

Chorus UFB Services Agreement
Bitstream Services: Service Description for
RGW with Wi-Fi

December 2020

[This service will Stop Sell 19 November 2023
and be withdrawn November 2024]

1 Interpretation

- 1.1 References to clauses or sections are references to clauses or sections in this Service Description unless expressly provided otherwise. The definitions set out in the General Terms and the Operations Manual apply to this Service Description unless expressly provided otherwise.
- 1.2 References to the Operations Manual are references to the Bitstream Services Operations Manual.

2 The RGW with Wi-Fi Service

- 2.1 The RGW with Wi-Fi Service is an optional add-on product feature to Bitstream 2 and Hyperfibre 2 services. This add-on feature allows the GPON or Hyperfibre ONT to act as the Residential Gateway, eliminating the need for a separate device.
- 2.2 A diagram of the configuration for the RGW with Wi-Fi Service is set out in Appendix A.
- 2.3 The RGW with Wi-Fi service is an optional, add-on, service which, when combined by a Service Providers with an input service such as Bitstream2 or Hyperfibre 2 service and other LFC services (or with the Service Provider's own network or wholesale services provided by other service providers), provides fibre-based telecommunications services to End Users.
- 2.4 The RGW with Wi-Fi Service has the following key characteristics:
 - 2.4.1 a Residential Gateway function that causes the ONT to act as a residential gateway, with the standard residential gateway features set out in Appendix B;
 - 2.4.2 Virtualisation of the UNI function of the Bitstream 2 or Hyperfibre 2 Access-EVPL Ethernet bitstream service. The Access-EVPL bitstream service still allows bitstream frames, including RGW Voice frames, to be exchanged between the Residential Gateway and the Service Provider over a single vlan.
 - 2.4.3 All Ethernet ports on the ONT become associated with the Residential Gateway function, allowing devices within the End User premises or tenancy to connect directly to the Residential Gateway via compatible Ethernet cables.;
 - 2.4.4 Includes an optional Wi-Fi service that allows compatible devices within the End User premises or tenancy that are within range of ONT to connect to the Residential Gateway via wireless ethernet.
 - 2.4.5 Includes one or more ATA ports, each of which support the RGW Voice service as specified in the RGW Voice Service Description;
 - 2.4.6 Can be configured/managed locally by the End User via a GUI, or remotely by the service Provider using the LFC provided Remote Management Platform, which will be accessible through a GUI and APIs.

3 RGW with Wi-Fi Service and implementation activities

Installation Services

- 3.1 The RGW with Wi-Fi Service requires an RGW-compatible ONT, which is either provided as part of a new Bitstream 2 or Hyperfibre Standard Install, as set out in the Operations Manual, or as a replacement of a current ONT with an RGW capable ONT. The RGW capable ONT may have a different footprint to the GPON ONT and may be wall mounted;

Termination Point

- 3.2 As the Residential Gateway function replaces the Bitstream 2/Hyperfibre 2 UNI function the Customer Premises Layer 2 termination point of the bitstream service is virtual and internal to the RGW capable ONT. The Layer 1 termination points are the physical ports on the ONT, including the Wi-Fi antenna, associated with the Residential Gateway service.

Testing

- 3.3 The LFC will, subject to service provider network configuration, as part of a standard install or ONT replacement, perform a functional test of the RGW with Wi-Fi Service at the physical ports on the ONT and functional tests on the available Wi-Fi ports.

Core RGW with Wi-Fi Service

- 3.4 The core bitstream services provided as part of the RGW with Wi-Fi Service are as follows:

- 3.4.1 The optional add-on Residential Gateway function has the following key attributes:

