



eircom **wholesale**

Wholesale Ethernet Interconnect Link (WEIL)

Inter-Operator Process Manual

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Revision history

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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
S-VLAN	Service Virtual Local Area Network
UG	Unified Gateway
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 Ethernet Interconnect Link (WEIL) 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 Ethernet Interconnect Links.

This document is without prejudice to any future position that may be adopted by eircom in respect of Wholesale Ethernet Interconnect Links. 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 an 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:

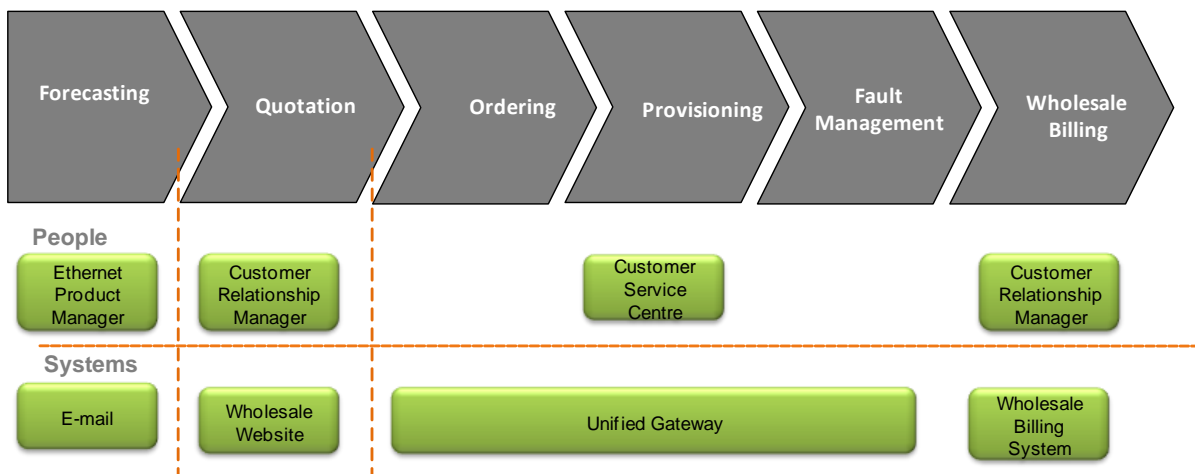


Figure 1: Process, people and systems overview

2. Forecasting Process

This section outlines the processes to support the forecasting for Wholesale Ethernet Interconnect Links.

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

Wholesale Ethernet Interconnect Links 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 WEIL 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.

All WEIL 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 a WEIL.

See the WEIL Product Description document for product rules which apply. Extract from WEIL Product Description:

- Minimum of one Service Access Bandwidth is required per Wholesale Ethernet Interconnect Link order. Additional SABs can be ordered for the WEIL subsequently.
- Each Operator is responsible to ensure that they do not breach the WEIL capacity.
- Each Operator is responsible to ensure that Service Access Bandwidths are configured to meet their end user requirements.

4.1 Order Types

The following order types are supported:



- Provide
- Change
- Move
- Cease
- Cancel

There are two product components as part of the Wholesale Ethernet Interconnect Link:

- Wholesale Ethernet Interconnect Link (WEIL)
- Service Access Bandwidths (SABs)

4.2 Order Format

Following the quotation process all requests for WEIL should be placed by an Operator via the Unified Gateway (UG) web GUI. 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 4.

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.

4.2.1 Orders for Wholesale Ethernet Interconnect Link

Orders for the Wholesale Ethernet Interconnect Link (WEIL) 1Gb/s or 10Gb/s must be submitted via the UG. Orders for 10Gb/s will be treated as a new provide order.

The SAB bandwidth required and the associated Aggregate percentage Expedited Forwarding and percentage Assured Forwarding SAB bandwidths must be specified at point of order.

Additional SABs can be ordered for the WEIL subsequently.

When a WEIL order is acknowledged by eircom both the WEIL and the SAB are assigned circuit reference numbers and an Operator advised accordingly.

Wholesale Ethernet Interconnect Links may only be ordered from the eircom NGN nodes listed in Appendix 3.

