INFOCOMM DEVELOPMENT AUTHORITY OF SINGAPORE

GUIDELINES FOR SERVICE PROVISIONING OVER THE NEXT GENERATION NATIONWIDE BROADBAND NETWORK

21 January 2011

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1. INTRODUCTION

1.1 These **Guidelines for Service Provisioning over the Next Generation Nationwide Broadband Network** (**Guidelines**) set out the workflows by which service providers may provision their services over the Next Generation Nationwide Broadband Network (**Next Gen NBN**). These Guidelines are advisory and are not intended to impose any binding legal obligations on any party.

1.2 As services over Next Gen NBN evolve and service providers gain experiences in provisioning of their services over the Next Gen NBN, the workflows and processes set out in this Guidelines will be refined and streamlined over time. In this regard, IDA envisages that the Guidelines will be updated and revised to take into account the developments in the market.

2. THE NEXT GEN NBN

2.1 The Next Gen NBN is the wired network of the Next Generation National Info-communications Infrastructure (**Next Gen NII**). A project under the Intelligent Nation 2015 (**iN2015**) master plan, it will transform Singapore into an intelligent nation and a global city, powered by info-communications.

2.2 Besides enabling Singapore to exploit new economic opportunities and enhancing the vibrancy of the info-communications sector, the network will also offer effective open access to service providers who offer retail services, creating a more competitive broadband market and providing a wider range of next generation services to end users.

Industry Structure for Effective Open Access

2.3 To ensure that Singapore will realise significant economic benefits from the Next Gen NBN, IDA has brought about an industry structure aimed at levelling the playing field, allowing the benefits of the Next Gen NBN to be available to all industry players.

2.4 IDA has put in place structural separation requirements on the Next Gen NBN Network Company and operational separation requirements on the Next Gen NBN Operating Company to ensure segregation of roles and responsibilities in the provisioning of services in the market. Service providers who offer retail services will thus be able to purchase bandwidth connectivity at non-discriminatory and non-exclusive prices, and compete on a level playing field to provide competitive and innovative services to end users.

2.5 The Next Gen NBN's industry structure will be made up of three layers (see illustration in Figure 1), each comprising a company or a group of companies:

(a) The **Network Company (NetCo)**, which operates at the first layer, is responsible for the design, build and operation of the passive infrastructure, which includes the dark-fibre network and ducts. OpenNet Pte Ltd (**OpenNet**) was appointed as the Next Gen NBN's NetCo.

(b) The **Operating Company (OpCo)**, which operates at the second layer, will provide wholesale network services over the active infrastructure, comprising switches and transmission equipment. Nucleus Connect Pte Ltd (**Nucleus Connect**) was selected as the OpCo for the Next Gen NBN. This layer will potentially include other OpCos whose practices may differ from those of Nucleus Connect.

(c) As OpenNet and Nucleus Connect will not sell services directly to end users, there will be a layer of **Retail Service Providers (RSPs)** that will offer services over the Next Gen NBN to end users, including businesses and consumers.

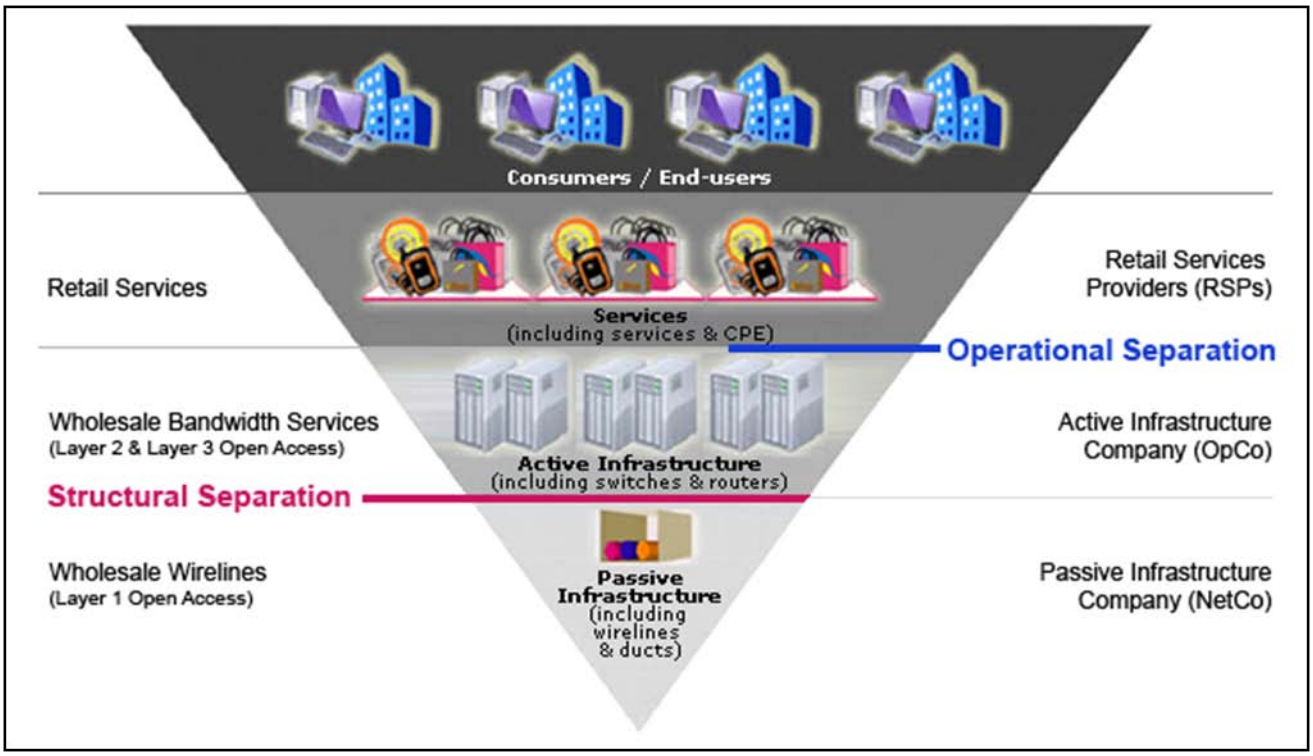

Figure 1: Next Gen NBN Industry Structure

2.6 IDA recognises that the multi-layered Next Gen NBN industry structure may pose certain challenges in the way services are provisioned to end users. These Guidelines, which attempt to describe the allocation and demarcation of responsibilities of each layer in the provisioning of Next Gen NBN services, aim to clarify the responsibilities of each party during the provisioning of services and in the day-to-day operations of the Next Gen NBN.

3. OBJECTIVES

3.1 In the multi-layered Next Gen NBN industry structure, the Guidelines aim to provide more clarity on how operators in the different layers will interface with each other and with end users. In setting out the various roles and responsibilities of the NetCo, the OpCo and the RSP, the Guidelines attempt to equip the industry with clarity regarding the appropriate parties for different issues related to the Next Gen NBN services. While IDA has modelled the Guidelines based on the practices and procedures of OpenNet and Nucleus Connect, the Guidelines will still serve as a useful reference for other OpCos purchasing services from the NetCo and/or RSPs purchasing services from such other OpCos.

