



A Uniti  
Group  
Company

# Layer 3 Wholesale Broadband Product Guide



**OPTICOMM**  
Networks

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## Disclaimer

The information in this document is provided for general information purposes only. Recipients must make their own inquiries as to the accuracy and completeness of information contained in this document. Opticomm may update this document from time to time.

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## Change History

Version	Description	Date
1.0	First release	29 September 2022

## Related Documents and Defined Terms

This document forms part of the **RSPMA** and is, for the purposes of the **RSPMA**, a 'Service Schedule.' Capitalised terms which are used but not defined in this document have the same meaning given to them in the **RSPMA**.

This document will reference the following documents:

- Acceptable Use Policy
- Operations Manual
- Product Technical Specification
- RSPMA
- Service Level Agreement
- Wholesale Price List

References will be in bold and italicised (for example, ***Product Technical Specification***) and refer to the most recently published version of each document by Opticomm (as available at [www.opticomm.com.au/legal](http://www.opticomm.com.au/legal)).

**Precedence:** To the extent of any discrepancies, the **RSPMA** and **Wholesale Price List** take precedence over this document.

## 1.0 Introduction

Opticomm's Layer 3 Wholesale Broadband offers an end-to-end wholesale solution to RSPs (and their resellers) who seek to outsource the internet gateway and interconnects components required for provisioning an Ethernet Bitstream Service.

Layer 3 Wholesale Broadband offers:

- An access connection via the Opticomm Network to the End-users' premise
- A range of unmetered data internet plans to offer your end users
- A portal and API interface to service qualify and order services from Opticomm which reduces the requirement of manual operational intervention
- Internet connectivity including broadband network gateways, network interconnects and Network to Network Interfaces (NNI)

The respective responsibilities (R), accountabilities (A), level of consultation (C) and information (I) for the components of the solution are set out in the table below.

<b>Activity</b>	<b>R</b>	<b>A</b>	<b>C</b>	<b>I</b>
End Customer Order Forms	RSP	RSP		
Administering Users and user access on Portal	RSP	RSP		OPC
Address Validation and assesment of Authentication Protocols/Bandwidth and other parametres	RSP	OPC	OPC	OPC
Supply of End User Gateway	RSP	RSP	OPC	OPC
Supply of Access Network	OPC	OPC		RSP
Maintaining Portal and API Interfaces	OPC	OPC	RSP	RSP
Communications with End Customers on installation and where required connection appointments	RSP	RSP	OPC	OPC
First Level Support with end customers and trouble shooting	RSP	RSP		OPC
Portal and API training and documentation	OPC	OPC	RSP	RSP
Product and Pricing Documentation	OPC	OPC	RSP	RSP
Network planned and emergency outage notifications	OPC	OPC	RSP	RSP
Legal Obligations for RSP and Licencing requirements	RSP	RSP	OPC	OPC

*Table 1: RACI for Layer 3 Product*

## 2.0 The Product Overview

Layer 3 Wholesale Broadband offers RSPs the ability to extend a Layer 2 ethernet bitstream service to include the functionality of an internet gateway. In other words, the RSP will use this Service to provide a connection between an end user's premises, point of interconnect and then into a broadband network gateway (BNG). It is the addition of the BNG using IP that results in this service being known as 'Layer 3' (and differentiated from Layer 2 Ethernet Bitstream Services).

The access component of this Service is hosted on the Opticomm Ethernet Bitstream Service which is a Layer 2 service supplied by a combination of access networks including Fibre or Hybrid fibre technologies including FTTP Networks, FTTB Networks and HFC Networks (a full description of these products can be found in the **Product Technical Specification**).

The access connection type will use either IP over Ethernet (IPoE) or Point to Point over Ethernet (PPPoE) for authentication, PPPoE using AAA radius servers configured within the Opticomm network. This authentication will originate from the CPE provided and configured by the RSP. The assessment of which protocol is available is via the Site Qualification process and is documented in Section 4.

An overview of the Layer 3 Wholesale Broadband solution can be found in the figure below. This diagram separates the access and BNG components while indicating the data and authentication paths for the service.

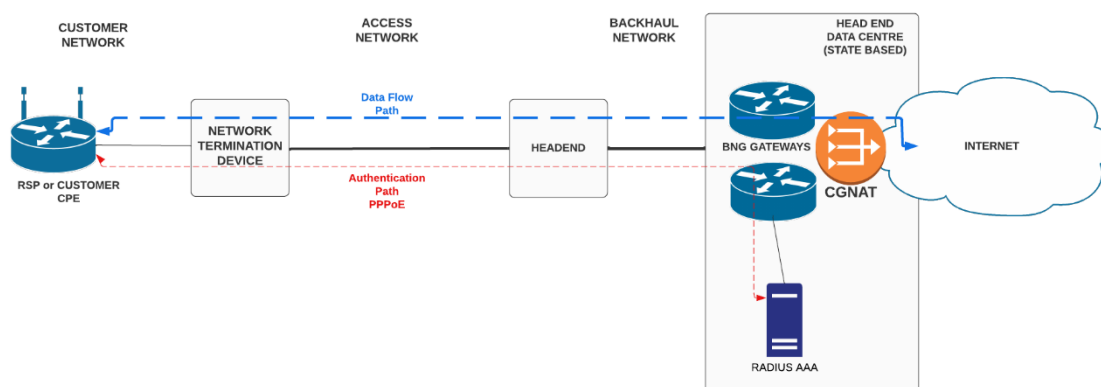


Figure 1: High Level Configuration of the network

## 2.1 Product Codes

Each element of this Service with a specific commercial component will be assigned a product code. These codes define the type of billable item within this Service. Not all product features and product components are separately chargeable, some are included as default options when a Service is ordered.

Product codes are critical in the ordering processes when interfacing with APIs and portals required for digital interactions. Further information around the ordering process is set out in Section 5.

The product codes and applicable bandwidths are set out in the table below.

