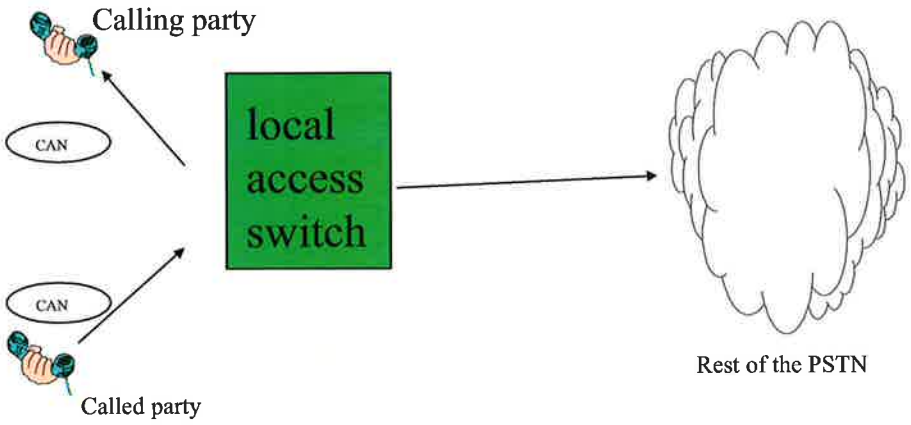
(c) LAS - Local Access Switch, which is a switch in the IEN which connects to end-users.

19 A PSTN is made up of switches connected by transmission systems. Telephone switches allow a call to be routed from one end-user's device to another. They do this by establishing a temporary connection between the end-users. Without telephone switches, an end-user would need a dedicated telephone line connecting to each person with whom he or she wanted to communicate.

(D) Delivering voice services using Telstra's PSTN

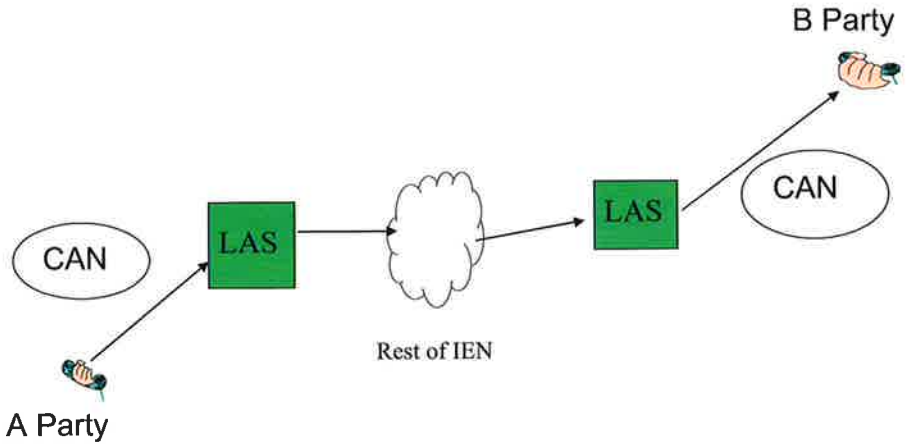
20 To make a telephone call from one person's handset (calling party) to another (called-party), the handsets must be linked by a network capable of transmitting the call.

21 The following is a description of a call between two customers connected to the same LAS. This call would be a local call. To make a call the calling party lifts the handset. The LAS responds by sending a dial tone through the CAN to the calling party. The calling party then dials the called party's number. If the line for the called party number is free, the LAS connects the two lines. This sends a ring tone to the calling party and a ring to the called party. This may be illustrated as follows:



22 The following is a description of a call between two customers connected to different LASs. In this case, the calling party picks up the handset and then dials the called party number. The LAS passes the called party number to the control equipment which then signals to the LAS to which the called party is connected. The control equipment of the called party switch checks to see if the called party is free. If the called party is free then the control equipment signals each of the switches to connect the two lines and sends a ring tone to the calling party and a ringing signal to the called party.

This may be illustrated as follows:



(E) Telstra's supply of ADSL broadband services

23 A broadband service enables an end user to send and receive digital information at high speed to another device, usually a computer.

24 Broadband services are delivered using both dedicated infrastructure and infrastructure that is also used to deliver PSTN voice services.

25 The technology used to transmit the information at high speed from the customer's home to the carrier's data network over the copper wires is called Digital Subscriber Line Technology ("**DSL**"), the most common example of which is Asymmetric Digital Subscriber Line ("**ADSL**").

26 The messages in the form of packets are sent from the customer's computer to the ADSL modem. This modem enables the high speed transmission of data over the customer's copper line, the same copper line that is also used for the telephony service. It does this by using higher frequencies than those used for the voice service. This is analogous to different radio stations transmitting simultaneously, one in the AM band (medium frequency) and one in the FM band (very high frequency).

27 The copper line is connected to a **CMUX**. The CMUX incorporates equipment that separate the analogue voice from the digital ADSL transmissions and multiplexes the packets of information from all customers and converts them into light pulses which are transmitted over optional fibre. The ADSL electronics in the CMUX are known in the industry as the Digital Subscriber Line Multiplexer ("**DSLAM**"). Multiplexing is a

process where multiple streams of data are combined into a single higher speed stream in order to increase efficiency.

