



eircom **wholesale**

Wholesale Symmetrical Ethernet Access (WSEA) Inter-Operator Process Manual

Issue 1.9

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Associated documents

| Title | Location |
|-------|--|
| | www.eircomwholesale.ie |



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Glossary

| | |
|--------|---|
| CoS | Class of Service |
| GUI | Graphical User Interface |
| NTU | Network Termination Unit |
| POH | Point of Handover |
| SAB | Service Access Bandwidth |
| UG | Unified Gateway |
| S-VLAN | Service Virtual Local Area Network |
| UNI | User Network Interface |
| WEIL | Wholesale Ethernet Interconnect Link |
| WSEA | Wholesale Symmetrical Ethernet Access Product |



1. Introduction

The purpose of this Inter-Operator Process Manual is to define between eircom and Operators the processes relating to Wholesale Symmetrical Ethernet Access ensuring that both Parties have an appropriate understanding of their respective roles and responsibilities.

This document is subject to review and will be re-issued to reflect changes as new developments are introduced which shall be communicated in accordance with agreed practices. Any specific technology mentioned in this document is current as at date of issue and is for guidance purposes only. eircom reserves the right to adapt the technology used to deliver Wholesale Symmetrical Ethernet Access.

This document is without prejudice to any future position that may be adopted by eircom in respect of Wholesale Symmetrical Ethernet Access. It should be read in conjunction with the relevant associated eircom Wholesale documents (where appropriate, reference offer, product description and SLA).

The prevailing version of this document will always be available on www.eircomwholesale.ie. Prior to requesting the product the Operator may find product information on the eircom wholesale website www.eircomwholesale.ie or discuss their requirements with their Customer Relationship Manager /Account Manager.

The following diagram is a high level process associated with this product:

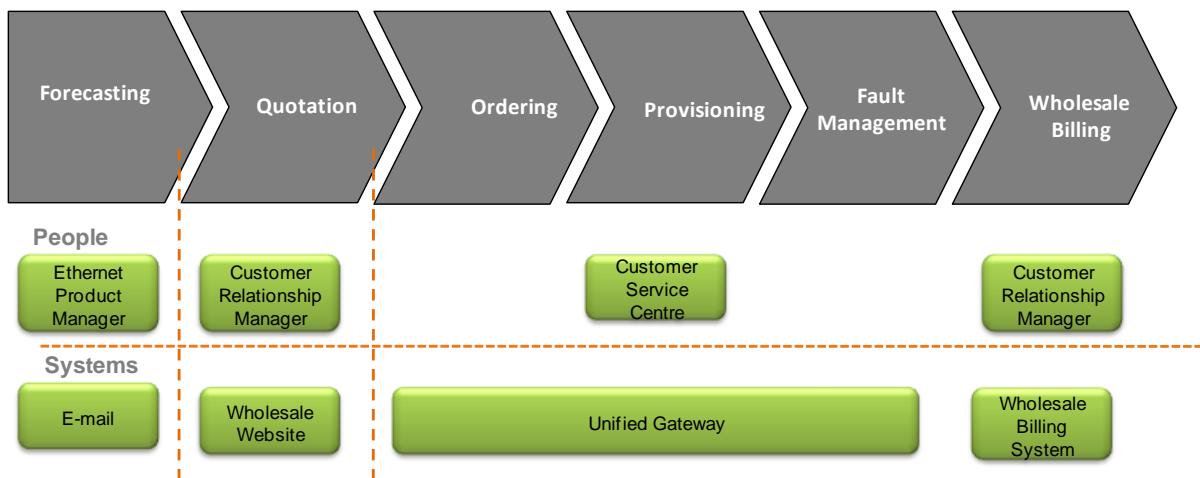


Figure 1: High Level Process

2. Forecasting Process

This section outlines the processes to support the forecasting for Wholesale Symmetrical Ethernet Access circuits.

Operators are requested to provide forecasts on a rolling 12 month quarterly basis. Forecasts should be submitted by an Operator using the form outlined in Appendix 1. The eircom Customer Relationship Manager will e-mail the forecast form to Operators one calendar month prior to the forecast submission date. Operators will fill in the forecast form with the relevant forecast information. The form should include a 12 month forecast broken into 4 quarters. The forecasts should be submitted one quarter in advance, therefore not detailing a forecast for the quarter following submission. Operators should submit the updated forecast form by e-mail to their eircom Customer Relationship Manager (CRM).



The forecast should be submitted on the second Tuesday of the month prior to the quarter beginning. For example forecast of Qtr 1 (Jan-Mar) of 2011 should be submitted to eircom on 14th December 2010.

The forecasting process supports eircom's NTU procurement, capital forecasting and network build-out planning only and is disassociated from the Provisioning process or the associated SLA.

3. Quotation Process

An Operator may request a quotation for the product using the quotation tool (Web GUI): The Quotation Tool is located on the UG Web GUI under the Data Product menu and via the QDC order type. See Appendix 2.

In order to access the Quotation Tool, Operator system administrators will need to add the new QDC order type to user profiles.

If an Operator does not have access to the Data Products menu or they do not have any access to the Web GUI they should contact their eircom Customer Relationship Manager.

eircom will provide an indicative quote, which will be subject to full site survey. eircom quotations are estimates and are not contractually binding.

Wholesale Symmetrical Ethernet Access orders are physically delivered over fibre, which is subject to survey and availability. The lead-time is classified as "standard" with a defined lead-time or "non standard" where eircom will provide a forecasted due delivery date. Please refer to the WSEA Product description section 2.1 for further details on standard and non standard orders.

On-site appointments for installation of fibre and NTU will be required and will be arranged through an Operator contact.

Quotations for additional WSEA logical accesses can be obtained by using the Quotation Tool.

All WSEA physical diversity requests are subject to full site survey. The results of the survey detail what diversity options are available to the Operator and the price of each option. The diversity survey order is available on the UG web GUI, under the Data Products menu via the Survey Data Circuit (SDC) order type.

4. Ordering Process

This section outlines the Operator processes to support the ordering of eircom's Wholesale Symmetrical Ethernet Access product.

Orders for WSEA IBH will require infrastructure build between the NGN Node and the Operator's co-location rack. The infrastructure build quotation and provide processes (QIB and PIB) are outlined in the "Process Manual for Physical Co-Location".

4.1 Order Types

The following order types are supported:

- Provide
- Change
- Move



- Cease
- Cancel

4.2 Order Format

Following the quotation process all requests for WSEA should be placed by an Operator via the Unified Gateway (UG) web GUI¹. The UG is an order management and fault handling system designed to be the primary interface between eircom and an Operator. A high level overview of the UG system can be found in Appendix 3.

Please note that there will be no change to the current eircom Wholesale process for providing SLA Order Process Point notifications which is via automated email.

It should be noted that all status information provided via the Unified Gateway is for information purposes only. Only SLA Order Process Point notifications will be treated as formal notifications for the purposes of SLA penalty calculations.

4.3 Orders for Wholesale Symmetrical Ethernet Access (WSEA)

Orders for the WSEA must be submitted via the UG2.

