



Service Provider Onboarding Process

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Document Overview

Amendment Record

Revision No.	Changes	Author	Date
1.0	Published version	Product Management	Aug 2020
1.1	Updated version including: <ul style="list-style-type: none"> • Updated Test Gate 1 (section 3) • Updated Test Gate 2 (section 3 and Table 2a) • Added Service Desk Portal access and training (section 2.21 and 3.31) • General updates and corrections 	Product Management	Dec 2020

Terms & Definitions

Term	Definition
API	Application Programming Interface
CPE	Customer Premises Equipment
CRM	Customer Relationship Management
DA	Deployment Area
ERAU	Electronic Register of Authorised Undertakings
GUI	Graphical User Interface
H&S	Health and Safety
IA	Intervention Area
IP	Internet Protocol
IPoE	Internet Protocol over Ethernet
JSON	JavaScript Object Notation
LACP	Link Aggregation Control Protocol
LAG	Link Aggregation
LAN	Local Area Network
MAN	Metropolitan Area Network
NBI	National Broadband Ireland
NDA	Non-Disclosure Agreement
NNI	Network-to-network Interface
NOC	Network Operations Centre
OLT	Optical Line Terminal
ONT	Optical Network Terminal
PPPoE	Point-to-Point Protocol over Ethernet
REST	Representational State Transfer
RSP	Retail Service Provider

Term	Definition
SES	Symmetric Ethernet Services
SLA	Service Level Agreement
SDP	Service Desk Portal
SPP	Service Provider Portal
UAT	User Acceptance Testing
UWG	Universal Wholesale Gateway
VLAN	Virtual Local Area Network
VUA	Virtual Unbundled Access
WSP	Wholesale Service Provider

Referenced Documentation

Ref. No. & Title
Bitstream and VUA Product Reference Offer
Bitstream and VUA Product Process Manual
InterConnect & Symmetric Ethernet Services (SES) Product Reference Offer
InterConnect & Symmetric Ethernet Services (SES) Product Process Manual
Building and Cabin Co-Location Product Reference Offer
Building and Cabin Co-Location Product Process Manual

Introduction

This document outlines the process for the onboarding of a Service Provider with NBI for the purpose of reselling NBI wholesale products to End Users within the Intervention Area (IA). This process takes the Service Provider through a phased onboarding process from an initial expression of interest, through forecasting and agreeing the Service Provider's requirements, regulatory and financial checks, operational and technical testing to accessing the NBI UWG and live operations. The purpose of this document is to furnish Service Providers with the knowledge, skills, and behaviours to become effective users of NBI's platform, to understand its processes and to prepare for go-live.

NBI has put in place a digitally accessible platform to allow Service Providers to order and manage products and services from NBI. Service Providers will be able to do this directly via a single platform. This platform enables access to a set of services via REST APIs. These REST APIs allow the Service Provider to integrate with the NBI platform. At a high level, the functionality delivered by the platform is outlined below:

- Service Eligibility
- Ordering, appointments and amending of in-flight orders and appointments
- Management of in-life orders and products including product change, cease and troubleshooting
- Fault reporting (trouble ticket handling) and tracking
- Service diagnostics e.g. ONT test, line check, ONT reset
- Billing functionality
- Reporting

NBI offers web-based access to the UWG platform via the Service Provider Portal in addition to REST APIs. The Service Provider Portal is aimed at Service Providers who require service availability without the development costs of an API-based integration, while API integration is targeted at providers whose volumes of transactions warrant integration with their own CRM system. The user could be an application e.g. an external CRM application accessing via the APIs, or a user directly logged into the Service Provider Portal. Service Providers can also use a combination of both the Service Provider Portal and REST APIs in parallel, if required.

The products available via the NBI operational environment and covered as part of this onboarding document are:

- Bitstream
- Virtual Unbundled Access (VUA)
- In Home Services
- InterConnect

By completing the onboarding process, a Service Provider can view all other relevant products available from NBI, providing they have signed the Reference Offer relevant to the product or service required. These additional products include:

- Building and Cabin Co-Location
- Symmetrical Ethernet Services (SES)

This document is subject to review and will be re-issued to reflect changes as new developments and/or products are introduced. Any specific technology mentioned in this document is current at the date of issue and is for guidance purposes only. NBI reserves the right to adapt the technology used to deliver the products at any time.

This document should be read in conjunction with the relevant documentation as listed in the Associated Documents section of this document.

Audience

This document is intended for Service Providers progressing the onboarding process with NBI. This includes Service Provider Product, IT, Operations and NOC teams.

NBI will assign an Account Manager who will be responsible for guiding the Service Provider through the onboarding process.

Onboarding Precedence Flow

The process flow detailed in Figure 1 below will guide a Service Provider through the onboarding process and shows activities that can happen concurrently.



Figure 1 – Onboarding Precedence Flow

There are seven distinct phases to the onboarding process. These are:

- Phase 0: Preliminary Requirements
- Phase 1: Registration Phase
- Phase 2: Set-up Phase
- Phase 3: Connectivity and Functionality Testing
- Phase 4: Operations Testing
- Phase 5: Go Live
- Phase 6: Live Operations

Each phase has its own sub-tasks, which must be completed to achieve successful onboarding and commencement of using NBI's wholesale products as the basis for a Service Provider's own broadband offering.

The precedence flow helps provide a high-level overview of these tasks, which are summarised in the section below.

Each section thereafter in this document provides a more detailed view of the processes and associated tasks involved for each phase of onboarding.

Note, while these phases are listed as sequential, there are opportunities for Service Providers to run some phases in parallel where appropriate.

Phase 0: Preliminary Requirements

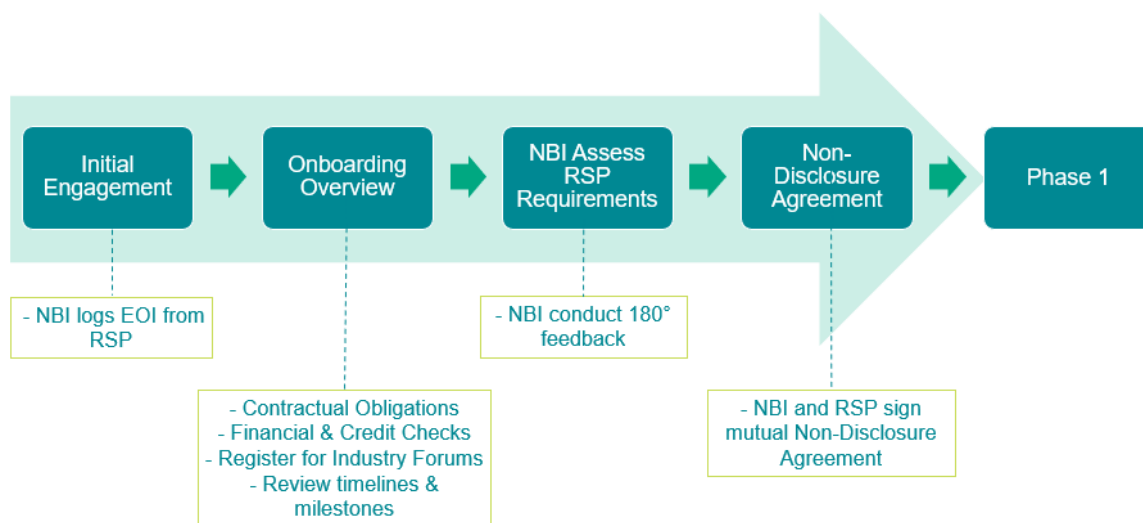


Figure 2 – Phase 0 Precedence Flow

0.1 Initial Engagement

NBI logs the expression of interest from the Service Provider.

0.2 Onboarding Overview

NBI arranges a bilateral discussion with the Service Provider via their account manager to provide a high-level overview of the onboarding process detailing the actions and obligations required to bring a Service Provider to the point where they can sell and support the provision of retail broadband services using NBI's wholesale products. This information includes:

- Product and services overview;
- Contractual Obligations;
- Details on financial and credit checks that must be passed;
- Making the Service Provider aware of the timelines and milestones to be passed before onboarding is complete.

0.3 NBI Assess Service Provider Requirements

NBI will then conduct a "180° feedback" to understand the Service Provider's requirements in terms of their market needs and their approach to business.

0.4 Non-Disclosure Agreement

At the beginning of the onboarding process, the NBI Account Manager issues the Service Provider with an NDA to sign. This NDA is a standardised one for all Service Providers, as NBI is obliged to comply with non-discriminatory obligations in how it contracts with Service Providers. Once the Service Provider signs the NDA, full onboarding commences and the RSP/WSP can progress to Phase 1 of the onboarding process.