28 The DSLAM is then connected using optical transmission technology to the carrier's data network (separate from the PSTN) which controls how the packets are sent to the customers' Internet service provider ("**ISP**"). Routers in the ISP's data centre then determine where the packets should be sent next. The ISP will have connections to other carriers' networks that form part of the public Internet.

(F) The Unconditioned Local Loop Service

29 In August 1999, the Australian Competition and Consumer Commission ("**Commission**") declared the ULLS for the purposes of Part XIC of the TPA. The ULLS gives access seekers control over a line, between the local access switch and the end-users premises, allowing the access seeker to supply both voice services and data services, including ADSL, to end-users.

30 The Commission's declaration describes the ULLS as follows:

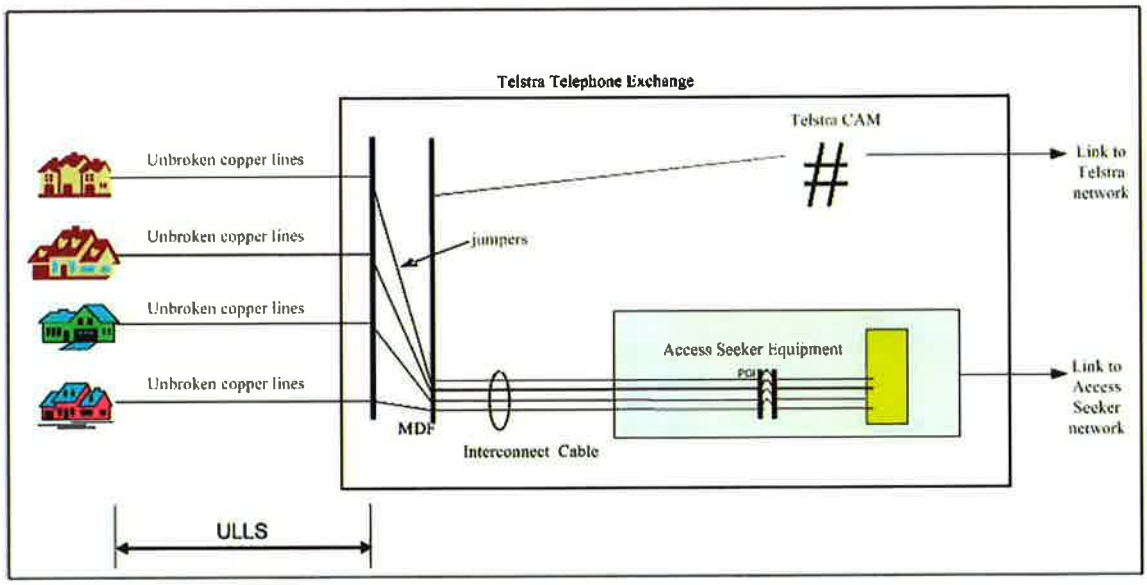
> *"The Unconditioned Local Loop Service is the use of unconditioned communications wire between the boundary of a telecommunications network at an end-user's premises and a point on a telecommunications network that is a potential point of interconnection located at or associated with a customer access module and located on the end-user side of the customer access module."*

31 In May 2000, the Commission made some minor variations to the original service description for the ULLS. Those variations concerned the definitions of "communications wire" (varied so as to include aluminium based wire) and "customer access module" (varied so as to refer to a "Local Switch" rather than a "Local Access Switch").

32 In July 2006, the Commission again declared the ULLS. The service description for the ULLS contained in that further declaration is in like terms to that in the original declaration and set out in paragraph 31 above. When I refer to the "ULLS" in this statement, I refer without distinction to the ULLS as originally declared, as later varied and as further declared.

33 The "unconditioned communications wire", which forms the subject of the ULLS (and the LSS, which I discuss further below), is part of the CAN. That wire is a continuous copper (or, under the variation, aluminium) based pair of wires (a "**Local Loop**") running from a customer's premises to a "customer access module" ("**CAM**"), which is generally located in an exchange. The service is described as being "unconditioned" because it concerns access to the raw copper (or, under the variation, aluminium) wires that form a Local Loop. By way of contrast, a pair of wires is classified as being "conditioned" if there is equipment at some point along an individual loop that changes its electrical characteristics to enable it to provide a telecommunications service. This may be necessary, for example, if a given loop travels a long distance from an exchange to a customer's premises. In this circumstance, without the addition of the equipment to enhance the loop's characteristics, it may not be able to properly carry telecommunications services delivered from the exchange. The majority of loops do not require conditioning in order to supply telecommunications services from the exchange.

34 The diagram below depicts the ULLS. In the diagram each of the "unbroken copper lines" running from a customer's premises represents an individual ULLS line (or a Local Loop). Under the variations to the ULLS service description discussed at paragraph 31 above, the lines could have been aluminium rather than copper.



35 The nature of the ULLS was described by the Commission in its report titled *Declaration of Local Telecommunications Services* (July 1999) which accompanied the original declaration of the ULLS as follows (at pages 14-15):

"The service description is intended to cover the situation in which an end-user chooses to churn from one service provider (e.g. Telstra) to another service provider for services provided over the line. In such a situation the access seeker would acquire use of the line. It is also intended to cover the situation where a line has been deployed but is not currently being used to supply services to end-users.