The following minimum details are required when ordering a WSEA:

- Operator information details
- End user Site address
- End user Site contact name, number and email address
- Required by date for the WSEA, if appropriate
- Remarks (eg details of any site specific access requirements)
- Handover type CSH/IBH
- Required Bandwidth
- Class of Service
 - Circuit-Based: options 1-6
 - Traffic Based: EF% - AF%
- SLA Options
- Site Work Normal Hours
- Advance notice for access
- Site Induction Course, Method Statements and Insurance cert required?
- CSH Distance from local Exchange

¹ With the exception of all order types for additional WSEA logical accesses on an NTU at an end user site which must be ordered via the eircom manual order form (available on eircom wholesale website or from Account Manager). This eircom Wholesale form can only be used for additional WSEA logical access order types and may be replaced in the future



- Associated SAB and WEIL Circuit reference numbers^{2*}
- NTU UNI interface presentation (electrical or optical) and port setting
- NTU power supply : single PSU (default) or dual PSU

When a WSEA order is acknowledged by eircom, the WSEA circuit reference number will be provided to an Operator. All subsequent service transactions – including fault reporting - will be managed using this WSEA circuit reference number.

On completion of the provision of each WSEA order eircom will provide an Operator with the S-VLAN IDs associated for each end user site's traffic aggregated on an Operator's nominated WEIL. The purpose of the S-VLAN is to allow an Operator to distinguish between traffic on a WEIL (and associated SABs) for different WSEAs.

In certain cases the Wholesale Symmetrical Ethernet Access and its associated Wholesale Ethernet Interconnect Link connection may be within the same serving exchange area and therefore may be connected to the same eircom NGN Node. Wholesale Symmetrical Ethernet Access / Wholesale Ethernet Interconnect Link connections served off the same eircom NGN Node provide the capability to configure the Wholesale Symmetrical Ethernet Access logical connection as an uncontended connection. The eircom NGN Node is a non-blocking device and therefore the Operator may inventory manage the Wholesale Ethernet Interconnect Link to ensure that it is not overbooked, i.e. that the sum of the Wholesale Symmetrical Ethernet Access bandwidths do not exceed the Service Access Bandwidth on the Wholesale Ethernet Interconnect Link (see Section 5.2. of the Technical Handbook for description of Service Access Bandwidths). In this scenario QoS is not required on the Wholesale Symmetrical Ethernet Access as the connection is uncontended and is not carried across the eircom core NGN network (Circuit based CoS Option 5 as described in Section 6.1.1 of the Technical Handbook should be specified for these connections).

Conversely, the Operator may inventory manage the Wholesale Ethernet Interconnect Link which may result in the Wholesale Ethernet Interconnect Link being overbooked, i.e. that the sum of the Wholesale Symmetrical Ethernet Access bandwidths exceed the Service Access Bandwidth on the Wholesale Ethernet Interconnect Link (see Section 5.2. of the Technical Handbook for description of Service Access Bandwidths). In this scenario QoS may be required on the Wholesale Symmetrical Ethernet Access and the required level of circuit based class of service should be specified by an Operator.

It should be noted that more than one eircom NGN Node may be installed in some serving exchange sites. These eircom NGN Nodes within the same serving exchange site will not be connected locally.

4.3.1 Orders for physical Wholesale Symmetrical Ethernet Access diversity

An order for a WSEA physical access diversity circuit can only be issued if the circuit reference number of the primary circuit is known. Prior to issuing the order for the WSEA physical access diversity circuit, a survey order for diversity (SDC Order) must be issued via the UG.

Following completion of the Survey order the Operator will be contacted by their eircom Account Manager who will provide the results of the survey order indicating what options are available and the price for each option. Details of the NGN node to be identified in any subsequent WSEA physical access diversity order will be provided to the Operator.

² If the associated Wholesale Ethernet Interconnect Link (see separate WEIL Product Description, IPM and SLA documents) has been ordered but not yet delivered, then the WSEA can be ordered using the SAB Circuit reference number once the SAB has been allocated a number at the Order Acknowledgement stage.



There are two physical WSEA diversity options available. Please refer to the Wholesale Symmetrical Ethernet Access Product Description as published on the eircom wholesale website for further details.

4.3.2 Additional WSEA logical accesses:

An Operator must first place an order via UG for an associated WSEA (physical and logical) connection. Orders for additional WSEA logical accesses must then be placed via the eircom Wholesale manual order form (available on eircom wholesale website or from Account Manager).

The following minimum details are required:

- The associated UG WSEA order reference number and/or WSEA circuit reference number (WESxxxxxxxx)
- NTU UNI port number for the additional WSEA logical access
- The new bandwidth of the associated WSEA physical
 - (this may need to change as a result of ordering the additional WSEA logical accesses)

4.4 Sales Process Points

- Order Receipt (OR): the forwarding of a valid order to eircom on a standard order form. The SLA "clock" begins when the order form is received by eircom.
- Order Acknowledgement (OA): the acceptance of an order form by eircom and acknowledgement to an Operator that the order has been received, the order form is correctly filled in and is being processed.
- Order Validation (OV): confirmation, or otherwise, that an order is deliverable by eircom within the standards set down in the WSEA SLA. Standard order delivery time is in accordance with the delivery times listed in the WSEA SLA. Where appropriate this step shall include a site survey. If new duct/poles and/or fibre build work is required then additional charges may apply. At the end of the Order Validation Step four events are allowable:
 - The order is determined to be within the definition of a "standard" order and a delivery date is set in accordance with the appropriate SLA;
 - The order is determined to be a "non-standard" order under the allowable exceptional circumstances set out in the WSEA SLA;
 - The order is determined to be a "project" order when it is ordered as part of an agreed project;
- Should an Operator request a circuit to be delivered on a date after the calculated Delivery Due Date (Standard or non-standard or project) then this date shall become the Due Delivery Date and shall be taken as the standard delivery date for the purposes of SLA compliance calculations.
- Order Forecast (OF): Notification to an Operator of a delivery date of an order that is validated as "non-standard". This delivery date shall be taken as the "standard" date for the purposes of SLA compliance calculations.
- Delivery Confirmation (DC): prior to the delivery date eircom shall confirm in writing to the Operator as to whether the delivery date will be met. This will enable Operators to better manage their customers' expectations. In the event that the Delivery Confirmation advises that



the Delivery will not be met eircom must advise the Operator of the Revised Delivery Date (RDD) within three (3) Working Days of the original due delivery date. Should the new delivery date be in excess of ten (10) Working Days of the previous Due Delivery Date (DDD) then the cancellation process may be triggered, otherwise the confirmation process recommences.

- The Delivery Confirmation/Reconfirmation shall be considered a single process for Service Credit calculation purposes.
- Delivery of Service: the provision of the purchased service by eircom.
- Delivery Notification (DN): date of issuance of a completion notice by eircom to an Operator.
- Completion of order: An order is deemed to be completed on dispatch of Delivery Notification (DN) and working service by an Operator. An Operator has two (2) Working Days to accept the circuit as completed as specified. At Delivery Notification the service delivery "clock" is stopped. If an Operator cannot accept the circuit because it is faulty the "clock" starts again until such time as the circuit is accepted. If an Operator does not inform eircom of its acceptance or otherwise of the circuit, it will be deemed to be accepted by the Operator for the purpose of any SLA penalty calculation.
 - If the fault is subsequently found to be in an Operator network or no fault is found, the original date of the completion notice shall apply to the order. eircom's standard terms and conditions regarding recovery of costs for reported faults found to be not in the eircom network shall apply.
- Service Provision: the activation by eircom of the ordered service.
- Working Day: 09:00 – 17:00 Monday to Friday excluding public or bank holidays in Ireland.

4.5 Customer delay process

- In the event that the Operator delays installation of the service for any reason, this will constitute a customer delay, stopping the SLA clock.
- In the event that the end-user refuses right of entry to eircom when an appointment has been made, or delays installation of the circuit for any reason, the "Standard Time" will be extended by the number of working days delay incurred as a result. eircom will inform the Operator by close of business the following day.
- Should the delay last more than 5 days, then the "clock" shall be re-started at a mutually agreed date, to reflect the requirement for eircom to reschedule its work for this delivery. The customer delay notification will be sent to the Operator contact point via e-mail using the Customer Delay Notification (CDN) form.

