NBN Co Information Paper

Access Seeker Accreditation
(Fibre Network)

NBN Co Limited
Information Paper – Access Seeker Accreditation
(Fibre Network)

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Section 1 - Introduction

NBN Co's role is to realise the Australian Government's vision for the development of a next generation national broadband network (NBN), Australia's largest infrastructure project. The project will deliver a high-speed fibre broadband network to 93% of Australian premises with the remaining 7% of premises to be connected to high-speed wireless and satellite broadband services. The development of this open access wholesale network will transform the Australian telecommunications industry and enable it to meet long term consumer, community and business broadband needs throughout Australia, delivering significant and pervasive economic and social benefits.

Over the last year, as well as consulting with industry about network and operational design, NBN Co has built and is now operating a 'pre release' network in Tasmania, commenced the construction of five mainland Australia 'First Release' sites, and identified 19 further mainland Australia 'Second Release' sites for construction to commence in 2011.[1]

These First Release and Second Release sites have been selected to test the impact of different terrain, housing type and density, demographics, climate, existing infrastructure and other local factors on the NBN fibre network rollout program. The sites also allow NBN Co to trial the technology, and help determine how best to interact with our Access Seeker customers and the general community. Work at the First Release sites will continue until the second quarter of 2011 when NBN Co intends to commence connecting End Users to our network, testing services and delivering our long-term product solutions.

At the peak of NBN Co's construction phase, we will be connecting in excess of 5,000 premises each day. Ahead of this volume rollout, NBN Co sees the First Release testing phase in the early months of deployment as a valuable mechanism for NBN Co to test the network and operational interfaces to ensure that the fibre product supplied meets the needs of Access Seekers and End Users.

Purpose of this information paper

NBN Co has identified the critical dates in the overall fibre program, as outlined in our Business Case Summary.[2] At a high level, the purpose of this information paper is to outline how we intend to work with Access Seekers to meet these critical dates. This Information Paper outlines:

- The network coverage NBN Co proposes to deliver for our fibre network over the course of 2011 (information on wireless and satellite services will be provided early in 2011);
- The product and operational capabilities that are proposed;
- How Access Seekers can use the network;
- What NBN Co will require of Access Seekers; and
- How NBN Co proposes to work with Access Seekers to get them up and running on the fibre network.

It is important to provide this information for a number of reasons:

- First, we wish to inform potential Access Seeker customers of NBN Co's accreditation and network testing program. This information is provided in Section 2 – Accreditation and on-boarding process.

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[1] Details on the First and Second Release Sites can be found at: http://www.nbnco.com.au/wps/wcm/connect/first-release/site-base/first-release-areas and http://www.nbnco.com.au/wps/wcm/connect/main/site-base/main-areas/publications-and-announcements/latest-announcements/nbn-co-announces-next-rollout-locations

[2] http://www.nbnco.com.au/wps/wcm/connect/main/site-base/main-areas/publications-and-announcements/latest-announcements/nbn-co-business-case-summary.

- Second, NBN Co expects different Access Seekers will be interested in coming on board at different phases of NBN Co's development. We anticipate the majority will wish to participate when our processes have been established and refined while others may wish to assist in the early testing phase. Because of this we need to provide information on the details of NBN Co's product and operational road map so Access Seekers can make an informed decision on when to become an NBN Co Access Seeker. These details are set out in Section 3 – Road map for product and operations.

- Third, Access Seekers will require information on the likely Access Seeker and End User experience in the early phases of First Release deployment and an understanding of NBN Co's capabilities so they can make an informed decision on participating in this testing phase. These details are provided in Section 4 – First Release Network and Operations Testing.

- Fourth, NBN Co wishes to give clear guidance on what it will require of Access Seekers in the initial months of the operation of the First Release footprint. These details are provided in Section 5 – First Release Network and Operations Testing phase – Access Seeker requirements.

- Finally, NBN Co invites Expressions of Interest from Access Seekers wishing to connect to the NBN in the First Release test phase. Access Seekers wishing to lodge an Expression of Interest should complete Attachment A – Access Seeker template.

Becoming an Access Seeker customer of NBN Co

In 2011, Access Seekers have a choice in deciding when to become a directly connected customer of NBN Co. They can choose to connect to the NBN in two distinct phases – either in the First Release Network and Operations test phase (where NBN Co will be testing its network with the assistance of some Access Seekers), or in the steady state phase.

Access Seekers interested in connecting during the First Release test phase should review Sections 4 and 5. Access Seekers must send an Expression of Interest having regard to the requirements set out in Section 5 to feedback@nbnco.com.au by 23 December 2010.

Access Seekers who prefer to connect to the NBN after the First Release Test phase has been completed should review Sections 2 and 3, and make contact with NBN Co via feedback@nbnco.com.au. NBN Co's Account Team will make contact with these Access Seekers to discuss their interest, explain our requirements, and work together either to assist the Access Seeker to get ready to directly connect with NBN Co, or to suggest that the Access Seeker work with a Wholesale Service Provider to connect to the NBN.

