

Vision Network Service Description

This document describes the various services Vision Network Pty Limited (ACN 087 533 328) (**Vision Network**) provides to its wholesale Customers pursuant to Vision Network's Wholesale Service Agreement and is to be read in conjunction with that agreement.

Defined terms used and not otherwise defined in this document have the meanings given to them in the Wholesale Service Agreement.

Vision Network reserves the right to update this document from time to time by publishing a new version of this document on its website.

1. VISION NETWORK PRODUCT TYPES

Vision Network operates a broadband access network that is available to Customers who wish to offer services to End Users who reside at an address serviceable by Vision Network.

Vision Network operates different product types, deploying a variety of technologies, which may change from time to time as broadband and telecommunications technology evolves.

The key product and technology types as currently offered by Vision Network are as follows:

1.1 Fibre to the Building (includes Fibre to the Home)

Fibre to the Building (**FTTB**) is available at select metro buildings in most states†.

Technology types: Fibre to the Premise (GPON), Fibre to the Basement/Building delivered over VDSL or G.Fast access technology based on availability

Service Type Supported: Data & Voice (voice provided at select locations and tech-types)

Interconnect Method: Layer 2

Locations: Metro Sydney, Brisbane, Melbourne, Adelaide and Perth

1.2 Fibre to the Node

Fibre to the Node (**FTTN**) is available at select metro buildings in ACT†.

Technology types: VDSL2 or G.Fast access technology based on availability

Service Type Supported: Data only

Interconnect Method: Layer 2

Locations: Canberra, ACT

1.3 HFC

Hybrid Fiber-Coaxial (Coax) (**HFC**) is a type of technology that allows high-speed services to be delivered over fibre optic cable, with the final leg into the End User's premise being delivered over a coaxial cable.

Technology types:	HFC access technology
Service Type Supported:	For Layer 2: Data only. For Layer 3: Data and Voice
Interconnect Method:	Layer 2 and Layer 3
Locations:	Select locations† in Geelong (VIC), Ballarat (VIC) and Mildura (VIC)

† Note: Service is limited to select on-net buildings that are connected to Vision Network. Customers are provided with a building list to check availability (see Section 9.1.1 for more information).

1.3.1 Service Specification

The specification of the technology deployed in connection with the supply of service on the FTTB, FTTN and HFC product types is described in the following documents:

- FTTB Service Specification
- FTTN Service Specification
- HFC Service Specification

A Customer can be onboarded for all product types or for one or more product types.

2. VISION NETWORK TECHNOLOGY UPGRADE AND EVOLUTION

Vision Network delivers LAL services to the Customer and their End Users via a variety of current access technology types as set out in Section 1.

Due to change and ongoing advancement in broadband technology, Vision Network reserves the right to upgrade or replace the underlying access technology delivering service to the Customer and its End Users.

Any such upgrades will either:

1. Provide equivalent service at no additional cost to the Customer or its End User; or
2. Provide Customer and its End User an option to upgrade their service for a fee should they wish to take advantage of the enhanced product offering.

3. INSTALLATION AND REPAIR

To the extent services require installation or other works performed at an End User premise, Vision Network will perform or arrange for these works to be performed.

In order to perform installation or other works at an End User's premise, Vision Network requires a person over the age of 18 years to be present at all times and the premise to be safe.

For Layer 2 VDSL FTTN and FTTB products, the Customer may either select to jumper the service themselves, or request Vision Network to jumper the service for a fee (as set out in the Price Book). Vision Network's fees for jumpering services are set out in its Price Book.

It is the Customer's or End User's responsibility to supply and configure the required router to provide the data services.

For Layer 2 G.Fast or HFC, Vision Network will supply and install the NTU. It is the Customer's or End User's responsibility to supply and configure the required router to provide the data services.

For Layer 3 HFC, Vision Network will supply and install the NTU. It is the Customer's or End User's responsibility to configure the required router to provide the data services.

4. NNI

A Network-to-Network Interface or NNI is the connection point at a point of interconnect (**POI**) location designated by Vision Network where End User traffic is terminated to the Customer's network.

A Customer will need NNIs that support the relevant product in each relevant region. This means the Customer must acquire at least one NNI in each region they are acquiring products from Vision Network.

The NNI is physically terminated at a POI location designated by Vision Network as described in the Service Specification document which may change from time to time.

The Customer is responsible for everything on the other side of Vision Network's NNI including for example cross connects in POI locations or any backhaul.