Within this phase and subsequent phases, it is recommended that prospective onboarding and/or onboarded Service Providers attend the NBI Industry Forums which take place monthly. For more information on the NBI Industry Forums, please contact SP_engagement@nbi.ie or visit <https://nbi.ie/industry/service-provider/>.

Phase 1: Registration Phase

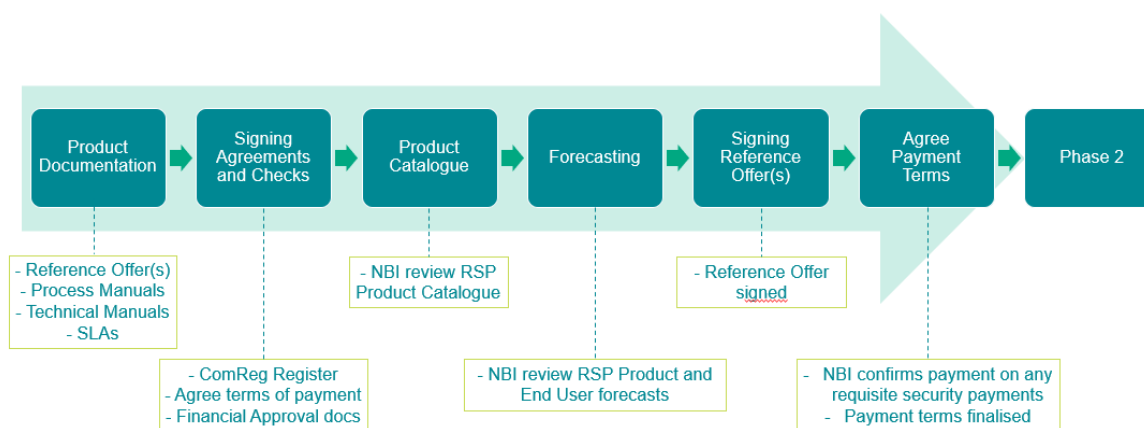


Figure 3 – Phase 1 Precedence Flow

1.1 Product Documentation

NBI will provide all relevant documentation that will enable the Service Provider to review the product offerings including the Reference Offers, Process Manuals, Technical Manuals and Service Level Agreements. The Service Provider will be required to review and sign the relevant Reference Offer associated with the required NBI wholesale product or service. NBI's Reference Offers are available on the NBI website at <https://nbi.ie/industry/service-provider/>. Due to NBI's non-discriminatory obligations our Reference Offers are standardised for all Service Providers.

Retail Service Providers (RSP) who are accessing Wholesale Bitstream and VUA services through a Wholesale Service Provider (WSP), are obliged to sign a Supplemental Agreement which is outlined in the Reference Offer. In this instance, the WSP is obliged to sign the Reference Offer while the Supplemental Agreement is signed by both the WSP and the RSP.

1.2 Signing Agreements and Checks

NBI conducts the requisite checks on the Service Provider including: ComReg Electronic Register to confirm that the Service Provider is an authorised undertaking, credit checks, terms of payment, and a check to confirm that the Service Provider is suitably licensed in relation to Eircodes.

1.3 Product Catalogue

NBI reviews the Service Provider's product catalogue.

1.4 Forecasting

NBI reviews the Service Provider product and End User forecasts.

1.5 Signing Reference Offer(s)

The Service Provider selects the products and signs the relevant Reference Offer for the products required.

An RSP who is accessing Wholesale Bitstream and VUA services through a WSP signs the Supplemental Agreement to the Wholesale Bitstream Reference Offer. In this instance, the WSP also signs the same Supplemental Agreement as well as the Wholesale Bitstream and VUA Reference Offer.

1.6 Agree Payment Terms

NBI confirms payment of any requisite security deposit and payment terms finalised.

Phase 2: Setup Phase

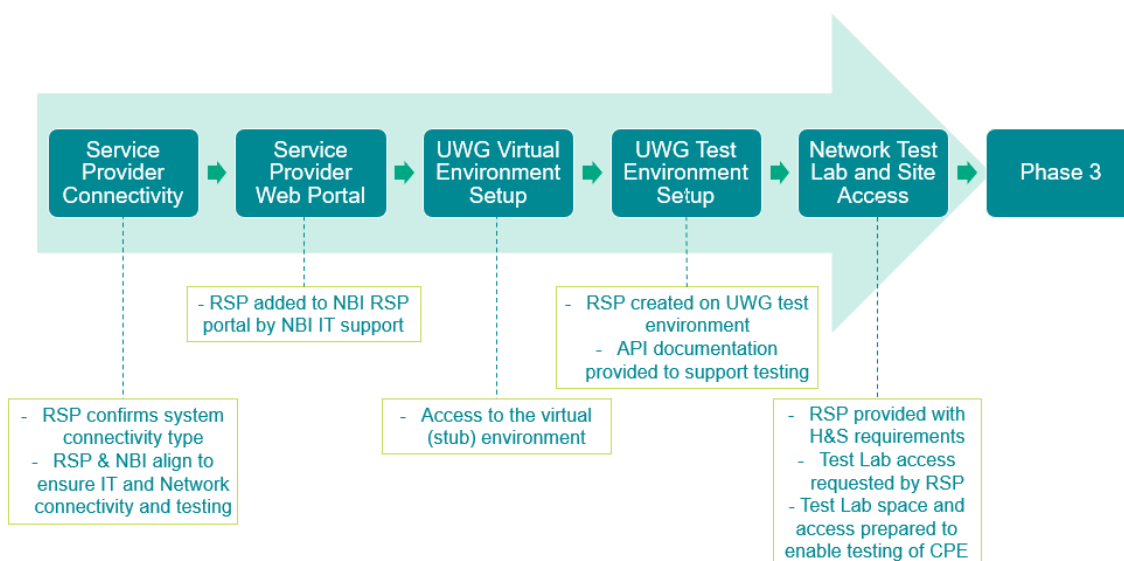


Figure 4 – Phase 2 Precedence Flow

2.1 Service Provider Connectivity

The Service Provider determines the connectivity type: Service Provider Portal, API, or both. IP addresses are shared to enable development and testing. The Service Provider provides its email address for the setup of Fault Management. NBI provides the Service Provider with access to the development portal, which contains the API documentation and a getting started guide on how to connect to the UWG APIs.

2.2 Service Provider Portal

The Service Provider details are added to the Service Provider Portal. Details are added, where required, to the Service Desk Portal.

2.3 UWG Virtual Environment Setup

The Service Provider may require access to the API virtual test environment. The virtual test environment is a “stub” environment, which provides pre-configured answers to any calls made during the test.

2.4 UWG Test Environment Setup

For API integration, NBI sets up the Service Provider on the UWG test environment. This test environment is configured specifically for each Service Provider.

The Service Provider is granted access to the UWG test environment, which is enabled by NBI IT. These details are available on the Service Provider Portal under “User Management/API Users”.

2.5 Network Test Lab and Site Access

The Service Provider is provided with H&S requirements document by the NBI NOC for test lab and PoH access. Test lab access is requested by the Service Provider and test lab space and access is prepared to enable testing of Service Provider CPE. NBI will allocate a number of days to the Service provider on a first come first served basis. At busy periods, the number of days may be restricted to 3 days however at other times NBI maybe able to accommodate longer access durations.

Phase 3: Connectivity and Functionality

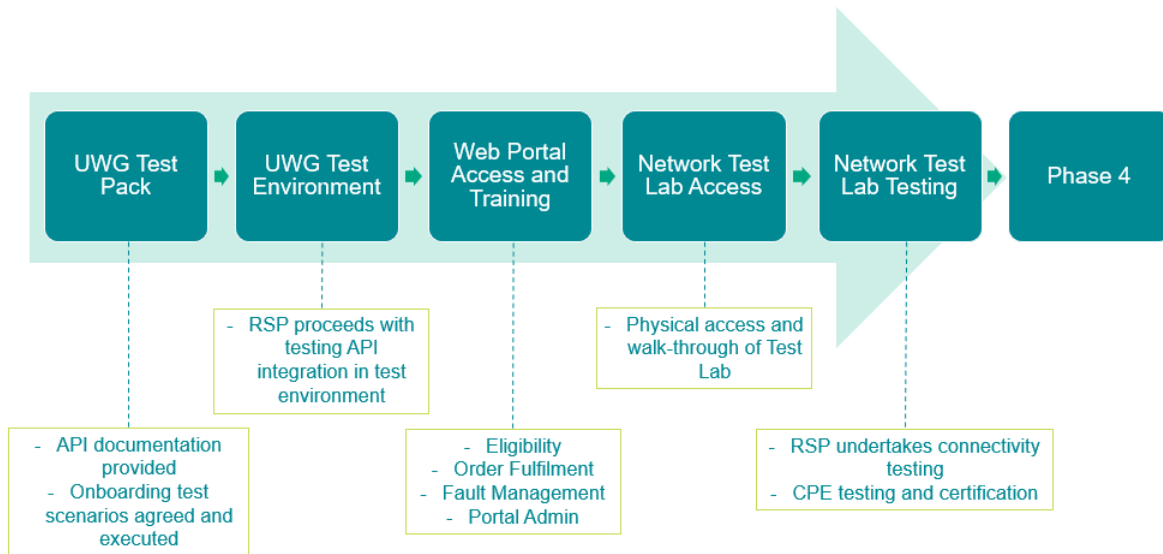


Figure 5 – Phase 3 Precedence Flow

3.1 UWG Test Pack

The Service Provider is provided with API documentation (if not in place already), where onboarding test scenarios are agreed and executed by NBI and the Service Provider.

