Bitstream Backhaul Service Industry Process Manual

Version Control

Version	Status	Update	Effective Date
Version 1.1		Rebranded	April 2016
V2.0	Final	This document is based on V1.1 Implementation of Standardised Change Control.	13/06/2017

This document follows change control procedure:

Proposed is defined as a document status when the approved document is uploaded to Proposals Section of open eir Website.

Final is defined as a document status when the approved document is uploaded to the relevant section of the open eir Website following the publication period.

For information:

- Historical Document History Table located at end of Document.
- Publish means the action of uploading a document to the website regardless of status or location.
- If there are changes to the document between 'Proposed' and 'Final', change control operates.

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1 Introduction

1.1 General

This document is the Industry Process Manual (IPM) for the ADSL/ADSL2plus Bitstream Backhaul service. Its purpose is to define an industry agreed set of processes covering Order Management, Fault Management and Wholesale Billing.

The assumed readership of this document is the Access Provider (open eir) and Operator's purchasing the ADSL/ADSL2plus Bitstream service.

The IPM should be read in conjunction with the current version of open eir's Bitstream Backhaul Service Product Description and the open eir Service Level Agreement for the Service Delivery and Service Assurance of the open eir ADSL/ADSL2plus Bitstream Backhaul Service. Current versions of both documents are available on the website at www.openeir.ie/Products/Access/Bitstream

1.2 Definition of the Bitstream Backhaul Service

The Bitstream Backhaul Service provides access and transport services for Operators from the open eir ADSL Regional POPs (i.e., handover points for the Bitstream service) to a nominated Point of Handover (POH). All the individual end user connections are aggregated together and handed over to the Operator via this Backhaul link. Bitstream Backhaul can be provided to the nominated POH as Customer Sited Handover (CSH) or In-Building Handover (IBH) [1]

There are two Backhaul options available to Operators:

1. Bitstream Ethernet Connection Service (BECS) which is specifically used to deliver Bitstream Services with an IP interface (Bitstream IP and Bitstream MB)

2. Bitstream Connection Service (BCS) which is specifically used to deliver Bitstream Services with an ATM interface (Bitstream VC)

[1] In-Building Handover is available to an Operator when availing of a Bitstream Backhaul link being provisioned in an exchange that facilitates Local Loop Unbundling in accordance with the Local Loop Unbundling regulations currently in force.

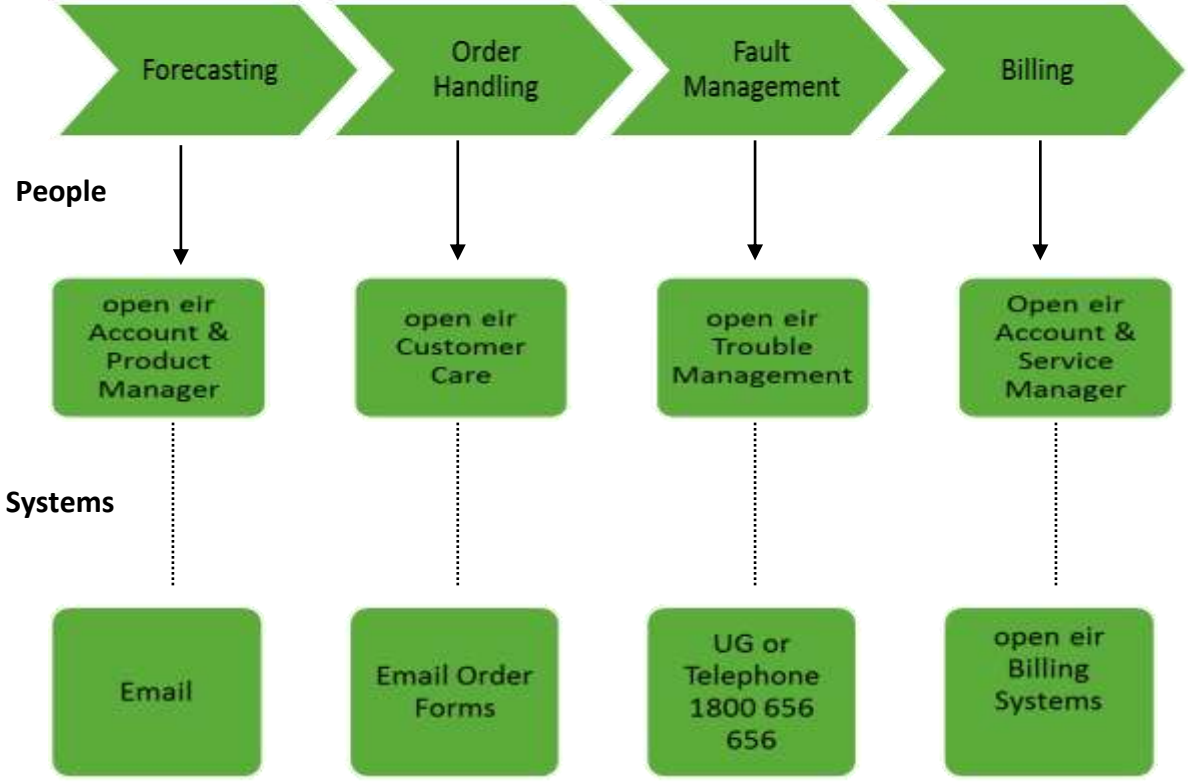
Bitstream Backhaul connections are available in the following bandwidths:

Backhaul Type	Bandwidth
BCS	45M CSH
	45M IBH
	STM-1 CSH
	STM-1 IB
BECS	100M CSH*
	250M CSH*
	500M CSH
	500M IBH
	1Gb CSH
	1Gb IBH
	10Gb CSH*

*Customer Sited handover option only available for these bandwidths

Please refer to the Bitstream Service Product Description and the Bitstream Backhaul Product Description for more information on the Bitstream IP, Bitstream MB and Bitstream VC product offerings

The following flowchart gives an overview of the main processes for the Bitstream Backhaul service.



The above main processes are outlined in detail in the sections to follow.

2 Forecasting Process

This section outlines the industry processes to support the forecasting for Bitstream Connection Service and Bitstream Ethernet Connection Service links.

It is recommended that Operators requiring multiple links with bandwidths of 1G or above forecast their requirements to open eir on a quarterly basis.

Backhaul capacity requirements should be submitted by email to the open eir Account Manager and information required includes number of circuits, bandwidth requirements and handover location. They should also specify whether the circuit should be Customer-Sited (CSH) or In-Building (IBH).

The Bitstream Backhaul forecasting process supports open eir's NTU procurement, capital forecasting and network build-out planning and is disassociated from the Provisioning process or the Bitstream Backhaul SLA.

3 Order Handling

This section describes the high-level order handling processes for Bitstream Backhaul. It outlines in detail the definitions used and the information, which needs to be passed by the Operators through the order handling process to allow an order to be accepted, validated and provisioned.