The following minimum details are required when ordering a WEIL:

- Operator information details
- WEIL Point of Handover Site address
- WEIL Point of Handover Site contact name, number and email address
- Required by date for the WEIL, if appropriate



- Remarks (e.g. details of any site specific access requirements)SLA Options
- Site Work Normal Hours*
- Advance notice for access*
- Site Induction Course, Method Statements and Insurance cert required?*
- CSH Distance from local Exchange*
- NTU UNI interface presentation (electrical or optical) and port setting
- Mini-GBIC (SFP or XFP) type required
- NTU power supply: AC or DC
- Required Bandwidth for the first SAB on the WEIL
- Aggregate Bandwidths: percentage EF (0-100%) and percentage AF (0-100%) for the first SABs on the WEIL

* Required for CSH only

4.2.1.1 Orders for WEIL ENH

All WEIL-ENH orders will require eircom access to an Operator's premises to facilitate survey, infrastructure installation, service delivery and for fault management. See Appendix 7 for eircom's minimum access arrangements.

There are three elements to the WEIL ENH order

- Quotation for Infrastructure Build - QIB-ENH - eircom site survey of Operator premises and diverse fibre routes to eircom's core network
- Provide Infrastructure Build - PIB-ENH - eircom provides the infrastructure build required to support WEIL ENH deployment
- Provide WEIL-ENH Order - eircom delivers the WEIL-ENH

A) Quotation for Infrastructure Build - QIB-ENH

An Operator is required to raise a Quotation for Infrastructure Build - QIB-ENH via the UG.

The Operator must specify, inter alia:

- WEIL-ENH Point of Handover Site address and location
- Operator Point of Contact details for Operators premises

This will trigger an eircom survey of an Operator's premises and diverse fibre routes to eircom's core network which establishes the costs associated with providing the required infrastructure required to support the WEIL ENH product.



Upon completion of the survey an Operator will be provided with the connection and rental charges associated with the required infrastructure to support the WEIL ENH and the rental and connection charges associated with the WEIL-ENH. An Operator will confirm that they wish to (1) proceed with the WEIL ENH order or (2) cancel the order.

If an Operator cancels the order an invoice for the "quotation for infrastructure build" QIB-ENH order element will be issued.

The average lead time for QIB-ENH is five working weeks.

B) Provide Infrastructure Build – PIB-ENH

If an Operator formally confirms that they wish to proceed with the order upon receipt of the infrastructure rental and connection fees the Operator will now place a PIB-ENH order via the UG. The PIB-ENH is delivered by eircom providing the infrastructure build required to support WEIL ENH deployment. Work on the required infrastructure will commence after payment in full of the connection fee has been received by eircom.

Note that before a PIB-ENH order will be accepted the Operator and eircom must have agreed and documented the access arrangements to the Operator's site by eircom staff.

The Operator must specify, inter alia:

- WEIL-ENH Point of Handover Site address and location
- Operator Point of Contact details for infrastructure installation work
- The average lead time for PIB-ENH is sixteen to twenty working weeks.
- All WEIL -PIB-ENH orders will be treated as projects and hence non standard orders.

C) Provide WEIL-ENH Order – eircom delivers the WEIL-ENH

An Operator will place a WEIL-ENH order via the UG upon receipt of a completion notification for the PIB-ENH order.

All WEIL-ENH orders will be treated as projects and hence non standard orders.

Orders for 10Gb/s WEIL ENH 1+1 protection cannot be submitted via UG but instead must be submitted via the eircom Wholesale Account Manager.

The 10Gb/s WEIL ENH protection circuit will be assigned a circuit reference number (LMCxxxxxx) and the Operator will be advised accordingly.

4.2.2 Orders for additional Service Access Bandwidth (SAB)

Orders for additional SABs on a WEIL must be submitted via the UG.

A maximum of ten Service Access Bandwidths can be ordered per 1Gb WEIL, and up to twenty Service Access Bandwidths can be ordered per 10Gb WEIL.

The following details are required when ordering a SAB:



- WEIL Circuit reference number
- Required bandwidth for each individual SAB on the WEIL
- Aggregate Bandwidths: %EF (0-100%) and %AF (0-100%) for each SAB on the WEIL

The overall capacity of all SABs within a WEIL must not exceed the physical capacity of the WEIL. If an Operator exceeds the WEIL capacity the SAB order will be rejected.

4.3 Orders for physical Wholesale Ethernet Interconnect Link Access diversity

An order for a WEIL physical diversity circuit can only be issued if the circuit reference number of the primary circuit is known.