3.2 UWG Test Environment

Service Providers proceed with testing API integration directly in the test environment.

3.3 Service Provider Portal Access and Training

Service Provider Portal access and training commences. This includes tailored NBI Service Provider Portal demonstration of eligibility, order, and fault management functionality as well as the Service Provider Portal User Guide (which includes Administration).

NBI also provides Service Providers with an NBI ticketing system known as the Service Desk Portal. Access and training also commences during this phase.

3.4 Network Test Lab Access

Physical Access and walk-through are provided to the Test Lab.

3.5 Network Test Lab Testing

The Service Provider undertakes network test lab connectivity testing, as well as CPE testing and certification.

Phase 4: Operations Testing

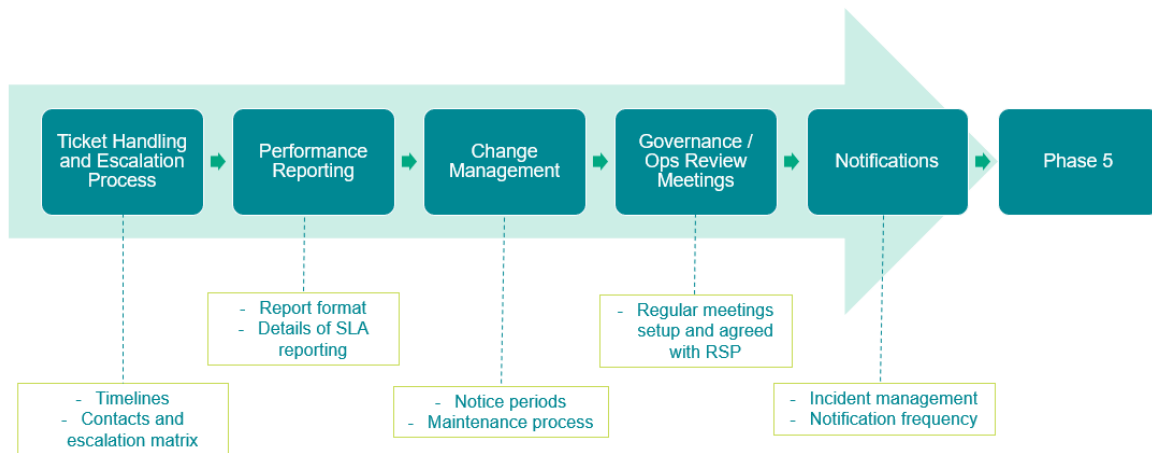


Figure 6 – Phase 4 Precedence Flow

NBI and Service Provider Operations Testing commences.

4.1 Ticket Handling and Escalation Process, including;
Service Provider Portal and API access and availability
Escalation matrix

4.2 Performance Reporting;
Frequency and format of reporting available

4.3 Change Management;
Detailed summary and overview of the Change Management process

4.4 Governance / Ops Review Meetings;
Bilateral reviews/governance meetings setup and agreed

4.5 Notifications;
Overview and testing of incident notifications and expected processes

Phase 5: Go Live

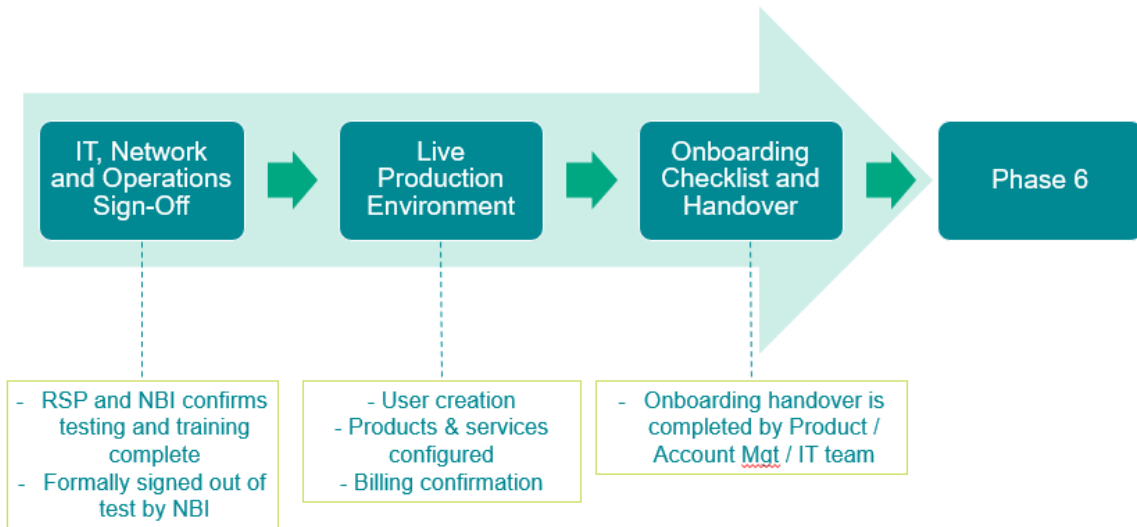


Figure 7 – Phase 5 Precedence Flow

5.1 IT, Network and Operations Sign-Off

Once the Service Provider completes the NBI-assigned test pack in the test environment and Service Provider Portal and Service Desk Portal training is complete, they are formally signed out of test by NBI's IT and Product team.

5.2 Live Production Environment, including:

- User creation;
- Products and services configured;
- Billing confirmation.

5.3 Onboarding Checklist and Handover

Onboarding handover is completed by NBI following a formalised meeting to agreed completion of all outstanding tasks and obligations between NBI and the Service Provider.

NBI offer Marketing and Communications expertise to assist Service Providers and understand their brand and marketing requirements. Contact the NBI Account Manager for more information on this facility.

Phase 6: Live Operations

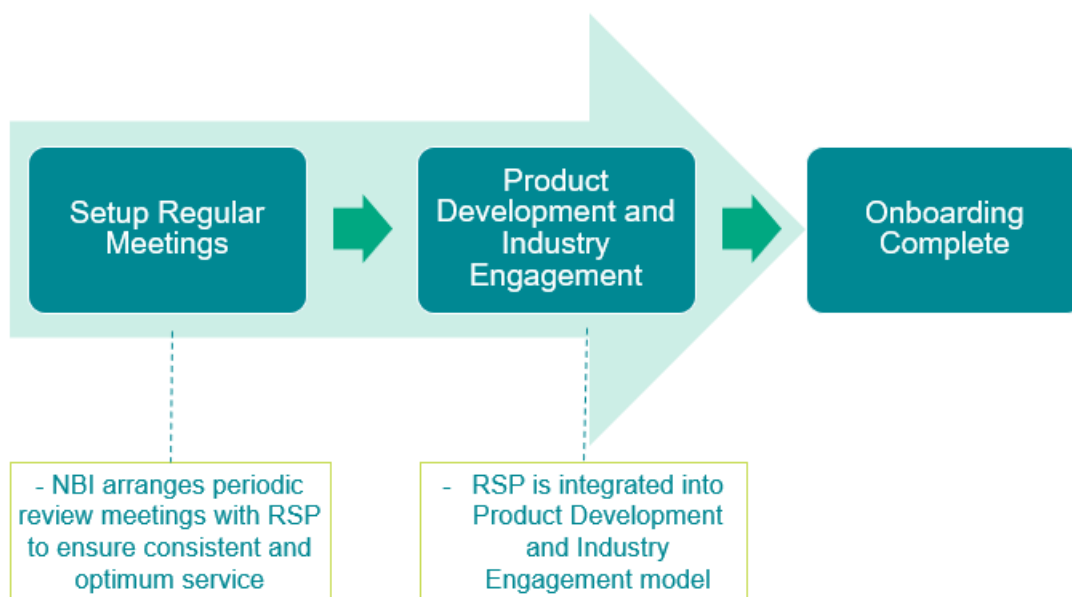


Figure 8 – Phase 6 Precedence Flow

6.1 Setup Regular Meetings

NBI Account Management arranges periodic review meetings with the Service Provider to ensure consistent and optimum service levels are maintained. Any issues with the onboarding process and/or operational environment are identified and addressed through this channel.