- (a) All features and functions can be configured or managed by the End User through a Web Portal accessed via LAN ports, or by the Service Provider using the LFC-provided Remote Management Platform GUI or APIs.
- (b) A default per-Service Provider WAN Interface, configured remotely, to enable the Residential Gateway to communicate with the Service Provider Broadband Network Gateway (BNG);
 - (i) Depending on the model of RGW-compatible ONT, it will include: Multiple RJ-45 10/100/1000 Ethernet LAN port with auto negotiation and MDI/MDIX auto sensing;
 - (ii) For Hyperfibre 2 services, up to one RJ-45 10 Gbps Ethernet LAN port that supports 100M/1G/2.5G/5G/10Gbps auto negotiation;
 - (iii) Wi-Fi with support for multiple SSIDs; The Wi-Fi standards will vary between different ONTs;
 - (iv) One or more ATA port/s for carrier grade voice services, using the RGW Voice service;
 - (v) USB ports, accessible to all LAN devices;

where the number of ports and supported Wi-Fi standards will vary between ONT models and are expected to change over time.

- (c) By default, Customer facing ethernet ports are untagged, with all frames treated as Low Traffic Class.
- (d) Associated with a Bitstream 2 or Hyperfibre 2 Access-EVPL bitstream service that provides WAN connectivity between the Residential Gateway function and a single VLAN located on the E-NNI, with the following characteristics:
 - (i) A single 802.1ad VLAN (Service VLAN ID/ Customer VLAN ID) terminating on the E-NNI at the POI.
 - (ii) A QoS bandwidth profile that describes how traffic is carried between the UNI or Open Access Gateway as applicable, and the E-NNI.
 - (iii) All upstream frames, including RGW Voice frames, are classified and treated as Low Traffic Class, with PCP flag set to 0, and will be policed according to the Low Traffic Class QoS policy;
 - (iv) Downstream frames will be treated according to the applicable Bitstream 2 or Hyperfibre 2 QoS policy, but, by default, will be treated as Low Traffic Class by the Residential Gateway function.
- (e) A standard RGW feature-set, see Appendix B for more information.

Operations, Administration and Maintenance

- 3.5 The RGW with Wi-Fi Service will support Service Provider remote access to the Residential Gateway function via a Remote Management Platform (RMP) for appropriate configuration and management. A Service Provider may request particular management attributes via the Product Development Process.
- 3.6 The Residential Gateway function and Wi-Fi can be configured locally by the End User via a Web GUI.

Service Requirements

- 3.7 To use the RGW with Wi-Fi Service the Service Provider must have the capability to access and interconnect with the underlying bitstream 2 or Hyperfibre 2 service;

Additional Service Characteristics

- 3.8 The LFC will provide certain support and other assistance including:
- 3.8.1 an electronic facility for submitting Service Requests;
 - 3.8.2 an electronic facility for fault notifications; and
 - 3.8.3 tools to assist the Service Provider in determining whether an RGW-capable ONT currently exists at an end-customer premises or tenancy (pre-qualification).
- each as more particularly set out in the Operations Manual.
- 3.9 The RGW with Wi-Fi Service specifically excludes:
- 3.9.1 provision or maintenance of any cabling or connection or active device:
 - (a) beyond the Service Demarcation Points described in clauses 4.1 and clause 5.1; and
 - (b) between the jack terminating the LFC provided Fibre Lead-in and the RGW capable ONT where that cabling or connection is not provided by the LFC and the LFC has not agreed to take responsibility for that cabling or connection;
 - 3.9.2 the Residential Gateway (RGW) function and Wi-Fi are separate services to the base bitstream 2 or Hyperfibre 2 Service offering, i.e. it is an add-on optional service associated with a Bitstream 2 or Hyperfibre 2 offering.
 - 3.9.3 configuration, monitoring, operation, on-going support or maintenance of Service Providers' or End User's applications, equipment or networks;
 - 3.9.4 supply of AC mains & UPS power, accommodation space, heating, ventilating, and air conditioning and facilities at the POI or End User Premises or Service Provider Premises or NBAP (as applicable); and

4 Service Demarcation Point at End User Premises or Service Provider Premises or NBAP (as applicable)

- 4.1 The Service Demarcation Point at the End User Premises is the physical 1G, 10G or WiFi ports on the RGW Capable ONT.
- 4.2 The RGW with Wi-Fi Service excludes the End User Premises wiring. If a fault reported by the Service Provider is found to be caused by the End User Premises or Service Provider Premises or NBAP (as applicable) equipment (CPE) or the wiring at the End User Premises or Service Provider Premises or NBAP (as applicable) beyond the Service Demarcation Point, then the Service Provider may be charged the "No fault found" Ancillary Charge in the Price List. Note the wiring should comply with, or exceed, the industry standard Premises wiring requirements which are available at www.tcf.org.nz.