NNI's are delivered as wires only and use optical single mode fibre as the physical media type.

The connection speeds of the NNI are dependent on order size and are priced according to Vision Network's Price Book.

Port speeds are available in 1Gbps and 10Gbps speeds, and following the criteria defined in the table below:

Port Type	Transceiver	Max Distance
1Gbps	1000BaseLX	<10 kms
	1000BaseZX	10-40 kms
10Gbps	10GBaseLR	<10kms
	10GBaseER	10-40 kms

Vision Network will supply its own terminating equipment on the Vision Network side of the NNI and the Customer is to supply its own terminating equipment on the Customer's side of the NNI.

4.1 NNI HAC Capacity

Each Layer 2 NNI can terminate up to 4,000 Hub Aggregation Circuits (**HACs**).

4.2 NNI redundancy

The Customer may order an NNI redundancy option if supported by the access technology. This option gives the Customer a backup NNI.

An NNI redundancy option is supported where two separate physical NNIs are terminating in the same POI and on the same network card on the Vision Network network edge router. Both NNIs should have the same physical NNI speed (i.e 1Gbps or 10Gbps). The pricing of the redundant NNI will be the same as the primary NNI charge.

NNI redundancy is available for FTTB deployments only, and not for HFC or FTTN.

4.3 NNI Ordering

The NNI is the first component the Customer orders.

The Customer may request an NNI order by completing and returning a prefilled NNI order form.

An NNI order may relate to the following:

- New NNI connection
- Supply of NNI redundancy option connection (where possible)
- Upgrade of NNI
- Downgrade of NNI
- Termination of NNI

The NNI order form is available on the Vision Network website or by request. The Vision Network team will prefill the order form in coordination with the Customer representatives and send it to the Customer for signature.

Once a signed order form is submitted, an acknowledgement will be provided by Vision Network and the order will be fulfilled within the agreed timeframes set out in the Service Specification document.

NNI orders will be carried out in cooperation with the Customer to ensure technical acceptance of the installed service.

5. HUB AGGREGATION CIRCUIT

A Hub Aggregation Circuit (**HAC**) is a Layer 2 virtual circuit that aggregates End User access circuits in a region to be delivered into an NNI to connect to the Customer's network.

Customers must order at least one HAC per traffic type for each product type and region they wish to provide service on.

A maximum of 4000 HACs can be ordered per NNI. Each HAC can carry up to 4000 LALs or VVCs.

The Customer will need to order an additional HAC if more than 4000 LALs are required by the Customer to service its End Users in a serviceable region.

There are two types of HACs which Vision Network can provision for its Customers: Data HACs and Voice HACs. A dedicated HAC is required for each traffic class as follows:

- A Data HAC (HAC-D) is required for a Customer to provide data service traffic; and
- A Voice HAC (HAC-V) is required for a Customer to provide dedicated voice service traffic.

The availability of HACs is dependent on access technology as follows:

- A Data HAC (HAC-D) is available wherever Vision Network makes data services available (FTTB, FTTN, HFC); and
- A Voice HAC (HAC-V) is available only where Vision Network makes services available which include voice components, being FTTB services which use a VDSL or GPON hand-off.

For services provided using HFC access technology via the Layer 3 option:

- The Customer is not required to order a HAC for those services;
- A Layer 3 Realm, which is a virtual routing instance on the CMTS, must instead be ordered in the relevant region; and
- The Customer must order at least one Layer 3 RVC for each Layer 3 Realm.

5.1 Traffic Classes

Vision Network will provision Data HAC traffic on a best effort basis i.e. it will be a best effort traffic class within Vision Network's network.

Vision Network will provision Voice HAC traffic on a premium priority basis i.e. it will be a premium traffic class within Vision Network's network.

These traffic classes are described further below.

Traffic Class	Example applications	Priority (802.1p/COS)	Specification	Available speeds
Best Effort	Internet, Best Effort data	0	LAL - PIR	25/5Mbps, 50/20Mbps, 100/40Mbps, 250/50Mbps, 1000/100Mbps
			HAC-D - CIR	Min 100Mbps – Max 10 Gbps
Premium	Voice	5	VVC - CIR	150Kbps/150Kbps
			HAC-V - CIR	Min 25Mbps – Max 10 Gbps

Example Applications

Data Services (Unicast)

Vision Network’s network supplies Customers with logical point to multipoint layer 2 circuits between a centrally aggregated Customer NNI and one or more UNIs. The best effort traffic class is ideally suited to internet access type services.