3.2 In the Next Gen NBN industry structure, the RSP is the entity which will have contractual relationship with the end users. In this regard, the RSP will interface and be responsible for the "end-to-end" provisioning of service to the end user. The roles and responsibilities of the RSP are captured in the following non-exhaustive list:

(a) Service enquiry/request;

(b) Scheduling of Termination Point (**TP**), Network Termination Equipment (**NTE**) and Residential Gateway (**RG**) installation;

(c) Modification of service (e.g., change in class of service or speed);

(d) Termination of service;

(e) Billing the end user, including any applicable charges from Nucleus Connect;

(f) Resolving billing disputes with its end users; and

(g) Provide timely updates to the end user on its service request or issues related to its service.

In addition to the above, an RSP should also be mindful of its obligations towards its end users under its licence and the various codes of practice (e.g., Code of Practice for Competition in the Provision of Telecommunication Services). For example, the RSP has a duty to make clear its prices, terms and conditions of the service to its end users.

4. INSTALLATION OF FIRST TERMINATION POINT BY OPENNET

4.1 As a wholesaler of passive infrastructure services to operators in the upper layers, OpenNet will only engage an end user directly when the end user:

(a) has not subscribed, through an RSP, to any retail service over the Next Gen NBN; or

(b) has not ordered the provision of retail services over the Next Gen NBN.

4.2 For the above conditions, OpenNet will deal directly with the end users on the following:

(a) Rollout of fibre network; or

(b) Repair of OpenNet's fibre installation.

4.3 For end users who have subscribed to, or provisioned, retail services over the Next Gen NBN from RSPs, the respective RSPs should be the point of interface for their end users. RSPs will be in the best position to address and resolve any end user service related issues as the RSPs would have the end users' information and contact details as listed in the service contracts between the RSPs and their end users.

Rollout of Fibre Network

4.4 As part of its initial rollout, OpenNet will deploy its fibre network and other fibre installations to the Main Distribution Frame Room (**MDF Room**) or Telecom Equipment Room (**TER**) for residential and non-residential buildings and to the first TP within the home for residential premises.

4.5 To encourage connection to its network, OpenNet will be engaging home owners to install a fibre termination box within their premises. Installation charges will be waived for the first 15 metres of fibre run (measured from the main door (for high-rise premises) or gatepost (for landed premises)) using surface trunking. OpenNet will charge for the fibre installation if the home owner:

(a) has previously rejected the initial installation offer; or

(b) requests that the fibre termination box be installed at a location in the house which requires more than 15 metres of fibre run[1].

For fibre installation that requires the use of deployment technique other than surface trunking (i.e., deployment technique like concealed wiring), OpenNet will leave it to the home owners to engage their own contractors to perform the hacking and concealment works and to liaise with OpenNet for the installation of fibre and fibre termination box.

[1] A fee will be applicable for fibre runs that exceed 15 metres.

4.6 During the initial rollout period, OpenNet will inform building owners at least three (3) weeks before the installation of fibre into the MDF or TER of their buildings, while home owners will also be informed at least three (3) weeks before the installation of the fibre TP within their homes. The initial installation offer will lapse one week before the start of the installation period if there is no response from the building or home owners. This will be indicated in the letter to building or home owners. Building and home owners can also refer to OpenNet's website (www.OpenNet.com.sg) for the scheduled installation period for their properties.

Fault Repair of OpenNet's Fibre Installation

4.7 OpenNet may also be contacted directly by owners who do not have any existing retail service over the Next Gen NBN for repair of any faults related to the fibre installation within their premises/buildings. OpenNet, through its contractors, will be responsible for such fault repairs.

4.8 In the above cases, OpenNet may charge the owner for such works if the fault is caused by the owner, the owner's contractors and/or suppliers or the owner's equipment and/or systems.

4.9 To ensure that the deployed fibre can support the Next Gen NBN services, the deployed fibre should not be tampered with, modified, removed, or repaired by any party other than OpenNet. The above actions may render the fibre unusable, thereby preventing the Next Gen NBN services from being provided. In the end, more cost may have to be incurred to resolve the problem thereafter.

5. SERVICE PROVISIONING GUIDELINES

5.1 The objective of the service provisioning guidelines is to provide clarity on the demarcation of responsibilities in the provision of Next Gen NBN services to end users. In particular, the guidelines aim to:

(a) assist the RSP to minimise disruption and disturbance to the end user during the provisioning of Next Gen NBN services by OpenNet and Nucleus Connect;

(b) assist the RSP to advise the end user on the applicable charges for the installation of TP and NTE that are necessary for providing the Next Gen NBN services; and

(c) provide clarity on the party that should be contacted during service provisioning, modification and termination.

Role of RSP – Interface with the End User

5.2 The RSP shall be responsible for end user's requests and enquiries related to retail services offered over the Next Gen NBN.

5.3 As a competent service provider, the RSP should be able to advise an end user on the following non-exhaustive list of information:

(a) the estimated provisioning timeframe and provisioning process; and

(b) charges including:

(i) applicable charges[2] which the RSP will be imposing on the end user; and/or

(ii) applicable charges that may be passed on from OpenNet and/or Nucleus Connect to the end user, in the event that the RSP chooses not to absorb such charges. For the avoidance of doubt, such charges that are passed on should be billed by RSPs to the end users.

5.4 In order for the RSP to adequately advise the end user on the information as listed in 5.3, OpenNet is expected to make available the relevant and necessary information to its Qualifying Persons (**QPs**), including Nucleus Connect. Nucleus Connect is, in turn, expected to make available such relevant and necessary information to the RSP.

[2] Applicable charges include application charges, cancellation charges, installation charges, monthly recurring charges, reconnection/disconnection charges, termination/deactivation charges and early termination charges

Service Ordering for Residential or Non-Residential Premises

5.5 When requesting retail services on the Next Gen NBN, the RSP should obtain the necessary details from the end user to ensure that retail services, including the installation of TP and NTE, can be provided without unnecessary delay. A non-exhaustive list of such details includes the end user's name, contact number and the service address.

(a) Where the service is to be provided at Residential or Non-Residential premises, the RSP should be able to advise an end user on the following non-exhaustive list of information:

(i) the window within which the end user may choose an appointment date/time for OpenNet to install the TP, where applicable;

(ii) the window within which the end user may choose an appointment date/time, for Nucleus Connect to install the NTE, where applicable;

(iii) the appointment date/time for the RSP to install the RG, where applicable; and

(iv) the positioning of the TP and NTE such that they are within reach of a power source. This will minimise the need to relocate the power source, the TP and/or NTE thereafter.

(b) OpenNet is expected to inform Nucleus Connect (or the requesting QP), in no more than three (3) business days from the date of request by the QP, if it intends to reject the deployment of fibre into residential premises. Correspondingly, OpenNet is expected to inform Nucleus Connect (or the requesting QP), in no more than ten (10) business days from the date of request by the QP, of its rejection to deploy fibre into non-residential premises. For the above two cases, Nucleus Connect would thereafter inform the RSP of the rejection of the request, typically by the next business day. Nucleus Connect may also reject requests related to residential or non-residential premise deployments.