It is important to note that an Operator is the eircom customer and problems regarding customer delay are a matter for an Operator to resolve with their own customers.

4.5.1 Required Operator Activities (to avoid customer delay)

For timely connection of service the following requirements must be met by an Operator prior to requesting service.

- That a suitable place and conditions for eircom's apparatus are provided and ready when orders are placed with eircom. Suitable space and facilities includes power supply, environmental conditions, lighting and appropriate electrical fittings at the customer's premises to allow eircom to install and provide the circuit.



- If service is to be provided to a 'green field site' then the building should be near completion when orders are received by eircom.
- That the appropriate personnel (including security personnel) on the sites are aware of a visit by eircom staff.
- That the end customer contact persons or a suitable substitute is available when eircom staff call at the site. The customer delay rectification will be sent to the Operator contact point via e-mail using the Customer Delay Rectification form.

4.5.2 Processes to rectify customer delay

- In the event that orders enter a 'customer delayed' state, discussions will be held with the relevant Operator on a bi-lateral arrangement. It will be expected that every effort will be made by the Operator to resolve the delay quickly. In the event that a quick resolution is not possible then a forecast of the resolution will be forthcoming within two days of the Customer Delay Notification from the relevant Operator.
- Requests from eircom for information on the progress of the problem causing the customer delay must be given to eircom in a timely manner.

4.6 Cancel process

An Operator may cancel their WSEA order³.

In the event the Operator cancels an order for a Wholesale Symmetrical Ethernet Access circuit, or a Wholesale Symmetrical Ethernet Access physical access diversity circuit, eircom shall be entitled to invoice the Operator for the connection the cancellation charges as set out in the eircom Network Price List.

The Wholesale Symmetrical Ethernet Access SLA document, section 2, describes the cancellation process in the event of cancellation at Order Forecast and where Delivery Due Date is missed. The same process applies to the cancellation of a WSEA physical access diversity circuit.

4.7 Change WSEA orders:

The following changes can be made to the WSEA and associated physical diversity access circuits: Change Bandwidth, Change CoS, Change associated SAB.

4.7.1 Change Bandwidth: upgrade and downgrade Orders

An Operator may increase or decrease their WSEA bandwidth.

In certain cases, high bandwidth upgrades may be non-standard – see section 4.9. Change Bandwidth orders should be submitted via the UG⁴.

The following details are required when ordering a Change Bandwidth Upgrade/Downgrade:

- WSEA circuit reference number

³ Cancel orders for additional WSEA logical accesses must be placed via the eircom Wholesale manual order form

⁴ All order types for additional WSEA logical accesses on an NTU at an end user site must be placed via the eircom Wholesale manual order form



- New bandwidth

4.7.1.1 Additional WSEA logical accesses:

The following details are required:

- Additional WSEA logical access circuit reference number(s)
- New bandwidth(s)
- New bandwidth of the WSEA Physical
 - (this may need to change as a result of ordering the additional WSEA Logical accesses)
- WSEA Physical circuit reference number (SEAxXXXXXXXX)

4.7.2 Change Class of Service

An Operator may change their WSEA Class of Service parameters.

Change CoS orders should be submitted via the UG⁶

The following details are required when ordering a Change Class of Service:

Change to circuit based Class of Service:

- WSEA circuit reference number
- New CoS : options 1-6

Change to traffic based Class of Service:

- WSEA circuit reference number
- New CoS: EF% / AF%

4.7.3 Change associated SAB

An Operator may move their WSEA from one SAB to another SAB, which may be on the same WEIL or on a different WEIL.

Change associated SAB orders should be submitted via the UG⁵.

The following details are required when ordering a Change associated SAB:

- WSEA Circuit reference number
- New SAB Circuit reference number

⁵ All order types for additional WSEA logical accesses on an NTU at an end user site must be placed via the eircom Wholesale manual order form



Major re-arrangements of WSEA circuits onto a new SAB/WEIL will be managed as an agreed project between eircom and an Operator. The project will be subject to "non-standard" mutually agreed lead-times.

4.7.4 Change S-Vlan

An Operator may wish to change their S-Vlan from one S-Vlan to another S-Vlan.

Change S-Vlan orders should be submitted via the UG.

The following details are required when ordering a change of S-Vlan:

- ▶ WSEA circuit reference number
- ▶ New S-Vlan id

4.7.5 Change SLA

An Operator may wish to change their SLA from one SLA type to another SLA type.

Change SLA orders should be submitted via the UG.

The following details are required when ordering a change of SLA:

- ▶ WSEA circuit reference number
- ▶ New SLA

4.7.6 Change Port and GBIC Details

An Operator may wish to change their NTU details. Accepted changes include:

- Change Port Type
- Change Port Duplex Mode
- Change GBIC Type
- Change NTU Model

Change Port and GBIC Detail orders should be submitted via the UG.

The following details are required when ordering a change of Port and GBIC details:

- ▶ WSEA circuit reference number
- ▶ Handover type
- ▶ New Port Type
- ▶ New Port Duplex Mode
- ▶ New GBIC Type



4.7.7 Change NTU

An Operator may wish to change their NTU.

The following details are required when ordering a change of NTU:

- ▶ WSEA circuit reference number
- ▶ Handover type
- ▶ New Port Type
- ▶ New Port Duplex Mode
- ▶ New GBIC Type
- ▶ New NTU Model
- ▶ NTU Model Type

4.7.8 Change Order Timelines

The following change orders to the WSEA product are typically completed within ten (10) working days of being placed:

- ▶ Change Bandwidth: upgrade and downgrade Orders
- ▶ Change Class of Service
- ▶ Change associated SAB
- ▶ Change S-Vlan
- ▶ Change SLA

Please note that this is an indicative guide only.

4.8 Move WSEA

A move order will allow the Operator to change the physical location of the WSEA at the end user site. Depending on the new location of the end user site a move order or a cross referenced cease and provide order will be raised by eircom. It should be noted that a cross referenced cease and provide order will result in a change of WSEA logical and WSEA physical circuit reference numbers.

Move WSEA orders should be submitted via the UG⁶.

The following details are required when ordering a Move WSEA:

⁶ For Move WSEA orders where additional WSEA logical accesses exist an Operator must contact their eircom Wholesale Account Manager before placing orders



- Operator information details
- WSEA Circuit reference number
- New end user Site address
- New end user Site contact name, number and email address
- Required by Date, if appropriate
- Remarks (eg details of any site specific access requirements)

These activities may require site visits and these will be co-ordinated via the Operator contact point specified on the order.