Product Code	Bandwidth Configuration
Opt-WSL3-12	12/1 Mbps
Opt-WSL3-25	25/5 Mbps
Opt-WSL3-50	50/20 Mbps
Opt-WSL3-100/20	100/20 Mbps
Opt-WSL3-100	100/40 Mbps
Opt-WSL3-250/25	250/25 Mbps
Opt-WSL3-250	250/100 Mbps
Opt-WSL3-500	500/200 Mbps
Opt-WSL3-1000/50	1000/50 Mbps
Opt-WSL3-1000	1000/400 Mbps

Table 1: Product Codes and Bandwidths for Layer 3 Wholesale Broadband

## 3.0 Connection Types

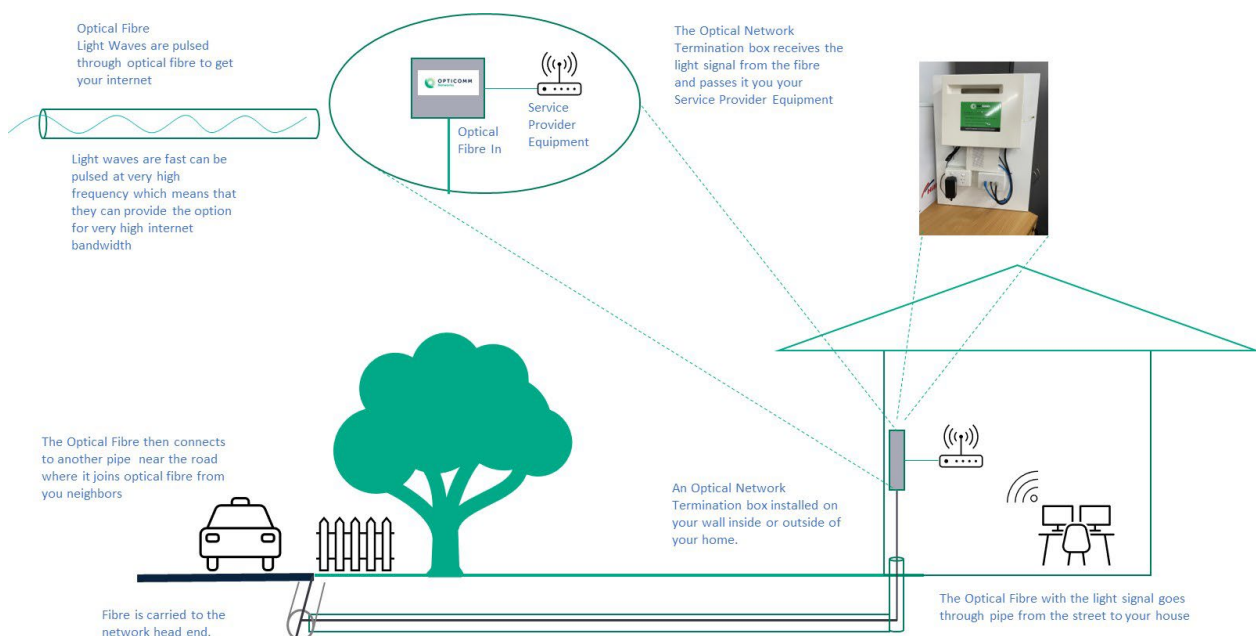
Opticomm have several access networks available for Layer 3 Wholesale Broadband.

These include:

- Fibre to the Premises (FTTP)
- Fibre to the Basement (FTTBW)
- Hybrid Fibre Co-Axial (HFC)
- Fibre to the Rise (FTTR)

### 3.1 Fibre to the Premises

The fibre to the premises (FTTP) network uses a passive optical network (GPON) to connect end user premises via a head end and subsequently to the internet. The optical fibre cable transits street conduit or in building risers from the head end to the end user premise. It is then terminated on a Network Termination device (NTD).



**Figure 2: Fibre to the Premise (FTTP) delivery**

It should be noted that figure 2 can also be implemented in a residential building such as a multi-dwelling unit (MDU) apartment block. In this case an Opticomm head end is placed in the basement of the building and optical fibre is hauled to each apartment. Inside each apartment a Network Termination Device (NTD) is installed and the RSP can then connect their CPE to that NTD.

### 3.2 Head Ends

The head end contains the electronics to support the fibre network to the community. It contains the equipment to support connection to the end user premises as well as equipment to support uplink connections into the BNG and radius services for authentication.

The head end is generally located in a small building for broad acre (suburban) developments or within the telecommunications rooms of apartment or commercial buildings. The uplink connections use backhaul networks to data centres in each state. These data centres host the BNG that support the IP capability.

### 3.3 Network Termination Device

The NTD is an electronic device used to terminate optical fibre or other cables from the Opticomm head end into End-user premises.

The NTD will, in the case of FTTP, be fixed to an internal wall or externally depending on the premise and is typically installed in an enclosure. Power is provided directly by the End-users power outlet into the NTD. The network port on the NTD is considered the network boundary from an operational perspective. These NTD offer 10/100/1000 electrical interface ports and information specifically about the capability of each premise can be found via the RSP portal or via the API.

### 3.4 Customer Premises Equipment (CPE)

The CPE is a device that is provided by the RSP and plugs into the NTD. This is often used to provide Wi-Fi or cabled connections to end-users' devices such as laptops, PCs and streaming devices. Opticomm technicians will not test or setup CPE as it is beyond the network boundary point and the responsibility of the RSP.

It is also the responsibility of the RSP to ensure that the CPE is capable of interfacing with the Network at premise and to carry out the necessary authentication processes required, particularly in the case of PPPoE. If the RSP has opted for End-user self-installation the RSP will be responsible for liaising with the End-user on the configuration of the CPE device.

### 3.5 Fibre to the Basement (FTTB)

A FTTB network is typically installed in a residential building such as an MDU apartment block.

Optical fibre is connected to the building and terminates on a node that converts the optical signal into one suitable for the existing copper cable in the building. This cable is used to 'extend' the broadband service to all apartments or offices. The node is typically located at the basement of the building, normally in the communications room.

Internet access that is provided over the copper telephone wire is called VDSL2, a faster version than the more common ADSL broadband. The VDSL2 modem will be very similar to the existing ADSL modems.