(c) Should OpenNet and/or Nucleus Connect fail to provide their respective services within the specified timeframes from the date of service request, the parties are encouraged to provide reasons to the respective requesting parties on why they are unable to do so. Figure 2 provides a summary of the service provisioning process for residential or non-residential premises.

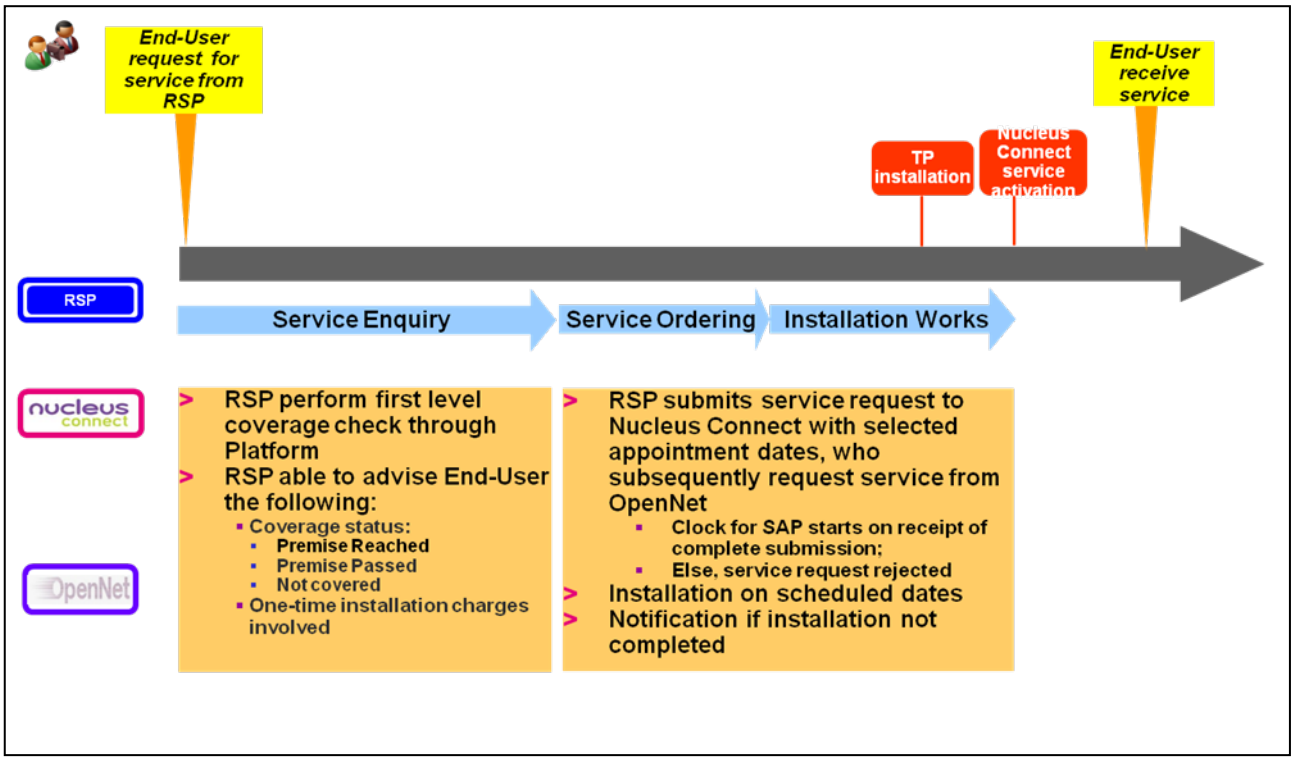

Figure 2: Summary of Service Provisioning - Residential / Non-Residential Premises

Service Ordering for Non-Building Address Points (**NBAPs**)

5.6 When requesting retail services on the Next Gen NBN to NBAPs, the RSP should obtain the necessary details from the end user to ensure that retail services, including the installation of TP and NTE, can be provided without unnecessary delay. A non-exhaustive list of such details includes the end user's name, contact number, and the NBAP's location (i.e., address, a description of the NBAP location or GPS co-ordinates (which includes the height of the TP from the ground level)).

(a) Upon the end user providing to the RSP the necessary details as listed above, the RSP should be able to advise an end user on the following:

(i) Reasons for not being able to provide service to the NBAP location within a reasonable timeframe from the date of service request.

(ii) The applicable terms and conditions, including the charges, for the service to the NBAP location. (OpenNet is expected to take no more than twenty (20) business days from the date of request from Nucleus Connect (or the requesting QP) to complete the project study and inform the QP if the request is accepted or rejected. Where Nucleus Connect has been informed by OpenNet that the request is accepted, Nucleus Connect may take a maximum of ten (10) business days, from the completion of OpenNet's project study, to agree to the applicable terms and conditions, including the charges, associated with the provision of services to the NBAP location. It is expected that Nucleus Connect will also advise the RSP on its applicable terms and conditions with regard to the provision of services to the NBAP location.)

(iii) Where necessary, details of the joint site survey and/or access to the NBAP location. (In some situations, OpenNet may conduct a joint site survey with the requesting QP. Nucleus Connect may in turn require the RSP and its end user to be present during the joint site survey. OpenNet and Nucleus Connect may also require the assistance of the RSP to provide access to the NBAP location.)

(b) Should OpenNet and/or Nucleus Connect fail to provide their respective services within the stipulated timeframes from the date of service request, the parties are encouraged to provide reason(s) why they are not able to do so. The RSP will then have to inform the end user of the delay. Figure 3 provides a summary of the service provisioning process to NBAP locations.

(c) To minimise disruption and inconvenience to the end user, the RSP should coordinate and where possible and necessary, align the dates for the NTE and/or RG installations by Nucleus Connect and/or the RSP. Nucleus Connect will in turn coordinate with OpenNet on the installation of the TP.