6.2 Product Development and Industry Engagement

The NBI Account Manager initiates integration into the NBI Product Development process and ensures ongoing industry engagement with the Service Provider.

0 Phase 0 - Preliminary Requirements

This section focuses on the initial engagement between Service Provider and NBI to give the Service Provider a clear overview of the onboarding process. The main intent is to provide a straightforward and comprehensive understanding of what is required to ensure a successful onboarding journey.

0.1 Initial Engagement

The nominated NBI Account Manager logs the expression of interest from the Service Provider, which begins the onboarding process.

The NBI Account Manager brings the Service Provider through all of the relevant onboarding details including contractual obligations, an overview of the products and services and a summary of the checks that will need to be carried out on the credit and financial status of the Service Provider prior to completion of registration.

0.2 Onboarding Overview

NBI arranges a one-to-one with the Service Provider and provides a high-level overview of the onboarding process, detailing the actions and obligations required to bring the Service Provider to the point where they can sell and support broadband services using NBI's wholesale products. This detail includes:

- Contractual Obligations in the form of the NDA and relevant product Reference Offers;
- Financial and credit checks that must be passed;
- Industry forum registration;
- Briefing the Service Provider to ensure they are aware of resources required, timelines and milestones to be passed before onboarding can be successfully completed.

0.3 NBI Assess Service Provider Requirements

NBI conducts a "180° feedback" to understand the Service Provider's requirements in terms of their market needs and approach to business. An example of this might be assistance in building a business case for selling regional (VUA) products versus national (Bitstream) products.

0.4 Non-Disclosure Agreement

At the beginning of the onboarding process, the NBI Account Manager issues the Service Provider with an NDA to sign. This NDA is a standardised one for all Service Providers, as NBI is obliged to comply with non-discriminatory obligations in how it contracts with Service Providers. Once the Service Provider signs the NDA, full onboarding commences.

1 Phase 1 - Registration

Once the initial engagement between NBI and the Service Provider is complete, the Service Provider moves on to the next phase of the onboarding process, which is the registration phase.

1.1 Product Documentation

The following documentation is made available to the Service Provider within Phase 1:

- Bitstream and VUA Product Reference Offer
- Bitstream and VUA Product Process Manual
- Bitstream and VUA Product Technical Manual
- Bitstream and VUA Product Service Level Agreement
- InterConnect and SES Product Reference Offer
- InterConnect and SES Product Process Manual
- InterConnect and SES Product Technical Manual
- InterConnect and SES Product Service Level Agreement
- Building and Cabin Co-Location Product Reference Offer
- Building and Cabin Co-Location Product Process Manual
- Building and Cabin Co-Location Product Technical Manual
- Building and Cabin Co-Location Product Service Level Agreement
- Deployment File

1.2 Signing Agreements and Checks

When the Service Provider is ready to proceed with onboarding, the following contractual documents, which have been provided by NBI, must be signed:

- Reference Offer (including, where relevant, the Supplemental Agreement, for situations where the Service Provider is providing wholesale services to other Service Providers. In this case, both the WSP and the RSP need to sign);
- Data Processing Agreement.

At this point, the Service Provider is also required to provide the following information to NBI:

- Confirmation of inclusion in ComReg's Electronic Register of Authorised Undertakings
- Billing/Bank details/Purchase Order reference(s)
- Confirmation of creditworthiness

This enables NBI to initiate the appraisal process for Service Provider creditworthiness and financial stability before onboarding.

Eircode Licence

NBI will request confirmation from the Service Provider that they have the appropriate Eircode licence. This must be confirmed before signing of the Reference Offer(s).

For Wholesale Service Providers who are onward selling products and services to Retail Service Providers, NBI will request confirmation that each of their Service Providers are also appropriately Eircode-licensed.

1.3 Product Catalogue

The Service Provider reviews and chooses the appropriate Reference Offer and NBI provides the Service Provider with the associated product details for the chosen products. The Service Provider uses these details to create their own specific product catalogue within the NBI operational environment.

The following NBI products are available to the Service Provider:

- Bitstream and VUA (Including In home services if requested?)
- Building and Cabin Co-Location;
- InterConnect;
- SES.

NBI requests what products and services the Service Provider is going to use within each Product Reference Offer, which helps define the appropriate testing and setup between NBI and the Service Provider. For example, if the Service Provider is planning to use Multicast services, then Multicast capability is required to be tested prior to being able to order Multicast services.

Note; products that are not tested during onboarding will not be available to order once the Service Provider is fully onboarded, however, the Service Provider can return to test these products at any time should they wish to include the products in their product catalogue. A Service Provider should contact their Account Manager in this scenario if they wish to revisit testing.

The NBI Account Manager guides the Service Provider through the rollout plan for each relevant product and explains how to access product specific information on the NBI website, including:

- Process Manuals;
- Technical Manuals;
- Service Level Agreements;
- Price Lists.

At this point the Service Provider will formally provide their product forecast based on the rollout plans, including details on what product they expect to sell in each DA.

1.4 Forecasting

The Service Provider provides NBI with a quarterly forecast of their projected number of connection requests and pre-order connection requests. These are required to be split out by DA / OLT area. Forecasting is essential in organising and managing resources.

Forecasts are required to be submitted at least 20 Working Days in advance of each quarter.

Upon registration with NBI, the Service Provider will be supplied with a forecasting template, which is required to be completed before onboarding is finalised. The NBI Account Manager will discuss the forecasts with the Service Provider and will also discuss any marketing requirements that the Service Provider may require.

1.5 Signing Reference Offer(s)

Once the Reference Offers have been reviewed by the Service Provider, and the various products and services have been chosen, the appropriate Reference Offer(s) is ready to be signed.

RSPs who are accessing Wholesale Bitstream and VUA services through a WSP are obliged to sign a Supplemental Agreement to the Reference Offer. In this instance, the WSP is obliged to sign the Reference Offer and the Supplemental Agreement, while the RSP is only obliged to sign the latter.

The Reference Offer and/or Supplemental Agreement to the Reference Offer, will be signed using an electronic signature process (e.g. DocuSign). NBI will provide the Service Provider with the current version of the Reference Offer with indicators of what needs to be completed, signed and by whom.

Typically, contractual documentation must be approved and signed by a company director.

The NBI Account Manager will ensure that the document is correctly completed and will forward copies of the contract once all parties have agreed and signed the document.

1.6 Agree Payment Terms

Once NBI has confirmed receipt of any security payments and cleared all financial checks then payment terms and registration can be finalised.

NBI then sets up the Service Provider's user access, providing usernames, account details and administration rights, as well as access to Billing and Assurance systems.

Once these actions are completed, the Service Provider can move to the Setup Phase.

2 Phase 2 - Service Provider Setup

The setup phase is where NBI begins to provide the Service Provider with access to the virtual, test and production platform environments, as well as lab access for network and CPE testing.

2.1 Service Provider Connectivity

NBI primarily provides two connection options for Service Providers to the NBI UWG platform:

1. Service Provider Portal;
2. API.

NBI also provides a third mechanism to Service Providers through the Service Desk Portal. This is explained in section 2.2.1 below.

The Service Provider Portal is available in Test and Production environments as described in section 2.2.

API is available as Virtual, Test and Production environments as described in section 2.3.

Access to the NBI UWG is provided by IP address 'whitelists. Whitelists contain the IP addresses that will be allowed access to the production and development/UAT environments. The Service Provider will be requested to provide:

- IP Address range of the Service Provider systems and a single Admin User for the virtual & test environments, where the Service Provider is encouraged to self-serve.
- IP Address range of the Service Provider systems and a single Admin User for the production environment, where the Service Provider is encouraged to self-serve.

Connectivity and Functionality Testing of the API / Service Provider Portal is described in more detail in Phase 3.

At this stage of the onboarding process, the Service Provider may require access to the API developer portal, which is a repository that contains API documentation.

A summary of the developer portal is as follows:

- Access provided to private software development repository;
- Request/response examples are incorporated into the API specifications;
- Service Provider is required to provide whitelist IP address details to NBI at: api@nbi.ie;
- Support offered via email at: sp_engagement@nbi.ie;

If additional scenarios or examples are required, the same api@nbi.ie email address should be used.

2.2 Service Provider Portal

The Service Provider Portal is a web-based GUI allowing Service Providers to manage the ordering and provisioning of network services for their End Users. The Service Provider Administrator can set up individual users so that they can access the Service Provider Portal.

The Service Provider Administrator will assign a role to each user that gives them permission to access a certain set of functionalities. Depending on the role, the Service Provider user can have access to the eligibility, order management, ticketing, and assurance functionality as read-only or read/write.