4.9 Change Matrix

The below table outlines the order actions that maybe requested and the billing implications of same.

| | | | Circuit Reference Changed (Y/N or N/A) | | | | |
|--------------------------------|--------------------------|---|--|--------------------------------|------------|-------|--------|
| | Circuit Reference Number | Bill Text | Provide | Change (i.e. Bandwidth or CoS) | Move | Cease | Cancel |
| WSEA Physical | SEAxxxxxx xxx | W/S Sym Eth Access (10M-1G) | N/A | No/Yes**** | Yes/No* | N/A | N/A |
| WSEA Physical Access Diversity | SEAxxxxxx xxx | W/S Acc 10M Prov H-H D1 | N/A | No | Yes/No* | N/A | N/A |
| WSEA Logical | WESxxxxxx xxx | WSEA Cct / Traf base option [1-6]/[1-85] [10M-1G] | N/A | No/ Yes**** | Yes/No** | N/A | N/A |
| WEIL | EILxxxxxx xx | Wholesale [CSH/ISH/IBH] EIL 1Gb | N/A | N/A | Yes** * | N/A | N/A |
| WEIL Physical Access Diversity | EILxxxxxx xx | W/S CSH EIL 1G Prov H-H D1 | N/A | N/A | Yes** * | N/A | N/A |
| SAB | SABxxxxxx xx | Transaction Charge | N/A | No | N/A | N/A | N/A |

Table 1: Change Matrix

A change order can be raised on WSEA and WSEA diversity circuits to: Change Bandwidth, Change CoS, Change associated SAB.

A SAB Change order can be raised to Change Bandwidth or Change Aggregate Expedited Forwarding/Assured Forwarding Bandwidth.

*For the WSEA physical if a move involves moving to a different exchange we would have to cease the existing and re-provide a new circuit to the new address – SEAxxxxxx would change. For a move in the building or within the exchange area there would be no change to circuit reference.

**If a cease and reprovide is required for the WSEA physical the same will have to be done for the WSEA logical – cease and reprovide resulting in new circuit reference.



***For the WEIL – any move requiring change of address will have to be managed as a project and may result in all circuit references changing as any dependent circuits will have to be moved (point to a SAB on a different EIL for WSEAs) and or ceased and reprovided (SABs will definitely need this)

**** At APT Reach sites (see Rollout Plan), high bandwidth (eg >300Mb/s) upgrade orders will be non-standard, resulting in a change of circuit reference number and a scheduled outage.

4.10 Cessation process

Cease WSEA orders should be submitted via the UG⁷

The following details are required when ordering a Cease WSEA:

- WSEA circuit reference number
- Date of cessation

Operators are required to give a minimum of 7 calendar day's notice of date of cessation. The cease will be executed on that date. Billing will cease on the requested cease date.

The cease may be cancelled on or before the "cease date", free of charge. This provides flexibility to the Operator to change their request e.g. if incorrect circuit ID was provided in error.

An Operator can request a cease in the future by providing a cease notice in excess of 7(calendar) days. Eircom Wholesale will accept the cease request and raise a cease order in receipt of the request. The "cease order" may be cancelled on or before the "cease date", free of charge.

A circuit, once ceased, may be restored via a new provide order. The minimum service period (12 months) will apply.

Additional WSEA logical accesses must first be ceased via the eircom Wholesale manual order form. Once these are completed the associated WSEA connection may be ceased via UG.

The cessation of the WSEA physical component includes the decommissioning of the product and the recovery of eircom equipment from the end customer premises. An appointment will be required to retrieve equipment.

eircom will attempt to recover equipment after the 'cease date'. The Operator is liable for equipment cost if eircom is unable to recover ceased equipment, having reasonably attempted (twice) to recover the equipment within 30 Working days of the 'cease date'. If eircom does not attempt to recover the equipment within 30 Working days, then Operator will be not liable for the equipment cost.

4.10.1 Cease Wholesale Symmetrical Ethernet Access Diversity

A physical access WSEA diversity connection may be ceased in isolation (the primary physical WSEA is left in place) or in parallel with the primary WSEA connection.

In the two diversity options "Option A: Dual NTU/ Single NGN Node / Dual Fibre and Dual Duct" and "Option B: Dual NTU/ Dual NGN Node / Dual Fibre and Dual Duct" both connections are active, therefore each connection can be ceased as per the normal WSEA cessation process. See section 4.10.

⁷ All order types for additional WSEA logical accesses on an NTU at an end user site must be placed via the eircom Wholesale manual order form



5. Fault Management Process

5.1 Introduction

This section outlines the processes to support the fault management of Wholesale Symmetrical Ethernet Access. These processes also apply to WSEA physical access diversity circuits.

All WSEA faults should be logged by an Operator via the Unified Gateway (UG).

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

Service shall be deemed to have been restored when the fault condition is resolved on the eircom network and service availability restored to the end-customer.

If the fault is found to be in an Operator network (including its CPE), eircom's standard terms and conditions regarding recovery of costs for reported faults found not to be in the eircom network shall apply.

5.2 Fault Definitions

Fault:

A fault is the inability to transfer data across the WSEA at its nominal capacity for the particular circuit.

Repair Time:

The duration between the time a fault is first reported to eircom in accordance with the fault reporting procedures and the time marked by eircom as a "Confirmed Clear Permanent", excluding Parked Time (see section 5.1.11).

On completion of repair, a fault ticket is given a "Pending Clear" status and that ticket is parked i.e. the clock is stopped until the fault clear is either accepted by the Operator or 3 working hours from the pending clear Operator notification time has elapsed.

If the fault has either been accepted by an Operator or 3 working hours has elapsed from "Pending Clear" Operator notification, the fault ticket is un-parked and given a "Confirmed Clear Permanent" status together with an associated final clear code and the fault ticket is permanently closed.

If an Operator responds with a rejection of repair the ticket is un-parked, the clock is re-started and repair work recommences. On completion of repair, the "Pending Clear" status is applied again, Operator is notified and the fault is parked and the process above is repeated.

Single Point of Contact:

The Single Point of Contact, (SPOC) who is available 24 hours a day, 7 days a week.

Non-Availability:

The period of non-availability will commence at the time a fault is first reported to eircom in accordance with the fault reporting procedures. The period of non-availability shall end from the time logged by eircom that the service is available to the end-customer, notification will be provided to eircom via an Operator.



5.3 Fault Reporting

An Operator – after proving the fault out of their network – should log a fault for this service against any of the WSEA circuit reference numbers via the UG.

Faults in relation to performance or intermittent faults can be logged on the UG under the intermittent error report type. The remarks field can be used to outline the nature of the fault.

Faults reported against the WSEA physical circuit reference number will be rejected.

If all WSEA logical accesses are not working at an end use site the Operator should include 'hard down' in the remarks field when logging a fault.

5.3.1 Configuration of Loopbacks on WSEA Connections

An Operator can request for a loopback to be configured on an eircom Wholesale WSEA connection. The loopback will be internally configured on the end-user facing port (UNI) on the eircom NTU deployed at the end-user site.

The Operator should use one of the following methods to submit a request for a loopback to be configured:

- ▶ The Operator can request for a loopback to be configured via the Unified Gateway by selecting 'Provide Loop on Circuit on B-end' on the fault reporting screen and referencing the WSEA Circuit ID (WESxxxxxxxx).
- ▶ The Operator can log a request for a loopback to be configured by calling 1800-656 656. The Operator must request NGN Loopback process and reference the WSEA Circuit ID (WESxxxxxxxx).
- ▶ The Operator must submit an additional request to have the loopback removed using the contact options outlined above (the WSEA Circuit ID must be referenced in all cases). The length of time that a loopback is applied should not exceed 24 hours.

Note: As with other loopbacks there is not a charge for requesting a loopback however the clear code associated with the loopback (018) is chargeable.

5.4 Fault Response

When a fault has been correctly logged and acknowledged, eircom will undertake preliminary testing and fault localisation. Following this, fault clearance will be instigated. The results of preliminary eircom testing and fault localisation are provided to an Operator. The maximum response time is T + 3 SLA hours where T is the time that the fault has been logged by eircom.

5.5 Fault Resolution

An Operator can check the current fault status on the UG at any time throughout the lifecycle of a fault.