Prior to issuing the order for the WEIL physical diversity circuit, a survey order for diversity (SDC Order) must be issued via the UG. The primary circuit must be referenced in the "Primary Circuit ID" input field.

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 WEIL physical diversity order will be provided to the Operator.

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

Note: for physical WEIL diversity, the Operator must ensure that they have selected the same option for physical WSEA diversity, if a fully diverse solution is required.

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 WEIL SLA. Standard order delivery time is in accordance with the delivery times listed in the WEIL SLA. Where appropriate this step shall include a site survey.

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 WEIL 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. If new duct/poles and/or fibre build work is required then additional charges may apply.
- Delivery Confirmation (DC): prior to the delivery date eircom shall confirm in writing to an 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 an Operator of the Revised Delivery Date (RDF) 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 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 an 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 an 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-customer 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 an 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 an 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 (refer to Appendix 8 Service Delivery at Operator's 'end customer' property).
- 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 user contact persons or a suitable substitute is available when eircom staff call at the site. The customer delay rectification will be sent to an 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 an 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

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

The Wholesale Ethernet Interconnect Link 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 WEIL physical access diversity circuit.

4.7 Change orders:

A change order will only be associated with a SAB. A Change order can be raised to Change Bandwidth or Change Aggregate Expedited Forwarding/Assured Forwarding Bandwidth.

4.7.1 Change SAB Bandwidth: upgrade and downgrade Orders

An Operator may increase or decrease their SAB bandwidth.

Change SAB Bandwidth orders should be submitted via the UG.

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



- WEIL (physical) circuit reference number
- SAB Circuit reference number
- New SAB bandwidth

4.7.2 Change SAB Aggregate EF/AF bandwidth

An Operator may change their SAB Aggregate Expedited Forwarding /Assured Forwarding bandwidth parameters.

Change SAB Aggregate Bandwidth (percentage Expedited Forwarding & percentage Assured Forwarding values) orders should be submitted via the UG.

The following details are required when ordering a Change Aggregate Expedited Forwarding/Assured Forwarding Bandwidth:

- SAB Circuit reference number
- New Expedited Forwarding bandwidth percentage figure
- New Assured Forwarding bandwidth percentage figure

4.7.3 Change Ethertype

An Operator may wish to change their Ethertype from one Ethertype to another Ethertype.

Change Ethertype orders should be submitted via the UG.

The following details are required when ordering a change Ethertype:

- WSEA circuit reference number
- Bandwidth
- New Ethertype

4.7.4 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
- Bandwidth
- SLA (EIL)

4.7.5 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

4.7.6 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

4.7.7 Change Order Timelines

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

- Change SAB Bandwidth: upgrade and downgrade Orders
- Change SAB Aggregate EF/AF bandwidth
- Change Ethertype



Change SLA

Please note that this is an indicative guide only.

4.8 Move WEIL

Moves of a WEIL or a WEIL physical access diversity circuit will be managed as an agreed project between eircom and an Operator. The project will be subject to non-standard mutually agreed lead-times.

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 WEIL and SAB circuit reference numbers.

In the event that a WEIL diverse circuit is to be moved, it will be necessary to review the diverse elements in order that diversity can be maintained.



4.9 Change Matrix

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

	Circuit Reference Number	Bill Text	Circuit Reference Changed (Y/N or N/A)				
			Provide	Change (i.e. Bandwidth or CoS)	Move	Cease	Cancel
WSEA Physical	SEAxxxxxxx	W/S Sym Eth Access (10M-1G)	N/A	No	Yes/No*	N/A	N/A
WSEA Physical Access Diversity	SEAxxxxxxx	W/S Acc 10M Prov H-H D1	N/A	No	Yes/No*	N/A	N/A
WSEA Logical	WESxxxxxxx	WSEA Cct / Traf base option [1-5]/[1-85] [10M-1G]	N/A	No	Yes/No**	N/A	N/A
WEIL	EILxxxxxxx	Wholesale [CSH/ISH/IBH/ENH] EIL 1Gb/10Gb	N/A	N/A	Yes***	N/A	N/A
WEIL Physical Access Diversity	EILxxxxxxx	W/S CSH EIL 1G Prov H-H D1	N/A	N/A	Yes***	N/A	N/A
SAB	SABxxxxxxx	Transaction Charge	N/A	No	N/A	N/A	N/A

Table 1: Change order 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 – SEAxxxxxxx would change. For a move in the building or within the exchange area there would be no change to circuit reference number.