To access the Service Provider Portal, the Service Provider must provide the following details to sp_engagement@nbi.ie:

- Admin Name;
- Admin Email;
- Admin Contact Number.

Once the details are added to the Service Provider Portal, the Service Provider will receive an invite to finish creating their log-in. The Service Provider Portal uses 2FA (i.e. 2-factor authentication), so will need to have a device which supports this functionality.

Note: Credentials are required to be confirmed/provided by the Service Provider for access to the Service Provider Portal production environment. Credentials can be amended or updated at any time by contacting the NBI Account Manager.

2.2.1 Service Desk Portal

The Service Desk Portal is accessed via a web-based GUI allowing Service Providers to manage the ordering, provisioning and in-life management including fault handling of broadband services for their End Users. The Portal is a simplified GUI, enabling users to place the required order types (Provisioning, Service Assurance, Modify, Cancellation, Cease and Transfer) for NBI products and services.

A summary of the overall functionality offered to Service Providers includes:

- Access and Admin
 - Login to Service Desk Web Portal
- Order Management
 - Place a new order and associated appointment
 - View order details (including related appointment) – also shows all order related notifications
 - View order status updates
 - Show list of all orders with included order state

2.3 UWG Virtual Environment Setup

At this stage of the onboarding process, the Service Provider may require access to the API virtual test environment. The virtual test environment is a “stub” environment, which provides pre-configured answers to any calls made during the test.

A summary of the UWG virtual environment is as follows:

- Available in JSON and YAML API specifications;
- Contains several request/response examples – this can be extended to cover specific scenarios, if required;
- Service Provider is required to provide whitelist IP address details to NBI at: api@nbi.ie;
- NBI to provide API Key for Authentication;

- Oauth2 not required to access virtual environment, but will be required for test and production environments;
- Support offered via email at: sp_engagement@nbi.ie.

If additional scenarios or examples are required, the same sp_engagement@nbi.ie email address should be used.

2.4 UWG Test Environment Setup

NBI offers a dedicated API test environment to each Service Provider requesting access, where there will be a specific set of Eircodes and tests configured for the Service Provider to use during testing.

The Service Provider must request access to the API Service Provider test environment via api@nbi.ie.

Like the virtual environment, the following summary of the UWG is as follows:

- Available in JSON and YAML API specifications;
- Service Provider is required to provide whitelist IP address details to NBI at: api@nbi.ie;
- NBI to provide API Key for Authentication;
- Oauth2 required to access test and production environments;
- Support offered via email at: sp_engagement@nbi.ie.

UWG testing is explicitly detailed in Phase 3.

2.5 Network Test Lab and Site Access

NBI offers a Test Lab to Service Providers where network testing and CPE testing can be conducted.

The process for Test Lab access is outlined in this section and in more detail in Phase 3 (Phase 3.4 and 3.5).

The Service Provider must have signed the NDA and Reference Offer(s) before becoming eligible to request Test Lab access. The Service Provider also must adhere to the Health & Safety guidelines, which are detailed in the Health & Safety document.

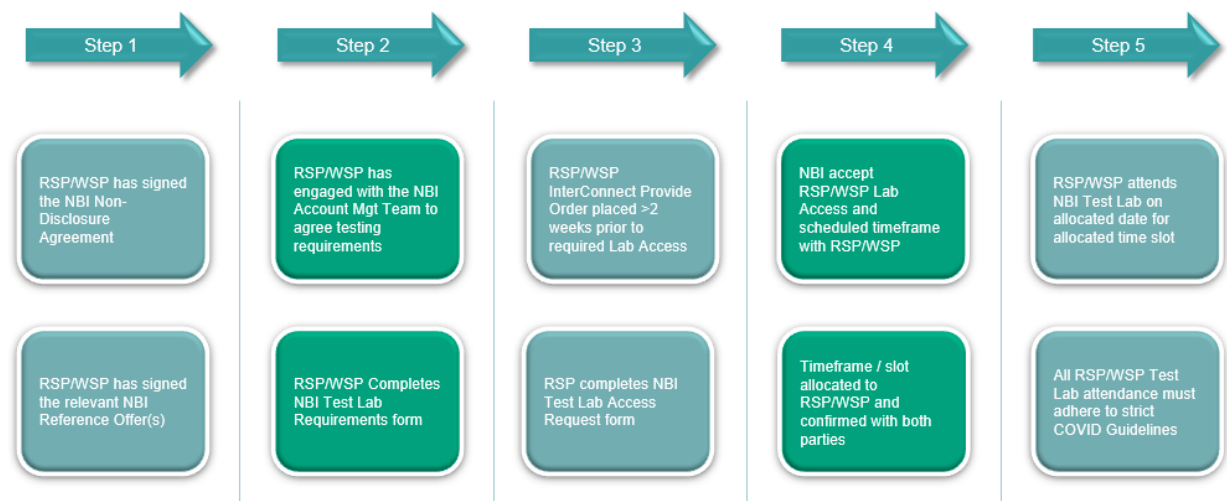


Figure 9: Test Lab Access Process Flow

3 Phase 3 - Connectivity and Functionality Tests

The next phase is the Connectivity and Functionality Testing, which tests the operational environment (the UWG) and the network element, ensuring all components operate as intended and are configured correctly. NBI will notify Service Providers of test schedule and availability during the Service Provider onboarding process.

UWG Virtual, Test and Production Environments

NBI has several system environments with which the Service Provider will interact. NBI and the Service Provider must agree in advance a specific date for development and testing in the relevant environment.

- Virtual**
 Service Provider testing will be performed in the virtual (stub) environment. NBI will meet with the Service Provider to agree the level of support required.
- Test**
 A dedicated Service Provider test environment is available, where a suite of tests is expected to be undertaken and passed before being signed into the production environment.
- Production**
 Access to the production system will be granted once all tests are successfully completed in the test environment.

Note: API specifications are the same for all environments and are published on the Service Provider Portal. NBI provides an API-Key, Client Id, and Client Secret to the Service Provider for them to be able to connect to the relevant environment.