Service shall be deemed to have been restored when the fault condition is resolved on the eircom network and service availability restored to the Operator. Notification will be provided by eircom to an Operator. eircom reserves the right to put in place temporary service restoration while repairs to a fault are undertaken.

On completion of repair, a fault report is given an "Unconfirmed Clear" status and it is parked. Please see Appendix 5 for a high level overview of the Fault Handling Process.



5.5.1 Parked Time

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

Specifically:

- Requested access to the end customer premises not available to eircom.
- Waiting for requested information from an Operator, required by eircom to progress fault clear.
- Awaiting decision from an Operator regarding "call out charges", due to the changing nature of the "call out charges". The charges details can be found in the Network Price List on www.eircomwholesale.ie.
- If the operator doesn't accept the "call out charges" within one hour, the fault is "Parked" until 9am the next working day.
-

5.6 Out of Hours Charging Principles

If Operators request action (outside of SLA coverage hours) specific to their service then this work is chargeable.

If eircom initiate specific work to repair network faults which also affect multiple circuits, this work is not chargeable to the Operator.

All specific requests will be subject to the availability of resources. If resource is unavailable when requested then the fault will remain open for the purposes of calculating percentage of circuit downtime.

5.7 Fault Management Escalation Procedures

The purpose of escalating a fault should be to inject some urgency or expediency into the resolution of a fault. The escalation process needs to be standardised and regulated so that escalations are effective and produce results. Escalations should always take place at a "peer to peer" level i.e., the designated escalation level single point of contact (SPOC). An Operator should only escalate to his or her corresponding designated escalation level SPOC in eircom and vice-versa.

The escalation of WSEA Faults may take place as detailed below:

➤ **Fault Response:**

If the maximum Response time of T + 3 SLA hours has not been met an Operator may escalate to Level 1 in eircom. Subsequent levels of escalation may be made for every 4 SLA hours after this time that a Response has not been made.

➤ **Fault Resolution:**

For the purpose of escalations, since there is no maximum repair time, a "Notional Target" ('NT') repair time of 8 SLA hours should be adopted. Subsequently, in order to introduce the notion of "jeopardy management" the escalation at first level may take place 7 SLA hours after the fault is first logged by eircom. Subsequent levels of escalation may be made at 4 SLA hour intervals after the first escalation.



If an escalation is made and a voicemail left by an Operator "escalator", the eircom "escalatee" has 30 minutes to respond to an Operator "escalator". If a return call is not received by an Operator "escalator", they may escalate to the next level themselves.

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

| Escalation Level | Title | Escalate Fault Resolution after: |
|------------------|--------------------------------|----------------------------------|
| 1 | WTM Team Leader | 7 SLA hrs |
| 2 | WTM Manager | 7 + 4 (ie 11hrs) |
| 3 | Customer Relationship Director | 7 + 8 (ie 15hrs) |
| 4 | Director of Wholesale | 7 + 12 (ie 19hrs) |
| | | |

Table 2: Escalations Points of Contact – details to be provided on a peer to peer basis with each Operator.

Note: Escalations for all Products within the SLA must be "accepted" by eircom 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 eircom.

6. Maintenance

This section outlines the processes to support the maintenance management of Wholesale Symmetrical Ethernet Access. It is designed as the optimal process for the maintenance management of Wholesale Symmetrical Ethernet Access Services using existing processes where possible.

6.1 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 the Operator's Network Management Centre (The Operator NMC).

6.2 Planned Maintenance Notification Procedure

Any planned maintenance work which may result in the temporary interruption of any of the Services offered by the WSEA or the temporary unavailability of a network element in the WSEA 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 WSEA or an outage on an offered NGN Node.

The notification for planned works shall be made to an Operator by e-mail using the "Notification of Planned Maintenance" form (see Appendix 4).



6.3 Planned Maintenance Procedure

Notification to withdraw plant from service will be given to The Operator Network Management Centre (the Operator NMC) where eircom plan to carry out work. eircom will issue a reference number for all planned works.

In order to avoid problems it is essential that the planned work is planned and notified well in advance and is performed, under normal situations, within Preferred Hours as described 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 per case basis.

6.3.1 Preferred hours for major works

The standard periods allocated for Planned Maintenance work which requires system down time and where traffic will be disrupted are shown below.

Preferred hours: 00:01 – 06:00

6.4 Notification Process and Timescale for Planned Maintenance

eircom will notify an Operator of the planned work by email using the "Notification of Planned Maintenance" form (see Appendix 4).

The minimum advance notification that is required for service outages due to Planned Maintenance is 10 working days.

Having been notified of planned maintenance the Operator must review and respond to the proposal within 3 working days of receipt.

On completion of the planned maintenance work eircom must notify the Operator that the work was completed as planned within 1 working day of the planned completion time, by emailing the completed "Notification for Planned Maintenance" form.

6.5 Escalation Process

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

6.6 Unplanned Maintenance

Unplanned maintenance is the procedure designed to minimise the effect of faults on the Wholesale Symmetrical Ethernet Access Network, essential maintenance, or alteration or improvement to the Wholesale Symmetrical Ethernet Access Network, whereby services are temporarily suspended in an unplanned manner. Where possible eircom will give the Operator notice prior to such suspension and eircom will restore service as soon as possible after such suspension.

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



7. Billing

This section outlines the Operator processes to support the billing of eircom's Wholesale Symmetrical Ethernet Access product.

There are connection and rental charges associated with the access product which cannot commence until the associated Wholesale Ethernet Interconnect Link is in place. Once the order is completed and the Wholesale Symmetrical Ethernet Access is commissioned billing shall commence. Billing shall be carried out on a monthly basis, charged in advance and the service shall be identified on the bill.

Soft copy bills can be made available to all operators for NGN Ethernet circuits. This is a summarised version of the standard paper bill and is in a .csv format. Soft copy bills, if required, will be loaded to individual operator directories on the UG Hub each month. An operator will only see the soft copy bill relating to their circuits only. This will be an NGN Ethernet specific bill and will be a standard template for all operators. Please request set-up and access to your specific soft copy bill via your account manager.

In addition to the soft copy bill, an operator specific circuit linkages file will also be loaded to the individual operator directories on the UG Hub each month. This file will show the links between all NGN Ethernet circuits (SEA to WES and EIL to SAB). This file can be used by Operators to link related circuits displayed on both the e-bill and the paper bill. Please request set-up and access to your specific circuit linkages file via your account manager.

See Appendix 6 for a "Sample soft copy bill with explanations"

See Appendix 7 for a "Sample circuit linkages file"



Appendix 1 – Forecast Form for WSEA Circuits

Version 1.0

16/07/10

Using Forecasting Forms

Included in this document is the Forecasting forms for ordering WEIL and WSEA NGN Ethernet products.

All operators who wish to order these products are requested to provide forecasts each quarter on their requirements. This quarterly forecast must show the operators WEIL and WSEA requirements on a 12 month rolling, quarterly, basis.

Instructions on what data to include in the Forms:

WEIL worksheet

Forecast Information

The total number of orders for WEIL, per NGN Node, that are forecasted for each quarter must be broken down into the 3 different handover options that are available, which are outlined below:

- (1) Customer Sited Handover (CSH)
- (2) In-Span Handover (ISH)
- (3) In-Building Handover (IBH)

A total number of NTU Type (AC/DC) forecasted must be highlighted per quarter.

WSEA Form

Forecast Information

The total bandwidth, per NGN node, must be broken into the 3 different types of circuit based "Class of Service".