For FTTB, there is no need for a direct NTD as FTTB will use copper cabling which will connect directly to the wall port in the premise. From there the RSP can connect their CPE directly to the cable. Copper cabling within FTTB can significantly impact End-user experience of the provisioned broadband internet service.

The following diagram outlines the operation of FTTB network.

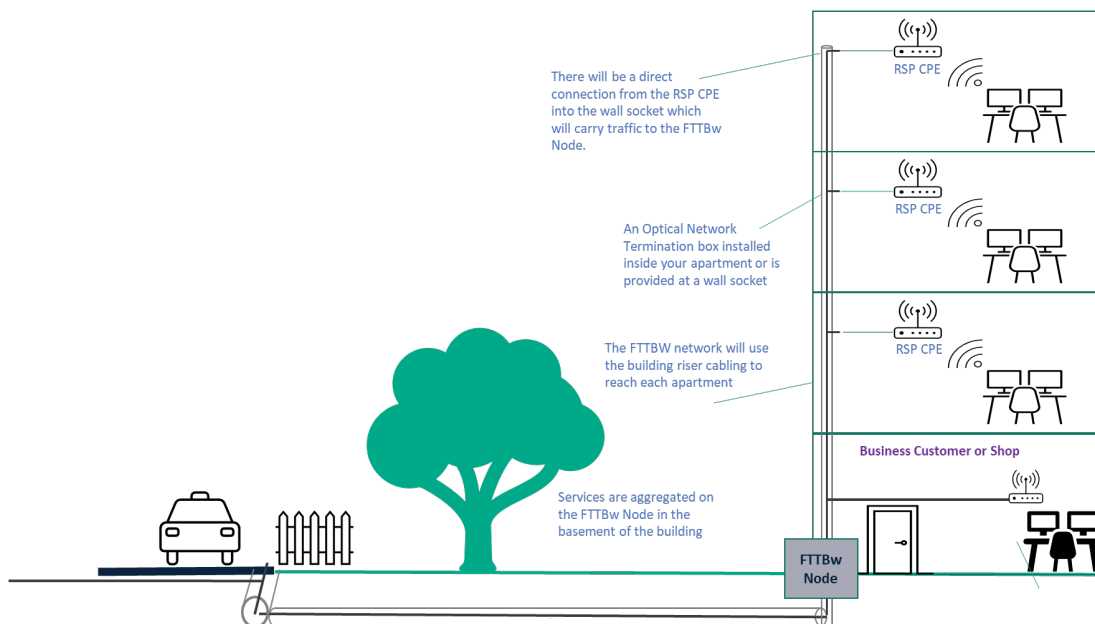


Figure 3: FTTB network operation

It should be noted that the authentication process for the FTTB solution will generally use PPPoE authentication.

### 3.6 Fibre to the Riser (FTTR)

The fibre to the riser (FTTR) network uses fibre to each floor of a building. It terminates in a switch that provides connectivity to each premise within residential buildings such as an MDU apartment block. Optical fibre is run from the head end to each riser in the telecommunications room. Here the fibre will terminate on an ONT which will then connect to floor cabling to each premise.

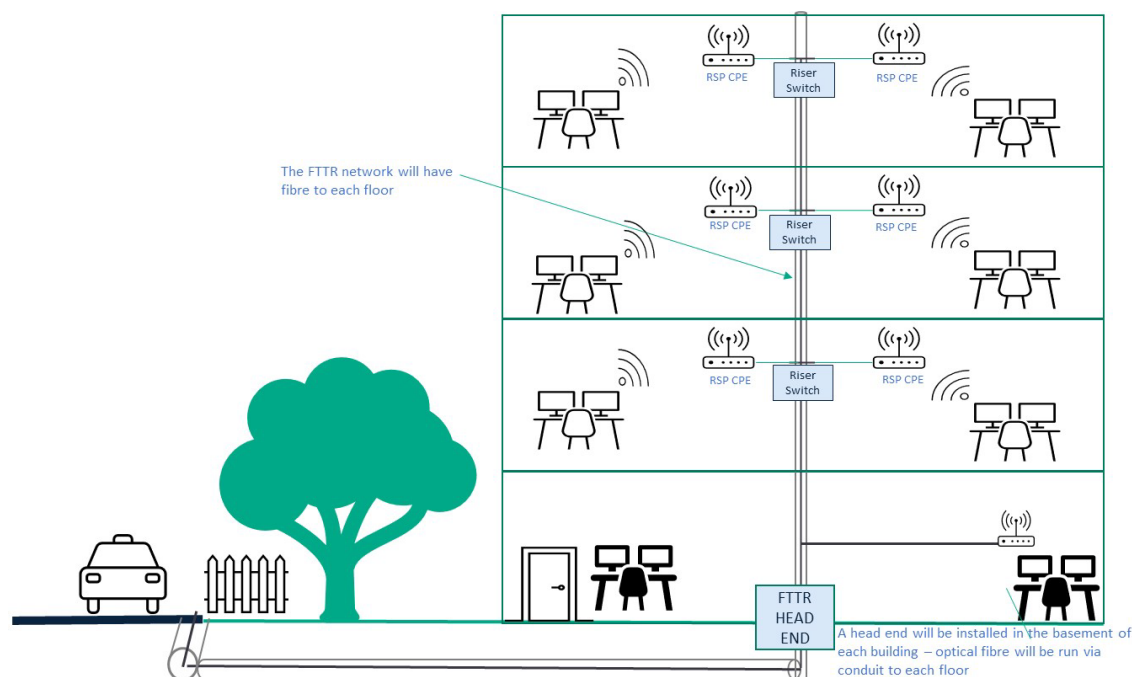


Figure 4: Fibre to the Rise (FTTR) Configuration



### 3.7 Hybrid Fibre Co-Axial (HFC)

Hybrid Fibre Coaxial (HFC) is a network technology that uses a combination of optical fibre cables and coaxial cable. It was originally used to deploy cable television. HFC networks can be retrofitted to carry internet data services into a premise using a technology called DOCSIS. The optical fibre transits through the neighborhood of a community via duct or elevated on electrical poles until it reaches a node. The optical signal is then transformed by the node into an electrical signal and into co-axial cable feeding the end user premise. This is then terminated on a NTD which has been designed to terminate co-axial cable. The RSP CPE then connects to the NTD.