Section 2 - Accreditation and on-boarding process

Before outlining the activities that will be undertaken over the course of 2011, it is useful to describe NBN Co's proposed long-term 'steady state' accreditation and on-boarding process. The accreditation process is designed to ensure that Access Seekers are able to establish their network and confirm interoperability with the NBN effectively and efficiently. It also enables NBN Co to meet its anticipated regulatory obligations to operate as an open access wholesale provider on a non-discriminatory basis and preserves the integrity of our network activity.

Completion of this accreditation process will ensure that by the time Access Seekers start ordering products on the NBN:

- NBN Co and the Access Seeker will have explored how the Access Seeker can best utilise the NBN either directly or through a Wholesale Service Provider;
- The Access Seeker will understand NBN Co's key price and non price terms as set out in the Wholesale Broadband Agreement, and will have agreed these with NBN Co;[3]
- Both NBN Co and the Access Seeker will know that when the Access Seeker uses NBN Co's wholesale products to deliver retail products to its End Users, this will happen without any detriment to the network, other Access Seekers, or other End Users; and
- Both NBN Co and the Access Seeker will understand all key provisioning and assurance processes and are confident they will operate effectively.

This process involves five main steps for Access Seekers:

- Step 1 – A customer qualification program to provide technical and operational information on how to connect to the NBN;
- Step 2 – The execution of a Wholesale Broadband Agreement between the Access Seeker and NBN Co;[4]
- Step 3 – NBN Co will work co-operatively with the Access Seeker on that Access Seeker's solution definition. This activity will likely involve extensive discussions on product feature mapping and process integration;
- Step 4 – The successful completion of NBN Co's Interoperability Certification Testing; and
- Step 5 – The successful completion of NBN Co's Business Readiness Testing.

These steps are outlined in Figure 1 below.
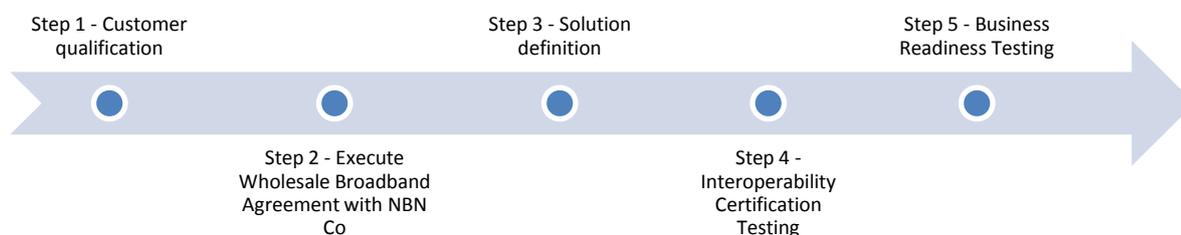
Figure 1: Accreditation process steps

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[3] The Wholesale Broadband Agreement is the subject of a separate consultation paper which was released on 28th October 2010. The consultation paper and Wholesale Broadband Agreement can be found in the Publications section of the NBN Co website - http://www.nbnco.com.au/wps/wcm/connect/main/site-base/main-areas/publications-and-announcements/publications/nbn-co-wholesale-broadband-agreement-public-consultation-opens

[4] For the First Release Network and Operations Trial phase NBN Co will provide a short term trial agreement.

Participation will also involve the commitment of resources and costs by Access Seekers as they will incur some costs to complete the accreditation program, including potential equipment purchases.

We will now go through each of these steps in turn.

Step one: Customer Qualification

During the customer qualification phase, NBN Co will assist prospective Access Seekers in understanding the NBN Co Fibre Access Service and how it would meet their business needs. The customer qualification process will then go on to provide detailed technical and operational documentation, procedures and support to Access Seekers to assist with their internal product integration before moving into the Interoperability Certification Testing program.

a) Exploring connection options

It is important to understand that there are different approaches to accessing the NBN Co network. The Access Seeker may wish to deal directly with NBN Co and manage all of its interactions with NBN Co itself. Alternatively, the Access Seeker may prefer to deal with a Wholesale Service Provider for a number of reasons, including the ability to reduce initial set up costs. NBN Co will provide information on what is involved in directly connecting with our network and systems to assist an Access Seeker in determining the best approach for their business.

b) Registration

Once an Access Seeker has decided to be a direct customer of NBN Co, we will ask the Access Seeker to submit a registration form that outlines its business details and key contacts. NBN Co will also ask for financial and company information to allow NBN Co to conduct a credit assessment.