3.1 Overview

There are four product components which form the Bitstream Backhaul Service and for which separate orders are required:

- The Backhaul Link (BECS or BCS) providing physical connectivity from the eircom ADSL Regional POP to the Operator's nominated Handover point.
- A virtual circuit (ECC or DVC) to provide access from the Operator's Home Gateway (HGW) to the open eir IP/VC network. This is a virtual circuit on which a protocol sits that enables the end user to access the Operator network as if they were physically connected to it.
- Radius profile set-up. This is the information required to establish an L2TP tunnel from the open eir BRAS's to the Operator LNS/HGWs it includes the domain name, tunnel destination IP address (es) and L2TP tunnel password.

- Modifications are required to the BECS circuit in order to support the Bitstream MB product offering. Additional Bitstream Backhaul VLAN and REALM order forms are required if an Operator wishes to order this product. Please see Section 3.9 for more information on the processes involved in setting up Bitstream MB on a BECS link.

When ordering or making changes to their Bitstream Backhaul service, Operators must complete a Bitstream Backhaul Order Form and a Radius Profile Form and submit both to their open eir Account Manager. The Order Form for this service can be obtained from the Operator's open eir Account Manager (see Appendix A for copies of the order forms).

Bitstream Backhaul links are physically delivered over fibre, which is subject to survey and availability. On-site appointments for installation of the fibre and the NTU will be required and arranged through the Operator contact.

The Radius form is required in order to set up the Operator domain names on the open eir Radius servers. open eir Radius servers must contain the tunnel profile that the BRAS require to build the tunnel to the Operator's Home Gateway. The open eir Radius servers do not contain individual user information of the Operator's end users, i.e., open eir will not perform AAA authentication for the Operator's internet traffic. The Operator's Home Gateway is responsible for user authentication and will allocate the authenticated end user with an IP address.|

3.2 Order Types

The following order types are supported:

- Provide
- Upgrade
- Downgrade
- Cease
- Move
- Cancel
- Change
- Migration

All orders for Bitstream Backhaul links are placed via an order form and all relevant sections of the order form must be completed.

Orders will be accepted by email and must be sent to the Operator's open eir Account Manager.

3.2.1 Bitstream Backhaul Link Order Form

Please see Appendix 1 for a copy of the Bitstream Backhaul Circuit Order Form. The following fields are mandatory:

- Service Required (BECS or BCS)
- Order Type (provide, upgrade, cease)
- Required Bandwidth
- Interface Type
- Operator information details
- Bitstream Backhaul (BECS/BCS) point of handover site address
- Bitstream Backhaul (BECS/BCS) point of handover site contact name, number and email address
- Existing Bitstream Backhaul circuit details (if applicable)
- Operator Declaration and signature

3.2.2 Radius Profile Order Form

Please see Appendix 2 for a copy of the Bitstream Radius profile (REALM) form. In order to add the profile for a Bitstream Operator to Radius the following mandatory information is required:

- Operator information details
- Domain name = "@provider"
- Number of Home Gateways (HGWs)
- Home Gateway address (es)
- Tunnel-password for HGW

3.3 Provide Order Process

The standard provisioning process is as outlined below. The Bitstream Backhaul Service has non-standard lead-times determined on a project-by-project basis. Timelines will depend on the individual order and all orders are subject to survey. A desktop survey will be conducted to assess each Bitstream Backhaul order on a case-by-case basis. Subject to availability in the requested handover location, a forecasted delivery date will be provided after the order is assessed. At this stage the order may be accepted by open eir and may proceed to delivery of the circuit.

Prior to issuing the order some additional information needs to be supplied by open eir's Core Network team.

The following minimum details are required when ordering a BECS/BCS link.

- Operator information details
- New Connection Site Details (address of the nominated point of handover)
- Bitstream Backhaul (BECS/BCS) point of handover site contact name, number and email address
- Required Bandwidth
- Interface Type
- Domain Names
- HGW IP address (es)
- Any additional information

3.3.1 Pre-Order Phase

1. Operator submits a Bitstream Backhaul Order form and REALM form to their open eir Account Manager.
2. The Account Manager forwards the order forms to the Bitstream Backhaul Product Manager who validates that all the required information has been supplied and is correct.

3. The Bitstream Backhaul Product Manager submits a fibre survey request to Access Networks requesting fibre between the nominated Edge Router Device site and the nominated handover site. If fibre build is required a forecast date is returned.

4. The Bitstream Backhaul Product Manager forwards the BECS/BCS order form to open eir Networks (DSL design team) to check for capacity.

5. Networks confirm that an edge router device exists at the nominated handover location and there is sufficient capacity to provide Backhaul service.

6. Networks return the order form to the open eir Bitstream Backhaul Product Manager with the following information:

    - Operator Handover Point/exchange for delivery
    - Assigned port at the exchange
    - IP and VLAN address
    - Fibre Details
    - Equipment and GBIC type

7. The Bitstream Backhaul Product Manager forwards the updated order form to the OeCC who then issue the order on the internal order management system (OMS)

3.3.2 Provide order for BECS

1. OeCC raise provide order for the Bitstream Ethernet Connection Service link.

2. open eir assigns a Project Manager to the order to co-ordinate and manage the tasks involved in delivering the circuit.

These include the following:

a. Requests fibre between the Operator Handover site and the nominated open eir Edge Router device.

b. Confirms location to install the NTU at the Operator Handover site. The Operator is responsible for ensuring that adequate space and a power supply is in place to support the installation.

c. Liaises with the Bitstream Operator's nominated point of contact when scheduling appointments to install the fibre and the NTU.

d. Co-ordinate the development of the configurations of the NTU with Networks.

e. Following the installation of the physical link, the Project Manger coordinates testing with the field team. Circuit commissioning and activation of the BGP configuration (if required) is conducted in conjunction with the Bitstream Operator.

f. Completing the order once successful testing has been completed.

3. open eir Operations are responsible for setting up the domains and Radius profiles and notify the open eir Bitstream Backhaul Product Manager of the date and time of implementation.

4. open eir Bitstream Backhaul Product Manger advises the Bitstream Operator of the date and time of implementation and request a point for contact for open eir Operations.

5. open eir Operations complete the job on the agreed date and notify the Bitstream Operator point of contact so that they can complete their testing and confirm that the domain names have been set up correctly.

6. Order is completed following confirmation from the Operator that the domain names have been set up correctly or within 24 hours of the implementation date if no further correspondence is received from the Operator.

3.3.3 Provide order for BCS

1. OeCC raise provide order for the Bitstream Connection Service link.

2. open eir assign a Product Manager to the order to co-ordinate and manage the tasks involved in delivering the circuit. These include the following:

   a. Requests fibre between the Operator Handover site and the nominated open eir ATM switch in the open eir ADSL Regional POP.

   b. Liaises with the ATM Design Engineer in open eir Networks to source and order the appropriate cards and equipment for installation on the ATM switch.

   c. Confirms location to install the NTU at the Operator Handover site.

   d. Liaise with the Bitstream Operator's nominated point of contact when scheduling appointments to install the fibre and the NTU. The Operator is

responsible for ensuring that adequate space and a power supply is in place to support the installation.

e. Completing the order once successful testing has been completed.