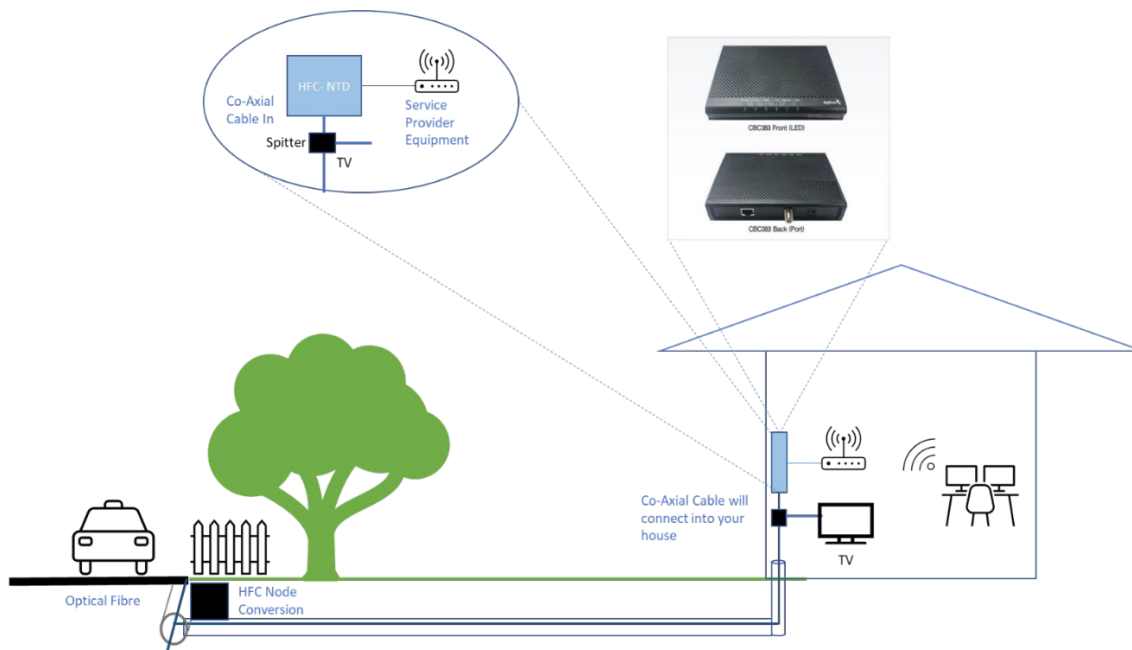


Figure 5: Hybrid Fibre Co-Axial (HFC) Configuration

## 4.0 Authentication Methods & Addressing Schema

There are two authentication methods that the RSP will need to configure for Layer 3 Wholesale Broadband. These are Point to Point Protocol over Ethernet (PPPoE) and IP over Ethernet (IPoE).

The following table indicates the type of network and the authentication method required for each service.

Network Type	Common Authentication Method	User Name	Password	IP Address Allocation
FTTBw	PPPoE	serviceid@L3.opticomm.net.au	Randomly generated	CGNAT Allocation
HFC	PPPoE			
FTTP /FTTR	IPoE	Not applicable		

Table 2: Common Authentication Methods for Layer 3

It should be noted that the API or portal will provide information about the type of authentication protocol. Information will show if IPoE is available as a 'yes / no' field. This is found via the Site Qualification process.

Should IPoE not be available then the RSP CPE installed at that End-user premises will require PPPoE configuration.

## 4.1 Point-to-Point Protocol over Ethernet (PPPoE) Authentication

PPPoE will use authentication via a AAA radius server located near the BNG gateway located in each state. PPPoE is a network protocol for encapsulating Point-to-Point Protocol (PPP) frames inside ethernet frames.

Authentication will take place against Opticomm's radius servers. Username and passwords will be provided by Opticomm as part of the ordering process. These are unique randomly generated usernames and will need to be configured into the CPE by RSPs.

By default in the Site Qualification process for Layer 3 Wholesale Broadband if the flag IPoE returns a "No" then the site by definition will require a PPPoE authentication process. The PAP and CHAP authentication protocols are supported with PPPoE.

The radius server will provide a randomly assigned password which will need to be configured into the CPE gateway.

The password and username information will be shared with the RSP via information in the order notes available in the RSP portal. After the service have been provisioned this information is also available under the service search sections for Layer 3 Wholesale Broadband.

## 4.2 IPoE Authentication

IPoE is available on most networks in the Opticomm footprint.

For this authentication method the RSP will be responsible for the configuration of the CPE devices including the DHCP and allocation of addressing.

When carrying out an address check in the RSP portal, the authentication method available will be shown in the new RSP portal.

The following screen shot on the RSP portal outlines where the RSP will find the IPoE flag for the service address search. If this flag is not set it is assumed that PPPoE is required at this site.