c) Qualification

As part of the registration process, an Access Seeker is required to confirm to NBN Co under the WBA that they are an Eligible Customer. An Eligible Customer must be a Carrier, Content or Carriage Service Provider (or, in limited cases, an exempt authority or body) and must conform to the requirements of NBN Co's credit policy.[5]

If the Access Seeker is not an Eligible Customer, NBN Co will provide advice on alternative options for connecting to the NBN (such as recommending that the Access Seeker connects through a Retail or Wholesale Service Provider). If the Access Seeker is an Eligible Customer and has fulfilled the credit requirements, NBN Co will assign an Account Team to help the Access Seeker through the Accreditation and On-boarding process.

d) Technical and Operational Workshops

The Account Team will work with the Access Seeker to provide information to assist in understanding more about connecting to the NBN. This information will cover product information (such as data, voice and multicast technical training) and operational (such as ordering, provisioning and fault management training) matters. Over time, NBN Co expects to deliver more of this training online. The aim of this information is to help the Access Seeker understand the requirements of connecting to the NBN and to guide Access Seekers on how best to take advantage of the products offered by NBN Co.

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[5] As per the exposure draft of the Telecommunications Legislation Amendment (National Broadband Network Measures—Access Arrangements) Bill 2010 and the National Broadband Network Companies Bill 2010 released for comment earlier this year.

Step two: Wholesale Broadband Agreement

The Wholesale Broadband Agreement sets out the terms and conditions of access and supply of products on the NBN. An Access Seeker must execute a Wholesale Broadband Agreement before it can commence its interoperability certification and business readiness testing. The proposed format of the Wholesale Broadband Agreement is set out in Figure 2 below:[6]
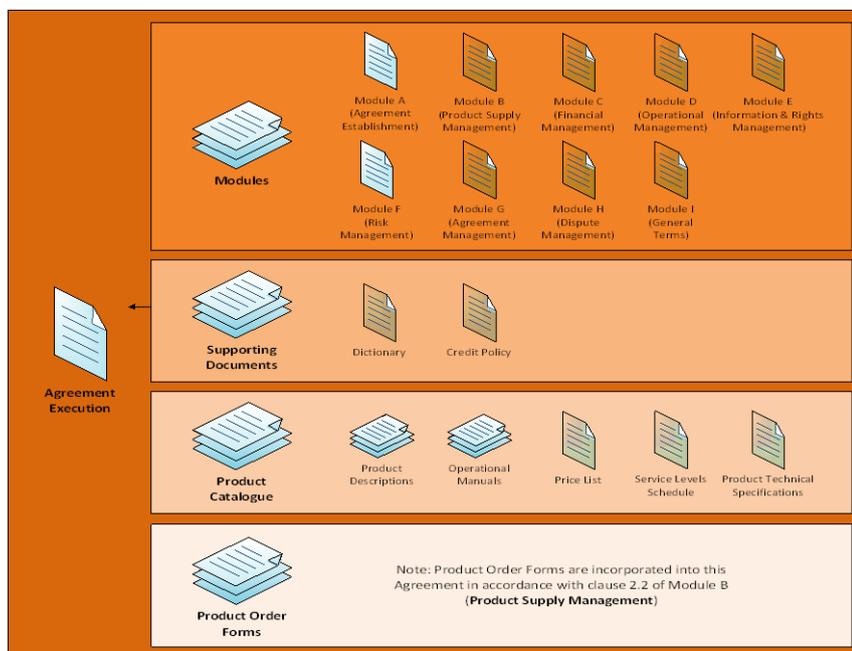

Figure 2: Wholesale Broadband Agreement

As mentioned above, Access Seekers participating in the network testing phase at the First Release sites may be asked to execute a separate initial agreement - the "First Release Trial Agreement". The First Release Trial Agreement is only relevant to those Access Seekers participating in the early stage of First Release operations.

Step three: Solution Definition

Once the Wholesale Broadband Agreement is executed, NBN Co will work with our new customer to model their products onto the NBN Co solution set. This activity will include discussions on product feature mapping and process integration. This step will enable the Access Seeker to fully understand their interactions with NBN Co, and will streamline the product development and integration steps that the Access Seeker will need to undertake.

Solution Definition will include the design of product templates that clearly articulate the product attributes that the Access Seeker will be ordering from the NBN Co product catalogue. This will generate an accreditation plan, and will determine the type of NBN Co Fibre Access Services that the Access Seeker can order once it completes its Interoperability Certification Testing and Business Readiness Testing.

To further aid product development and integration, NBN Co will be offering a pre-certification testing 'sandpit' capability for Access Seekers who have executed the Wholesale Broadband Agreement. The sandpit will enable Access Seekers to test their configuration and products with the NBN Co Fibre Access Service Architecture prior to formal certification with NBN Co.

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[6] The Wholesale Broadband Agreement is the subject of a separate consultation paper which was released on 28th October 2010. NBN Co is working towards releasing the full Wholesale Broadband Agreement in mid 2011.