- 4.3 The RGW with WiFi service is an add-on service to an underlying bitstream 2 or Hyperfibre service, i.e. the Service Provider must always purchase and maintain a bitstream 2 or Hyperfibre 2 service while taking the RGW with WiFi service.

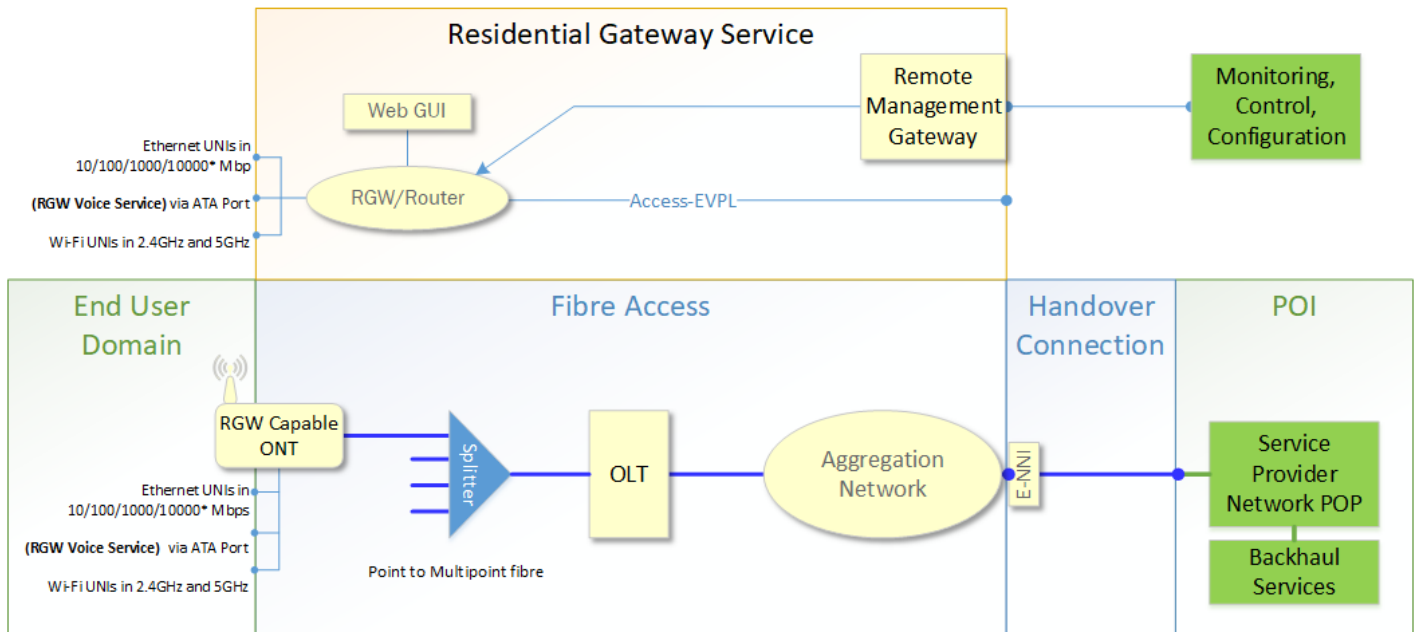
5 Service Demarcation Point at POI

- 5.1 The Service Demarcation Point at the POI is the Service Demarcation Point for the underlying Bitstream 2 or Hyperfibre 2 service, which is delivered as a single VLAN (the logical Service Demarcation Point) per Access-EVPL on the UFB Handover Connection located at the POI.
- 5.2 The physical Service Demarcation Point for the underlying bitstream 2 or Hyperfibre 2 service is the MOFDF in the POI, which is part of the UFB Handover Connection Service.
- 5.3 The UFB Handover Connection Service is a separate service and is a prerequisite to the supply of the underlying bitstream 2 or Hyperfibre 2 service for the use of the optional add-on RGW with Wi-Fi Service i.e. Service Provider's must first purchase and then continue to maintain a UFB Handover Connection Service at all times while taking the underlying bitstream 2 and Hyperfibre 2 service and associated RGW with Wi-Fi Service.