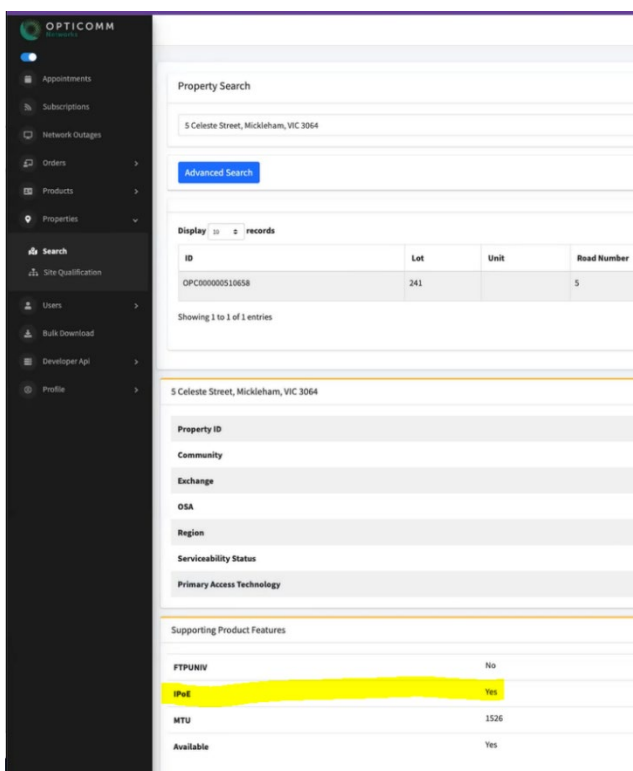


Figure 6: Authentication Flags with RSP Portal

### 4.3 Carrier Grade NAT (CGNAT)

Layer 3 Wholesale Broadband uses CGNAT to translate a single public facing IP address to a private address space. It is used to address the issues related to IPv4 address space exhaustion. It does this by limiting the need to provide a rare public IP address to every residential service that often does not have the need for a unique IP address.

As Layer 3 Wholesale Broadband uses CGNAT for the IP address allocation there is no public address space allocated to RSPs. RSPs will receive private non-routable IP addressing in the reserved CGNAT space which is allocated from the Opticomm BNG for use in the RSP managed CPE.

The CGNAT range will be assigned from the **100.64.0.0/10** address space.

The two authentication processes are as follows:

- IPoE uses a DHCP discovery flow and messaging with allocation unique address
- PPPoE uses a discovery process with a /32 subnet and 1 address per service allocated

At the date of publishing, filters were not applied to any ports via CGNAT. However, there are some profiles built into the CGNAT which have the intelligence to maintain session state.

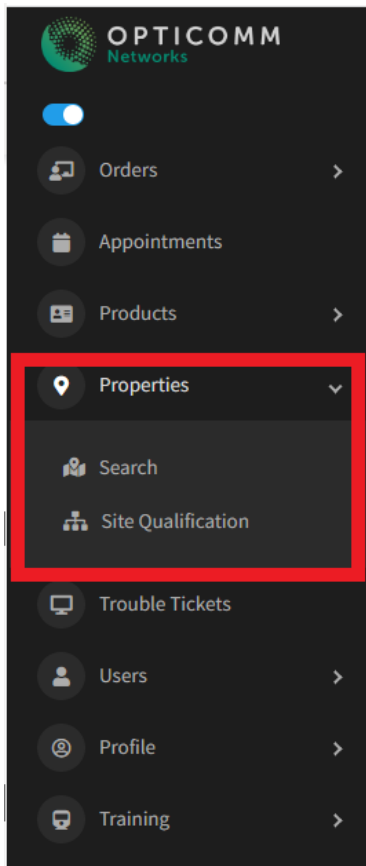
The framed IP address assigned to the service will be available in the RSP portal.

The product roadmap in section 8 outlines the option for static public IP addressing as a future road map capability.

## 5.0 Ordering Process

Layer 3 Wholesale Broadband Services can only be ordered via the new Opticomm Portal or latest version of the Opticomm API (May 2022 or later release). The RSP portal can be found at <https://rspportal.telco.opticomm.net.au/login>. For details regarding general onboarding requirements of an RSP, please refer to the **Operations Manual**.

## 5.1 Site Qualification Via Portal



The first step in the ordering process is to carry out a Site Qualification (SQ). This will provide information about the site.

The RSP will need to enter the correct information regarding the address for the site. It should be noted that RSP administrators are able to submit bulk requests through the site qualification process.

In order to do this within the portal, navigate to Properties where it drops down to a **Search** or a **Site Qualification**.

This can be found on the left hand side of the portal:

Figure 7: Property and Site Qualification Menu

### 5.1.1 Searching for an Address on Opticomm Network

If you select Search from the left hand panel you will see the following screen:

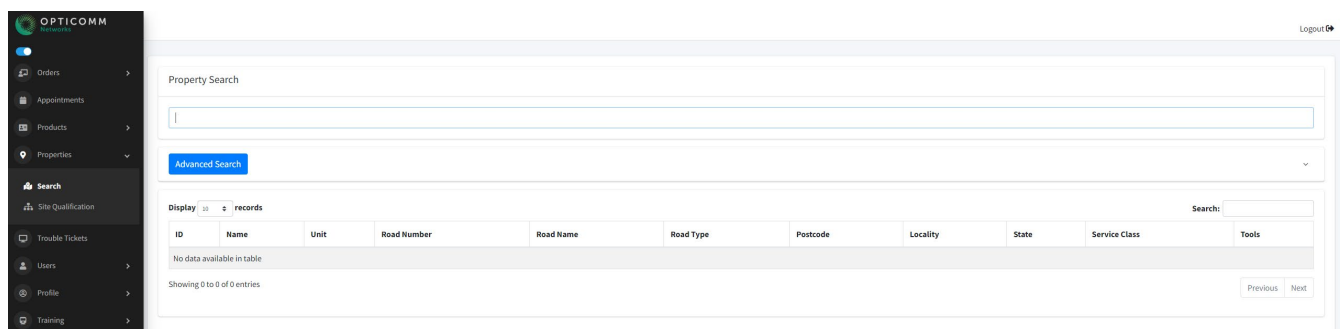


Figure 8: Property Search Screen

Note it is also possible to use the advanced search option which will allow searching across a community, estate, or post code etc.