3. open eir Operations are responsible for setting up the domains and Radius profiles and notify open eir Bitstream Backhaul Product Manager of the date and time of implementation.

4. open eir Bitstream Backhaul Product Manger advises the Bitstream Operator of the date and time of implementation and requests a point for contact for open eir Operations.

5. open eir Operations complete the job on the agreed date and notify the Bitstream Operator point of contact so that they can complete their testing and confirm that the domain names have been set up correctly.

6. Order is completed following confirmation from the Operator that the domain names have been set up correctly or within 24 hours of the implementation date if no further correspondence is received from the Operator.

3.4 Upgrade order process

The following minimum details are required when upgrading a BECS/BCS link:

- Existing BECS/BCS circuit ID
- Operator information details
- Bitstream Backhaul (BECS/BCS) point of handover site contact name, number and email address
- Required Bandwidth
- Interface Type
- Any additional information

1. Operator submits signed order form to their open eir Account Manager/Bitstream Backhaul Product Manager.

2. The Bitstream Backhaul Product Manager forwards the order form to open eir Networks who confirm if capacity is available.

3. open eir Networks returns the updated order form to the Bitstream Backhaul Product Manager who then forwards it to the Oecc for order entry.
4. open eir Networks assign a Project Manager who is responsible for co-ordinating the service delivery tasks between the relevant teams within open eir and also with the Operator's point of contact if required.
5. Once physical installation has been completed a date and time is agreed with the Operator point of contact to complete the upgrade and commission the circuit.
6. On the appointed date, Core Network Service Delivery upgrades the circuit and following testing with Operator completes the order.

3.5 Downgrade order process

The following minimum details are required when downgrading a BECS/BCS link:

- Existing BECS/BCS circuit ID
- Operator information details
- Bitstream Backhaul (BECS/BCS) point of handover site contact name, number and email address
- Required Bandwidth
- Interface Type
- Any additional information

1. Operator submits signed order form to their open eir Account Manager/ Bitstream Product Management.
2. open eir Product Manager forwards the order form onto the OeCC for order entry.
3. open eir Networks assign a Product Manager who is responsible for co-ordinating the service delivery tasks between the relevant teams within open eir and also with the Operator's point of contact if required.
4. A date and time is agreed with the Operator point of contact to complete the downgrade and commission the circuit.
5. On the appointed date, Core Network Service Delivery downgrades the circuit and following testing with Operator completes the order.

3.6 Cease order process

The Bitstream Backhaul Service is subject to a minimum term of 12 months. Cease orders after the minimum term must be placed with the OeCC at customercare@openeir.ie and copied to the open eir Account Manager, using the standard open eir Bitstream Backhaul order form. The timeline for a cease order is one calendar month, with the cease effective from the last day of the subsequent calendar month. Therefore, if a cease order is placed mid-month, the cease will only become effective from the end of the following month, and the customer will be required to pay rental for that period

The following minimum details are required when ceasing a BECS/BCS link:

- Existing BECS/BCS physical circuit ID
- Existing BECS/BCS virtual circuit ID
- Operator information details
- Bitstream Backhaul (BECS/BCS) point of handover site contact name, number and email address
- Any additional information

The process for ceasing a Bitstream Backhaul circuit is as follows:

1. The Operator submits the cease order form to the OeCC copying their open eir Account Manager.
2. The order form is validated and entered on the internal order management system.
3. The due delivery date for the cease order is the last day of the next month.
4. The virtual circuit is ceased prior to disconnecting the physical link.
5. open eir Networks will schedule the cease with the Operator. The circuit is ceased in the following sequence on the agreed date:
    a. Cease traffic VLAN (virtual circuit)
    b. Cease management VLAN
    c. Cease the physical circuit

d. Arrange an appointment with the Operator to recover the NTU at the nominated handover point

3.7 Cancel order process

The following minimum details are required when cancelling an order for a BECS/BCS link:

- BECS/BCS circuit ID
- Order Reference
- Operator information details
- Bitstream Backhaul (BECS/BCS) point of handover site contact name, number and email address
- Any additional information

1. Bitstream Operator requests the cancellation through their open eir Account Manager.
2. The OeCC enters the cancel order on the internal provisioning system and updates the open eir Account Manager and the Bitstream Backhaul Product Manager when this has been done.
3. The Bitstream Backhaul Product Manager notifies the Product Manager in core networks of the cancellation.
4. The Product Manager notifies the relevant service delivery and provisioning team and if necessary, schedules an appointment to recover the NTU at the Operator's site.

Please note once the order has been validated and provisioning has started cancel charges can apply. This is on a case by case basis regarding the reason for the cancellation.

3.8 Move order process

When an Operator wishes to move a Bitstream Backhaul connection to a new location the following guidelines must be followed:

- Move orders should be managed as an agreed project between open eir and the Operator. They should be co-ordinated with the Bitstream Operator / Wholesale Products and Core Networks Service Delivery to ensure minimum downtime for the Operator.
- Pre-order surveys are completed to ensure that there is adequate fibre and network capacity to facilitate the delivery of a Bitstream Backhaul link at the new location.

- Move orders are subject to non-standard mutually agreed lead-times.

Below are the outline steps to be followed when moving a Bitstream Backhaul connection from Location A to Location B. Move orders are treated as a cease and re-provide and will lead to a change in the Bitstream Backhaul circuit reference numbers for the physical and virtual links.

1. OeCC issues a cease order for the existing Bitstream Backhaul link (details of these order numbers in Section 8 of the Bitstream Backhaul order form).
2. Issues a provide order for the new Bitstream Backhaul link and cross reference the cease and provide.
3. A Project Manager is assigned to the orders. The Project Manager is responsible for coordinating the service delivery tasks between the relevant teams within open eir and also with the Operator's point of contact if required.
4. Once the physical installation has been completed for the new Bitstream Backhaul link a date and time is agreed with the Operator point of contact to complete the migration of Bitstream traffic onto the new link.
5. On the appointed date, open eir Networks commission the new circuit and following testing with Operator ceases the existing link and completes the orders.

3.9 Change Order process

There are a number of scenarios where an Operator may need to make changes to their Bitstream Backhaul connection. These requests are submitted to open eir by email and are managed by issuing change orders on the open eir internal ordering system OMS. There are currently no additional charges applied for change orders. The list of change order types specific to Bitstream Backhaul includes the following:

1. Add/Remove domain names on the open eir Radius servers
2. Add/Remove HGWs
3. Change Routing Options
4. AS Number
5. BGP password
6. Change MTU Size

7. S-VLAN

3.9.1 Add/Remove Domain Names

Below are the outline steps to be followed when adding or removing domain names on the open eir Radius server:

1. The Operator submits a REALM order form to their open eir Account Manager including the additional domain name(s) or specifying the one (s) that need to be removed.
2. Their Account Manager forwards the REALM form to the Bitstream Backhaul Product Manager who validates that all the correct information has been included on the form.
3. If no additional HGWs are being added or if none are being removed then the Bitstream Product Manager forwards the form to open eir Operations to schedule the job.
4. If changes are being made to the HGWs as well as the domain names then the form is also forwarded to open eir Networks to make the necessary adjustments on the Bitstream Backhaul links (see following section on HGWs for more information).
5. open eir Operations updates the Bitstream Backhaul Product Manager with a proposed date and time for making the change.
6. Bitstream Backhaul Product Manager confirms date and time with the Operator.
7. On day of the change, open eir Operations contact the Operator Point of Contact prior to and after implementing the change on the Radius servers.
8. The Operator point of contact performs own internal testing and confirms that the implementation has been successful or that further testing is required.
9. If Operator confirms to open eir Operations and the Bitstream Product Manager that set up is complete or if no correspondence from the Operator within twenty four hours then order is completed by open eir.