The sandpit capability involves NBN Co providing test services from a portion of NBN Co's fibre network that is quarantined from NBN Co's main network. The test services will take the form of a complete Passive Optical Network, necessitating the installation of a splitter and Network Termination Units in the Access Seeker lab. The Access Seeker will be responsible for all connectivity from the sandpit (to be located at each First Release temporary Point of Interconnection) to their premises, for both the Network to Network Interface and the Passive Optical Network ends of the sandpit. The sandpit will not be constrained to the services that the Access Seeker has been certified to provide. NBN Co plans to make a sandpit NBN Co Fibre Access Service capability available to Access Seekers in the second quarter of 2011.

It is anticipated that the provision of a sandpit testing environment will provide many benefits to both parties including:

- Providing pre-configured test services to Access Seekers allowing them to integrate and test their products/services;
- Enabling Access Seekers to gain confidence that their products interoperate with the NBN Co Fibre Access Service Architecture;
- Allowing Access Seekers to meet NBN Co Pre-Certification Test Plan requirements;
- Reducing the time required in the NBN Co National Test Facility for Interoperability Certification Testing;
- Reducing the risk of defects or issues encountered during Interoperability Certification Testing; and
- Increasing the success rate of Access Seeker Interoperability Certification Testing.

Step four: Interoperability Certification Test Program

The Access Seeker Interoperability Certification Test program enables Access Seekers to be certified to connect to the NBN and to provide services to their End User customers across it. Interoperability testing is designed to ensure that when the NBN interconnects with an Access Seeker network, the networks and services are compatible, and other Access Seekers and End Users are not impacted.

As the first step in the Certification Program, NBN Co will supply a Pre-Certification Test Plan that includes a list of interfaces, network standards, specifications and tests that must be complied with in advance of the Access Seeker beginning interoperability certification testing. The Access Seeker and NBN Co will mutually agree a Pre-Certification Test Plan prior to the Access Seeker entering the test facility. This is a crucial part of the program and the Access Seeker may take several months to complete its Pre-Certification plan. It is important to understand that NBN Co interoperability testing is for certification purposes, not product refinement and Access Seekers must be confident that their products will work on the NBN before they enter the lab. If Access Seekers use up their allotted time without completing a successful test, they may need to return to the lab at a later date, dependent on lab loading, to successfully complete testing before services can be ordered from NBN Co.

Interoperability Certification Testing covers testing in areas such as the Network-to-Network Interface, product and service conformance, and Business-to-Business systems interoperability. Interoperability Certification Testing is modularised and contains a number of test domains which can be selected by the Access Seeker as required. Base modules must be completed by all Access Seekers with optional modules to be selected based on the Access Seekers circumstances.

Certification testing will be conducted in a model environment at the NBN Co National Test Facility in Melbourne. Testing is based on the configurations defined with the Access Seeker during the Solution Definition phase. The National Test Facility will provide a full multi-vendor, end-to-end test environment where new services can be proven before they are used in the live network.[7]

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[7] The National Test Facility will be located in the Melbourne Docklands Digital Harbour's Innovation Building.

Depending on the type of testing undertaken, the Access Seeker may not be required to be onsite and may be able to test remotely. This will be discussed with each individual Access Seeker.

In the test program, the Access Seeker's solution, which has been defined in the Solution Definition phase, is tested to ensure it conforms to NBN Co's technical requirements. The majority of this testing is automated and requires the Access Seeker to order and build test services as specified in the NBN Co Certification Test Plan. Upon successful completion of the interoperability certification testing, the Access Seeker is able to proceed to complete their remaining testing as detailed in the test plan agreed with NBN Co.

Once the required level of testing is successfully completed, the Access Seeker can then begin detailed Operational Business Readiness Testing in the National Test Facility.

Step five: *Operational Business Readiness Testing*

Operational Business Readiness Testing includes end to end operational process testing for placing orders and raising 'trouble tickets' (e.g. fault notifications) through the service assurance processes. NBN Co and the Access Seeker will agree the number of End User connections to be included in the Business Readiness Testing. This will determine the resources and time required to complete the Business Readiness Testing for each product. Note that much of the initial Business Readiness Testing will be completed in the National Test Facility, before progressing to the field.

Access Seekers and NBN Co will work together to provision test services on NBN Co's live network and complete any product or technology based testing to ensure that the services delivered meet the requirements as set out by the Access Seeker's defined solution. This will allow both NBN Co and the Access Seeker to ensure the following processes work correctly and that the Access Seeker is operationally ready:

- Order Activation processes and interactions;
- Service Assurance processes and interactions; and
- Flow through billing processes and interactions.

A draft version of the initial First Release Operations Manual is scheduled for release in early 2011. It will contain the processes that will be followed during First Release testing. Subsequent Operations Manuals will be released as enhanced operational interfaces are delivered and interim processes are refined.