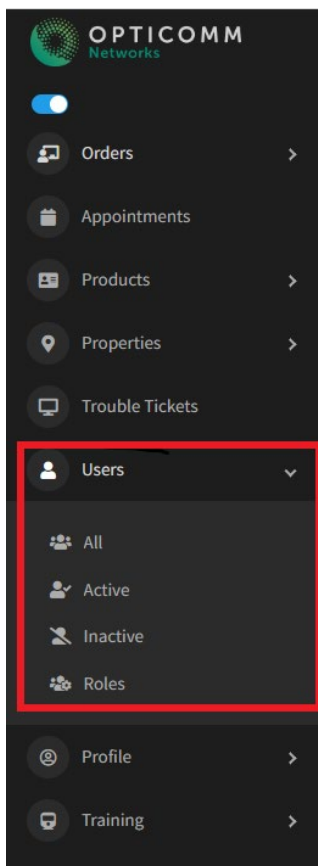
Figure 9: Advanced Search Option

Enter a valid address into the portal and this will return the following screen. A property search will return the following information about a property:

Property Details		Supporting Product Features	
Property ID	OPC000005528242	FTPUNIV	No
Community	Mahala	IPoE	Yes
Exchange	MAHA	MTU	1526
OSA	OSA500000000000	Available	Yes
Region	Urban	Type	FTTP
Serviceability Status	Serviceable - Shortfall	Capacity	500
Primary Access Technology	FTTP	Service Class	2
New Development Charge	No	IPv6PoE	Yes
New Connection Charge	Yes	TC1	Yes
Active End User Registration	No	Feature Type	TC4
Active Open Appointment	No	Unit	Mbps
Demand Types	Standard Install	Unit	Kbps
Serviceability Class	2		
Serviceability Date	13/04/2022		

Figure 10: Screen shot of Property Search

The results above display some very important details for the order, in particular, the New Development Charges (NDC) and New Connection Charges (NCC). If the site indicates a “yes” for NDC or and NCC then the RSP will need to pass this onto the End-user. Information regarding these charges is set out in Section 6 of this document.



## 5.2 Ordering Via Portal

An RSP can place an order via the RSP portal at <https://rspportal.telco.opticomm.net.au/login>

This is the latest version of the RSP portal and will provide access to ordering Services.

An RSP will provide the details of a portal administrator when signing the **RSPMA**. This administrator will be set up in the portal and they will be informed of access details to the portal. This will allow additional users to be set up within the system.

It should be noted that for each RSP there will need to be a designated administrator who will provide access to other members of the RSP for access for ordering, service requests, trouble tickets and other portal services.

This administrator will be responsible for creating access, account creation, deletion, modification, password reset, permissions etc. RSPs will manage their own user base for the portal.

Figure 11: Location of information about Users

The RSP will need to select “Layer3 Wholesale” as the **product template** then select a specific **bandwidth profile**. An example of this is shown in the figure below:

Figure 12: Ordering Profile for Layer 3 Services

Orders will be in the format of OPO/12 digits for example **OPO000000287620** and can be tracked through the RSP portal to be updated on the status of the order.

### 5.3 Ordering via API

Opticomm have published an API to perform functions set out in the Swagger documents. These can be access in the new portal side menu <Developer API> section.

The process for onboarding and interacting with the API can be found in the **Operations Manual**.

### 5.4 Ordering Process and Timeframes

A full description of the Order process and Order status information can be found in the **Operations Manual** in section 3.4.4.

The delivery of Layer 3 Wholesale Broadband involves the configuration of the underlying EBS service followed by connection to the Layer 3 gateways.

### 5.5 Service Qualifications and Connection Charges

The first step in this process is determining if connectivity can be established to the site via the SQ process.

If there is insufficient infrastructure to the premise it may be necessary for fibre or an NTD to be physically installed at the premise. Depending on the circumstances the charges for connection may be applicable and are either a New Connection Charge (NCC) or the New Development Charge (NDC). Section 6.0 of this document and the **Wholesale Price List** outline the application of these charges. It should be noted that from time-to-time Opticomm may provide specific incentives that waive these charges and an RSP may elect to participate in these incentive plans.

The following service classes are displayed as part of the Site Qualification process.

Service class	Description
1	Addressable premise is within Opticomm Footprint, but currently not serviceable
2	Addressable premise is within Opticomm Footprint, but requires NTD installation (New Connection Charge will apply)
3	Addressable premise is within Opticomm Footprint, has NTD installed and is ready for service
5	Addressable premise is within Opticomm Footprint, has NTD installed and is ready for service (New Development Charge will apply to the inaugural connection of a Service)
12	Addressable premise is within Opticomm Footprint, but requires Opticomm technician field visit to activate premises (NTD installation not required)

Table 2: Service Classes assigned to Sites

The services classes determine the amount of work required to complete an installation at the site.

Although Service Class 1 is in the Opticomm footprint, further investigation is required in order to assess the level of work required to complete connection. In this assessment there may be additional infrastructure costs such as fibre lead in costs which will be charged to the RSP and/or passed through to the End-user.

As part of this SQ, it is also possible to determine if an End-user or RSP customer has registered and set up an appointment to be connected.

Property ID	OPC000004685806	New Development Charge	No
Community	Westbrook North	New Connection Charge	Yes
Exchange	ALBR	Active End User Registration	No
OSA	OSA400000000000	Active Open Appointment	Yes
Region	Urban	Demand Types	Standard Install
Serviceability Status	Serviceable - Shortfall	Serviceability Class	2
Primary Access Technology	FTTP	Serviceability Date	30/11/2017

Figure 13: Appointment requirements

The End-user may have contacted Opticomm directly to organise an appointment for an NTD to be installed. Opticomm's preference is for an RSP to book an appointment on behalf of the End-user as part of the order process. In this case, any NCC or NDC charge associated with the property will be billed by Opticomm to the RSP who can choose to pass the charge onto the End-user. These charges are set out in the **Wholesale Price List**.

Booking appointments in the portal can be done by going to the appointment section with the property information.

The screenshot shows the Opticomm portal interface. On the left, a dark sidebar contains navigation links: Orders, Appointments (highlighted with a red box), Products, Properties, Trouble Tickets, Users, Profile, and Training. The main content area is titled 'Appointments' and features a 'Filter' panel on the left with the following fields: Property (with a red box around it), Appointment Status (dropdown), Start Date (text input), End Date (text input), Demand Type (dropdown), Priority Assist (dropdown), End User Type (dropdown), Appointment Type (dropdown), Appointment Slot Type (dropdown), and Appointment SLA (dropdown). A 'Submit' button is at the bottom of the filter panel. The main table area has a header with columns: Appointment ID, External ID, Property ID, Demand Type, SLA, Priority Assist, Slot, Status, and Tools. A 'Create New' button (highlighted with a red box) is located in the top right corner of the main area.