- EF- Expedited Forwarding
- AF- Assured Forwarding
- STD - Standard Forwarding

Also included in this worksheet is the Column "No. WSEA". In this column the number of WSEA's in place by the end of the quarter should be highlighted. This means the number of WSEA that have been provided.

Information on circuit based "Class of Service" is located in the WSEA Product Description Document. The total number of NTUs forecasted per quarter must be broken into NTU type (Single/Double PSU).

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| | | | | | | | | | | | | |
|---|----|-----|-------------------------|----|----|-----------------------|----------|----|-----------------------|-----|----------|--|
| <p>Version 1.0 16/07/2010</p> | | | | | | | | | | | | |
| <p>Section 1</p> | | | | | | | | | | | | |
| <p>Operator Company Name</p> | | | | | | | | | | | | |
| <p>Operator Contact Name</p> | | | | | | | | | | | | |
| <p>Operator Contact e-mail</p> | | | | | | | | | | | | |
| <p>Operator Billing Address</p> | | | | | | | | | | | | |
| <p>Section 2</p> | | | | | | | | | | | | |
| <p style="text-align: center;">Total Bandwidth Forecasted per site in Mbits</p> | | | | | | | | | | | | |
| <p>WSEA eircom NGN Node</p> | | | | | | | | | | | | |
| <p>Class of Service Options</p> | | | | | | | | | | | | |
| <p>Location A</p> | | | | | | | | | | | | |
| <p>Location B</p> | | | | | | | | | | | | |
| <p>Location C</p> | | | | | | | | | | | | |
| <p>Location D</p> | | | | | | | | | | | | |
| Qtr 1 [Jul'10 - Sept'10] | | | Qtr 2 [Oct'10 - Dec'10] | | | Qtr 3 [Jan'11-Mar'11] | | | Qtr 4 [Apr'11-Jun'11] | | | |
| EF | AF | STD | No. WSEA | EF | AF | STD | No. WSEA | EF | AF | STD | No. WSEA | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Sites will be added to the forecast list as the NGN Node Sites become active. Sites may also be removed from the list if necessary. This forecast form is used to identify the order levels per NGN Node site, and is necessary to maintain inventory levels. If Operators do not submit this forecast it will impact on the ability to provide orders.

Note: the total bandwidth should be included in Mbits per site and broken into EF, AF, and STD

Note: No. WSEA - this is the number of WSEA's that will be in place by the end of the quarter, how many will be provisioned



Appendix 2 – Quotation Tool

The screenshot shows a web application interface for generating quotations. On the left is a navigation menu with links: Home, DP Orders >>, DP Faults >>, Password Change, Logout, Wholesale Home page, and Legal Disclaimer. The main content area has an orange header 'Quotation for Data Circuit'. Below this is a section titled '* CIRCUIT DETAILS' containing a dropdown menu for '* Circuit Type' and a text input field for '* Reference Number' with a note '(Will be set by system if not supplied)'. At the bottom of this section are 'Submit' and 'Cancel' buttons. The footer of the page includes '© 2010 eircom Wholesale' and 'Tel: 1800 656 656 email: wholesale@eircom.ie'.

Note:

All eircom wholesale supplied quotations are "subject to survey" and exclusive of VAT. Quotations are not contractually binding on either party. eircom wholesale price quotations remain valid for 21 calendar days, but may be subject to alteration to reflect the prevailing eircom wholesale pricing at the actual time of order.



Appendix 3 – Overview of Unified Gateway (UG) web GUI

The UG is an order management and fault handling system designed to be the primary interface between eircom and the Operator. Operators will be able to enter all the necessary data via structured on line screens for both ordering and fault reporting. Once all the data has been entered the order or fault can be submitted. The UG will accept and validate the relevant orders and faults and will provide appropriate notifications in response. Order and fault status updates through to completion will then be provided back to the Operator and can be viewed via the order and fault tracking screens.

SYSTEM ADMINISTRATION OVERVIEW:

An Operator will be able to create users and passwords, and set user profiles for each user. For added security, a Digital Certificate is also required for each user.

An Operator may obtain information for System Administrators from their eircom Customer Relationship Manager.

ORDERING OVERVIEW:

Operators will be able to enter all necessary data via a structured on line screen. Once all the data has been entered the order can be submitted. Operators can enter their own unique order reference number prior to order submission – this can then be used to search for the order and check status. If an Operator reference number is not submitted then a unique order reference will be provided by the Unified Gateway.

Order Tracking and Status Updates

Real time status updates will be provided for all data orders submitted via the Unified Gateway. Access is provided via the on line Order Tracking Menu and orders can be searched using:

- Operator submitted reference (customer) number
- UG Reference number
- Circuit reference number

The list below provides details of possible status updates that are available:

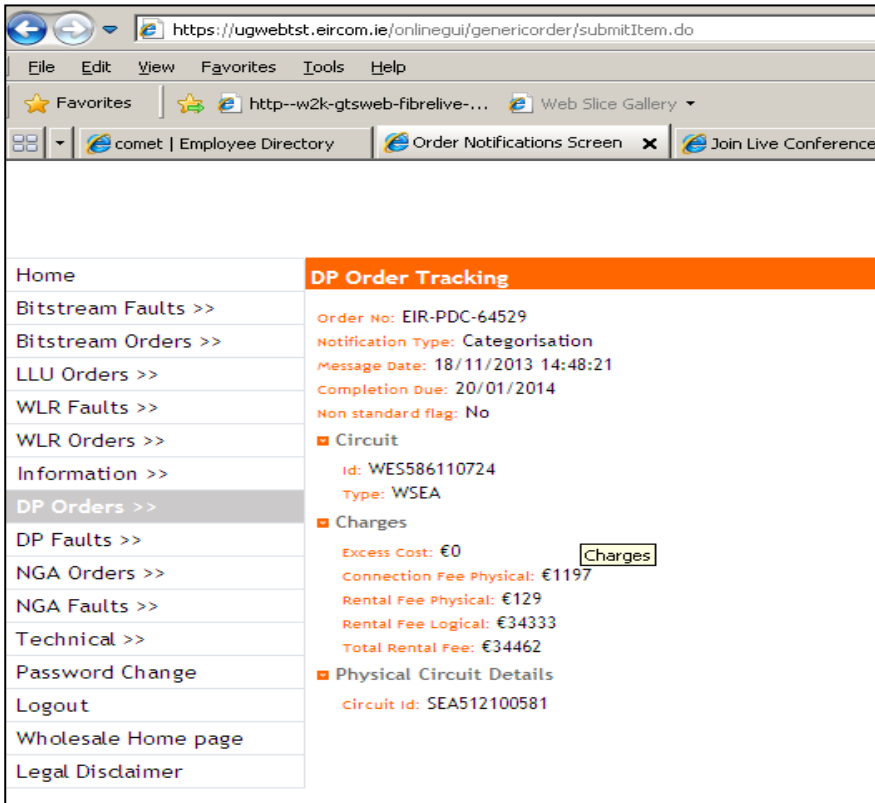
| Status Updates | Type |
|---|-------------|
| Acceptance/Rejection | A/R |
| Circuit reference / Circuit id | CI |
| Categorisation (standard / non-standard) | CT |
| Delayed Notification (Forecast / Re-Forecast) | DN |
| Delivery Confirmation | CF |
| Completion (Delivery) | C |
| Customer Delay Start | DS |
| Customer Delay End | DE |
| Undeliverable | U |

Table 3: Order Status Update Options

The CI, CT and C notifications contain pricing information. See below for a sample CT notification. Excess costs information in this notification may not be populated. For orders that are validated as project orders "Project id" or for orders that go into "customer delay", before Day 17, their notifications will not contain excess costs. Excess costs in all cases will continue to be advised and approved with operators via your account manager by day 17. Excess costs will be billed as a separate item to these



notification charges. Excess costs will be charged only in cases where, up to Day 17, the operator has approved the charges. All other charges outlined in the notifications are valid.