Voice Services (VoIP)

The Customer may choose to provision Voice over IP (VoIP) services to a premise using a VoIP VDSL2 modem (recommended) or an external ATA device. The supply, powering and operation of this device is the Customer’s responsibility.

VVCs will be provisioned on the premium traffic class. The VVC is provisioned as a prioritised layer 2 Ethernet virtual circuit on Vision Network’s network. It is codec agnostic.

VVCs are only supported for services delivered over the FTTB product type which use a VDSL or GPON access technology.

5.2 VLAN Addressing & Service identification information

Refer to the Service Specification document/s for the required product type (FTTB, FTTN, HFC) for VLAN addressing information, TPID format & service identification information.

5.3 HAC Ordering

A HAC can only be ordered by a Customer after the NNI for the relevant region has been provisioned by Vision Network.

The Customer may request a HAC by completing and returning a prefilled HAC order form.

An HAC order may relate to the following:

- New HAC connection
- Upgrade of HAC
- Downgrade of HAC
- Termination of HAC

The HAC order form is available on the Vision Network website or by request. The Vision Network team will prefill the order form in coordination with the Customer representatives and send it to the Customer for signature.

Once a signed order form is submitted, an acknowledgement will be provided by Vision Network and the order will be fulfilled within the agreed timeframes set out in the Service Specification document.

Once provisioned, service particulars will be confirmed to the Customer.

6. NETWORK CONTENTION

With the exception of local factors within the Vision Network access network that may attribute network contention in concentrated regions, the main contention points that may influence the throughput or connection speed delivered to End Users is the amount of HAC or NNI capacity ordered by the Customer from Vision Network.

It is the Customer's responsibility to monitor their network utilisation and forecast Customer demand, and ensure they have ordered sufficient capacity in their NNIs and/or HACs to ensure they can supply adequate service levels to its End Users.

Vision Network guarantees HAC bandwidth for FTTB, VDSL, G.Fast and GPON products. It is up to the Customer to manage End User to HAC contention. Vision Network does not impose any limits on the number of LALs provisioned per megabit of HAC-D capacity.

The Customer may raise upgrade orders or additional NNIs and HACs as required from Vision Network in accordance with its service delivery times and Price Book.

7. NETWORK TERMINATING DEVICES / UNITS

End User access services delivered over the Vision Network may require Network Terminating Unit (**NTU**) or Network Terminating Device (**NTD**) to facilitate a connection. HFC NTDs may also be described as "Cable Modem" or "Enhanced Multimedia Adapter" (**EMTA**).

Such devices may be provided by Vision Network to be installed at the End User's premise as either a professional install or self-install.

The requirement for such a device will be dependent on the technology the Customer is connecting to and may include G.Fast or HFC (Cable Modem) as required.

Where a new connection to Vision Network is ordered at an address that already has an NTU, we will perform a “logical” or “in-place” order, meaning a NTU will not be provided, unless the NTU provided to the previous occupant is missing or defective.

The NTU provided will support “bridge” mode, meaning the Customer or End User must supply their own device to establish a connection over the medium.

The make and model of the device may change from time to time based on available supply.

In the event of a Vision Network supplied NTU/NTD becoming defective, Vision Network will provide a replacement free of charge, provided the defect is not caused by misuse by the End User or Customer.

The device remains the property of Vision Network and Customers are not permitted to remove the device from the premise if they relocate home.

7.1 NTU Operating Conditions

The NTU should only be used as described in the installation manual provided with the unit, connected into a Power Outlet/GPO (and not a double adapter or power board), and connect into the wall outlet and the Customer’s equipment with the supplied cabling.

The Customer is responsible for supplying their own power source for NTUs.

7.2 Safety

Customers should advise End Users that the NTU should be installed indoors in an appropriate, cool, dry and well-ventilated room, away from heat or water sources. The device should not be placed on the floor or carpeted areas. The device should not be placed in a laundry, bathroom or other area that would be typically wet or humid.

The NTU devices are not user-repairable devices. If the device is defective, Customers can assist their End User in diagnosing issues and reporting defects to Vision Network via our troubleshooting processes, and Vision Network may send a technician or replacement device as required.

If a device is overheating, makes noises that are not part of the normal operation or emits an odour or causes sparks, End Users should remove their power supply immediately and notify the Customer who can arrange replacement device with Vision Network.