Section 3 - Road map for product and operational capability

NBN Co's fibre network is designed to meet the long term needs of Access Seekers, and Australian consumers and businesses. NBN Co has developed a detailed road map which is designed to deliver this transformation in a carefully managed release program. The releases relate to the product capability NBN Co makes available and the operational interfaces Access Seekers can use.

We provide this road map on an indicative basis to assist Access Seekers in their decision on when to connect to the NBN.

NBN Co's Fibre Access Service

NBN Co's Fibre Access Service represents the culmination of an extensive industry engagement program. As an open access wholesale provider, NBN Co has been keen to work with with industry to understand their product requirements. NBN Co has engaged with Access Seekers through a mixture of industry wide forums and workshops (including the Communications Alliance NBN Project) and bilateral meetings. We have learnt a great deal and this has assisted us in refining and improving our product design. We greatly appreciate the work of all consultation participants.

Industry wide consultation

NBN Co has consulted extensively with industry on the Fibre Access Service:

- NBN Co released a public Product Consultation paper in December 2009.
- In early 2010, NBN Co hosted three Product forums in Sydney, Melbourne and Perth (Perth jointly with Communications Alliance).
- NBN Co presented to Communications Alliance members at two forums in Sydney and Melbourne on the technical aspects of its products.
- In August 2010, NBN Co released the NBN Co Fibre Access Service, NBN Co Wireless Access Service and NBN Co Satellite Access Service product papers and NBN Co Fibre Access Service Technical Specification documents for industry feedback.

There were over 1,200 attendees to our industry forums and over 70 detailed submissions were received on our Fibre Access Service.

Bilateral consultation

NBN Co has completed approximately 150 hours of direct product deep dives in workshop sessions with over 25 Access Seekers spread across Australia. We have received a significant amount of valuable feedback from these engagements, much of which has been incorporated into the NBN Co Fibre Access Service.

NBN Co's product road map, set out in Figure 3 below, is designed to ensure that key products are available in the First Release phase, with complementary products being delivered in line with the ability of the NBN Co systems, networks and vendors to make available various product features.

Product release 1: High Speed Broadband & Telephony capability	Introduces the core set of NBN Co Fibre Access Service components needed to build a service and allows Access Seekers to onboard and commence interoperability testing. Access Seekers will be able to offer high speed broadband with access speeds up to 100 Megabits per second and telephony capability. This will enable a range of migration scenarios from existing broadband and telephony plans.
Product release 2: Emerging entertainment capability	Enables Access Seekers to build a triple play offering by adding the capability to distribute their content (for example, television channels) simultaneously to two or more End Users as a single stream. This feature will greatly enhance an Access Seeker's ability to deliver internet protocol television offerings. This multicast technique can achieve significant bandwidth savings when delivering the same content to many End Users. NBN Co expects to see retail market innovation based on these features, particularly around the delivery of a "triple play" offering, e.g. high speed internet, telephony and television channels for real time viewing.
Product release 3: High Speed Business Services	Provides incremental functionality to support innovation in the small to medium enterprise market. The additional features are specifically designed to connect multiple business locations, so that they interact seamlessly and provide secure, high speed and reliable access to various business applications including video collaboration and conferencing.
Product release 4: Higher Speed Enterprise Services	Delivers very high speed (up to 1 Gigabit per second) for high-end enterprise services. It will also provide incremental business-oriented functionality including point to point links and transparent VLAN. Enhanced Respond and Repair Service Levels in support of mission critical applications are targeted for this release.
Product Release 5: Enhanced Reliability for Mission Critical Sites	Delivers the final features to complete the initial NBN Co Fibre Access Service feature set. It includes access diversity for End Users. This feature enables mission-critical sites, such as hospitals, to achieve higher network availability and reduce their risk of outages. Additional operational capabilities will allow Access Seekers to provide greater reliability to their business End Users.

Figure 3: Indicative product road map

Operational interfaces

NBN Co's Fibre Access Service support systems are being designed to enable a predictable connection process to new fibre based services. After the initial testing phase, it is expected that Access Seekers using NBN Co's Fibre Access Service will be supported by highly automated systems and processes for service ordering and provisioning, service assurance and reporting/billing. NBN Co anticipates that quality online service reporting and management tools will greatly assist the End User and Access Seeker service management and communication. NBN Co's operational interfaces will provide critical capabilities to ensure NBN Co is able to build, operate and maintain its national network and activate, assure and bill for services provided on this network. The key objective is to enable NBN Co and its wholesale customers to perform these tasks in the most efficient and effective way possible, using automation and self-serve processes for wholesale customers.