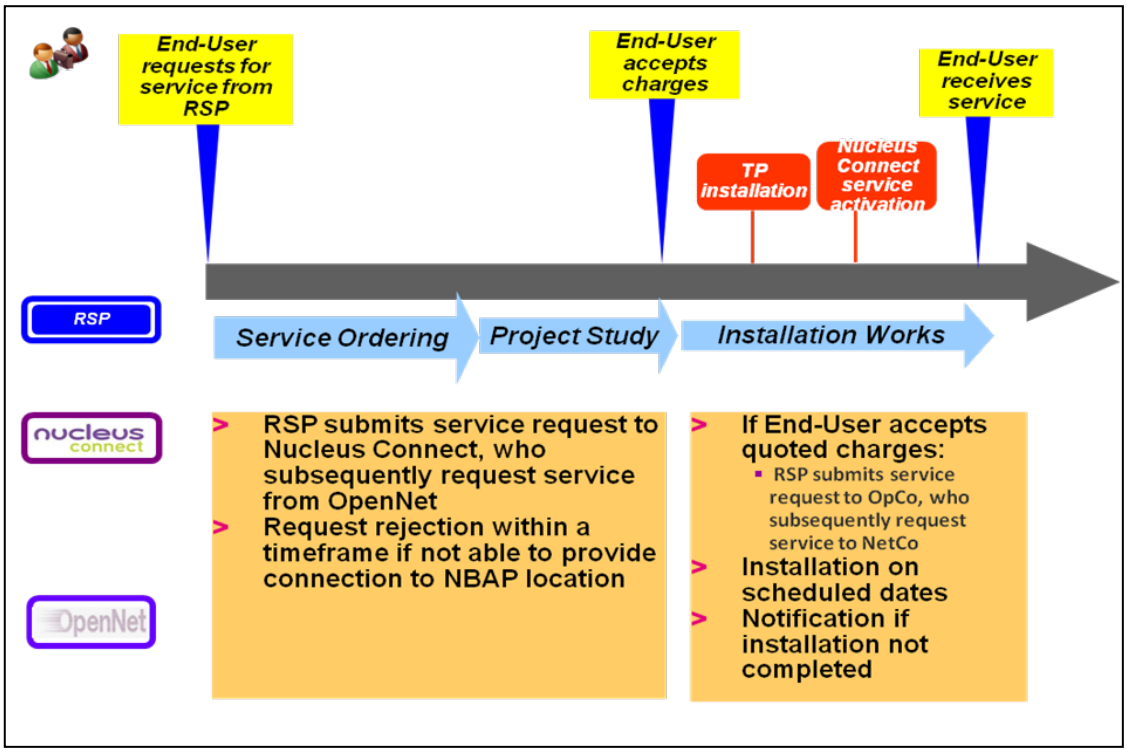

Figure 3: Summary of Service Provisioning Process - NBAP

Installation Works

5.7 On the works related to installation:

(a) OpenNet, Nucleus Connect and the RSP will proceed to install the TP, NTE and/or RG (where applicable) on the agreed appointment dates once the service request has been accepted by OpenNet and Nucleus Connect.

(b) On the agreed appointment dates:

(i) OpenNet will install TP at a location within the residential premises of the RSP's end users (based on the end user's preference). If the length of fibre installed, using surface trunking, is within the standard length of 15 metres, OpenNet may impose the standard installation charge (if the end user has refused OpenNet's offer to install the TP previously) or waive the charge. In the event that the fibre length required is beyond 15 metres, the additional run of fibre may be chargeable; and/ or

(ii) Nucleus Connect will install the NTE at the residential premises of the RSP's end user. The NTE will be connected to the TP using a fibre patch cord (which is bundled with the NTE supplied) of standard length.

(c) OpenNet will only be providing surface trunking for the installation of TPs at residential and non-residential premises. Should the RSP's end user choose alternative deployment techniques (e.g., concealed wiring), the timeframe for the installation of the TP may be delayed. OpenNet will inform Nucleus Connect, who will then inform the RSP regarding the end user's request for alternative deployment techniques. For the avoidance of doubt, deployment techniques other than surface trunking will have to be provided by a third party contractor (i.e., not by OpenNet or Nucleus Connect) engaged by the end user. As such, charges for such alternative deployment techniques will have to be settled between the third party contractor and the end user. The RSP should therefore highlight the above to its end user.

(d) OpenNet's charges for additional installation work (i.e., additional run of fibre beyond the standard installation length of 15m) will be billed to Nucleus Connect which, in turn, will be billed to the RSP. The RSP will have to decide how it would want to recover the cost. If the RSP chooses to on-pass the above charges to the end user, the RSP will bill the end user directly. This thus minimises the number of bills that an end user will receive for a service request.

(e) In order to minimise any potential disputes, OpenNet and Nucleus Connect are to obtain the relevant supporting documents, which should be acknowledged by the end user, for the installation works (including the additional run of fibre beyond the standard installation length of 15m) performed. The RSP should also advise its end user on the process and applicable charges.

(f) During the service provisioning by OpenNet and/or Nucleus Connect, should there be any form of obstruction into the premise caused by the end user, building management and/or building owner, the service request may be rejected. The relevant parties should then be informed of the obstruction. Nucleus Connect (and/or the RSP) may re-submit the service request after the said obstruction has been resolved. Depending on the specific circumstances that cause the obstruction, there may be additional charges (as specified in the respective parties' Interconnection Offer (**ICO**)) by OpenNet and/or Nucleus Connect.

Service Modification

5.8 If a service modification (e.g., change in class of service and change of speed) is initiated by the end user, the RSP is to obtain the necessary details from the end user in order to make the necessary modifications to the services. Such service modification will typically requires Nucleus Connect, the RSP or both Nucleus Connect and the RSP to perform some works.

5.9 Nucleus Connect and the RSP are expected to complete the modification request within a reasonable timeframe. Upon completion of the relevant modification, any applicable charges from Nucleus Connect for the modification will be billed to the RSP. The RSP will have to decide how it would want to recover the cost. If the RSP chooses to on-pass the above charges to the end user, the RSP will bill the end user directly.

Service Termination

5.10 When the end user signs up for a service, the RSP should advise the end user of any charges associated with the termination of the service (e.g., deactivation charges and/or early termination charges that may be applicable when the end user terminates the services before the completion of the minimum contract term). The RSP should also advise the end user of the notification timeframes, if any, required for the termination of the services.

5.11 Process for requesting termination of service

(a) If termination is required by the end user, the RSP is to obtain the necessary details from the end user in order to process the termination of services.

(b) Where the request for service termination requires the removal of Nucleus Connect's NTE, the RSP should advise the end user when Nucleus Connect will be retrieving the NTE.

(c) In order to minimise disruption and inconvenience to the end user, the RSP should coordinate the date with Nucleus Connect so that the RG and the NTE can be retrieved on the same day.

(d) For the avoidance of doubt, the TP does not need to be removed from the residential premise, non-residential premise or NBAP upon service termination.

(e) For works related to service termination, OpenNet will recover any applicable charges from Nucleus Connect. Nucleus Connect may subsequently recover its applicable charges, including OpenNet's charges (if any) that it intends to on-pass, from the RSP. The RSP will have to decide how it would want to recover the cost of such termination from the end user who requested the service termination.

Service Relocation

5.12 In general, a request for service relocation (i.e., moving a service from one address to another address) will be treated as a request for termination of the existing service at the former address and a new application for the service at the new address by OpenNet and Nucleus Connect. The charges applicable for service relocation are illustrated in Figure 4. Notwithstanding, the RSP has the flexibility to decide how it would want to treat such scenarios arising from its end user's request to move to a different address.