Test Facility Architecture

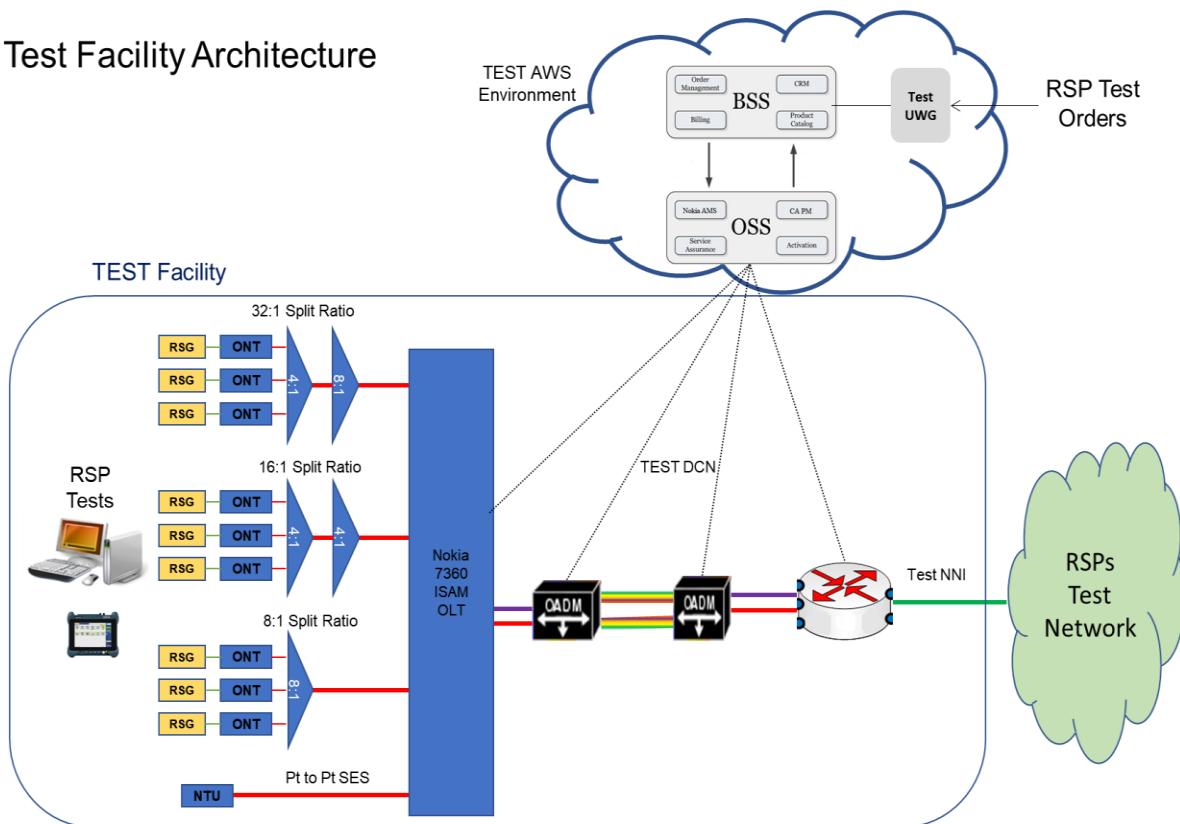


Figure 10: NBI Test Facility Architecture

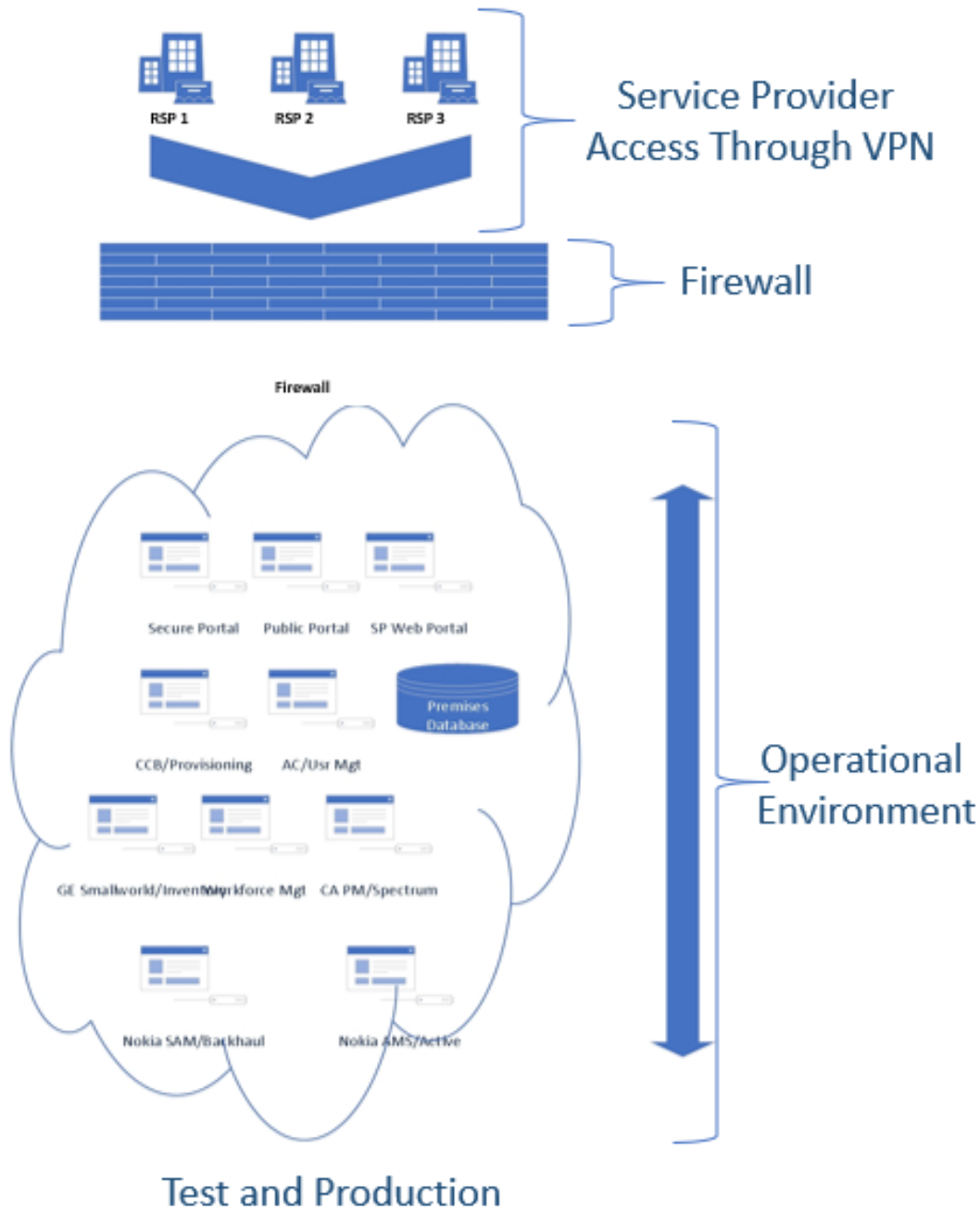


Figure 11: Test and Production Environments Overview

Network Test (Lab)

NBI offers a test lab environment which enables Service Providers to test network infrastructure and connectivity, as well as CPE. The test lab is detailed in Sections 3.4 and 3.5.

NBI Testing Process

Service Providers are required to successfully carry out NBI’s test process, which is detailed below. The test procedure consists of 3 distinct gates, all of which are required to be completed sequentially before the Service Provider is fully onboarded with NBI.

Note; Gate 2 and Gate 3 are required for API integration only. Service Providers who are only planning to use the Service Provider Portal, will be required to undertake specific Service Provider Portal and Service Desk Portal testing and training, which is described in Section 3.3.

Gate 1 – Network (InterConnect) Lab Testing and CPE Validation:

Gate 1 is for Service Providers to test their equipment and network connectivity with NBI. No operational environment testing is undertaken during this gate, as it is solely for the purpose of testing CPE and network configuration.

A summary of Gate 1 testing is as per below:

- Service Providers must complete testing as per specified criteria detailed below (also refer to Phase 3.4 and 3.5 in this document).
- NBI supplies pre-configured VLANs & services to the Service Provider for all relevant products.
- NBI and the Service Provider confirm the products and services required (if not already completed as part of Registration and Setup phases).
- Gate 1 is a mandatory requirement for all Service Providers.
- NBI provides a Pass or Fail report for the 500Mbps Minimum Bitstream / VUA product (advisory notes may be provided on other products)
- Gate 1 accreditation received upon successful completion of all agreed tasks during this phase.

A list of test cases is detailed below:

Table 1: Gate 1 – Network (InterConnect) Lab testing and CPE validation – Exit Test Criteria		
Test Condition Number	Test Condition Detail	Test Condition Description
1	NNI Physical Connectivity	<ul style="list-style-type: none"> o Physical connectivity o Power levels
2	Protection	<ul style="list-style-type: none"> o LACP o Load-balancing o LAG convergence
3	Unicast data services	<ul style="list-style-type: none"> o VLAN addressing o PPPoE, IPoE o Marking o CPE management
4	Multicast data services (if required)	<ul style="list-style-type: none"> o Throughput o Channels

Note: Service Providers are required to authenticate an NBI modem on their own network. This is to ensure mandatory tests can be completed. Credentials should be supplied to NBI at Gate 1, which can be used to connect the NBI modem to the Service Provider network in a live environment

For more information on this process, please refer to the Bitstream & VUA Process Manual.

Gate 2 – Service Provider Operational Environment Testing:

The testing in Gate 2 is designed to ensure Service Providers complete a level of testing against the Service Provider test environment prior to executing orders in the production environment. Testing incorporates both network and operational environment testing.

A summary of Gate 2 testing is as per below:

- Testing comprises up to 20 tests to ensure end-to-end capability and functionality.
- Testing must be completed on both API and Service Provider Portal where a Service Provider intends to launch with both platforms.
- Gate 2 is a mandatory requirement if the Service Provider is planning to use APIs.
- Gate 2 accreditation received upon successful completion of all agreed tasks during this phase.

A list of expected test cases is detailed below:

Table 2: Gate 2 – Service Provider Operational Environment testing – Exit Test Criteria		
Test Condition Number	Test Condition Detail	Test Condition Description
1	Check Broadband Eligibility	RSP wishes to check broadband availability at an eligible premise
2	Place Pre-Order	RSP wishes to place a pre-order at an eligible premise
3	Change Pre-Order	RSP wishes to change the product ordered for an existing pre-order
4	Cancel Pre-Order	RSP wishes to cancel a pre-order
5	Query and Book Appointment	RSP wishes to query the available appointment slots for a given location & job type, and reserve the appointment
6	Change Contact Details on Appointment	RSP wishes to change the contact details for an appointment
7	Change Appointment	RSP wishes to reschedule an appointment
8	Place Order	RSP wishes to order broadband for at an eligible premise
9	Order Survey	RSP wishes to schedule a survey for a premise that is defined as “survey required”
10	Order End User Requested Survey	RSP wishes to schedule an End User requested survey
11	Cancel Survey	RSP wishes to cancel a survey
12	Retrieve Order Details	RSP wishes to retrieve order details for an inflight order
13	Modify Order	RSP wishes to change the product (or In-Home Service) ordered for an existing order
14	Cancel Broadband Order	RSP wishes to cancel an order
15	Transfer Broadband	RSP wishes to transfer broadband from a different RSP
16	Test ONT	RSP wishes to test an active ONT
17	Process Fault	RSP wishes to raise a fault on a broadband line
18	Push Updates (optional)	RSP wishes to be informed proactively of all asynchronous updates in near real time
19	Cease Broadband	RSP wishes to cease the active broadband service
20	Order broadband with Panellist	RSP wished to order a broadband with a panellist device

Note: For initial launch, NBI require the following test cases to be carried out prior to moving to Gate 3:

Table 2a: Gate 2 – Service Provider OE testing – Exit Test Criteria				
Test Condition Number	Test Condition Detail	API	SPP	SDP
1	Check Broadband Eligibility	Y	Y	N
2	Query and Reserve Appointment	Y	Y	N
3	Place Broadband Order	Y	Y	Y
4	Order Broadband with Panellist (optional)	Y	Y	Y

The above table shows the type of platform available for testing during this phase.