The principal operational interface capabilities are:

- Orderable Product Templates and Attributes
- Service Qualification
- Ordering and Activation
- Service Assurance
- Billing and Collections
- Appointment Management
- Network Planning and Geospatial tools

NBN Co's operational interfaces will be delivered in a three phased approach, and the intention is to move from manual systems supporting ordering, activation, network management and billing to fully automated systems by mid-2012. NBN Co envisages that its operational interfaces will be low cost with regular automated communications, allowing Access Seekers to operate more efficiently, transparently and effectively than previously.

The three phases of capability are:

- Operational interface Phase A - Provide foundation level capability to facilitate service assurance and provisioning and billing.
- Operational interface Phase B - Provide next level of capability to support advanced network management, billing, and automated activation and ordering.
- Operational interface Phase C - Provide the full capability to provide complete network management, advanced billing, and automated activation and ordering.

The capability phases are shown below in Figure 4.

**Figure 4: Indicative operational interface capability**
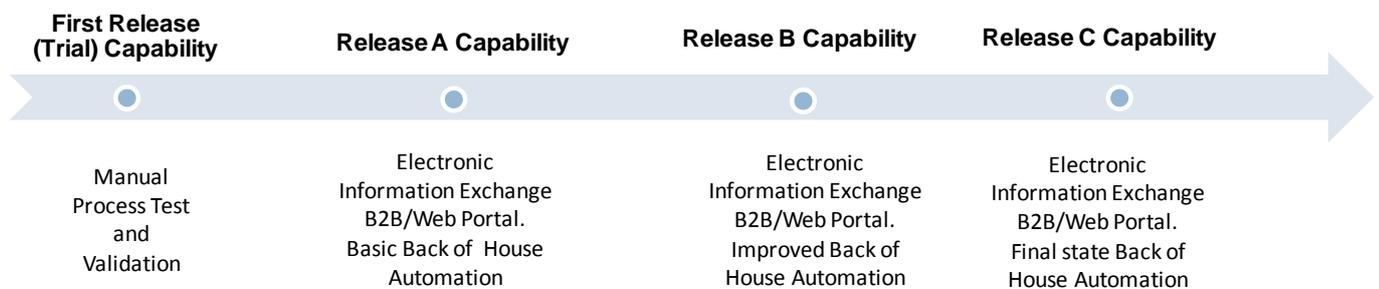
Figure 4: Indicative operational interface capability

Section 4 - First Release Network and Operations Testing

To enable NBN Co to deliver a robust and sustainable network, the initial months of activity in the First Release sites will be focused on network and operations testing. This section provides Access Seekers with an overview of the product availability, network coverage and the operational capability of NBN Co in the network testing phase of 2011. We are providing these details to assist Access Seekers who wish to come on board in this network testing phase.

The aim of our testing program is to ensure NBN Co is able to deliver a high quality experience for End Users and Access Seekers as quickly and effectively as possible. As an open access wholesale operator, NBN Co cannot, on its own, test its network and operational processes. NBN Co needs to work with Access Seekers in a collaborative fashion to ensure the network and processes are robust before proceeding to volume rollout. NBN Co intends to work with industry on the following activities:

- Test NBN Co manual processes;
- Test and develop migration scenarios;
- Interoperability testing of NBN Co processes and Access Seekers;
- Product testing;
- Test Interim Points of Interconnection and facilities access processes; and
- Network field testing.

Access Seekers participating in this early testing phase will assist NBN Co in finalising the implementation of many product features and operational processes. Because of this, a high level of Access Seeker commitment is required. Therefore, NBN Co will be seeking Access Seekers with a wide range of service scenarios and strong technical and operational capability.

Access Seekers will be asked to assign technical, operational, commercial and marketing staff to engage with NBN Co during this phase. In return, NBN Co will provide a comprehensive range of technical and operational training and documentation. NBN Co expects to provide all Access Seekers with access to all available documentation as this is published on the NBN Co website. Customised training on the published documentation and the onboarding process will be prioritised towards those Access Seekers who are participating in the First Release Network and Operations Testing.

NBN Co will also assist Access Seekers with mapping existing service offerings to NBN Co service offerings and assist with the development of new product offerings which utilise the higher speeds of the NBN network. This product mapping assistance will be prioritised towards those Access Seekers who are participating in the First Release Network and Operations Testing.

It is important to note that NBN Co will be connecting only a small subset of First Release premises in the first months of operation. Access Seekers who participate will be able to connect a small number of their existing customers in order to test the services.

There will be groups of Access Seekers cycling through the accreditation process on a continual basis both during the initial phases of the First Release deployment and during the rollout of the network. Access Seekers who enter the accreditation phase earlier than others are unlikely to gain any advantage over Access Seekers who enter later, as outlined further below in relation to the substance of the accreditation activities.

To assist prospective Access Seekers to decide the right time for them to seek access to the NBN Co network, the following discussion outlines the planned capability available during the First Release testing phase.