Figure 14: Booking Appointment in Portal

After you have selected “Create New” you will be able to search for time slots in the portal.



Figure 15: Options for Installation

For Layer 3 Wholesale Broadband only a “Standard Install” demand type will be available.

It should be noted that in some cases missed appointment fees may apply. These fees are set out in the **Wholesale Price List**.

The next step in the process is to search for time slots between the date field suggested.

Figure 16: Selecting a valid timeslot

As part of this process the RSP will need to select a 4-hour appointment window and provide the particulars of the End-user including primary site contact details. In this window the RSP can also add Site Access information and special notes that may have been passed on by the End-User. It should be noted that the RSP will be responsible for customer communications regarding the scheduled appointment.

## 6.0 Fees and Charges

## 6.1 Upfront Fees and Charges

There are two types of fees applicable to the service once connectivity to the site is available.

- **Connection Fees** – these apply to RSPs or End-users for the recovery of costs for physical connection of fibre and ONT devices at the site.
- **Activation Fees** – these apply to the logical activation of Layer 3 Wholesale Broadband including the access connection to the CGNAT and BNG.

Although there are no direct usage fees for Layer 3 Wholesale Broadband these services are subject to the ***Acceptable Use Policy***.

Note that the pricing components are available in the **Wholesale Price List**.

## 6.2 Customer Connection Fees

If a premise does not have an ONT installed or an ONT has been installed but not paid for, two charges may apply.


These charges are:

- **Network Connection Charge (NCC)** – this charge applies for Single Dwelling Units (SDU) where there is no lead in fibre or ONT installed at the premise and is for the inaugural installation of the ONT.
- **Network Development Charge (NDC)** – this charge applies for prebuilt premises, typically Multi Dwelling Units (MDU), to recover the costs of the pre-provision of ONT and fibre infrastructure.

The NDC and NCC charges are set out in the **Wholesale Price List**.

The NDC & NCC will only be charged to an RSP when they are coordinating and scheduling the installation of the network infrastructure on behalf of the End-user. Charges do not apply at a site where a service had previously been activated, or if they have already been levied.

If the RSP decides to act on behalf of the End-user these charges can be seen in the RSP portal address checker. A redacted version of this can be seen in the screen shot below. This information is also contained in the API outputs.


**OPTICOM**  
Networks

Orders

Appointments

Products

Properties

Search

Site Qualification

Trouble Tickets

Users

Profile

Training

Property Search

Property ID	OPC000005528242	New Development Charge	No
Community	Mahala	New Connection Charge	Yes
Exchange	MAHA	Active End User Registration	No
OSA	OSA500000000000	Active Open Appointment	No
Region	Urban	Demand Types	Standard Install
Serviceability Status	Serviceable - Shortfall	Serviceability Class	2
Primary Access Technology	FTTP	Serviceability Date	13/04/2022

Supporting Product Features

FTPUNIV	No	Type	FTTP	Service Class	2	
IPoE	Yes	IPv6	Yes	IPv6IPoE	Yes	
MTU	1526	QinQ	Yes	TC1	Yes	TC2 No
Available	Yes	Capacity	500	Feature Type	TC4	Unit Mbps
Available	Yes	Capacity	150	Feature Type	TC1	Unit Kbps

Figure 17: Notification of NDC and DCC in the RSP Portal

### 6.3 Customer Activation Fees

For each logical activation a charge will be levied. This will be levied whether this is the first activation at a premise or is a service that has been transferred in from another RSP. There is no additional activation charge for upgrading or downgrading services.

Product Code	Description	Charge	Period
OPHAEB-CF	Service Activation Fee	\$ per activation of a Layer 3 Wholesale Broadband service	Once-off per Layer 3 Wholesale Broadband (non-recurring)

*Table 3: Service Activation Fee Construct*

There will also be fees levied for missed appointments as part of this process.

The charge for this service is set out in **Wholesale Price List**.

The Service Activation Fee will be charged in addition to the NDC or NCC charges.

### 6.4 Additional Fees

Subsequent fees will apply for failed installations, customer non-attendance and re-attendance where the actions of the End-user (or RSP acting on behalf of the End-user) have impacted the ability of Opticomm to connect the premises.

These will be billed by Opticomm to the RSP and the RSP will be responsible for payment of the amounts to Opticomm. It is a matter for the RSP to seek reimbursement of these costs from its end-user.

Product Code	Description	Charge	Period
Missed Appointment Fee (including reattendance)	Charge for missed appointment where the end user is not present, or access is not possible during the schedule appointment window	\$ per missed appointment*	Once off (non-recurring)

\* refer **Wholesale Price List** for applicable pricing

*Table 4: Missed Appointment Fee*

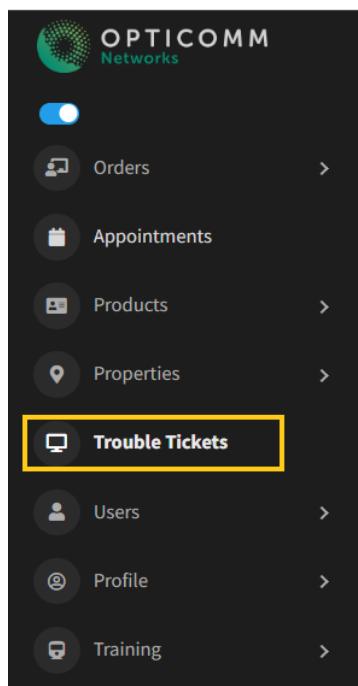
### 6.5 Ongoing Fees

For each service there is a monthly ongoing fee that is billed in advance.

There are no direct usage fees for the Layer 3 broadband service such as a charge per gigabyte. All services are subject to the **Acceptable Use Policy**.

## 7.0 Operational Support

### 7.1 Obligations on the RSP



As this is a wholesale service the RSP will need to provide initial support to End-Users. This will include trouble shooting directly with End-users for gateway connectivity, power, and general troubleshooting.