With this service there is no prescribed bandwidth. This is because the access seeker is receiving the use of the twisted copper pair without conditioning or specific carriage technology. This enables the access seeker to add its own carriage technology in order to supply, for example, high speed data carriage services to end-users or alternatively multiple telephony services to medium and large corporates (supplying up to 30 voice channels on a single copper pair) or a combination of voice and data services."

36 I consider that the above passage accurately describes the nature of the ULLS.

(G) The Line Sharing Service

37 In October 2002, the Commission declared the LSS for the purposes of Part XIC of the TPA. The LSS gives access seekers control over the high frequency part of a line between the local access switch and the end-users premises, allowing the access seeker to supply various services to end-users, including data services such as ADSL, and voice services, using Voice Over Internet Protocol technology (described in further detail below).

38 The LSS declaration sets out the service description for the LSS as follows:

"The High Frequency Unconditioned Local Loop Service is the use of the non-voiceband frequency spectrum of unconditioned communications wire (over which wire an underlying voiceband PSTN service is operating) between the boundary of a telecommunications network at an end-user's premises and a point on a telecommunications network that is a potential point of interconnection located at, or associated with, a customer access module and located on the end-user side of the customer access module."

39 The LSS is very similar to the ULLS except that with the LSS, a Local Loop is used by two carriers or service providers. As I explain below, with the ULLS the access seeker obtains the exclusive use of the given Local Loop. However, with the LSS the use of a Local Loop is shared between the access seeker who obtains the exclusive use of the high frequency (or "non-voiceband") portion of the given Local Loop and another carrier (typically Telstra) who uses the low frequency (or "voiceband") portion of that loop. In other words, when an access seeker obtains access to the LSS, while it gains the direct connection to, and use of, the given Local Loop, the use of that loop is shared so that one carrier or service provider can provide voice services over the low frequency portion of the loop while another carrier (the access seeker) can provide high-speed data services over the high frequency portion of the line at the same time.

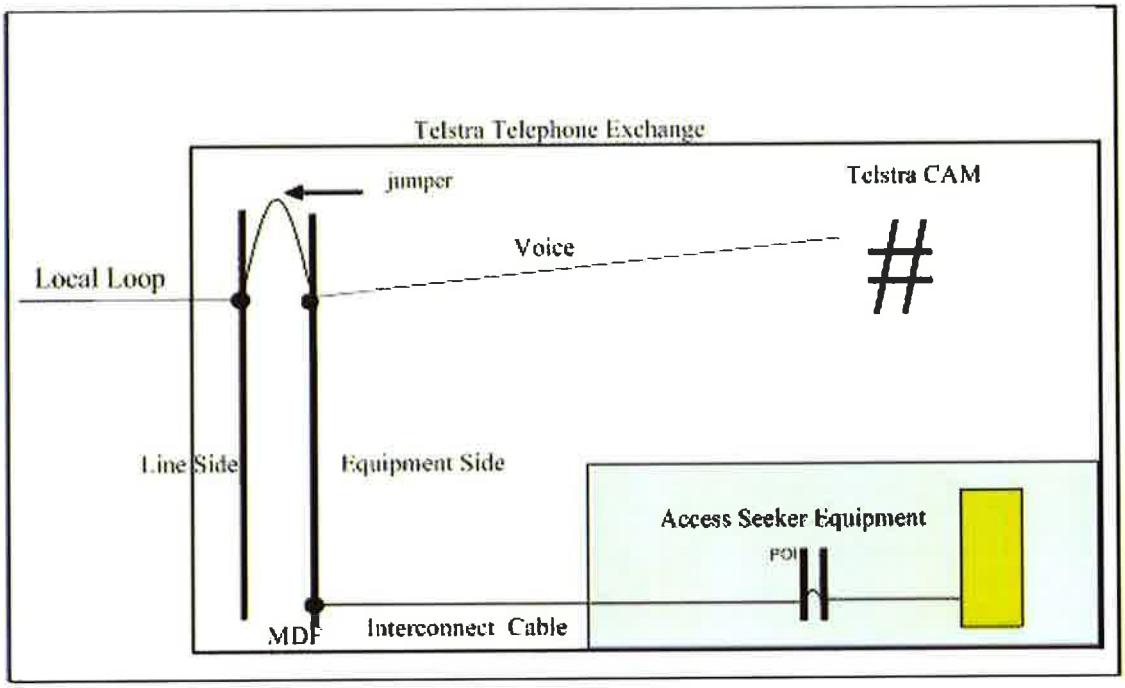
40 The high frequency portion of a Local Loop can be used to deliver high-speed telecommunications services such as broadband Internet access and also certain digital voice telephony services (such voice services are sometimes referred to as "voice over internet protocol" (or "**VOIP**") or "voice over digital subscriber line" (or "**VODSL**")). The low frequency portion of a Local Loop can be used to deliver regular analogue voice telephony services.