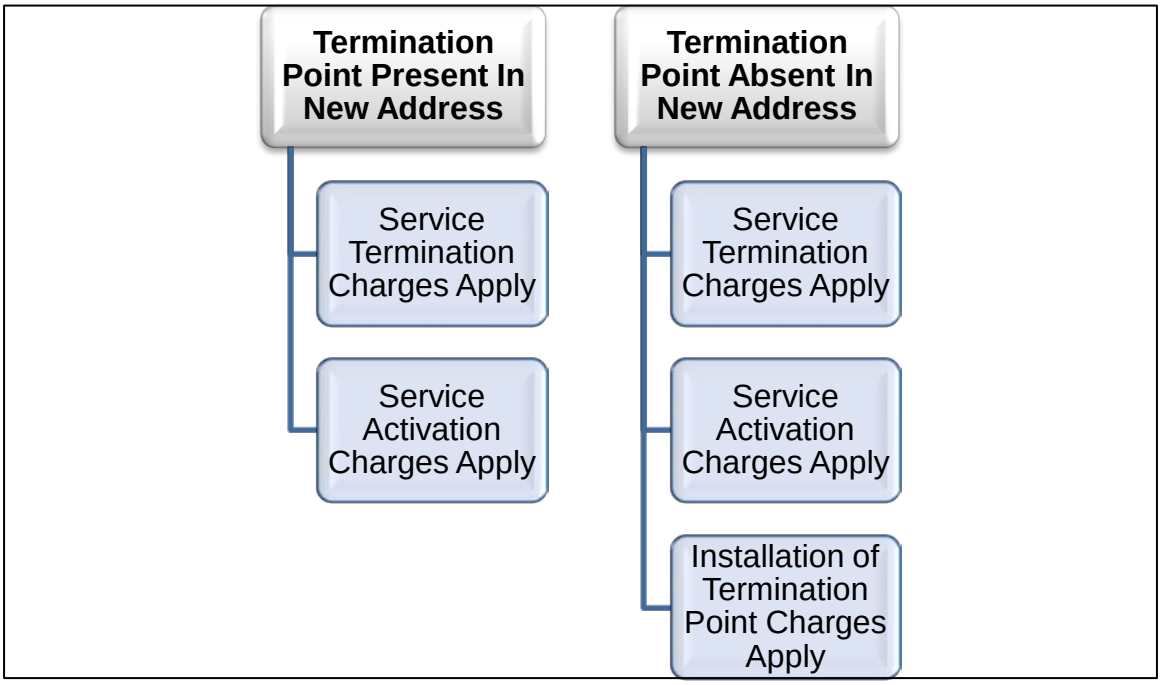

Figure 4: Service Relocation

6. FAULT RECTIFICATION GUIDELINES

6.1 The fault rectification guidelines define how OpenNet, Nucleus Connect and the RSP handle and escalate faults encountered during the provisioning and day-to-day operation of Next Gen NBN services. These guidelines also define how OpenNet and Nucleus Connect, as well as, how Nucleus Connect and the RSP should work together to identify faults on the Next Gen NBN.

Responsibility at each layer

6.2 The operators in each layer will be responsible to perform their own troubleshooting and isolation of a fault before raising a fault notification to the underlying layer. Even if the fault lies within its own network or environment, it is also the respective operator's responsibility to check whether the fault is isolated or widespread.

6.3 In the event that a fault is not easily identifiable or cannot be easily isolated, it may be useful for the affected parties to come together to resolve the issue.

Responsibilities of the RSP

6.4 The RSP, being the first point of contact with the end users, owns the relationship with the end user. It is in the RSP's interest to ensure that the end users are satisfied with the Next Gen NBN services provided to them. Should a fault occur, the RSP should be able to determine whether the source of the fault arises from a faulty connection at the end user's premises (whether it is due to an NTE or TP fault), or due to some backend network related faults, by carrying out the appropriate checks on the RSP's system. In particular, the RSP should conduct the following first level troubleshooting tasks in identifying a fault:

(a) The RSP should first check its own RG.

(b) The indicator light on the NTE should be lit as illustrated in Figure 5. If the indicator is not lit, the NTE might be faulty.

(c) The first TP, as installed by OpenNet, should be correctly connected to the NTE via the patch cord. The RSP can also check the power of the optical signal to/from the NTE by using appropriate power meters.

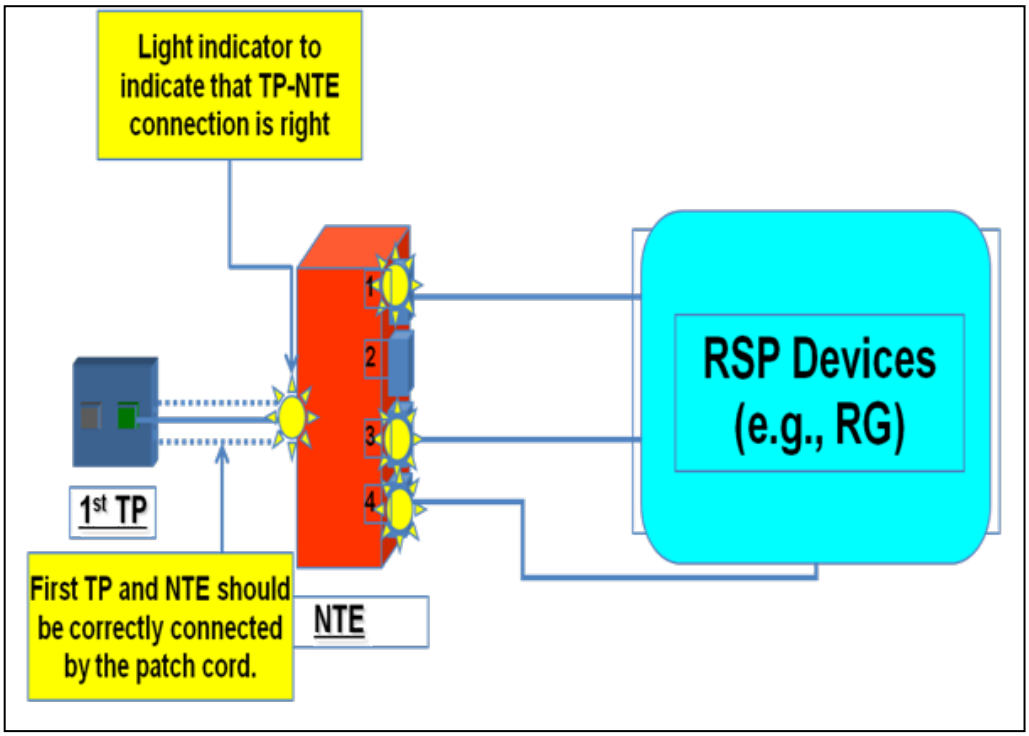

Figure 5: Light indicators on a working NTE

Responsibilities of Nucleus Connect

6.5 Nucleus Connect provides (active) network services to the RSP and will thus own the relationship with the RSP. Nucleus Connect will be the point of contact for the RSP and should be able to determine whether the fault arises from a faulty connection at the end user's premises (whether it is due to a NTE or TP fault), a fault due to its active equipment or a fault due to OpenNet's network. In the event that Nucleus Connect's equipment (NTE/patch cord) is faulty, Nucleus Connect will rectify or replace the faulty unit for the end user.

6.6 The basic information which Nucleus Connect needs to provide to OpenNet to escalate the fault includes:

(a) service ID (provided by OpenNet as a reference to the service);

(b) date/time of fault occurrence;

(c) description of fault and/or symptoms; and

(d) tests/remedies which Nucleus Connect and/or the RSP have carried out but failed to rectify the fault.