For more information, refer to the relevant manufacturer’s guide or data sheet.

8. LOCAL ACCESS LINE

A Local Access Line or LAL is a Layer 2 virtual circuit on either the HFC , FTTB or FTTN product types operated by Vision Network. For HFC Layer 3 virtual circuits are also available.

Local Access Line is the primary interface into the End User’s premise and is connected to the Customer network via the Customer’s provisioned HAC and NNI.

Vision Network will terminate the service to the demarcation at the End User’s premise.

The demarcation points based on access technology are summarised in the below table:

Product Type	Access Technology	Building Type	Demarcation
HFC	HFC	Any	The Ethernet LAN port of the NTU supplied by Vision Network
FTTN	VDSL2	House / Single Dwelling	First socket of the home connected to Vision Network
FTTN	VDSL2	Multi-Dwelling Unit (apartment / unit / shared commercial)	Main distribution Frame (MDF) Vision Network's Terminal
FTTN	G.Fast	House / Single Dwelling	The Ethernet LAN port of the NTU supplied by Vision Network
FTTN	G.Fast	Multi-Dwelling Unit (apartment / unit / shared commercial) Apartment / Commercial	Service is delivered to the Ethernet LAN port of the NTU, however Customer in-building wiring between Vision Network MDF ports and Customer premise socket is the responsibility of the building owner/ body corporate
FTTB	VDSL2	All (only MDUs serviced)	Main distribution Frame (MDF) Vision Network's Terminal
FTTB	G.Fast	All (only MDUs serviced)	Service is delivered to the Ethernet LAN port of the NTU, however Customer in-building wiring between Vision Network MDF ports and Customer premise socket is the responsibility of the building owner/ body corporate
FTTB	GPON	All (only MDUs serviced)	To the Ethernet LAN port of the NTU supplied by Vision Network and installed into the premise

The connection speed delivered to the End User's premise is based on the speed ordered by the Customer. Access speeds available to End Users can be viewed in Vision Network's Price Book.

The maximum attainable link speed for a LAL depends on the technology type (e.g.: maximum 100 Mbit for VDSL2) and other factors including:

- Line condition and End User's distance from the Vision Network LAL terminating point;
- End User's in building cabling if the End User is located in a multi dwelling unit;
- End User's private, in-home wiring;
- End User's equipment; and radio interference.

Vision Network's HFC network is also subject to contention due to utilisation by End Users sharing the same cables in the street that connect back into Vision Network's fibre head-ends.

9. NETWORK FOOTPRINT

Vision Network's network is available at a limited number of locations using a variety of product and technology types based on availability within our service footprint. LALs are only available in selected homes and buildings as set out in the building list.

The network is subject to change based on various factors including:

- Increased number of addresses due to Vision Network installing telecommunications equipment at lines in new areas or buildings in agreement with strata management, local councils or land developers;
- Increased number of addresses due to property sub-division;
- Removal of Vision Network telecommunications services due to property demolition; and
- Removal of Vision Network telecommunications services due to product exit/cease sale.

9.1 Vision Network Serviceable addresses / building list

Vision Network will make available to the Customer its serviceable addresses by the following means:

- building list providing serviceable addresses, NNIs, access technology mapping, and whether the location is eligible to connect to Vision Network, to be provided in csv and excel format;
- the full updated building list, to be provided monthly via the Customer's nominated email address;
- 30 and 90 days forecasted new premises, to be provided monthly via the Customer's nominated email address; and
- all new commissioned buildings, to be provided weekly via the Customer's nominated email address.

A service qualification tool used to confirm whether the location is eligible to connect to Vision Network is also available (see Section 10 for more information).

10. SERVICE QUALIFICATION

Vision Network provides a service qualification tool to Customers to determine if their End User or prospective End User may be eligible to connect a service with Vision Network at their address.

The service qualification tool is made available to Customers via a B2B API which Customers may build into their own ordering systems (see Section 12 for more information on the B2B API). Service availability can be checked using the Vision Network B2B gateway. The response given to the Customer will indicate the product availability for the supplied address.

The service qualification will advise:

- If a supplied address is eligible to receive a service
- If a supplied address is currently connected to Vision Network

11. SERVICE TRANSFER

Customer's arrangements with End Users must not require the End User to contact the Customer to terminate their service.