3.9.2 Add/Remove Home Gateway Addresses

Below are the outline steps to be followed when adding or removing HGWs on the open eir Radius server:

1. The Operator submits a REALM order form to their open eir Account Manager specifying the HGW IP addresses that they wish to add or remove from the network. The form should also include the domain names that the HGW address should be added to or removed from and the Bitstream Backhaul circuit ID(s) impacted by the change.
2. Their Account Manager forwards the REALM form to the Bitstream Backhaul Product Manager who validates that all the correct information has been included on the form.
3. The Bitstream Backhaul Product Manager forwards the form to open eir Operations to schedule the job.
4. The Bitstream Backhaul Product Manager emails the change request details to the OeCC who raises a change order against the relevant Bitstream Backhaul circuit on the internal order system and updates the Bitstream Backhaul Product Manager with the order numbers when raised.
5. The Bitstream Backhaul Product Manager notifies open eir Networks of the proposed changes to the HGWs on the Bitstream Backhaul link (s).
6. open eir Operations updates the Bitstream Backhaul Product Manager with a proposed date and time for making the change.
7. open eir Networks updates the Bitstream Backhaul Product Manager with a proposed date and time for implementing the changes to the Bitstream Backhaul circuit(s).
8. Bitstream Backhaul Product Manager confirms date and time with the Operator.
9. On day of the change, open eir Operations and open eir Core networks Service Delivery contact the Operator Point of Contact prior to and after implementing the changes. These changes may not take place on the same day but the Radius servers should be updated prior to making the changes to the Bitstream Backhaul links.
10. . The Operator point of contact performs own internal testing and confirms that the implementation has been successful or that further testing is required.
11. If the Operator confirms that set up is complete or if no correspondence is received by the Operator within twenty four hours then the order is completed.

3.9.3 Change Routing Options

Routing on the Bitstream Backhaul links is either done via a static route (for Operators with a single connection) or with BGP peering for an Operator with multiple handoff points.

In order to offer increased levels of resilience to their end users and to manage their capacity requirements, Operators can add further physical connections to the Bitstream Backhaul network. In the event of one link failing, the remaining link(s) will carry the Bitstream traffic. The redundant solution will permit the open eir BRASes to build multiple L2TP tunnels to multiple Operator Home Gateway routers.

Individual PPP sessions will be load-balanced into these L2TP tunnels.

In the case of multiple connections, an eBGP peering is established across each link between open eir and Operator.

- The Operator routers advertise the IP addresses of the L2TP tunnel termination point(s) to open eir.
- Each open eir edge router advertises the IP addresses of each required open eir BRAS tunnel initiation point to the Operator on all peerings.
- The Operator can also associate multiple L2TP tunnel endpoints with a realm. The BRAS attempts to establish L2TP tunnels to all tunnel endpoints available for the domain. The BRASs randomly selects a tunnel endpoint from those available for the domain and establishes an L2TP session to it. Subsequent PPP sessions to each HGW will travel within the existing L2TP tunnel. The BRASes will load-share PPP sessions into the L2TP tunnels

If switching from static routing to BGP, the Operator must provide their public AS number and agreed peering password. They should also submit a Radius profile request form for all HGWs they intend to advertise in BGP.

3.9.4 AS Number (ASN)

This request is applicable to BGP routing only and the Operator provides their public AS number. This number allows a hierarchy to be maintained when sharing route information.

3.9.5 Change the BGP password

Applicable only if BGP routing has been selected. Default is that Operator provides BGP password.

3.9.6 Change MTU Size

This change request is applicable to BECS circuits only.

3.9.7 S-VLAN

This change request applies to BECS links only.

3.10 Bitstream Managed Backhaul

The Bitstream Managed Backhaul product comprises of two parts:

- A DSL port connection delivering up to 24Mb/s at NGN enabled exchanges.
- A dedicated VLAN delivering the aggregated Bitstream traffic for this product over a Bitstream Ethernet Connection Service (BECS) circuit.
- The product enables a usage based charging model for Bitstream whereby a base port price is applied to each Operator end user connection and thereafter, the Operator is charged based on the combined usage of its total Bitstream Managed Backhaul end user base.
- To accommodate this product, the BECS configuration is modified so that two customer sub-interfaces are configured instead of the current one. A second loopback is configured on each BRAS so that the L2TP traffic can be separated from the legacy Bitstream IP traffic being carried on BECS.
- This split is required to facilitate usage based billing for Bitstream MB.

3.10.1 Overview of Bitstream MB set-up

The Operator domain name is mapped into two different Tunnel profiles in the Radius server. Each Tunnel profile will be used for a specific product type.

- Existing Tunnel profile will be used for the legacy Bitstream IP product
- New Tunnel profile will be used for the Bitstream MB product

The Tunnel profile must contain the Tunnel source end point which is the source IP address of the Tunnel (loopback IP address of the BRAS).

The Radius server identifies which tunnel profile to send to the BRAS using the NAS-port-ID in the Radius request sent by the BRAS, which contains the VLAN ID used between the DSLAM and the BRAS.

Radius checks if the VLAN ID in the NAS-port-ID string is in the range 4000 to 4049 and if so, returns the tunnel profile associated with the Bitstream MB product. Otherwise it will return the tunnel profile associated with the legacy Bitstream IP product. (The VLAN 17 to 3999 is assigned for the legacy Bitstream IP product.)

To ensure that the Bitstream MB traffic is not carried on the legacy Bitstream IP sub-interface, a new classifier list is configured on the BRASs and a new access list on the Cisco edge router to only allow access on that sub-interface for traffic with a destination IP address in the range of the new BRAS loopback range associated with the Bitstream MB range.

3.10.2 Operator Requirements when subscribing to Bitstream MB

1. A new dedicated VLAN must be requested by the Operator to carry their Bitstream MB traffic separately to their existing legacy IP traffic across their BECS connections. Separate VLAN ID's are required for legacy IP traffic and Bitstream MB traffic. open eir will start tagging legacy IP traffic and new Bitstream MB traffic with the appropriate VLAN ID. The CLE port will be re-configured as a trunk port.

2. Operators need to tag the different types of traffic into open eir and change the encapsulation of the existing BECS connection to accommodate both VLANs. An outage will be required across the existing BECS to implement this. The date and time for this outage is scheduled with the Operator.