(H) Connecting ULLS and LSS

41 The connection process for supplying ULLS to access seekers is commonly referred to as a "cutover". By this process, the Local Loop is physically cutover to the access seeker's network. It is physically disconnected from Telstra's PSTN and connected to the access seeker's network.

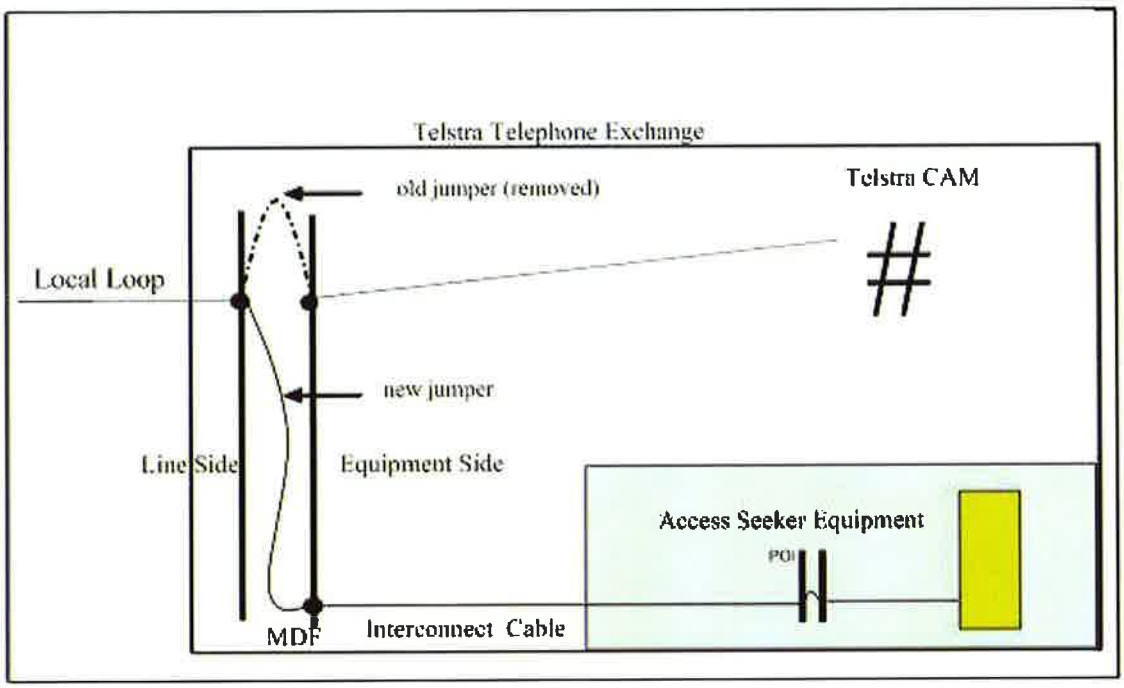
42 At the exchange, a Local Loop physically terminates at the "Main Distribution Frame" ("**MDF**"). The MDF consists of "line side" and "equipment side" termination blocks. Local Loops running into the exchange from "the street" (ultimately from customers' premises) terminate on the line side termination block and network equipment is connected to (or terminates on) the equipment side termination block. Linking the termination blocks on either side of the MDF is a pair of wires for each Local Loop referred to as a "jumper". In other words, for each Local Loop a jumper runs between the two sides of the MDF so that a Local Loop is connected to network equipment and, as a result, to the broader telecommunications network.

43 This is illustrated in the diagram below.



44 In order to supply the ULLS, the existing jumper connecting the Local Loop to Telstra's network (as illustrated above) must be disconnected. A new jumper is then installed connecting the Local Loop at the line side of the MDF to the access seeker's "interconnect cable" on the equipment side of the MDF. That interconnect cable runs to the access seeker's equipment which is typically located in space used by the access seeker in Telstra's exchange. This is what is referred to as "jumpering".

45 The jumpering process is illustrated in the diagram below. In that diagram the dotted line represents the old jumper that connected the Local Loop to Telstra's network prior to it being removed in order to give the access seeker access to the Local Loop.