Sample Notification: Categorisation (CT)

FAULT LOGGING OVERVIEW:

A new order type (FDC - Fault on Data Circuit) will be created which will allow users to directly log faults onto the Unified Gateway via a set of new web GUI screens.

They will be able to log the fault using the eircom circuit identifier and will be presented with a structured online screen consisting of a list of fault request details.

The fault reporting screen will also contain a number of additional questions which the Operator will be required to answer before submitting the fault report. Operators will also be required to enter their own fault reference (this will be a mandatory field). Once all this data has been captured on the online screen the order can then be submitted.

Fault Tracking and Status Updates

It is intended that all existing fault tracking, search and reporting capabilities that are in place for other products will be replicated for data faults.

Real time status updates will be provided for all data orders submitted via the UG. Operators will be able to track their faults using the on-line Fault Tracking Menu using the following search criteria:

- Operator Fault Reference
- UG Reference Number
- Circuit ID



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

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

Table 4: Fault Status Update Options



Appendix 4 – Notification of Planned Maintenance Form

Notification of Outage

eircom Date of Issue

eircom Reference

Time of Outage

Details of Outage _____



Appendix 5 – High Level Overview of the Fault Handling Process

As a general rule fault diagnosis should start at the NGN aggregation node and work out towards the NTU. At a high level the steps should be:

1. Gather all relevant information (and sketch the network):

- NGN Aggregation node and port
- Service type (WES)
- NTU management IP addresses/DNS names
- S-VLAN and C-VLANs
- QoS profiles and bandwidths

2. Verify Ethernet link port settings

3. Verify customer facing port on the NGN node (SAP - Service Access Point) port settings

4. Verify QoS at the SAP and the customer (bandwidth sharing/EIL)

5. Verify if the NTU is contactable

6. Verify the SVLAN and CVLAN configurations on each SAP

7. Verify the SVLAN and CVLAN configurations on the NTU flows

First level is Front or Back Office (dependent on SLA), escalation to Second level (Business support specialist) takes place as soon as First level has completed triage and First level standard resolution steps.

Second level escalate to vendor support after more detailed analysis of the fault conditions have been completed.

In practice, where a fault concerns a single connection on a product e.g. degraded service, the BSS assigned will be in direct contact with the Operator during the fault diagnosis and resolution as the Operator's co-operation may be required to progress fault analysis (e.g. test windows, test file downloads) and assess the success of the fix.



Appendix 6 – NGN Performance Reporting Capability

1. Overview

The NGN Performance Reporting provides the Operator with a view of:

1. Individual circuit (service) performance parameters:
 - Bandwidth utilisation (peak and average values),
 - Service availability,
 - Dropped traffic, both ingress and egress, on a per queue basis,
 - Top-ten traffic carrying services.
2. Network Performance parameters by Traffic Type (BE, AF, EF):
 - Latency / Delay (Round trip),
 - Jitter / Delay Variation (One-way),
 - Packet/Frame Loss.

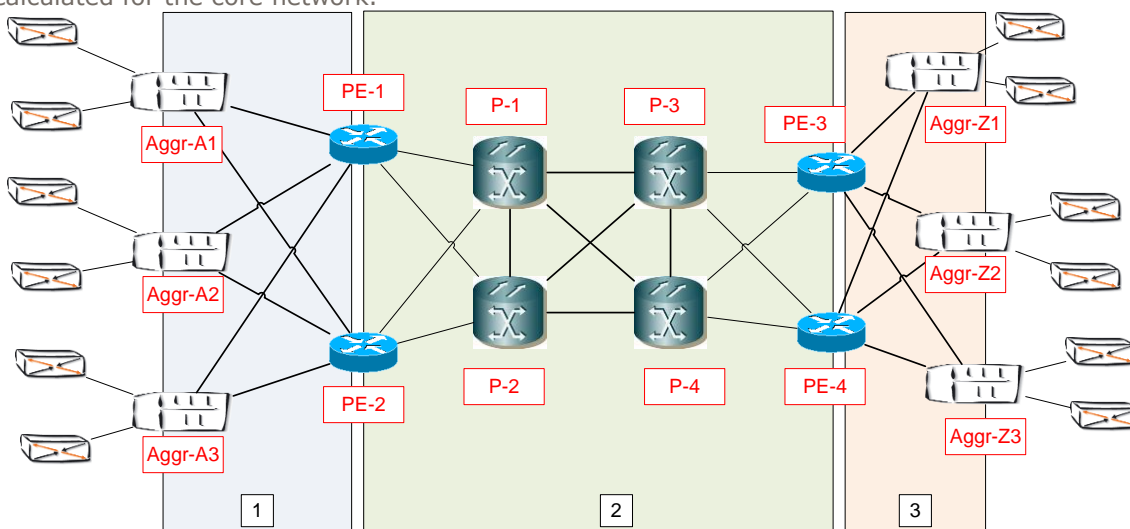
NGN Performance data provides operators with an indicative view of NGN Performance between nodes of interest. However it is based on aggregated sample data and it is not provided for SLA conformance on a particular logical connection. The Performance Reporting data may be used in conjunction with other data when logging a fault but cannot be the sole source of fault information.

Network Performance parameters are listed in the Technical Handbook Wholesale NGN Ethernet Services (section 6.4)

The performance system is accessible via the UG and the detail of how to logon and use the system is contained in the Network Performance User Guide. The Network Performance User Guide is located on the eircom wholesale website at <http://www.eircomwholesale.ie/> or from your account manager.

2. Core Network end-to-end Performance Reporting

The illustration below shows how end-to-end Performance Measures (Aggr Node to Aggr Node) are calculated for the core network.

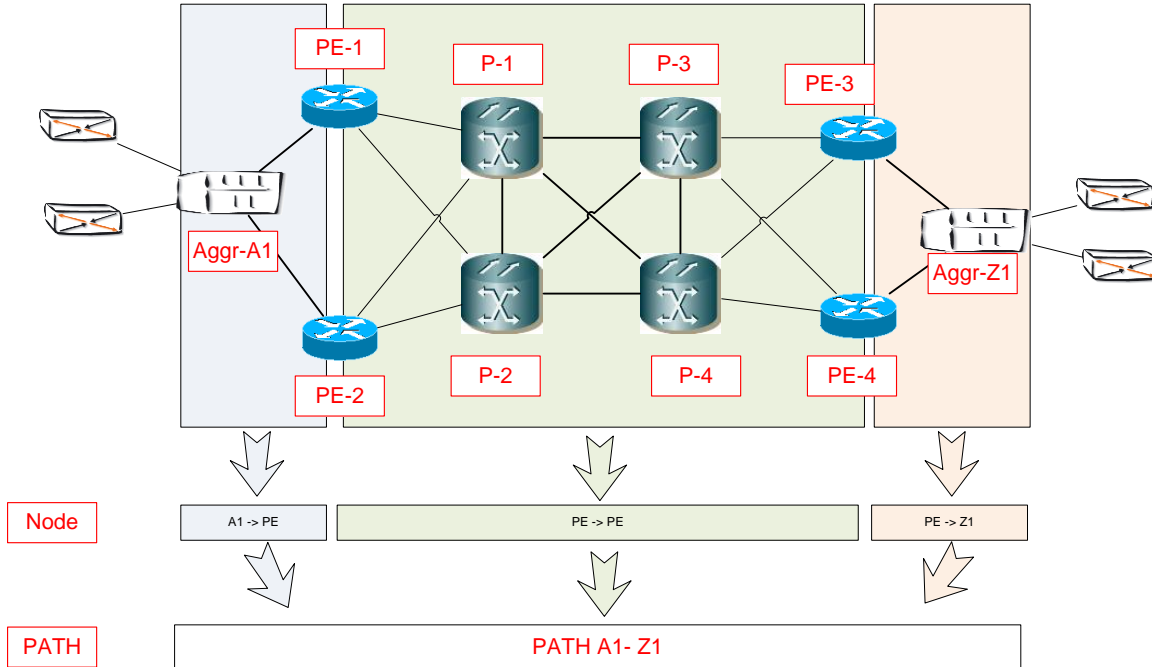


The network statistics are collected for each traffic Class (BE, EF and AF) per Region. Using the above illustration as an example the Regions are:

- Region 1 between the Aggregator node (Aggr) to the next PE Nodes.
- Region 2 from the PE Nodes to P Nodes and P Nodes to the PE Nodes.
- Region 3 between the PE node to the Aggregator node.



The illustration below shows an example of the NGN with Aggr nodes & PE nodes which are divided into Regions.



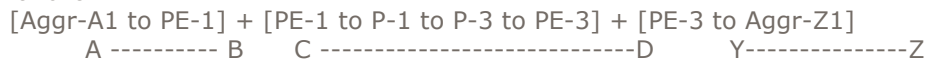
For a given region, the system has a unique relationship map of all the Nodes within that region. This allows it to know the possible paths traffic can take. For example, traffic going from Aggr-A1 to Aggr-Z1 could take the following Possible Paths:

1. [Aggr-A1 to PE-1] + [PE-1 to P-1 to P-3 to PE-3] + [PE-3 to Aggr-Z1]
- OR
2. [Aggr-A1 to PE-2] + [PE-2 to P-2 to P-4 to PE-4] + [PE-4 to Aggr-Z1]
- OR
3. [Aggr-A1 to PE-1] + [PE-1 to P-1 to P-4 to PE-4] + [PE-4 to Aggr-Z1]
4. The above examples are equivalent to [Region 1] + [Region 2] + [Region 3]

When performance stats are being compiled the system takes the performance measures for the Possible Paths within each Region and gets the Average or Max (depending on the KPI being measured, see below for details) per traffic class (BE, EF and AF).

1. Latency – Average
2. Jitter – Average
3. Packet loss - Max

The example below shows a single path between access Aggr-A1 (Point A) and Aggr-Z1 (Point F) used for the hand-off.



The measurements are made on the path segments AB, CD & YZ.

The algorithms are:

- End to End Latency = Average Latency AB + Average Latency CD + Average Latency YZ.
- End to End Packet Loss = Max Packet Loss AB + Max Packet Loss CD + Max Packet Loss YZ.
- Jitter = Average Jitter AB + Average Jitter CD + Average Jitter YZ.



Appendix 7 – Service Delivery at Operator’s `end customer’ property

As outlined in the Network Price List, “An Operator is responsible for any costs associated with duct work within their end users own curtilage”

eircom will provide a fibre pair from the serving exchange all the way into the communications cabinet/housing within the Operator’s `end-customers’ premises, once the following conditions exist:

- There is a cable access duct or other means, into the building capable of carrying a 12 strand fibre cable within a 25mm sub-duct. In the case of duct access, the available duct space must be capable of housing a sub-duct of 25mm minimum diameter and must be a telecommunications duct (i.e. used for services with extra low voltage). The entire route must be free of other services (water, sewerage and electrical services)
- Once inside the building a suitable route and containment is provided by the Operator’s `end-customer’ to facilitate running the cable through to the communications room and onto the cabinet/housing.
A suitable communications cabinet/housing is provided into which the 19” fibre tray will be installed.

In the event of there not being a suitable route into the building, or internally through the building to the communications room and onto the cabinet/housing, this will be a matter for the Operator’s `end-customer’ to resolve with the Operator.

- eircom Wholesale will place the Operator’s order into “Customer Delay” (when external rod-rope-cable-splice activity is complete) and will await resolution of the issue identified

Where eircom has no available duct at the Operator’s `end-customer’ site to connect to the premises, the following summarise the responsibilities on eircom, the Operator and the Operator’s `end-customer’:

1. Where the Operator’s `end-customer’ premises is at the curtilage, Operator’s `end-customer’ will seek the appropriate approval from the landlord and create the entry point into the building to allow the passage of fibres into the building. The Operator’s `end-customer’ will be responsible for providing the internal routing to allow fibre to be run within the building.
2. Where the curtilage of the Operator’s `end-customer’ site and the wall of the premises are not one and the same, the Operator’s `end-customer’ will:
 - (i). nominate appropriate serviceable existing duct between the curtilage and the wall of the building to facilitate passage of eircom fibres into the building and the constructions costs incurred in doing same shall be borne by the Operator’s `end-customer’;
 - (ii). where appropriate existing duct is not serviceable, the Operator’s `end-customer’ will review how and whether the existing duct can be made serviceable. Construction costs incurred in doing same shall be borne by the Operator’s `end-customer’. The Operator’s `end-customer’ is responsible for organising and carrying out the construction work;
 - (iii). where no duct is available, or existing duct cannot be made serviceable (as determined in accordance with paragraph ii above), the Operator’s `end-customer’ will be responsible for providing duct from the curtilage of the site to the building at its own cost. The Operator’s `end-customer’ is responsible for organising and carrying out the construction work;
3. It is the responsibility of eircom to make the connection to the Operator’s `end-customer’ serviceable duct, where this connection is made on public property.
4. It is the responsibility of eircom to run the fibre all the way into the communications cabinet/housing within the Operator’s `end-customers’ premises.



Appendix 9 – Sample Circuit Linkages file

| example 1 | | 1 Live circuit connected with no changes during the month | | | | |
|----------------------|--------------|---|------------|-----------|--|--|
| sample output line | Circuit ID1 | Circuit ID2 | Start date | Stop date | | |
| sample output line 1 | SEA512100001 | WES586110100 | 18/06/2012 | | | |
| sample output line 2 | WES586110100 | SAB58410096 | 18/06/2012 | | | |
| sample output line 3 | SAB58410096 | EIL58410032 | 12/03/2012 | | | |
| sample output line 4 | ... | ... | ... | | | |
| sample output line 5 | ... | ... | ... | | | |

| example 2 | | 1 Live circuit connected with changes during the month | | | | Notes |
|----------------------|--------------|--|------------|------------|---|-------|
| sample output line | Circuit ID1 | Circuit ID2 | Start date | Stop date | | |
| sample output line 1 | SEA512100001 | WES586110100 | 18/06/2012 | | | |
| sample output line 2 | WES586110100 | SAB58410096 | 18/06/2012 | 26/09/2012 | End date added as WES to SAB link changed | |
| sample output line 3 | WES586110100 | SAB58410097 | 27/09/2012 | | Start date added for WES link to new SAB | |
| sample output line 4 | SAB58410096 | EIL58410032 | 12/03/2012 | | | |
| sample output line 5 | SAB58410097 | EIL58410032 | 27/09/2012 | | Start date added for new SAB link to EIL | |
| sample output line 6 | ... | ... | ... | | | |
| sample output line 7 | ... | ... | ... | | | |

note changes from example 1 in blue above