3. Responsibility will continue to reside with the Operator to manage the capacity across the BECS circuits and order additional BECS capacity if required.

3.10.3 Order Process for the additional VLAN

An Additional VLAN order form and a REALM form must be submitted when ordering Bitstream MB.

See Appendix 2 for the relevant order forms.

1. The Operator requests VLAN form and REALM form from their Account Manager.

2. The completed order forms are forwarded to the Bitstream Backhaul Product Manager who checks if the forms are filled in correctly (both PDF and Microsoft Word Versions of the form are required).

3. Once all the information has been validated, the Bitstream Backhaul Product Manager forwards the VLAN order form to open eir Networks.

4. open eir Networks checks the VLAN form thoroughly, adds the IP address and VLAN ID details the data and returns the form to the Bitstream Backhaul Product Manager.

5. The Bitstream Backhaul Product Manager forwards the VLAN form to OeCC

6. The Additional VLAN request is issued on the internal order management system as an additional virtual link.

7. The Bitstream Backhaul Product Manager forwards the Bitstream MB REALM form to open eir Operations. It is important to note the whereas the domain names might not be changing, they are being amended on open eir's side to include the new loopback IP addresses for the additional VLAN that has been created for the Bitstream MB Product Suite. The existing loopback IP addresses for the current VLAN for legacy Bitstream IP Products remain unchanged.

8. The Bitstream Backhaul Product Manager is responsible for scheduling the additional VLAN creation between open eir Networks Service Delivery, open eir Operations and the Operator. An outage will be required on the BECS to implement the change. The date and time of the outage will be agreed with the Operator prior to implementation.

3.11 Migration Orders

When an Operator wishes to migrate from one Bitstream Backhaul Service to another Bitstream Backhaul Service the following guidelines must be followed:

- Existing Operators with a BCS link (ATM connection) can migrate to BECS. It is important to note that the Bitstream VC product set is not supported on the BECS link.
- Existing Operators with a BECS (Ethernet connection) can migrate to BCS. It is important to note that the BCS will not support the Bitstream IP and Bitstream MB product set.

Requests for migrations should be co-ordinated with the Bitstream Operator / open eir Products and Core Networks Service Delivery to ensure minimum downtime for the Operator. Below are the outline steps to be followed when migrating to from BCS to BECS or from BECS to BCS. Migrations are treated as a cease and re-provide as there is no regrade functionality for Bitstream Backhaul and it will lead to a change in the Bitstream Backhaul circuit reference numbers for the physical and virtual links.

1. The Operator submits the migration order form to the OeCC copying their open eir Account Manager.

2. OeCC issues a cease order for the existing Bitstream Backhaul link.

3. OeCC issue a provide order for the new Bitstream Backhaul link and cross reference the cease and provide.

4. A Project Manager is assigned to the orders. The Project Manager is responsible for coordinating the service delivery tasks between the relevant teams within open eir and also with the Operator's point of contact if required.

5. Once the physical installation has been completed for the new Bitstream Backhaul link a date and time is agreed with the Operator point of contact to complete the migration.

6. On the appointed date, open eir Networks commission the new circuit and following testing with Operator ceases the existing link and completes the orders.

4 Fault Management Process

This section outlines the processes to support the management of the Bitstream Backhaul service.

The period of non-availability will commence at the time that the fault is accepted by open eir. The period of non-availability shall end at the time logged by open eir that the service is available to the Operator, as marked "confirmed clear permanent".

Service shall be deemed to be restored when the fault condition is resolved on the open eir network and service availability has been restored to the Operator.

If the fault is found to be in the Operator network open eir standard terms and conditions regarding recovery of costs for reported faults found not to be in the open eir network shall apply.

4.1 Fault Definitions

Bitstream Backhaul Fault: A fault is the inability to transfer Bitstream data across at its nominal capacity for the particular BCS or BECS circuit.

Confirmed Clear Permanent: The fault has been repaired by open eir and the fault clearance details have been accepted by the Operator. The trouble ticket is permanently closed.

Non-Availability: The period of non-availability will commence at the time a fault is first reported to open eir in accordance with the fault reporting procedures. The period of non-availability shall end from the time logged by open eir that the service is available to the Operator.

Repair Time: The duration between the time a fault is first accepted by open eir in accordance with fault reporting procedures and the time marked by open eir as "Confirmed Clear Permanent".

SAC: Service Assurance Centre

Unconfirmed Clear: open eir has resolved the fault and the trouble ticket has been parked until the fault clear has been accepted by the Operator

WTM: open eir Wholesale Trouble Management

4.2 Fault Process

4.2.1 Fault Reporting

An Operator, after proving the fault out of their network, should log a fault for the Bitstream Backhaul service via the Unified Gateway (UG). Order type FDC (Fault on Data Circuit) allows Operators to directly log Bitstream Backhaul faults onto the UG. Faults are logged using the Bitstream Backhaul circuit identifier and the Remarks field on the Fault Logging screen should be used to include as much detail as possible on the nature of the fault.

Alternatively, Operators can also log faults on the Bitstream Backhaul service directly to WTM on 1800 656656 quoting the circuit identifier.

An overview of the manual fault logging process is included in Appendix 4

4.2.2 Fault Response

When a fault has been correctly logged and acknowledged, open eir will undertake preliminary testing and fault localisation. Following this fault clearance will be instigated. The results of these tests are provided to the Operator via UG status updates and WTM.

The maximum response time is T+4 SLA hours where T is the time that the fault has been logged by open eir (please refer the Bitstream Backhaul SLA document for more information on the service level agreement for the Bitstream Backhaul Service).

4.2.3 Fault Resolution

Real time status updates are provided for data faults submitted via the UG.

An Operator can check the status of a fault on the UG at any time throughout the life cycle of the fault using the on-line Fault Tracking Menu. The following search criteria are available on the Fault Tracking screen:

- Operator Fault Reference
- UG Order Reference Number
- Circuit ID

The list below provides details of all status updates that are available

Accepted
Reported
Response
Assigned to Crew
Dispatched to Crew
Park
Un-park
Pending Clear
Feedback
Completed (Clear Permanent)

If further information is required the Operator can contact WTM by phone for updates or to provide additional information that can aid open eir in the resolution of the fault.

Service shall be deemed to have been restored when the fault condition has been resolved on the open eir network and service availability restored to the Operator. open eir reserves the right to put in place a "Temporary Fix" to restore service (e.g., fibre link re-route) while repairs to a network fault are undertaken. Restoration may also mean that service is restored through diverse routing until the network fault is fully cleared.

On completion of repair, a fault ticket is given an "Unconfirmed Clear" status and the fault is parked. This will returned to the Operator as "Pending Clear" on the UG.

In addition, the WTM desk will provide a phone call to the Operator once the status of the trouble ticket has changed to "Unconfirmed Clear".

If the fault clearance details have been accepted by the Operator or 1 SLA hour has elapsed from the "Pending Clear" status was applied to the ticket, the trouble ticket is given a "Confirmed Clear Permanent" status together with an associated final clear code and the fault is permanently closed.