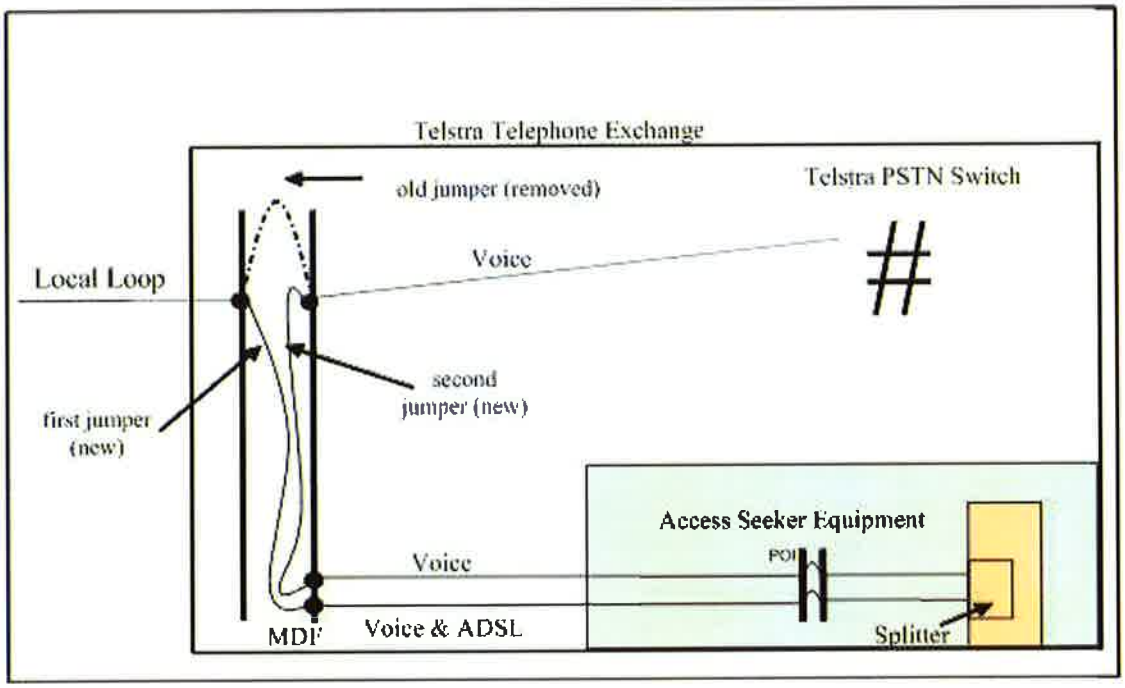
46 Once the Local Loop has been "jumpered" to the access seeker's network, Telstra loses complete "visibility" and control of that loop. Physically, the Local Loop is no longer connected to Telstra's broader PSTN as it is severed from the IEN.

47 The connection process for the LSS involves a similar "jumpering" process to that in respect of the ULLS, save that two new jumpers are required for the LSS rather than one. Also, unlike with the ULLS, in order to supply the LSS it is necessary to use a device known as a "splitter". This is a device that splits a Local Loop into two independent channels; one channel for the voiceband frequency and another channel for the non-voiceband frequency. I describe the way in which a splitter is used in the connection process in the next paragraph of my affidavit. A splitter can also be used by an access seeker that acquires ULLS, but the splitter is not necessary unless the access seeker provides POTS voice services in addition to data services. POTS is an acronym for the "plain old telephone service" (which is, in turn, equivalent to the standard telephone service supplied by Telstra).

48 Just as with the ULLS, the existing jumper that physically connects the Local Loop to Telstra's network (as illustrated in the diagram accompanying paragraph 43 above) must be disconnected. A new jumper ("**first jumper**") is then installed connecting the Local Loop to the access seeker's interconnect cable on the equipment side of the MDF (as with the ULLS). That interconnect cable runs to the access seeker's equipment (which is

typically located in Telstra's exchange) which incorporates a splitter which separates the voice and non-voiceband channels of the loop. The non-voiceband channel continues through the access seeker's equipment and then to the access seeker's network. The voiceband channel is sent back from the access seeker's equipment to the equipment side of the MDF across a separate interconnect cable. A further jumper (**"second jumper"**) is connected to this interconnect cable which leads to Telstra's equipment and back into the PSTN.

49 The jumpering process in respect of the LSS is illustrated in the diagram below.



50 Regular voiceband telecommunications services are carried, typically, from Telstra's equipment, through the second jumper and the access seeker's equipment and back through the first jumper ultimately to the end user's premises. The access seeker supplies high bandwidth telecommunications services directly from its own equipment, through the first jumper, and ultimately to the end user's premises.

51 Once the Local Loop has been "jumpered" to the access seeker's network, Telstra is no longer able to supply any services over that loop using the non-voiceband channel.

(I) ULLS and LSS access seeker's equipment and networks

ULLS and LSS Networks

52 In the above description of ULLS and LSS, I refer to the access seeker equipment. That access seeker equipment is generally located in Telstra's telephone exchanges in an area referred to as the Telstra Exchange Building Access ("**TEBA**") space. The TEBA space is leased by the access seeker from Telstra. In that space, the access seeker installs a cabinet which contains a DSLAM. The DSLAM is connected to transmission cables which forms part of the access seeker's network and which is in turn connected to a number of other pieces of equipment making up that network. The DSLAM is also connected to mains power and battery power.

53 Set out below is a photograph of a TEBA space in which access seekers have installed cabinets housing DSLAMs. The large cables protruding from the top of the cabinets are the interconnect cables.

54 A DSLAM may be configured in different ways to provide different functionality. For example, in addition to network termination cards:

(a) a DSLAM connected to ULLS which is configured to provide ADSL services would contain shelves with ADSL cards;

(b) a DSLAM connected to ULLS which is configured to provide voice and data services would contain shelves with ADSL cards, a splitter and voice cards;

(c) a DSLAM connected to LSS would contain a shelf with ADSL cards and a splitter;

(d) a DSLAM configured to supply either LSS or ULLS would contain shelves with a splitter and combination cards (capable of being used for a variety of services) or a splitter and some voice cards and some ADSL cards.