**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 number.

***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 re-provided (SABs will definitely need this)

4.10 Cessation Process

A cease order can be submitted for the WEIL or the SAB.

Cease orders should be submitted via the UG.

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 eircom wholesale customer 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.

4.10.1 Cease Service Access Bandwidth

A SAB can be ceased only if all the associated WSEA circuits (see separate WSEA Product Description, IPM and SLA documents) have been ceased (or moved) in advance. The management of the cessation of any access circuits served by the SAB is the responsibility of an Operator. If these access circuits are not ceased in advance then the cease SAB order will be rejected.

Cease SAB orders should be submitted via UG, quoting the SAB Circuit reference number.

4.10.2 Cease Wholesale Ethernet Interconnect Link

A WEIL cannot be ceased until all associated SABs (see above) have been ceased in advance. The management of the cessation of any SABs served by the WEIL is the responsibility of an Operator. If they are not ceased in advance then the cease WEIL order will be rejected.

Cease WEIL orders should be submitted via the UG, quoting the WEIL Circuit reference number.

Cease orders for 10Gb/s WEIL ENH with 1+1 Protection cannot be submitted via UG but instead must be submitted via the eircom Wholesale Account Manager.

The cessation of Wholesale Ethernet Interconnect Links includes the decommissioning of the service and the recovery of eircom equipment from the Operator's 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.

Recovery of infrastructure following cessation of WEIL ENH service will be handled on a case by case basis.

4.10.3 Cease physical Wholesale Ethernet Interconnect Link diversity

A physical WEIL diversity connection may be ceased in isolation (the primary physical WEIL is left in place) or in parallel with the primary WEIL 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 in active mode, therefore each connection can be ceased as per the normal WEIL cessation process. See section 4.9.



5. Fault Management Process

5.1 Introduction

This section outlines the processes to support the fault management of Wholesale Ethernet Interconnect Links. These processes also apply to WEIL physical access diversity circuits.

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

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 WEIL 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.

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 an 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 the WEIL circuit reference number 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.

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 maximum response time is T + 1 SLA hours where T is the time that the fault has been logged by eircom.



5.5 Fault Resolution

An Operator may check the status of a fault on 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 6 for a high level overview of the Fault Handling Process.

5.6 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 WEIL Faults may take place as detailed below:

- Fault Response:

If the maximum Response time of T + 1 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 Ethernet Interconnect Links.

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 an Operator Network Management Centre (an Operator's 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 WEIL or the temporary unavailability of a network element in the WEIL 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 WEIL 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 5).

6.3 Planned Maintenance Procedure

Notification to withdraw plant from service will be given to An Operator Network Management Centre (An 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 5).

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

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

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



6.5 Escalation Process

If the date or timing of the Planned Maintenance work is unsuitable then an 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 Ethernet Interconnect Link/NGN nodes, of essential maintenance, or of alteration or improvement to the Wholesale Ethernet Interconnect Link/NGN nodes, whereby services are temporarily suspended in an unplanned manner. Where possible eircom will give an 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 Ethernet Interconnect Link product.

There are connection and rental charges associated with the Wholesale Ethernet Interconnect Link and a once off charge for configuration of the SAB. Once the order is completed and the Wholesale Ethernet Interconnect Link is commissioned billing shall commence. Billing shall be carried out on a monthly basis 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 10 for a "Sample soft copy bill with explanations"

See Appendix 11 for a "Sample circuit linkages file"



Appendix 1 – Forecast Form for Wholesale Ethernet Interconnect Links

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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Version 1.0 16/07/2010																	
<p>Sites will be added to the forecast lists 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.</p>																	
Section 1																	
Operator Company Name																	
Operator Contact Name																	
Operator Contact e-mail																	
Operator Billing Address																	
<p>Note: the total number of WEIL's forecasted per site should be included and broken down into the type of handover required, i.e. CSH, ISH, IBH</p>																	
<p>Note: No. WEIL - this is the number of WEIL's that will be in place by the end of the quarter, how many will be provisioned</p>																	
Section 2																	
Total Number of WEILs Forecasted per site																	
WEIL eircom NGN Node																	
Qtr 1 [Jul'10 - Sept'10]			Qtr 2 [Oct'10 - Dec'10]			Qtr 3 [Jan'11-Mar'11]			Qtr 4 [Apr'11-Jun'11]								
CSH			ISH			IBH			CSH			ISH			IBH		
Handover Options																	
Location A																	
Location B																	
Location C																	
Location D																	