Gate 3 - Production Testing

Gate 3 testing comprises the completion of at least one provisioning order to a “live” End User to validate full end-to-end connectivity on the production environment.

NBI works with the Service Provider to help map the process before moving to full commercial launch.

A summary of Gate 3 testing is as per below:

- NBI provides a Gate 3 test suite to the Service Provider.
- Gate 3 is a mandatory requirement if the Service Provider is planning to use APIs.
- Gate 3 accreditation received upon successful completion of all agreed tasks during this phase.

Note for initial NBI launch, the following 3-phased process also applies and is summarised below:

- Launch Phase 1 – Technical Testing;
- Launch Phase 2 – Soft Launch (small number of “live” End Users in a controlled environment);
- Launch Phase 3 – Commercial Launch.

A list of expected test cases are detailed below:

Table 3: Gate 3 - Production Testing - Exit Test Criteria		
Test Condition Number	Test Condition Detail	Test Condition Description
1	Check Broadband Eligibility	RSP wishes to check broadband availability at an eligible premise
2	Place Pre-Order	RSP wishes to place a pre-order at an eligible premise
3	Retrieve Order Details	RSP wishes to retrieve order details for an inflight order
4	Test ONT	RSP wishes to test an active ONT
5	Push Updates (optional)	RSP wishes to be informed proactively of all asynchronous updates in near real time

3.1 UWG Test Pack

The Service Provider is provided with the API documentation and can begin to determine what testing is required.

NBI offers Service Providers a dedicated test environment and test pack, which includes a specific set of predefined premises (by Eircode/Location Code) and test scenarios that the Service Provider tests against.

Test scenarios are agreed between NBI and the Service Provider and are executed by NBI and Service Provider IT departments. The test scenarios and exit criteria is specified in Section 3; Tables 1, 2 and 3 of this document.

3.2 UWG Test Environment

Upon gaining access to the Service Provider test environment, and agreeing a test schedule, the Service Provider can test API integration directly in the test environment.

Full details are provided by NBI once a schedule has been agreed between all parties.

An example list of test cases and scenarios are outlined in Section 3 Gate 2 above.

3.3 Service Provider Portal Access, Testing and Training

To access the Service Provider Portal, the Service Provider supplies the details of the master admin user for the Service Provider Portal to NBI, including:

- Admin Name;
- Admin Email;
- Admin Mobile.

Once the details are added to the Service Provider Portal, the Service Provider will receive an invite to finish creating their log-in. The Service Provider Portal uses 2FA (2-factor authentication), so will need to have a device which supports this functionality.

Once the Service Provider can access the Service Provider Portal successfully, the training can commence.

NBI will perform a “train the trainer” Service Provider Portal training session with the Service Provider. Training will include:

- Eligibility;
- Order Fulfilment;
- Fault Management;
- Service Provider Portal Admin features.

The Service Provider will also be guided through the interactive online maps, how to retrieve the files for eligible premises and any other relevant information important to the Service Provider.

Test scenarios, like scenarios described in Gate 2 Table 2 above, will be undertaken by the Service Provider before being signed-off.

The Service Provider can review the NBI Web Portal User Guide for further information. This document is available on <https://nbi.ie/industry/service-provider/> or from NBI's Account Manager for the Service Provider.

The Service Provider Portal Guide contains a section on "Administration" which will guide the Service Provider Administrator. This is available on <https://nbi.ie/industry/service-provider/> or from NBI's Account Manager for the Service Provider.

Table 4: Service Provider Portal User Types	
User Types	Description
User	A User can perform functionality checks, eligibility, order management, and ticketing/fault handling – depending on the role assigned to them by the Administrator User.
Administrator User	Same tasks as above but can also create Users and assign/remove access and roles to Users.

The Service Provider Administrative User has access to the Portal to assign predefined roles. Roles are collections of rights, grouped for efficient management of the system. Each User can be assigned to multiple roles.

A list of flexible roles is available for read/write (RW) and read-only (RO). The Administrator section of the Service Provider Portal Guide contains a full list of all roles and a description of each role.

3.3.1 Service Desk Portal Access and Training

Service Providers may request access to the Service Desk Portal via their Account Manager. The following credentials are required for user creation:

- User email address
- User full name
- User Service Provider name (e.g. RSP ABC)

Once details are confirmed and the NBI user has been created by NBI Network Operations, the user will receive an email with instructions on how to complete setup.

NBI will perform a "train the trainer" Service Desk Portal training session with the Service Provider. Training will include:

- Portal Navigation;
- Order Fulfilment;
- Fault Management.

Please refer to the Service Desk Portal Guide for more information on the Service Desk Portal.

3.4 Network Test Lab Access

The Service Provider contacts their Account Manager requesting test lab access and to agree testing requirements, which are detailed in Section 3.5.

The Service Provider fills out the Test Lab Access Form (See Appendix for a copy of the form) and submits to NBI using the SP_engagement@nbi.ie email address.

Once the request has been logged by NBI, the NBI Account Manager will book a slot when the test room is available and send confirmation to the representative via a calendar meeting invite.

Note: due to COVID-19 guidelines, access to the test lab is limited and the following principles apply:

- Shared calendar operating first-come-first-served appointments based on email booking request timestamp
- day deep clean of lab
- labs operating concurrently
- Only one Service Provider present in the building at any one time
- 1-day on-site Service Provider setup
- Remote test execution
- RSP support available

In addition, the NBI COVID form ([link here](#)) needs to be completed and submitted by the Service Provider representative 24hrs before planned site attendance.

The NBI Health & Safety training module is required to be completed by the Service Provider representative before being allowed on site. This is provided by contacting the NBI Account Manager.

The Account Manager confirms that all paperwork and details have been submitted before the appointment is confirmed.

3.5 Network Test Lab Testing

The Service Provider must provide confirmation and certification that their CPE has passed the required testing requirements. The Service Provider is required to record relevant test results and provide confirmation of successful CPE test results to NBI. The CPE make, model and version number is required to be recorded and provided to NBI and/or the CPE datasheet can be sent to NBI. Once testing is complete, only the agreed tested CPE is used in production. Any change to CPE equipment or firmware software post launch needs to follow the confirmation and certification process in the NBI lab as above. A WSP needs to test the CPE of each RSP it intends to offer service to, or alternatively request to NBI that the RSP themselves test their CPE. Only after the RSP's CPE has been tested can it be used in the production environment.

NBI will provide a test plan that the Service Provider must execute successfully. A list of example tests is shown in Section 3 Gate 1.

In addition, the Service Provider may want to perform additional tests over and above those defined by NBI. If this is the case, this should be notified to NBI in advance.

Minimum Performance Specification

NBI requires that the Service Provider provides a Performance Specification for Business and Residential Products, based on the Minimum Wholesale Bitstream/VUA Product, which meets or exceeds the minimum performance for all specifications set out in the table below.

Table 5: Minimum Performance Specification for Service Providers	
Indicators	Minimum Performance
Minimum Download Speed between retail CPE and the internet demarcation point	500 Mbit/s
Minimum Upload Speed between retail CPE and the internet demarcation point	50 Mbit/s
Maximum Latency (round trip) between the retail CPE and the internet demarcation point	100 ms
Maximum Jitter between the retail CPE and the internet demarcation point	50 ms
Maximum Packet Loss between the retail CPE and the internet demarcation point	0.10%

4 Phase 4 - Operations Testing

This section describes the tasks involved with Operations testing.

4.1 Ticket Handling and Escalation Process

The Service Provider Portal and APIs provided by NBI can be accessed by the Service Provider to create or track trouble tickets for Network and End User faults. This facility will be available 24 x 7 x 365.

Appointments for End User Assurance, Maintenance and Repair Orders are:

- Standard: 08:00 - 12:00 Monday to Saturday.
- Standard: 12:00 - 16:00 Monday to Saturday.
- Evening: 16:00 - 20:00 Monday to Saturday (March to October, or where light permits).