If the Operator responds with a rejection of the repair the ticket is re-assigned by WTM and repair work recommences. The SLA clock for the purpose of escalation continues from the time the ticket was parked (Pending Clear status had been applied). On completion of

repair, the "Pending Clear" status is re-applied, the Operator is notified and the process outlined above is repeated.

4.2.4 Parked Time

Where circumstances arise which are outside the control of open eir that impede the ability of open eir to begin or continue with the repair of a fault, this will result in the trouble ticket being parked for the affected period. This parked time will be removed from out of service time used in calculating service availability.

Reasons for open eir parking a ticket include the following:

- Requested access to the Operator premises not available to open eir
- Waiting for requested information from the Operator, required by open eir to progress fault resolution
- Awaiting decision from Operator regarding call-out charges. More information on current call-out charges can be found at www.openeir.ie

4.3 Fault Management Escalation Process

The purpose of escalating a fault should be to inject some urgency or expediency into the resolution of the fault. The escalation process needs to be standardised so that escalations are effective and produce results. Escalations should always take part at "peer to peer" level i.e., the designated escalation level Point of Contact. The Operator should only escalate to their corresponding escalation level POC in open eir and vice versa. The escalation of Bitstream Backhaul faults may take place as detailed below:

a. Fault Response :

   If the maximum response time of T + 4 SLA hours has not been met an Operator may escalate to Level 1 in open eir. Subsequent escalations may be made every 4 SLA hours after this time that a Response has not been made.

b. Fault Resolution:

   For the purpose of escalations since there is no maximum repair time for Bitstream Backhaul circuits, a "notional target" (NT) time of 8 SLA hours should be adopted. Subsequently, for the purpose of jeopardy management first level escalation may take place 7 SLA hours after the fault has been logged by open eir. Subsequent levels of escalation may be made at 4 SLA hour intervals after the first escalation.

The open eir Points of Contact for escalations are set out in the table below. Each Operator should notify open eir of their Peer Escalation Level names and contact details.

Escalation Level	Title	Escalate Fault Resolution after
1	WTM Team Leader	7 SLA hours
2	WTM Manager	7+4 SLA hours
3	Customer Relationship Director	7+8 SLA hours
4	Director of Wholesale	7 + 12 SLA hours

Note: Escalations must be "accepted" by open eir and vice versa. If the relevant previous escalations have not been made, or if the time intervals have not been observed the escalation may be rejected by open eir.

4.4 Maintenance

This section outlines the process to support the maintenance management of Bitstream Backhaul links.

4.4.1 Maintenance Definitions

Maintenance is defined as the act of maintaining or the state of being maintained, reducing the occurrence of fault conditions.

Maintenance Notification is the notice to withdraw plant from service and will be given to an Operator's Network Management Centre (Operator NMC) and an agreed list of Operator contacts.

4.4.2 Planned Maintenance Notification Procedure

Any planned maintenance work that may result in the temporary interruption of the Bitstream Backhaul service or the temporary unavailability of a network element in the Bitstream Backhaul service requires written notification prior to the scheduled planned work. It is recognised that planned maintenance work is a regular and normal occurrence, and that this section refers only to planned maintenance work which directly affects a Bitstream Backhaul circuit.

The notification for planned works shall be made to the Bitstream Operator via email.

4.4.3 Planned Maintenance Procedure

Notification to withdraw plant from service will be given to an Operator where open eir plan to carry out work. In order to avoid problems and minimise the impact of service interruption to end users, it is essential that the planned work is planned and notified well in advance and is performed, under normal situations, within preferred hours as outlined below.

When it is not practicable and for certain categories of planned work e.g. for urgent fault investigations, relaxation of the preferred hours may apply. This shall be decided on a case by case basis.

The standard periods allocated for Planned Maintenance work which requires downtime and where Operator end user traffic will be disrupted are shown below:

Preferred hours: 00:01-06:00

4.4.4 Notification Process and Timescale for Planned Maintenance

- open eir will notify an Operator of the planned work by email.
- The minimum advance notification that is required for service outages due to Planned Maintenance is 10 working days.
- Having been notified of a planned maintenance an Operator must review and respond to the proposal within three working days of receipt.
- On completion of the Planned Maintenance work open eir will notify an Operator that the work has been completed as planned.

- If the Planned Maintenance is deferred or cancelled open eir will notify the Operator accordingly.

4.4.5 Escalation Process for Planned Maintenance

If the date or timing of the Planned Maintenance work is unsuitable then an Operator must contact open eir so that a suitable date and time can be agreed. If the Planned Maintenance work is critical and essential to the operation of open eir's network then an Operator cannot veto the work.

4.5 Unplanned Maintenance

Unplanned maintenance is the procedure designed to minimise the effect of faults on the Bitstream Backhaul links, of essential maintenance, or of alteration or improvement to the Bitstream Backhaul circuits, whereby services are temporarily suspended in and unplanned manner. Where possible open eir will give an Operator notice prior to such suspension and open eir will restore service as soon as possible after such suspension.

While endeavouring to keep the unplanned maintenance to a minimum when they do occur open eir will make the best endeavour to supply an Operator with as much notification prior to the work commencing as possible.

5 Billing

This Section describes the Backhaul service billing. The following will be covered:

- Bill Design
- Bill Frequency
- Bill Presentation
- Bill Categories
- Bill Start Dates
- Payment Terms
- Payment Methods
- Bill Queries/Contact Points
- Out of Scope
- Minimum-Term

5.1 Bill Design

open eir provide physical pdf bills to Wholesale Operators.

Backhaul bills will be invoiced on a quarterly basis. However some backhaul bills will be invoiced on a monthly basis with the introduction of Bitstream MB, however only the Bitstream MB Usage element will appear on the bill on a monthly basis. The original BECS and BCS rental charges will continue to appear on the bill on a quarterly basis.

For the avoidance of doubt:

- If the Operator has signed up to the Bitstream MB Product Set then the Operator will receive 12 monthly bills per year and on 4 of these bills the Backhaul Rental will be included.
- If the Operator has not signed up to the Bitstream MB Product Set then the Operator will receive 4 quarterly bills per year.

Bitstream MB usage charges will be billed monthly in arrears. Bitstream MB usage charges will be calculated using the industry standard 95th percentile billing model.

Backhaul Rental charges will still be billed quarterly in advance.

5.2 Bill Frequency

Operators will be billed quarterly for Backhaul. If the operator has Bitstream MB Usage Charges on the bill they will be billed monthly however the Backhaul Rental will only appear on a quarterly basis. Bitstream MB Usage Charges will be billed monthly in arrears. Backhaul rental charges will be billed quarterly in advance.

5.3 Bill Presentation

The Backhaul bill in a pdf format will constitute:

- Summary Bill
- Detail

5.4 Summary Bill

Summary Bill will include a summary of all charges.

Included on Summary:

- Account Number
- Bill Date
- Payment Terms
- Last Bill Amount
- Balance Forward
- VAT Charge
- Total Due

Detail pages in the Bill

Detail pages will be included to reflect:

- Details of rental, installation, ceasing rental and other charges broken down by relevant product, quantities and month.