Appendix 2 - Quotation Tool

Home | DP Orders >> | DP Faults >> | Password Change | Logout | Wholesale Home page | Legal Disclaimer

Quotation for Data Circuit

*** CIRCUIT DETAILS**

* Circuit Type

* Reference Number (Will be set by system if not supplied)

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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 - WEIL Locations

Please refer to the roll-out schedule for up to date WEIL locations, if you do not have access to the current roll-out schedule please contact your account manager.



Appendix 4 - 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 an Operator. Operators will be able to enter all the necessary data via structured on line screens for ordering. Once all the data has been entered the order can be submitted. The UG will accept and validate the relevant orders and will provide appropriate notifications in response. Order updates through to completion will then be provided back to an Operator and can be viewed via the order 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 all 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: Status updates – order tracking

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.

Home	DP Order Tracking
Bitstream Faults >>	Order No: EIR-PDC-65130 Notification Type: Categorisation
Bitstream Orders >>	Message Date: 27/11/2013 17:08:31 Completion Due: 29/01/2014 Non standard flag: No
LLU Orders >>	<input checked="" type="checkbox"/> Circuit
WLR Faults >>	Id: EIL58611603
WLR Orders >>	Type: WEIL
Information >>	<input checked="" type="checkbox"/> Sub Circuit Details
DP Orders >>	Action: PROVIDE Circuit Id: SAB58411604 Bandwidth: 1000 Expedited Forward Percentage: 10 Assured Forward Percentage: 10
DP Faults >>	
NGA Orders >>	
NGA Faults >>	<input checked="" type="checkbox"/> Charges
Technical >>	Excess Cost: €0
Password Change	Connection Fee Physical: €1450
Logout	Rental Fee Physical: €70
	SAB Transaction Fee: €50

Wholesale Home

Notification: Categorisation

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: Status updates – fault tracking



Appendix 5 – Notification of Planned Maintenance Form

Notification of Outage

eircom Date of Issue

eircom Reference

Time of Outage

Details of Outage _____



Appendix 6 – 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 escalates to vendor support after more detailed analysis of the fault conditions has 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 OAO during the fault diagnosis and resolution as the OAO'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 7 - Access arrangements for WEIL - Edge Node Handover (ENH)

The access arrangements for eircom to gain access to the OAO site to maintain their Edge Node Handover equipment is for bi-lateral agreement between the two parties. The following process forms a recommended template which can be adopted or modified as appropriate through a bi-lateral agreement between eircom and the OAO.

1. Accreditation

eircom, where required, will comply with any Operator accreditation procedures, prior to accessing an Operator site.

Any such accreditation will be undertaken on an eircom corporate basis. Operator accreditation procedures must be provided to eircom in writing in advance of the finalisation of any agreement.

Operator Site Briefing

An eircom representative may attend a briefing, if provided by the Operator, which may cover the following topics:

- ▶ Operator site access and security procedures
- ▶ On site knowledge test
- ▶ General health and safety requirements for the Operator's site.

Use of Contractors

eircom will be permitted to use contractors to undertake work on behalf of eircom on eircom's equipment located at an Operator site.

eircom will not accredit each contractor however all contractors working on behalf of eircom will be registered.

eircom will be responsible for ensuring that its contractors and employees adhere to the Operator's health and safety and access security requirements as provided by the Operator to eircom.

Escorted Access

eircom requires that all eircom access to Operator's premises should be escorted by an Operator's Clerk of Works This is in the interests of the Operator and eircom in order to secure their respective assets from damage . eircom will employ only suitably qualified personnel

2. Physical / Unforeseen material change

Material change

When requesting access to do material change eircom will Submit a schedule of work to the Operator for approval. The schedule of work should include relevant plans and specifications for the work to be carried out, Upon approval of the document, eircom then follows the Planned Access Request process (refer to section below).



Only the Planned Access process can be used for material change.

Unforeseen material change

When requesting access to do unforeseen material change, eircom may use either the Planned or Unplanned Access processes.

3. Access Request

When eircom requires access, eircom will contact the Operator to place its request for access, using a Notification of Access (NA) Form.