Process for Fault Rectification

6.7 When an end user reports a fault:

(a) If the fault is contained within the RSP's network, no escalation is needed by the RSP;

(b) If the fault affects other end users, the RSP should inform all affected end users; and

(c) The RSP will follow up with the necessary actions to rectify the fault.

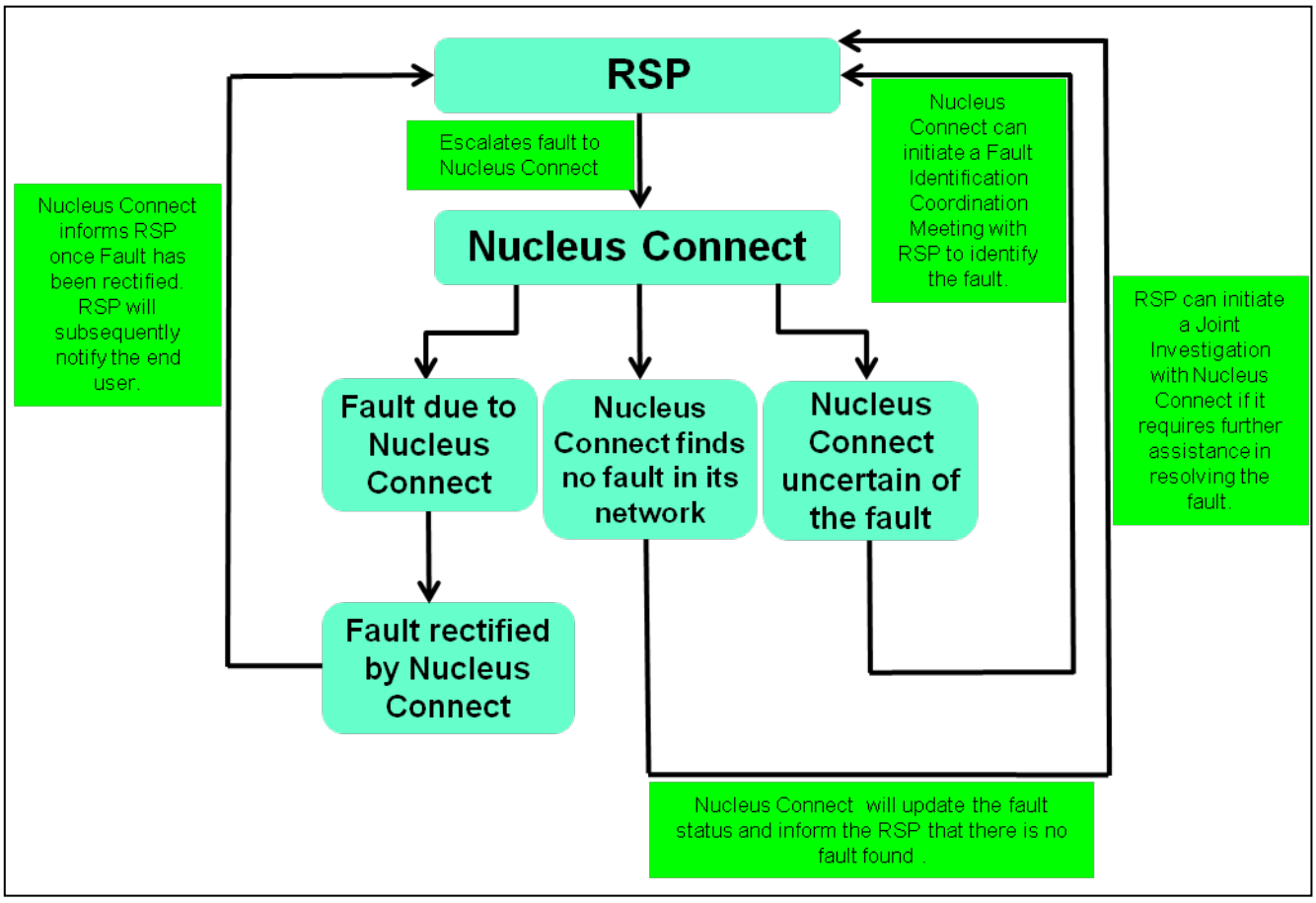

Figure 6: Fault escalation flow between RSP and Nucleus Connect

6.8 If the RSP finds no fault within its system, the fault should be escalated by the RSP to Nucleus Connect. Nucleus Connect will assess the fault and respond to the RSP according to the processes outlined in Figure 6. Depending on the situation, there may be a need for Nucleus Connect and RSP to come together to address the fault.

6.9 After performing a thorough check on its own network, Nucleus Connect can escalate the fault (as discovered by its RSP or by itself) to OpenNet if Nucleus Connect suspects that the fault lies in OpenNet's network. OpenNet will assess the fault and respond to Nucleus Connect according to the processes

outlined in Figure 7. Depending on the situation, there may be a need for OpenNet and Nucleus Connect to come together to address the fault. If necessary, Nucleus Connect may also involve the RSP in the above (as part of the process highlighted in paragraph 6.8). Nucleus Connect will update RSP as and when there is a change in status of the fault investigation.