55 The number of cards required in a DSLAM is determined by the number of services being supplied using that DSLAM. Each card contains a specific number of ports. Each port in turn services one copper pair or Local Loop. The number of ports serviced by a card will vary and is generally increasing as card technology improves. [redacted]

Use of DSLAMs

56 If an access seeker decides to move its customers from a LSS to a ULLS, it may need to change in the configuration of the DSLAM from one of the configurations listed in paragraph 55 of my statement to another configurement listed in that paragraph. Whether changes need to be made will depend on whether the DSLAM has already been configured to provide voice services. For example a DSLAM containing a combination card or both ADSL and voice cards may be used to provide both ULLS and LSS.

57 DSLAMs may also be relocated and/or resold. The DSLAM shelf, voice and ADSL cards can be reinstalled in another exchange. The cables connecting the DSLAM to the Telstra equipment would have to be purchased afresh as they are pre-cut to the appropriate length. However, the cost of these cables is a negligible component of the overall DSLAM cost).

58 DSLAMs have a relatively short lifespan by reason that the technology used in them is evolving rapidly. For example, as I referred to in paragraph 56 above, the number of ports per card has increased over time. Additionally, the nature of the service supplied using a DSLAM has changed significantly. Each change requires an upgrade to all or part of a DSLAM. For example, ADSL technology has changed over time and is enabling faster speeds of data transmission (from ADSL1 to ADSL2+). Each change in technology

requires a change in equipment in the DSLAM. Therefore, the lifespan of a DSLAM is determined mostly by changes in technology and capacity rather than wear and tear.

Determining the scope of ULLS or LSS networks

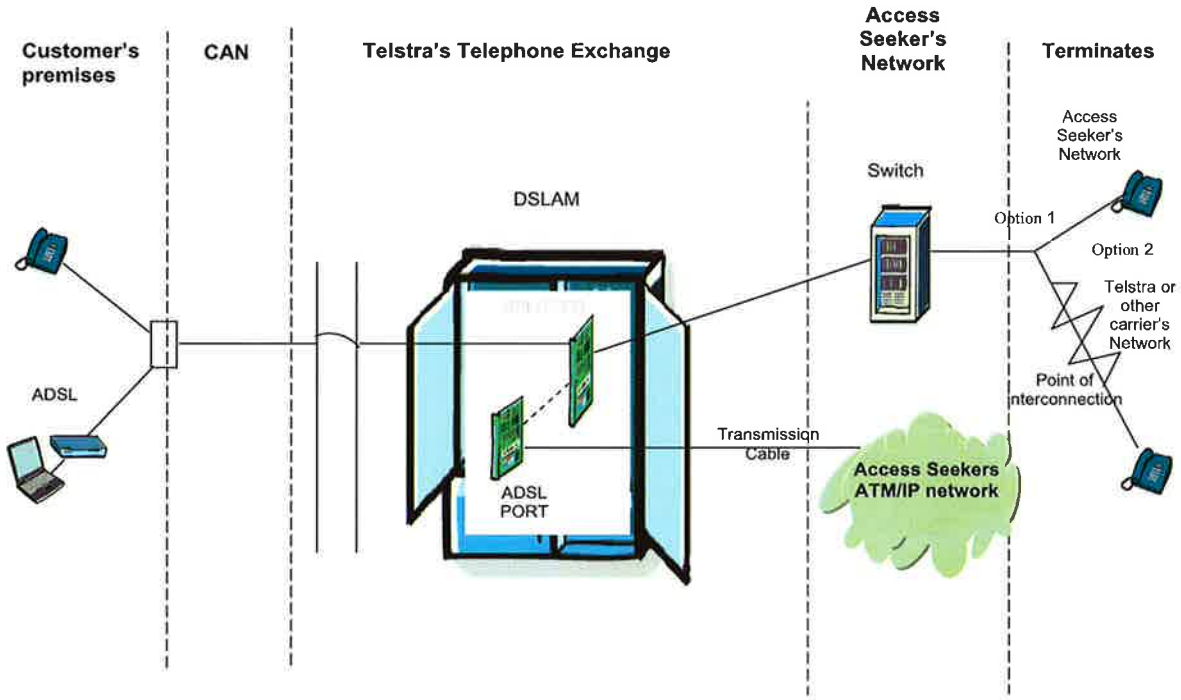
59 One way of ascertaining whether a particular exchange service area ("**ESA**") contains a DSLAM which is owned or operated by a carriage service provider other than Telstra is by determining, based on publicly available information such as websites of alternative providers, whether ADSL2+ services are supplied in that ESA. If ADSL2+ services are supplied in a particular ESA by a carriage service provider other than Telstra, this indicates that a non-Telstra DSLAM is operating in that ESA as Telstra does not currently resupply its ADSL2+ services to wholesale customers anywhere in Australia.

(J) Delivering voice services using LSS and ULLS

60 At present, a telecommunications service provider wishing to provide a standard telephone service ("**STS**") quality voice service using a ULLS or LSS network can adopt one of three technology choices. An acquirer of ULLS or LSS may supply voice services on the line using standard switching technology (ULLS only), POTS emulation (ULLS only) or VOIP (ULLS or LSS). I consider each of these technologies in turn below.