Forms will be sent by e-mail to the Operator and will include such details as:

- ▶ the location
- ▶ date and time at which access is required
- ▶ the requested duration of the access visit
- ▶ a contact number of the person in charge of works on site
- ▶ the name(s) of the eircom representative(s).

Planned Access Request

Where an eircom request is for Planned Access, the following process shall apply:

- ▶ eircom sends a Notification of Access form to the Operator's Point Of Contact (POC)
- ▶ The Operator's POC confirms he has an approved schedule of work for the work to be carried out
- ▶ The Operator's POC acknowledges the form by either accepting or rejecting it
- ▶ Where the request is accepted, the Operator returns the access request form acknowledging the access is either as requested or with whatever changes are required.
- ▶ Where the request is rejected, or changed the reason(s) for rejection or change will be given.
- ▶ Where no response is received eircom will proceed with the work
- ▶ The eircom and Operator staff meet at the designated site at the designated date and time

The timelines for this process are defined in figure 1 in section 4.

Unplanned Access Request

An Unplanned Access Request may be submitted in the following situations:

- ▶ In case of an emergency (eg loss of service)



- Where eircom requires access in order to investigate a service affecting fault or service affecting interference

Where an eircom request is for Unplanned Access during normal hours, the following process shall apply:

- eircom sends a Notification of Access form by email to the Operator's POC
- The Operator's POC will acknowledge the form either accepting or rejecting it
- Where the request is accepted, the Operator returns the access request form for that request.
- Where the request is rejected, the reason(s) for rejection will be given
- Where no response is received eircom will proceed with the work
- The eircom and Operator staff meet at the designated site at the designated date and time

Outside these times emergency access procedures must be used.

An emergency access process must be established with the Operator. This process must be formally documented and recorded by both parties.

Note that any delay in gaining access to the Operator site eg to repair a fault will impact on the Service Level Agreement (SLA) for the product.

Additional Access Requirements

eircom will discuss with Operators any additional access requirements to facilitate any further site provision.

Such special requirements include, but are not limited to:

- Method of delivery of equipment
- Additional access requirements
- Additional space requirements

Changes to Access Requests

If it becomes necessary for eircom to reschedule or cancel an Access Request, eircom should make contact with the Operator's Point Of Contact at the earliest opportunity.

4. Access Times

The Operator will provide eircom with access to their equipment at any time. Although most access visits are expected to take place during normal office hours on week-days (Standard hours 09:00 to 18:00) excluding bank holidays, access outside these hours should also be available.

Access Times are specified in Figure 1.

	Time	Days
Standard Hours	09:00 to 18:00	Monday to Friday Excluding public holidays
Outside Standard Hours	all other times	

Table 5: Access Times

5. Access Lead Times



Planned Access

In most cases access requests will be for routine activities that can be planned in advance. In this case, eircom will submit a Planned Access request to the Operator. Table 6 lists the minimum lead times for Planned Access.

Standard Hours	Acknowledgement - the Operator will accept or reject the request for access 1 working day from date of despatch of Notification of Access form by eircom to the Operator
	Minimum notice period: 2 working days from date of despatch of Notification of Access form by eircom to the Operator
Outside Standard Hours	Acknowledgement - that is, confirmation of request 1 working day from date of despatch of Notification of Access form by eircom to the Operator
	Minimum notice period: 2 working days from date of despatch of Notification of Access form by eircom to the Operator

Table 6: Access Lead Times

Unplanned Access

If eircom requires access in less than the standard access lead-time, then the access request is said to be an unplanned access request.

Standard Hours	Time of Access: within 3 clock hours of requested time of access stated on the Notification of Access form
Outside Standard Hours	Time of Access: within 4 clock hours of requested time of access on the Notification of Access form

Table 7: Lead Times for Gaining Unplanned Access

6. On-Site Procedures

Identification

eircom's staff and their contractors will carry an eircom photographic identification card (ENSUP Card) as proof of their identity and will display it at all times during the visit.

Responsibilities of eircom

It is the responsibility of eircom to ensure that all staff or contractors have appropriate ENSUP card to allow them access to the Operator site.

Escorts

The Operator will provide an escort to supervise the access visit.



Working Practices

Whilst being subject to the appropriate Health & Safety legislation and emergency procedures, eircom's personnel are free to work hours as agreed with their employer.