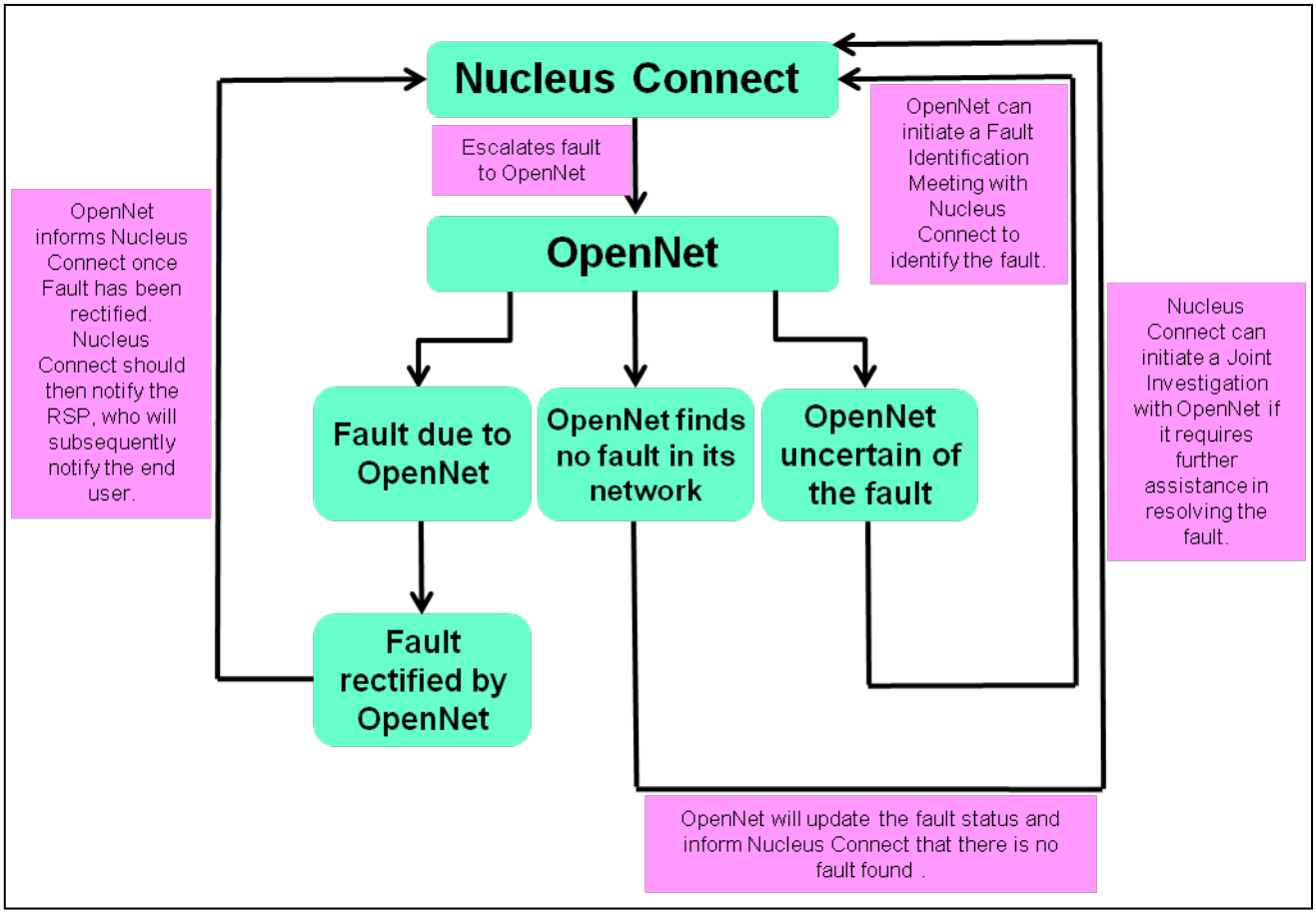

Figure 7: Fault escalation flow between OpenNet and Nucleus Connect

Fault-related Charges and Principles

6.10 In the event that a fault is not easily identifiable or cannot be easily isolated, it is useful for the concerned parties to come together to resolve the issue. This joint effort is set up to help expedite the investigation and resolution of the fault. Given that OpenNet and Nucleus Connect will be utilising their own resources in investigating faults, the parties may impose charges (set out in the ICOs) as illustrated in Figure 8 and Figure 9. The various types of compensation schemes related to time to repair and non service availability will apply according to the terms and conditions set forth in the respective ICOs.