Further information is available in trouble shooting checklist in the **Operations Manual**.

After initial troubleshooting has been completed by the RSP with the end user the RSP will be able to log a fault with Opticomm via the RSP Portal, API or Network Operations Centre (NOC).

A ticket can be logged in RSP portal via the “Trouble Tickets” menu item on the left has side.

A new ticket can be created from this site on the right-hand side of the ticket summary window:

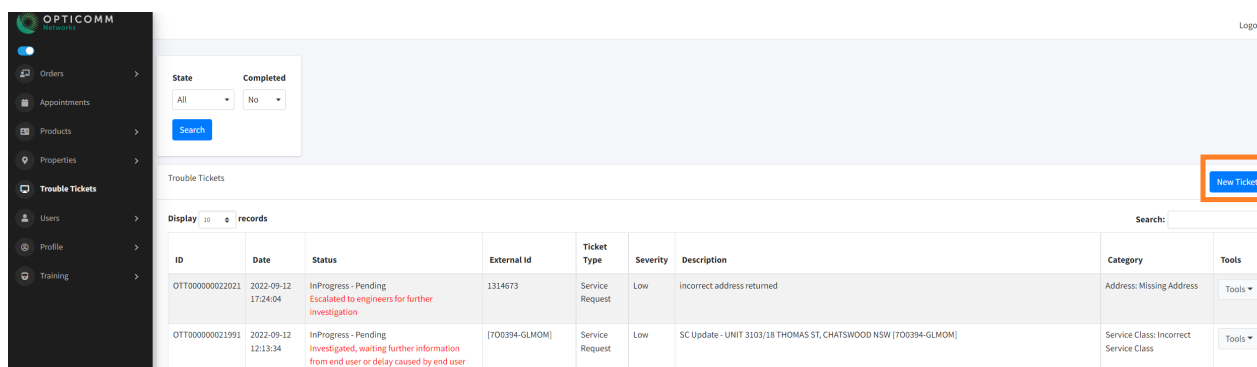


Figure 18: Creating a new trouble Ticket

It is possible to view a list of existing tickets with status on the ticket. In addition, the RSP can view a summary, add notes, and see reason codes.

When creating a new trouble ticket, the user can select one of 3 types of trouble ticket: faults, service requests or infrastructure events.

Further information for these types of tickets can be found in the **Operations Manual**.

The screenshot shows a web form titled "New Ticket" with a close button (X) in the top right corner. The form contains three main sections: "External Id" with a text input field, "Ticket Type" with a dropdown menu, and a "Category" section which is currently hidden. The "Ticket Type" dropdown is open, showing a list of options: "Select" (highlighted in green), "Trouble Ticket", "Service Request", and "Infrastructure Event" (highlighted in blue). A small yellow button is visible to the right of the dropdown list.

*Figure 19: Ticket Types*

After a ticket type has been selected then the type of fault will need to be registered along with the service ID for the fault.

The screenshot shows the same "New Ticket" form, but now the "Category" dropdown menu is open. The "Ticket Type" dropdown is now set to "Trouble Ticket". The "Category" dropdown shows a list of options: "Select" (highlighted in green), "Service Restoration", "Performance Issue", and "Infrastructure Restoration" (highlighted in blue). A small yellow button is visible to the right of the dropdown list.

*Figure 20: Entering a Trouble Ticket via the portal*

It is possible to determine diagnostic information about a site using the diagnostic section of the RSP portal. This can be useful information before logging a fault. Diagnostic information can also be obtained from the diagnostic API.

In order to perform the diagnostic search for a service, the user should click through "Services" on the portal menu on the left-hand side.



## 8.0 Experience and Bandwidth

Layer 3 Wholesale Broadband provides no priority for traffic on the network and it is assumed that all traffic is best effort (similar to TC4) bandwidth. Bandwidth for end users will vary depending on time of day and the listed bandwidth is based on Peak Information Rate (PIR) rather than a committed information rate (CIR).

It should be noted that RSPs can choose to carry voice traffic across this network however unlike the equivalent EBS service no TC1 has been provisioned or is included with this service. The RSP will be responsible for reporting to the ACCC on the Typical Evening Speeds and Broadband performance data, and ensuring their marketing does not misrepresent such items.

## 9.0 Future Product Road Map

There are several other features that will be added periodically to the Layer 3 Wholesale Broadband product set.

These may include:

- RSP Reporting Portal which will provide data about network connectivity and performance of the end user services.
- Trouble Shooting & Diagnostics tools for the API specific to the Layer 3 and Layer 2 access service.
- Public IP addressing – allocating public ranges for use by end users including small business customers.

## 10.0 Service Level

Layer 3 Wholesale Broadband is not subject to the **Service Level Agreement** and no rebates are available for Layer 3 Wholesale Broadband. Layer 3 Wholesale Broadband will target the same performance and operational levels specified in the **Service Level Agreement** for the Ethernet Bitstream Service; however, this will be on a best efforts basis only with no committed performance or compensation payable.

## 11.0 Glossary of Terms

**Ethernet Bitstream Service** has the meaning given in Section 1 of the Ethernet Product Specification Guide. To avoid doubt, each Ethernet Bitstream Service is also a 'Service' under the RSPMA.

**FTTB** means fibre-to-the-basement.

**FTTP** means fibre-to-the-premises.

**IPoE** means IP over Ethernet

**HFC** means hybrid fibre coaxial.

**Kbps** means kilobit per second.

**Mbps** means megabit per second. It is equivalent to 1,000,000 bits per second.

**NCC** means new connection charge.

**NDC** means new development charge.

**NNI** means network to network interface.

**NTD** means network termination device and in the case of an FTTP network is an ONT.

**ONT** means optical network termination device (also known as a 'network termination device' or NTD).

**PIR** means the peak information rate applicable to the Service.

**PPPoE** means Point to Point Protocol over Ethernet

**POI** means point of interconnect.

**RSPMA** means the Opticomm RSP Master Agreement.

**Service** has the meaning given in the RSPMA.