Standard switching technology

61 A ULLS access seeker can deliver voice calls from a customer connected to its ULLS network using standard switching technology. To do this, the access seeker would need to have switching equipment. The diagram below sets out the path of the voice call using standard switching technology.



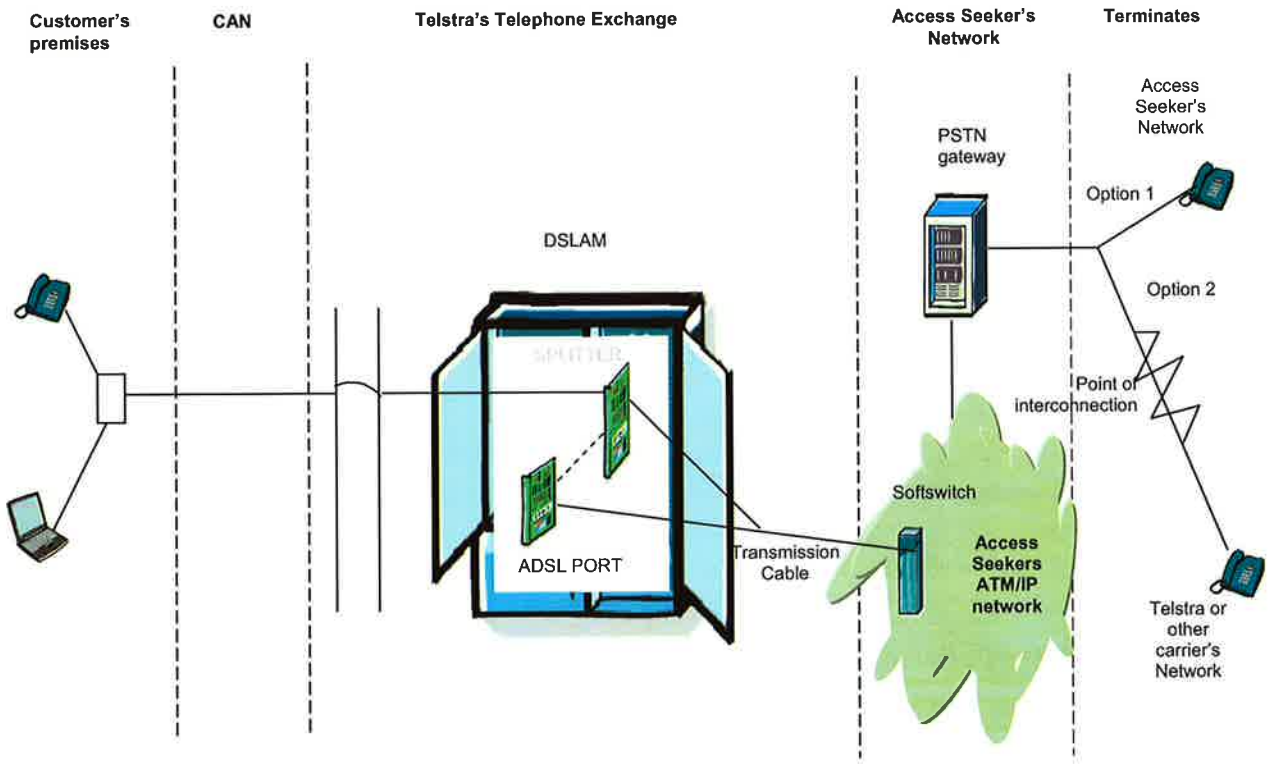
62 The call starts at the calling party's telephony device and passes through the CAN, travelling down the copper (or aluminium) pair connected to the access seeker's DSLAM. That copper (or aluminium) pair is the ULLS acquired from Telstra. The voice call travels on the low frequency part of the pair. Once the line enters the DSLAM it is sent through a splitter which "splits" the low frequency (voice) and high frequency (data) section of the line.

63 The call then passes through the access seeker's transmission cable and is sent to the access seeker's switch which may be located in one of Telstra's telephone exchanges or in other premises. The switch then directs the call to its destination (the called party) which may be to an end-user connected to the access seeker's network or an end-user connected to Telstra or another carrier's network. If the call is to be terminated on Telstra or another carrier's network it passes a point of interconnection between the access seeker's network and the other carrier's network before terminating at the called party's telephony device.

64 The voice service supplied by the access seeker using its ULLS network and standard switching technology is similar to the standard telephone service supplied by Telstra to its customers.

POTS emulation

65 A voice call may also be delivered by a ULLS access seeker using technology which emulates standard switching using "soft switches". I refer to this technology in this statement as "POTS emulation". POTS emulation is a method providing a telephony service which is very similar to the one I refer to in paragraphs 63 to 64 above (even to the extent of using a traditional telephone handset), but one which uses an Internet Protocol network to a greater extent. The diagram below sets out the path of the voice call using POTS emulation.



66 The call starts at the calling party's telephony device and passes through the CAN, travelling down the copper pair connected to the access seeker's DSLAM sited in the same way described above in connection with standard switching. The line used to transport the call from the customer's premises to the DSLAM is controlled by the access seeker using the ULLS acquired from Telstra. The voice call travels on the low frequency part of the line. Similarly, once the line enters the DSLAM it is sent through a splitter which "splits" the low frequency (voice) and high frequency (data) section of the line.