The following process applies where an End User transfers their service at the same premise from the Customer (**Losing Customer**) to another Customer of Vision Network (**Gaining Customer**):

FTTB VDSL2 and G.Fast only

- The Gaining Customer creates a new order in the B2B API system;
- The Gaining Customer's Customer Service Representative (**CSR**) must email Vision Network's CSR with either proof of tenancy or other details as the address is active with the Losing Customer; and
- Once proof has been provided, Vision Network's CSR will initiate the process to terminate the Losing Customer's service and process the Gaining Customer's service request.

GPON/HFC/ FTTN VDSL2 and G.Fast

- The Gaining Customer creates a new order in the B2B API system;
- Vision Network's CSR will contact the Gaining Customer's CSR by email or through the B2B API system within 24 hours, requesting proof of tenancy or other details as the address is active with the Losing Customer; and
- Once proof has been provided, Vision Network's CSR will initiate the process to terminate the Losing Customer's service and process the Gaining Customer's service request.

12. APPLICATION PROGRAMMING INTERFACE (API)

Vision Network offers an Application Programming Interface or API to its Customers so that the Customer may integrate with Vision Network using a "B2B" or Business to Business method.

Under this arrangement, the Customer may connect its ordering system or BSS/OSS platform to Vision Network for the purpose of:

- Service qualification
- Service ordering
- Service modification (speed change or other feature)
- Service termination
- Other enhanced features as defined in the API specifications

The Customer agrees to only use the API in connection with the qualification of sales orders and the connection and management of End User services.

Customer must not use the API in an unlawful manner or to offer it to a broker service that is not directly related to the ordering of services from Vision Network.

The Customer must either develop its own set of programming interfaces to connect to the API or buy a compatible off-the-shelf tool.

The Customer must maintain adequate information security procedures to protect Vision Network and must not connect to the API in an unsecure manner.

The Customer must not implement inefficient software that produces errors or places undue stress on the systems provided by Vision Network.

Vision Network may impose a transaction limit on Customer in our API guides and the Customer must adhere to any transaction limit prescribed or requested by Vision Network from time to time.

13. SERVICE ASSURANCE

Customer must perform level 1 troubleshooting and diagnostic procedures before logging the fault with Vision Network.

Customers are expected to take advantage of the range of service assurance APIs available in Vision Network's B2B gateway including:

- Sync speed
- Port state test
- Drop out 1 hour, 24 hours and 72 hours
- MAC address
- Traffic on port

When logging the fault, the Customer should provide all relevant information describing the problem and any self-diagnosis results.

Faults are to be raised with Vision Network via the B2B API system or by email.

Vision Network will attempt to resolve the issue remotely or send a technician where appropriate to do so.

An incorrect call out fee will be payable by the Customer in the following circumstances:

- The technician is required to prove service to the network boundary point;
- The issue is determined to be caused by the End User's equipment including home cabling;
- The End User is not in attendance; or
- The issue is determined to be in the Customer's network, and not the network of Vision Network.

14. SERVICE PERFORMANCE TARGETS

The following service performance targets apply:

Service target	Value
Service Provisioning Target	NNI: 25 - 30 Business Days from NNI order acceptance HAC: 1 - 2 Business Days from HAC order acceptance LAL/VVC (VDSL - No MDF Jumpering): 1 Business Day from LAL/VVC order acceptance LAL/VVC (G.Fast - No MDF Jumpering): 3 Business Days from LAL/VVC order acceptance LAL/VVC (Incl. MDF Jumpering, NTU or NTD installation): 10 Business Days from LAL/VVC order acceptance
Service Provisioning Rebates	No service provisioning rebates or service credits are payable in the event that Vision Network fails to meet the Service Provisioning Target
Help Desk Hours	8:30AM to 6:30PM
Service Assurance Availability Target	99.90%
Service Assurance Target Response Time	Interrupted Faults: 0 to 60 minutes Non-Interrupted Faults: 4 Hours
API B2B Assurance Target	99.90%
Service Assurance Target Restore Time	Next Business Day Regional VIC – 72 business hours
Service Assurance Rebates	No service assurance rebates or service credits are payable in the event that Vision Network fails to meet the Service Assurance Targets

15. BILLING

Vision Network will invoice the Customer for services in accordance with the charges set out in its Price Book.

Vision Network will invoice the Customer between the 7th and 21st day of each month, as agreed between Vision Network and the Customer.

Vision Network may apply additional charges such as incorrect callout fees or equipment charges (as set out in the Price Book) and these charges may be invoiced by Vision Network up to 60 days after being incurred by the Customer.