6 LFC and Service Provider Responsibilities

- 6.1 Other LFC and Service Provider responsibilities are detailed in the General Terms and the Operations Manual.

Appendix A – Diagram



This is a generic diagram showing the standard configuration and Service Demarcation Points. It is not intended to represent every situation or detailed physical architecture. The following points should be noted:

- The RGW with Wi-Fi Service and pricing applies to the RGW/Router function on the RGW-compatible ONT, including the physical interfaces on the ONT.
- The RGW with WiFi service is associated with an underlying bitstream 2 or Hyperfibre 2 Access-EVPL service, which provides ethernet connectivity between:
 - the interfaces on the RGW with Wi-Fi ONT located at the Customer Premises; and
 - The logical interface (VLAN) on the E-NNI at the POI.
- Availability Service Levels apply from the physical interfaces on the RGW with Wi-Fi ONT located at the Customer Premises to the E-NNI at the POI.
- Network performance Service Levels (availability, network performance) apply from the internal logical WAN interface on the RGW function internal to the ONT located at the Customer Premises to the E-NNI at the POI.

Appendix B – Residential Gateway function Specification

The RGW functions and interfaces will vary between ONT models, and are expected to be updated over time.

Specific model specifications will be published on the Chorus Service Provider website.

Function	Specification
Residential Gateway function Configuration and Management	Local: Web GUI via ethernet ports Remote: GUI and/or APIs via Remote Management Platform
WAN Interface	DHCP or PPPoE Additional characteristics may include ARP upstream every 30s, depending on ONT model.
Physical Interfaces	ONT models will include a selection of: <ul style="list-style-type: none"> • 10 Gbps interface supports 100M/1G/2.5G/5G/10Gbps auto negotiation • RJ-45 10/100/1000 Ethernet port with auto negotiation and MDI/MDIX auto sensing • ATA POTS ports for carrier grade voice services • USB 3.0 ports, accessible to all LAN devices
WiFi	WiFi standards specific to ONT model, but including: <ul style="list-style-type: none"> • 64/128 WEP encryption • WPA, WPA-PSK/TKIP • WPA2, WPA2-PSK/AES • Multiple SSIDs
ONT Characteristics	Specific per ONT model, but including: <ul style="list-style-type: none"> • Built-in layer 2 switch; Line Rate L2 traffic • WLAN on/off push button • WPS on/off button
Ethernet	Traffic classification and QoS capability VLAN tagging/detagging and marking/remarking of IEEE 802.1p per Ethernet port. Forward Error Correction (FEC) Frame Check Sequence (FCS) error counter Ethernet-based Point-to-Point (PPPoE) Traffic classification and QoS capability Routed mode per LAN port

Function	Specification
RGW Voice	<p>See RGW Voice service description for more detail, but includes:</p> <ul style="list-style-type: none"> • SIP voice support • Multiple voice Code • DTMF dialling • Echo cancellation (G.168) • Fax mode configuration (T.30/T.38) • Caller ID, call waiting, call hold, 3-way calling, call transfer, message waiting
Residential Gateway functions	<p>Typical Residential Gateway services. For example:</p> <ul style="list-style-type: none"> • Triple-Play services, including voice, video and high-speed Internet access • IP video distribution • DHCP client/server • DNS server/client • DDNS • Port forwarding • Network Address Translation (NAT) • Network Address Port Translation (NAPT) • UPnP IGD2.0 support • ALG • DMZ • IGMP snooping and proxy (v2/v3) • Performance monitoring and alarm reporting • IP/MAC/URL filter • Multi-level firewall and ACL