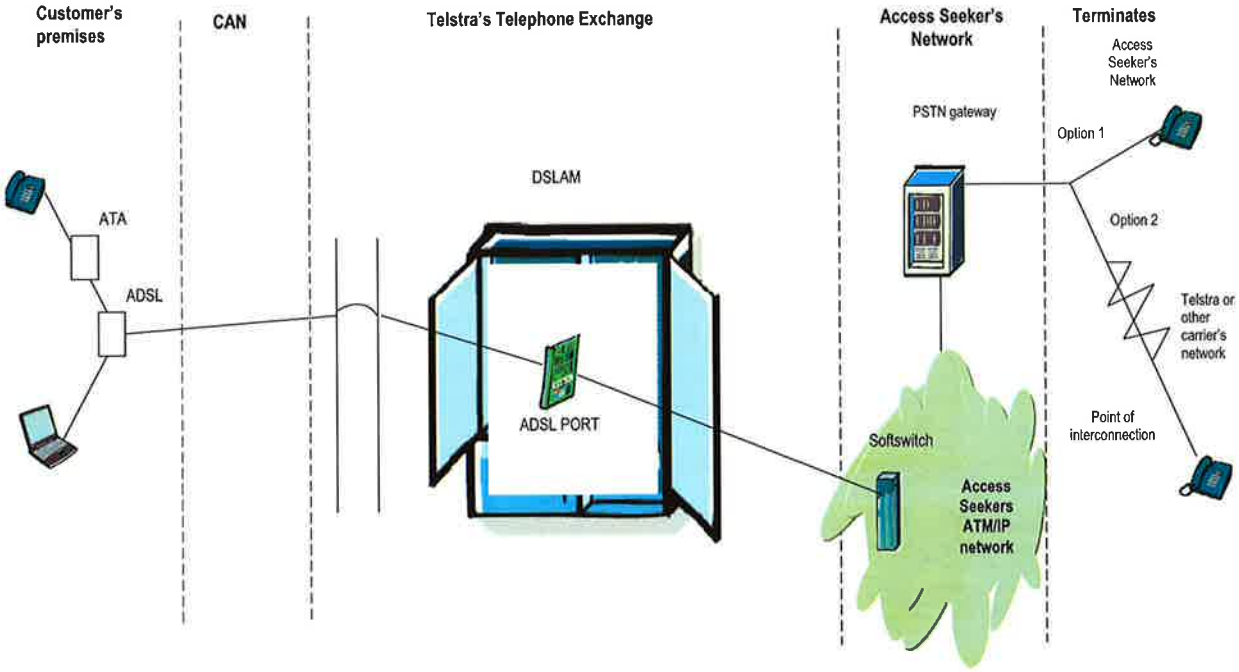
67 The voice then passes through the access seeker's transmission cable and is sent to a device known as a "soft switch". A soft switch routes the call to its destination. The soft switch is essentially a computer which reads information about the routing of a call and then uses that information to direct the call to its destination. From the soft switch the call information is transmitted using packet switching and is directed to a point on the access seeker's network closer to its destination. Once the packets of information reach a point on the access seeker's network which is the closest point on that network to its destination, the packets of information pass through a PSTN gateway and are converted to a standard voice signal.

68 The voice signal is then directed to the called party which may be an end-user connected to the access seeker's network or an end-user connected to Telstra or another carrier's network. If the call is to be terminated on Telstra or another carrier's network it passes a point of interconnection between the access seeker's network and the other carrier's network before terminating at the called parties' telephony device.

69 The voice service supplied by the access seeker using its ULLS network and POTS emulation is the same, from an end-user's perspective, as a voice service supplied using standard switching. The quality of the voice service is equivalent to that provided using standard switching.

Voice Over Internet Protocol

70 A voice call may also be delivered by either a ULLS or LSS access seeker using VOIP. The diagram below sets out the path of the voice call using VOIP.



71 To provide this service the analogue voice signal is converted into data at the end-user's premises and then is carried through most, if not all, of the network/s it passes as packets of data rather than as an analogue voice signal. To be able to use VOIP, the calling party must have a device which converts the signal from a voice signal to packets of data. This device is referred to as an analogue telephone adapter ("**ATA**"). Once the voice signal has been converted into packets of data it travels along the CAN and into the DSLAM in the same manner as data in the supply of an ADSL service. The packets of data enter the DSLAM through an ADSL port. They are then conveyed to a soft switch. From the soft switch to the call party's telephone, the call is carried in the same manner as I have described above (at paragraph 67 - 68) for POTS emulation.

72 The carriage of a call by POTS emulation or VOIP does not necessarily result in an inferior quality service to an end-user as compared with a call which is carried using standard switching. In circumstances where an Internet Protocol path is congested, the packets of information carrying the voice call may be afforded priority over the packets of information carrying other data, with the result that the quality of the call will not be deteriorated by any congestion on the network and will therefore be equivalent to that of a call carried by a traditional switching technology.

DATED: 22 June 2007.

.....

[redacted]