It will include:

- The Line (Circuit) Number

- The A-Address
- The B-Address
- Date from
- Date To
- Description of the Circuit/Charge
- Quantity
- Discount
- Amount

Broken Period charge details - Rental/Usage charges where full month is not covered (i.e. an end user ceases, provides or re-grades during a billed month) are automatically calculated and included in the bills.

Usage for individual end user Bitstream MB products is charged using the 95th percentile at an aggregate level and will not be charged at an individual level.

5.5 Bill Categories

- Installation (Backhaul Provision, Downgrade, Upgrade) Charges
- Cessation Charges
- Backhaul Rental Charges
- Usage Charges
- Aggregate 95th Percentile Based Bitstream MB Usage Charges
- Other Charges

5.5.1 Installation (Provision, Downgrade, Upgrade) Charges

All action orders submitted and carried out by open eir implement a transaction or installation charge.

These are once-off charges or fees that are implemented on the completion of the order.

5.5.2 Bitstream Rental

Each Backhaul Circuit has a quarterly rental charged. This is a recurring charge. Quarterly rentals are charged a month in advance.

5.5.3 Cease Charges

All Backhaul Circuits are provided under a minimum term contract of twelve months.

When a cease order is placed with open eir a minimum term is charged up to twelve months from the date the Backhaul Product on the Circuit was provided (via either provide or re-grade orders), this minimum term is the quarterly rental that would have been received by open eir for the product.

If there has been more than twelve months since the product was provided (via either provide or re-grade orders) then no cease fee is charged.

This can be a multiple quarter charge, but is charged in a once-off circumstance on the completion of the cease order.

5.5.4 Minimum Term

The minimum period of service for any Backhaul order placed and accepted shall be twelve months commencing on the Delivery Notification. The Operator shall be liable for all charges for this minimum period.

In the event that the termination of a Backhaul is required, the Operator shall give to open eir in writing at least one month's notice, expiring on the last day of the calendar month following that in which the notice is given. Where such a termination request takes effect prior to the expiry of the minimum period of service, then the Operator shall be liable for all charges for the remaining portion of the minimum period. Where notice is given which expires after the minimum period of service, charging shall cease on the last day of the notice period.

Where the Operator requests a Migration and such request is delivered, a new minimum period will apply to the product to which the Migration is made. If the Migration request takes effect prior to the expiry of the minimum period of a BEC, the charges shall be waived.

5.5.5 Usage Charges

Usage based charges will only apply to the Bitstream MB product set. There are no usage based charges associated with the other Bitstream or Backhaul Service products. (The associated port rentals are contained in the Bitstream Bill).

a. Bitstream MB Usage Charges

The Bitstream MB Usage Charges appear on the Backhaul Bill. Bitstream MB Usage for all end users with a Bitstream MB Product attached is aggregated together and charged using the 95th percentile method and will not be charged at an individual level.

b. Usage Billing Model: 95th Percentile

For the Bitstream Managed Backhaul (Bitstream MB) product a new VLAN is required on the Bitstream (Ethernet) Connection Service to carry the Bitstream MB traffic separately to the existing Bitstream IP traffic.

The Operator will be billed for the amount of capacity that they use on this dedicated VLAN over their BECS connection using the 95th percentile usage based model.

95th Percentile Billing is a standard way in which bandwidth is billed by ISP's. Typically it means that samples are taken every 5 minutes for a month and the top 5% are discarded. This allows the Operator to have short periods (less than 36 hours total for the month) where higher than normal bursts in traffic do not count against the amount being charged.

The 8Mb and 24Mb Bitstream MB traffic will use the same VLAN and the usage will be based on an aggregate figure using the existing calculation.

The Usage will be included on the Backhaul Bill which will be changed from quarterly to monthly billings. The existing Backhaul charges will still only be applied on a quarterly basis.

5.6 Other Charges

5.6.1 Fault Related Charges

A technician call out charge is implemented if the fault is not on the open eir network. If the fault is on the open eir Network no charge is issued.

These are once-off charges that are implemented on the completion of the call out by the open eir technician.

5.7 Bill Start Dates

The start dates for billing of Billing Categories will be determined by open eir when an Operator takes up service.

5.8 Payment Terms

Payment Terms will be expressed on the Bill. Payment shall be 30 days from receipt of bill/invoice.

5.9 Payment Method

The current methods of payment for other services will be available for Bitstream.

- Cheque by Post
- Bank Giro
- Direct Debit
- Electronic Funds Transfer
- Post Offices
- Pass (BOI) Payline (AIB)

5.10 Bill Queries/Contact Points

Queries relating to bills should be directed to a nominated person within open eir.

5.11 Out of Scope

open eir will not issue Backhaul bills to Operator's end users.

Appendix 1: open eir Wholesale Bitstream Backhaul Form

open eir Wholesale Bitstream Backhaul Connection Order Form

Section 1 – Services Required **(Sections 1 – 4 below must be completed by the Operator; the remainder are to be completed by open eir)** **Double click on check boxes to "check"/ tick the item.**			
Order Form			
Order Form	Order Type	Bandwidth	Interface Type
Bitstream Ethernet Connection Service (BECS) **Bitstream Connection Service** **(BCS) 45M and STM-1 only**	☐ **Provide** ☐ **Cease** ☐ **Upgrade to** ☐ **Downgrade to**	☐ **100M** ☐ **250M** ☐ **500M** ☐ **1Gb** ☐ **10Gb** ☐ **45M** ☐ **STM-1**	

Migrations (Complete if migrating from BCS (ATM) to BECS) **Move (Complete if moving from one BECS/BCS location to another BECS/BCS location)**	
	Migrate / Move To
Existing circuit ID: _____	

Regrade (Complete if Upgrading or Downgrading)

Existing circuit ID (ETH/ATM): _____ Existing circuit ID (ECC/DVC): _____	
Cessations (Complete if ceasing a circuit)	
Existing circuit ID (ETH/ATM): _____ Existing circuit ID (ECC/DVC): _____	
Remarks: If the order type is an upgrade / downgrade or a cease please include the existing order number and handover point for the circuit in question.	

Section 2 - Operator Details:	
Name of Applicant/Company:	
Main Contact Name:	
Billing Address:	
Telephone Number:	
e-mail Address:	
Quote Reference Number:	
Order Date:	
Your Account Number:	

Section 3 – New Connection Site Details

Site A Address	

Section 4 – Operator Declaration and Signature:				
I hereby apply for open eir's Bitstream Backhaul service and have read the Terms and Conditions.				
Signed for and on behalf of the Subscriber by:* *(Name of Subscriber)*	_____		Company	
Position in Company:			Registered Office of subscriber Company: *(if applicable*	
Date:				

Below details are to be completed by open eir

Bitstream Backhaul Service / Per Port	**Section 5 – New connection details**	
	Service Exchange	
	CPE IP Address	
	Management VLAN TAG	
	Node name	
	Slot (and Port) Number	
	Fibre details	
	CPE details	
	GBIC Type	
	Section 6 – Traffic VLAN details	

	Service Exchange	
	A End (Slot and) Port Ref	
	VLAN Tag	
	Link IP address open eir	
	Link IP address customer	
Additional Comments		

Section 8 – Circuits to be ceased

Where the Operator has indicated migration or move from one service or location to another, the circuit migrating or moving from is to be ceased, details listed below.