Appendix 8 – 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.

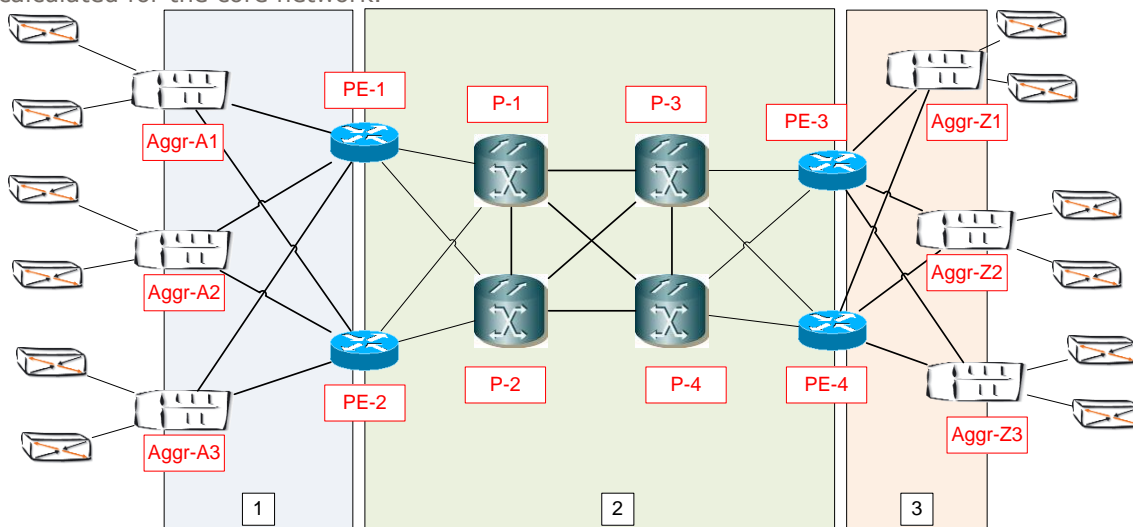
NGN Performance data provides operators with an indicative view of NGN Performance between nodes of interest. However it is based on aggregated sample data and it is not provided for SLA conformance on a particular logical connection. The Performance Reporting data may be used in conjunction with other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

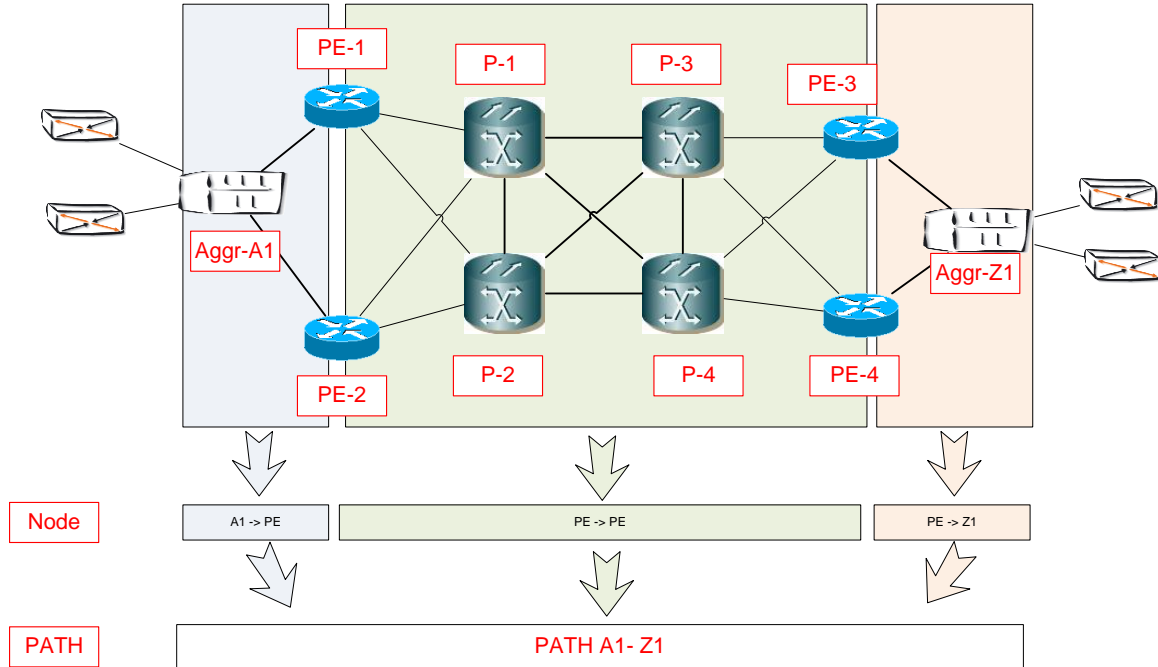


The network statistics are collected for each traffic Class (BE, EF and AF) per Region. Using the above illustration as an example the Regions are:

- 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.

$$\begin{array}{ccccccc}
 & \text{[Aggr-A1 to PE-1]} & + & \text{[PE-1 to P-1 to P-3 to PE-3]} & + & \text{[PE-3 to Aggr-Z1]} \\
 \text{A} & \text{-----} & \text{B} & \text{C} & \text{-----} & \text{D} & \text{Y} & \text{-----} & \text{Z}
 \end{array}$$

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 9 – 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

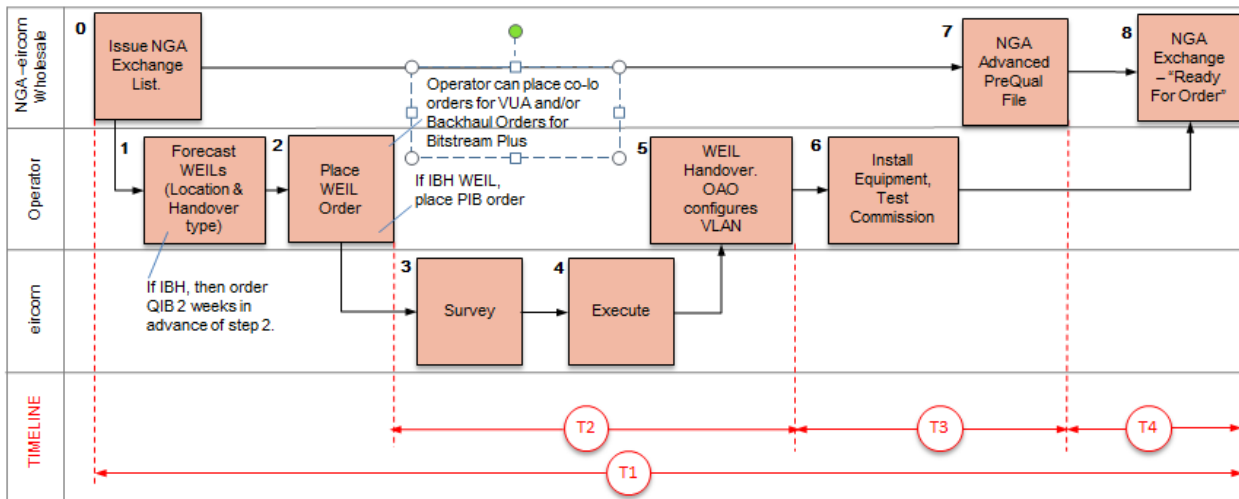
Where eircom has no available duct at the Operator’s ‘end-customer’ site to connect to the premises, the following summarise the responsibilities on eircom, the Operator and the Operator’s ‘end-customer’:

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 10 – WEIL Order Timelines in advance of NGA Exchange Launch

The timelines for order of WEIL circuits to support NGA services is summarized as follows:



Notes relating to the Billing Process:

1. WEIL Rental will not be charged until the NGA exchange is "Ready for Order". The billing system will issue the WEIL Connection Charge and Rental Charge when WEIL is delivered. A manual credit will be applied to refund the WEIL Rental for the period WEIL Completion Date - NGA exchange "Ready for Order" date.
2. If before NGA "Ready for Order" date, other services are delivered on the WEIL (e.g. Ethernet products) then the WEIL charges will apply from the WEIL Completion Date.
3. If on/after NGA "Ready for Order" date, no services are placed on the WEIL, the (WEIL) circuit rental charges will apply from NGA "Ready for Order" date. A minimum 12 month WEIL rental will apply from NGA "Ready for Order" date.
4. WEIL Connection Charge will apply when WEIL is delivered. WEIL Connection & Rental Charge will be refunded in the event that the planned NGA exchange is postponed indefinitely/cancelled.



Appendix 12 - 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 6	...	...	...

note changes from example 1 in blue above