1. **Product availability**

NBN Co's initial product set when the First Release sites are activated introduces the core set of NBN Co's Fibre Access Service components needed to build a service and allows Access Seekers to test a variety of broadband and/or voice migration scenarios.

The high speed broadband and telephony capability available for the First Release testing phase is outlined in Table 1 below. Please see NBN Co's Fibre Access Service Product Overview for details of how the components below may be ordered to provide End User services.

Product element	Comment
Access Virtual Circuit	
Traffic Class 1 CIR 150kbps	Capability for the provision of IP-based telephony services
AVC Traffic Class 4 PIR 12/1Mbps	PIR is Peak Information Rate (Downstream/Upstream)
AVC Traffic Class 4 PIR 25/5Mbps	
AVC Traffic Class 4 PIR 25/10Mbps	
AVC Traffic Class 4 PIR 50/20Mbps	
AVC Traffic Class 4 PIR 100/40Mbps	
Connectivity Virtual Circuit	
Connectivity VC Traffic Class 1 CIR	
Connectivity VC Traffic Class 4 CIR	CIR is Committed Information Rate
NNI port 10 Gbps	NNI = Network to Network Interface No redundancy options
NNI port 1 Gbps	No redundancy options
Re map NNI VLAN tags	
Re map UNI VLAN tags	
Basic facilities access	Eg. Optical Distribution Frame
UNI – Data	
UNI – Voice	

Table 1: High speed broadband and telephony product available for First Release testing phase

2. **Network coverage**

The First Release sites were selected by NBN Co's network planners and engineers because they represent some of the diverse deployment situations that will be encountered during the network rollout. Similarly, the initial months of operation provide NBN Co with an opportunity to test and document operational processes. It will also allow NBN Co to deploy a range of equipment types (such as Network Termination Units) and refine methods and practices for a number of deployment situations (including Multi Dwelling Units).

As mentioned above, NBN Co expects to have deployed the network in First Release sites during the first half of 2011 and will then undertake an initial short term testing phase in 2011. It is anticipated that connection activity will start to ramp up from the fourth quarter of 2011.

The First Release Sites and the related temporary Points of Interconnection locations are shown in Figure 5 below.

Prospective Access Seekers should note that the Points of Interconnection locations outlined in Figure 5 are temporary. The temporary Points of Interconnections will not support all of the attributes of the permanent Points of Interconnection. Permanent Points of Interconnection locations will be made available as we roll out the network. The transition arrangements are yet to be defined, but will likely require Access Seekers to migrate their interconnection arrangements to permanent Points of Interconnection locations.
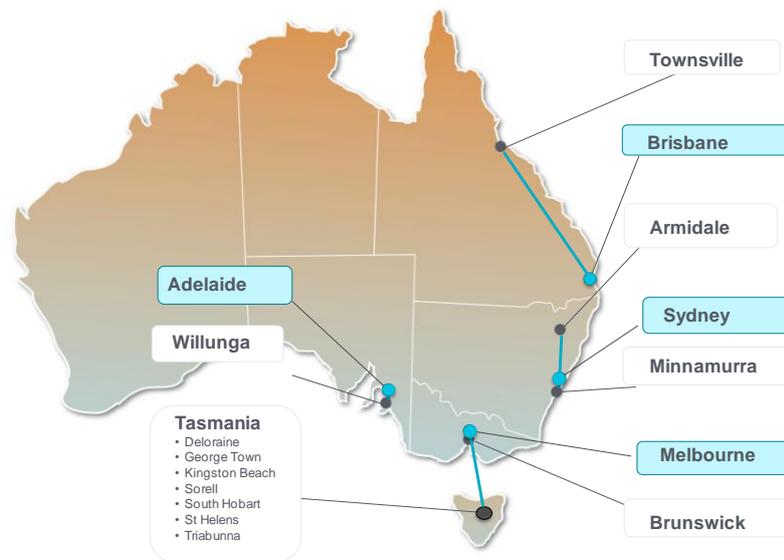
Figure 5: First Release Sites and temporary Points of Interconnection locations

The temporary Points of Interconnection addresses and provider details are:

- Brisbane - 54-58 Alfred St, Fortitude Valley – NextGen;
- Sydney - 400 Harris St, Ultimo, Sydney – GlobalSwitch;
- Melbourne - 32-36 Walsh St, West Melbourne – NextGen; and
- Adelaide - 274 Hindley St, Adelaide – NextGen.

An indicative national rollout schedule will be published and updated from time to time to give End Users and Access Seekers as much visibility as possible of the local rollout arrangements and timing to ensure maximum uptake and minimise service disruption.

3. Interim manual processes

In the initial months of First Release operations, Access Seekers will use manual processes to order and assure services, and will be asked to work with NBN Co to develop, test and refine NBN Co processes such as activation, assurance, Points of Interconnection establishment, adds / moves / changes. This will be resource intensive for Access Seekers and involve extensive collaboration with NBN Co.