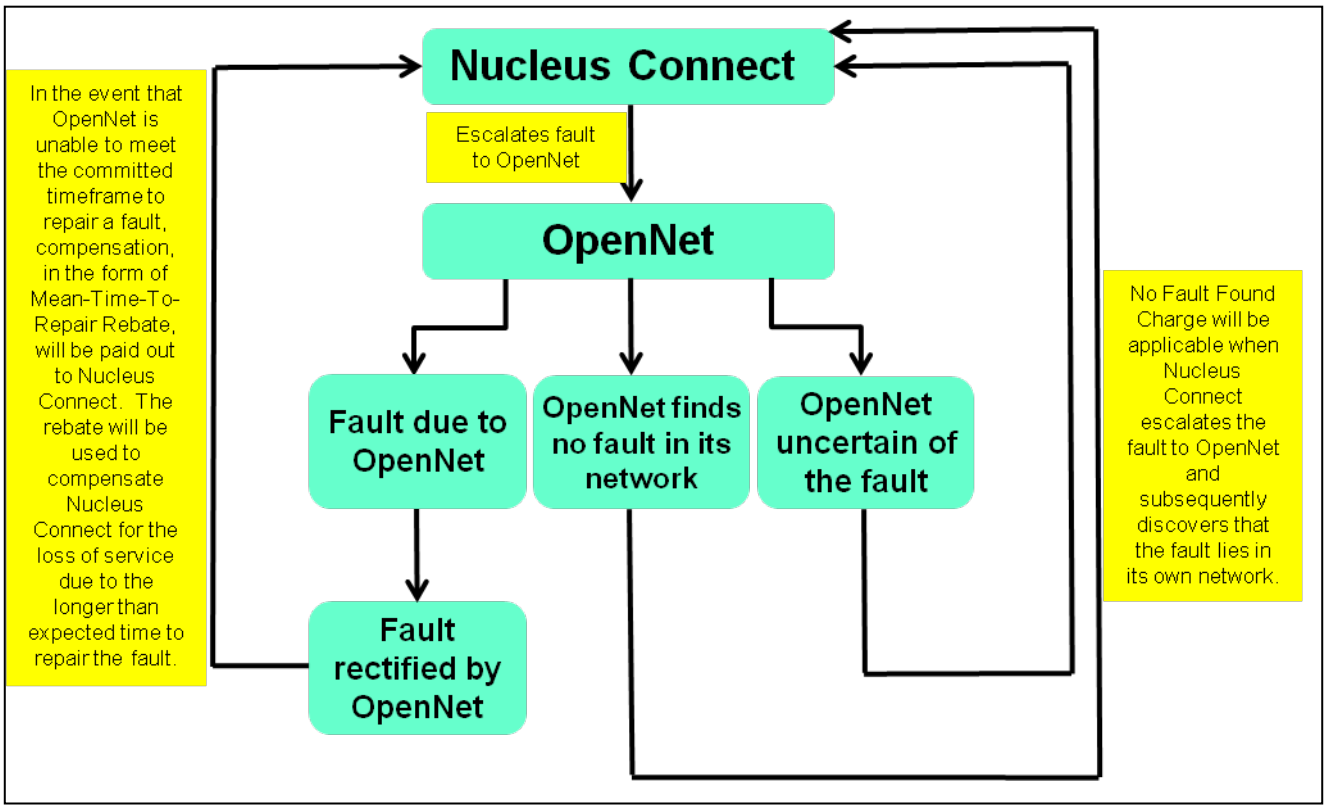

Figure 8: Fault escalation to OpenNet and related charges

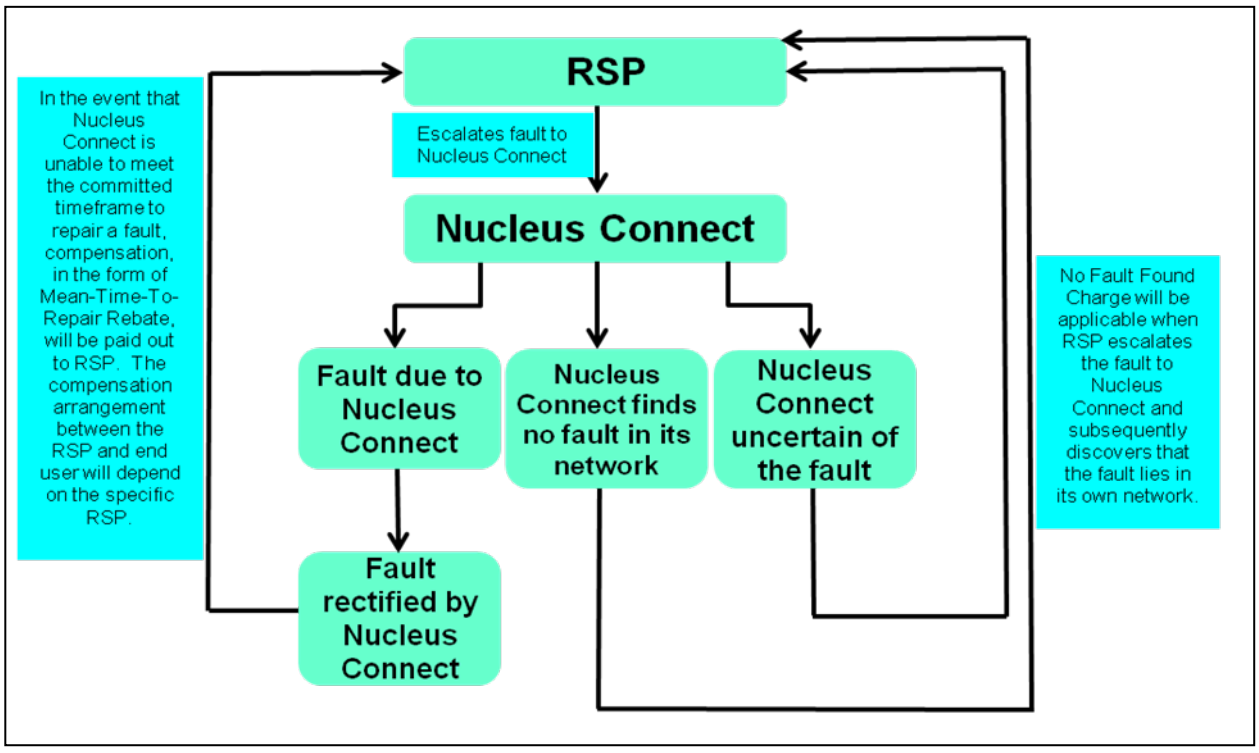

Figure 9: Fault escalation to Nucleus Connect and related charges

7. SCHEDULED MAINTENANCE GUIDELINES

7.1 The objective of the scheduled maintenance guidelines is to provide clarity on the demarcation of responsibilities with respect to the handling of scheduled maintenance activities by OpenNet and/or Nucleus Connect. The guidelines will:

(a) assist the RSP to ensure minimum disruption and inconvenience to the end user during the period when OpenNet and/or Nucleus Connect carry out their scheduled maintenance; and

(b) provide clarity on the party that should be contacted for enquires related to maintenance.

OpenNet's Scheduled Maintenance

7.2 OpenNet is required to provide its QPs, including Nucleus Connect, at least one (1) month's written advance notice for any scheduled maintenance. OpenNet is also required to inform Nucleus Connect and its other QPs about the period of service disruption.

7.3 Nucleus Connect is required to inform the affected RSPs of OpenNet's scheduled maintenance and period of service disruption within one (1) week of the receipt of OpenNet's written notice.

7.4 The affected RSPs should inform their affected end users of the scheduled service disruption within a reasonable timeframe from the receipt of the notification from Nucleus Connect.

7.5 OpenNet and Nucleus Connect are to use reasonable measures to ensure that their respective networks are restored after OpenNet's scheduled maintenance before informing the RSPs of the completion of the maintenance work.

7.6 RSPs are responsible to ensure that the services to their end users are successfully restored.

Nucleus Connect's Scheduled Maintenance

7.7 Nucleus Connect is required to provide its affected RSPs at least three (3) weeks' written advance notice for any scheduled maintenance. Nucleus Connect is also required to inform the affected RSPs about the period of service disruption.

7.8 The affected RSPs should inform their affected end users of the scheduled service disruption within a reasonable timeframe from the receipt of the notification from Nucleus Connect.

7.9 Nucleus Connect is to use reasonable measures to ensure that its network services are restored after the scheduled maintenance, before informing the RSPs of the completion of the maintenance work.

7.10 RSPs are responsible to ensure that the services to their end users are successfully restored.

Role of RSP – Interface with the End User

7.11 The RSP should provide reasonable advance notice to end users, informing them of the period of service disruption due to scheduled maintenance works carried out by OpenNet, Nucleus Connect or itself. The RSP is also responsible to ensure that services to all affected end users are successfully restored after the scheduled maintenance.

8. GUIDELINES FOR BILLING

Guidelines for Billing among Licensees

8.1 This section deals with the billing arrangements between OpenNet, Nucleus Connect and the RSP (each a Licensee, and collectively the Licensees) within the Next Gen NBN industry structure.

8.2 The principles guiding the billing arrangements between Licensees shall include the areas listed in the paragraphs below.

8.3 Licensees will provide each other with information within their possession that is necessary to allow them to provide accurate and timely billing to each other and to any other Licensee.

8.4 Any information exchanged for the purposes of billing shall only be used to enable Licensees to reconcile and to verify their bills, and not be used for other purposes (e.g., marketing).

8.5 In addition, each Licensee shall stipulate:

(a) when the bill will be sent;

(b) the frequency at which subsequent bills will be sent;

(c) how the bill will be sent;

(d) how the bill will be deemed to be received by the other party;

(e) the payment due date;

(f) actions to be taken, including the imposition of interest or the sending of reminders, if the billed party fails to make payment by the due date;

(g) actions to be taken if the billed party continues not to make payments despite reminders;

(h) a set of procedures for parties to disputes their bills;

(i) a set of procedures for parties to check and detect invoicing errors and to advise the billing party; and

(j) a set of procedures for parties to resolve invoicing discrepancies/errors.

8.6 The billing arrangement, including the process to handle billing disputes, between OpenNet and its QPs (e.g., Nucleus Connect), and between Nucleus Connect and its QPs (i.e., RSPs) can be found in the OpenNet ICO and Nucleus Connect ICO respectively.

Guidelines for Billing the End User

8.7 The following list of principles serves to guide the RSP when billing its residential and/or business end users. The RSP should:

(a) provide clear, accurate and unambiguous bills to the end user;

(b) specify when the bill will be sent and the frequency at which subsequent bills will be sent; and

(c) provide a contact email and/or telephone number for end users to seek clarifications on the bill.

8.8 To avoid confusion to end users, OpenNet and Nucleus Connect should not have direct billing relationships with the end users. Instead, the RSP should present a single bill to the end user for Next Gen NBN services, including any applicable charges imposed by OpenNet and/or Nucleus Connect that the RSP has decided to on pass to its end users.

8.9 The RSPs and Licensees are requested to refer to other relevant documents (e.g., the Code of Practice for Competition in the Provision of Telecommunication Services) for further details on billing practices.

9. DEFINITION OF ACRONYMS

The following definitions apply to the acronyms used in these Guidelines:

ICO	Interconnection Offer
MDF Room	Main Distribution Frame Room
NetCo	Network Company
NBAP	Non-Building Address Point
NTE	Network Termination Equipment
OpCo	Operating Company
QP	Qualifying Persons
RG	Residential Gateway
TER	Telecom Equipment Room
TP	Termination Point