BECS	BECS circuit number	
	Ecct circuit number	
BCS	BCS circuit reference	
	DVC circuit number	

Appendix 2: open eir REALM Form

open eir Radius Profile Request

Operator Reference Number	Operator Name	Order Placed By
Operator Telephone Number	**open eir Account Manager**	**Required By Date**
Operator Address		

Domain Names Required					
Number	**Domain Name**	**Legacy HGW IP Address**	**Legacy L2TP Tunnel Password**	**Bitstream MB HGW IP Address**	**Bitstream MB L2TP Tunnel Password**
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Bitstream Backhaul Service Details				
Number	**Bitstream Backhaul Circuit ID**	**Operator Site Address**	**Bandwidth (Legacy)**	**Bandwidth (BMB)**

Specific Requirements

Appendix 3: Bitstream Backhaul VLAN Order Form

Bitstream Backhaul Service Additional VLAN Order Form

Bitstream Managed Backhaul Product Suite Only

Section 1 – Service Required **(Sections 1 – 4 below must be completed by the Operator. Section 5 to be completed by open eir)**
Existing Bitstream Ethernet Connection Service (BECS) for New VLAN

Order Form

	Existing BECS Circuit	**Size of Existing BECS**	**Size of VLAN for Legacy IP Products**	**Home Gateway IP Address (Legacy IP Products**	**Size of VLAN for Bitstream MB Products**	**Home Gateway IP Address (Bistream MB Products**
Bitstream Ethernet Connection Service (BECS) additional VLAN						

Remarks:

If the order type is an upgrade/downgrade or a cease please include the existing order number and handover point for the circuit in question.

OR

New Bitstream Ethernet Connection Service (BECS) for New VLAN

Order Form

	Order Type	Bandwidth	Interface Type
Bitstream Ethernet Connection Service (BECS)	☐ **Provide** ☐ **Cease** ☐ **Upgrade to** ☐ **Downgrade to**	☐ **100M** ☐ **250M** ☐ **500M** ☐ **1Gb**	

Remarks: If the order type is an upgrade/downgrade or a cease please include the existing order number and handover point for the circuit in question.			
Section 2 – Operator Details			
Name of Applicant/Company:			
Main Contact Name:			
Billing Address:			
Telephone Number:			
Email Addresss:			
Quote Reference Number:			
Order Date:			
Your Account Number:			
Home Gateway IP Address:			
Section 3 – New Connection Site Details			
Site A Address:			
Section 4 – Operator Declaration and Signature			
I hereby apply for open eir's Bitstream Ethernet Connection Service and have read the Terms and Conditions			
Signed for and on behalf of the Subscriber by: *(Name of Subscriber)*	_____	Company:	
Position in Company:		Registered Office of Subscriber Company: (If applicable)	
Date:			
Sections 5 and 6 below are to be completed by open eir			
Section 5 – New Connection Details			
	Service Exchange:		

Bitstream Ethernet Connection Service/Per Port	CPE IP Address:	
	Management VLAN Tag:	
	Node Name:	
	Slot (and Port) Number:	
	Fibre Details:	
	CPE Details:	
	GBIC Type:	

Section 6 – Traffic VLAN Details		
Bitstream Ethernet Connection Service/Per Port	Service Exchange:	
	A End (Slot and) Port Reference:	
	VLAN Tag:	
	Link IP Address open eir:	
	Link IP Address Customer:	
Additional Comments:		

Appendix 4: Manual Fault Logging Process

During business hours (08:00-18:00), the Operator contacts the open eir Wholesale Trouble Management team (WTM) on 1800 656 656 quoting the Bitstream Backhaul circuit identifier. Outside of business hours the free phone number automatically routes to the Service Assurance Centre in Citywest.

1. The Operator logs fault with WTM by telephone. During business hours, the call goes to WTM directly, and outside of business hours (1800 – 0800) the call is automatically forwarded to the SMC.
2. WTM/SMC log fault on internal trouble ticket system.
3. If the fault can be resolved remotely, then the SMC deal with the fault in this manner. If not, then the SMC dispatch the fault to the appropriate field team to resolve.
4. The SMC update WTM as required during fault resolution. WTM are responsible for managing the fault ticket and updating the Operator based on updates from the SMC.
5. Once the fault is resolved, the SMC clear the fault back to WTM. Trouble Ticket is set to a status of "Unconfirmed Clear"
6. WTM access and review the clear details on the trouble ticket.
7. WTM then contact the Operator to confirm the fault was cleared.
8. Once the Operator has confirmed to WTM that the fault is resolved, WTM clears the fault on the internal trouble ticket system and the fault is closed.

Appendix 5: Glossary

AAA	Authentication, authorization, and accounting
ADSL	Asymmetric Digital Subscriber Line
ADSL2plus	Asymmetric Digital Subscriber Line 2plus
AP	Access Provider - the provider of the Bitstream service
AS	Autonomous System
ATM	Asynchronous Transfer Mode
BCS	Bitstream Connection Service
BECS	Bitstream Ethernet Connection Service
BGP	Border Gateway Protocol
BMB	Bitstream Managed Backhaul
BRAS	Broadband Remote Access Server
CoS	Class of Service
CPE	Customer Premises Equipment
CSH	Customer Sited Handover
DP	Distribution Point/Distribution Pole
DSLAM	Digital Subscriber Line Access Multiplexer
FDC	Fault on Data Circuit
GBIC	Gigabit Interface Connector
HGW	Home Gateway
IBH	In Building Handover
IP	Internet Protocol
IPoE	Internet Protocol over Ethernet
LAC	L2TP Access Concentrator
L2TP	Layer 2 Tunnelling Protocol
LNS	L2TP Network Server
MSAN	Multi-Service Access Node
MTU	Maximum Transmission Unit
NGN	Next Generation Network
NTU/splitter	Network Termination Unit. DSL equipment at the end user's Premises
OMS	Order Management System

OeCC	Open eir Customer Care
POP	Point of Presence
PPP	Point to Point Protocol
PPPoE	Point too Point over Ethernet
QoS	Quality of Service
RADIUS	Remote Authentication Dial In User Service
SAC	Service Assurance Centre
S-VLAN	Service-Virtual Local Access Network
UBR	Unspecified Bit Rate
UG	Unified Gateway
VC	A Virtual Circuit (VC) is a logical circuit within the VP that is typically dedicated to a single user.
VLAN	Virtual Local Access Network
VLL	Virtual Leased Line
WTM	open eir Wholesale Trouble Management

Version Control History

Version	Status	Update	Effective Date
Version 1		New Backhaul IPM	
Version 1.1		Rebranded	April 2016
V2.0	Final	This document is based on V1.1 Implementation of Standardised Change Control.	13/06/2017