The escalation levels and contacts are provided during the Operations Testing phase.

As part of the onboarding process and prior to going live, NBI will require the Service Provider to provide the contact details of their operations organisation as well as contact details and an escalation matrix.

Prior to going live NBI will require the Service Provider's operations team to engage and raise a dummy ticket via the NBI service desk and via phone. NBI will provide dummy updates up to and including resolution and escalation up as far as Level 3.

NBI will also create a dummy notification of a network issue with ticket reference up to and including resolution to ensure critical operational processes between Service Provider and NBI are ready in a live environment. Additional operational testing may be requested and NBI will make all reasonable endeavours to accommodate such testing.

4.2 Performance Reporting

NBI will provide a monthly report to the Service Provider on all open tickets against SLA targets related to that Service Provider, along with a Root Cause Analysis (RCA) for all tickets raised by that Service Provider.

As part of the Service Provider onboarding process and prior to going live, NBI will provide a dummy report and will require the Service Provider operations team to engage and confirm an understanding of the reports and report format.

4.3 Change Management

NBI will design, implement, maintain, and keep up to date a preventative maintenance schedule in respect of the network and operational environment in accordance with best industry practice.

During operations testing, NBI will describe and train the Service Provider on the change management processes, including testing email notifications of planned works and outages. Email addresses and contact details are shared and exchanged with the Service Provider.

The maintenance schedule along with a schedule of feature releases will be published by NBI on a regular basis on the Service Provider Portal and notified to Service Providers via email. It is advised that a group email is used by Service Providers, which is easily configured on the Service Providers email server to ensure that email notifications are not missed or undelivered if Service Provider email addresses change.

4.4 Governance / Operations Review Meetings

NBI will be available to meet and will prepare agendas for up to 12 bi-lateral Governance/Operational reviews annually. These can be on a regular monthly basis or Service Providers may wish to reduce this to quarterly or on an ad hoc basis, depending on what suits their operational needs best. Frequency and timing of these reviews will be agreed during the onboarding process but may be amended by mutual agreement at any time thereafter.

4.5 Notifications

If NBI experiences an Incident and the status of the Incident is in a specific state, NBI will send notifications to all affected Service Providers via the Service Provider Portal or via email to nominated Fault Management contacts at regular intervals (no less than every two (2) hours) to provide information relating to the impact upon each Service Provider and any other relevant information. The Process Manual provides more information on this process, but these notifications will be tested during the Operations Testing at onboarding.

5 Phase 5 - Go Live

Following completion of successful testing in the test environment, NBI signs the Service Provider out of test and the process of accessing and connecting to the live operational environment can proceed.

5.1 IT, Network and Operations Sign-Off

The Service Provider must successfully complete the NBI-assigned test pack in the UWG test environment, the Service Provider Portal training, and the Operations testing before being able to formally sign out of test and into production.

5.2 Live Production Environment

Service Providers who wish to connect directly to the NBI systems will need to have access credentials issued by NBI to connect to the published APIs. The Service Provider must specifically request secure access to the APIs, which can be requested through the NBI Account Manager. Note: Testing must be completed and certified by NBI before being able to request production access.

The Service Provider requests secure access and provides their details to their NBI Account Manager, including:

- Application Client Name;
- API Access (All or Restricted);
- Fixed IP Address(es);

Upon receipt of the request, NBI will raise a ticket, including all the details supplied by the Service Provider.

NBI will test the connections, validate the details, and notify the Service Provider of completion of the tasks. If NBI requires additional information during the setup, this will be requested via the Account Manager to the Service Provider.

The Service Provider needs to be configured with the products and services they have subscribed to purchase from NBI based upon the Reference Offer and Service Schedules signed. NBI configures these products and services for the Service Provider on its internal systems and notifies the Service Provider upon completion of the relevant tasks.

The Master Billing Account is also set up for the Service Provider in parallel to the product and services configuration. A Service Provider may request multiple Billing Accounts if they wish and can request these at any time.

5.3 Onboarding Checklist and Handover

Onboarding Checklist

Following production setup and assuming all stages of onboarding have been completed, the Service Provider will then be deemed to have completed onboarding. A Service Provider is considered to have passed onboarding and deemed ready for go-live when each of the following activities are completed:

Table 6: Onboarding Checklist	
TASK	COMPLETE
Phase 0 - Preliminary Requirements	
NBI Assess Service Provider Requirements	
Non-Disclosure Agreement	
Phase 1 - Registration Phase	
Product Documentation	
Signing Agreements and Checks	
Product Catalogue	
Forecasting	
Signing Reference Offer(s)	
Agree Payment Terms	
Phase 2 - Setup Phase	
Service Provider Connectivity	
Service Provider Portal	
UWG Virtual Environment Setup	
UWG Service Provider Test Environment Setup	
Test Lab and Site Access	
Phase 3 - Connectivity and Functionality Test	
UWG Test Pack	
UWG Test Environment	
Service Provider Portal Access and Training	
Network Test Lab Access	
Network Test Lab Testing	
Phase 4 - Operations Testing	
Operations Testing	
Phase 5 - Go Live	
IT, Network and Operations Sign-Off	
Live Production Environment	
Onboarding Checklist and Handover	
Phase 6 - Live Operations	
Setup Regular Meetings	
Product Development and Industry Engagement	

The above activities are not sequential, and some activities may be completed before others. Please refer to the Onboarding Precedence Flow in section 0.2 for details. Note – some tasks above are not mandatory and can be excluded from the checklist with agreement from NBI, for example, UWG Virtual Environment Setup – where the Service Provider is not actively going to use API integration.

Prior to go-live, NBI will organise a meeting between NBI, the NBI delivery partner and the Service Provider to discuss the service delivery process and to answer any queries the Service Provider may have in relation to the onboarding process.

As part of this meeting the Service Provider will be required to provide the following information:

- Service Provider to confirm the script / message they want the engineer to tell the End User on the day of the appointment;
- Service Provider to confirm any specific End User journey requirements;
- Service Provider to advise if they will provide support packs (with contact details for the End User to call, for example “sorry we missed you” Service Provider-branded cards, etc.);
- There will also be an open discussion on exactly what job tasks the engineer will carry out.

In addition to the discussions on the above points, more information is detailed in the Process Manual which is available to Service Providers.

Permission Obligations

It is the responsibility of the Service Provider to ensure that the contracted End User has permission under their lease or licence (if applicable) to install broadband connection in the property.

The Service Provider is required to question the End User:

“Are you the owner of the property?”

If yes, the order can proceed.

If no, the Service Provider must confirm the position on the following question below:

“Are you a tenant or licensee?”

The Service Provider should then confirm that the End User has permission under their lease or licence to install broadband connection in the property.

On receipt of the order, NBI will assume that the required confirmations have been received and that permission has been granted by the End User to proceed with installation.

Marketing and Communications

NBI offers Service Providers marketing and communications expertise where the NBI Communications team can assist Service Providers with a Marketing Communications Toolkit. This is available at any time during the onboarding phase once the Reference Offer has been signed. This can be arranged bilaterally via the NBI Account Manager.

6 Phase 6 - Live Operations

6.1 Setup Regular Meetings

The NBI Account Manager will arrange periodic review meetings with the Service Provider. NBI will also provide suitable contact points for the NOC and the Assurance and Delivery teams to help ensure that the Appointment and Repair processes flow as smoothly as possible. The periodic reviews will also highlight any roadblocks and identify any conflicts before they become major issues.

6.2 Product Development and Industry Engagement

The Service Provider is now integrated into the Product Development and Industry Engagement model. The Product Development model is published on the NBI website (www.nbi.ie) and contains all process documentation and information on the NBI Product Development process.

NBI also advises the Service Provider on how they can participate in Industry Engagement.

6.3 Onboarding Complete

The NBI Account Manager formally requests feedback on the onboarding process from the Service Provider. The Service Provider should notify NBI of any specific issues or roadblocks that may have occurred during the onboarding process, and, where possible, to provide feedback and suggested improvements.

Once the feedback has been provided, NBI issues the Service Provider an onboarding certificate, and onboarding is complete.

7 Appendix

Test Lab Access Form

Test Lab Access Form	
Service Provider Name:	
RSP Representative Name:	
RSP Representative Number:	
RSP Representative Email:	
Requested Date (min. 2 weeks in advance):	
Note: NBI will attempt to book the requested date, however, this is subject to test lab availability. NBI will schedule dates as close as possible to the requested date and will confirm the dates via a calendar diary invite.	
Detail of equipment to be installed on site:	
Access to the building requires the following items to be completed:	
COVID-19 requirement form (needs to be submitted 24hrs in advance to ensure COVID	