As outlined above, NBN Co is in the process of building sophisticated Operational and Business Support Systems. It is anticipated that this IT platform will enable automation of many interactions with Access Seekers such as provisioning, service assurance and billing. Ahead of this automated interface, it is standard practice in telecommunications to develop operational processes and test them manually before proceeding with automated systems. This enables NBN Co and Access Seekers to collaborate and refine their manual processes before setting up automated systems.

Section 5 - First Release Network and Operations Testing phase - Access Seeker requirements

Section 3 provided details of NBN Co's end state product and operational interfaces, and gave details on the road map from the First Release initial months through to the end state. Section 4 included details on the First Release testing phase, which involves the early stage of NBN Co's capability release program. NBN Co has sought to be as clear as possible about its early stage capabilities, as it wants Access Seekers who are keen to work with NBN Co to do so on an informed basis.

In addition to informing Access Seekers of NBN Co's early stage capabilities, we outline below some clear Access Seeker participation criteria. These criteria have been developed to ensure that Access Seekers who come on board in the First Release testing phase can assist NBN Co to comprehensively test its network and processes effectively.

As identified earlier, it is important to note that the initial months of First Release operations are not designed to be a commercial phase. NBN Co will be connecting only a small subset of First Release premises in the first months of operation (likely to be ~1000 connections in total across the First Release Sites and shared across all Access Seekers until the fourth quarter of 2011). Access Seekers who participate will only be able to migrate a small subset of their existing customer base.

If Access Seekers are interested in collaborating with NBN Co in the First Release testing phase, Access Seekers should send an Expression of Interest having regard to these requirements to feedback@nbnco.com.au by 23 December 2010. The Expression of Interest should include the completed template in Attachment A to this paper, and any other relevant information.

Once NBN Co has received Access Seekers' Expressions of Interest, it will carefully assess them against the Participation and Capacity Requirements set out below to ensure that we are able to achieve a range of testing scenarios with large and small Access Seekers. Access Seeker participation in the First Release testing phase is at the discretion of NBN Co even if all criteria are met.

As noted, NBN Co will balance a range of requirements in making its decisions. NBN Co may also have regard to its desire to support other technology programs such as smart metering, e-health or e-education activities in the First Release testing phase.

NBN Co may receive more Access Seeker Expressions of Interest than are needed to undertake the initial testing program. Alternatively, NBN Co may receive Expressions of Interest which do not meet our needs in the First Release testing phase. In both situations, NBN Co's Account Team will make contact with these Access Seekers to discuss their interest, explain our requirements, and work together either to assist the Access Seeker to get ready to directly connect with NBN Co, or to suggest that the Access Seeker works with a Wholesale Service Provider to connect to the NBN.

Access Seekers who are selected for the First Release testing phase will be informed early in 2011. NBN Co expects to work intensively with these Access Seekers in the lead up to the first connections being made available in line with NBN Co's Business Plan in the second quarter of 2011.

First Release testing phase participation requirements

All of the following requirements must be met by potential Access Seekers:

- Access Seeker is a Carrier or Carriage / Content Service Provider.
- Access Seeker has existing End Users in First Release sites (preferably all First Release sites).
- Access Seeker is willing to provide NBN Co with the required information for NBN Co to perform a credit assessment. It is a condition of access to the NBN Co network that an Access Seeker passes this assessment at the commencement of the commercial phase.

- Execute NBN Co's First Release Agreement, which will include product and operational terms and conditions for First Release sites.
- Complete operational, technical and other training as necessary to ensure an effective testing phase.
- Understands that NBN Co will make available a small subset of connections in First Release sites to the fourth quarter of 2011. (Likely to be ~1000 connections in total across the First Release Sites and shared across all Access Seekers until the fourth quarter of 2011).
- Willing to share learnings with industry at industry forums. NBN Co envisages that either it or the Communications Alliance may host regular forums where Access Seekers can share their operational and technical experiences with industry participants who are not yet directly connecting with NBN Co.
- Technical and operational support capability. In particular, NBN Co requires Access Seekers to have operational visibility of their network so that if issues arise, the Access Seeker can inform NBN Co of issues in their network.
    - Access Seekers must provide Tier 1 and 2 Technical Support: from monitoring of Access Seeker network, providing subject matter experts with full knowledge of Access Seeker network and the interdependencies with the NBN Co network.
    - Access Seekers must provide the following support infrastructure:
        - Service Desk 7 x 24.
        - Remote diagnostic capability.
        - Field force for on-site customer fault isolation.
        - Escalation matrix detailing nominated contact points.

NBN Co assessment criteria for the initial First Release test phase

NBN Co will have regard to a range of criteria in assessing Access Seeker Expressions of Interest. The assessment criteria relate to Access Seeker product, operational and technical capabilities. Access Seekers should respond to Attachment A with an Expression of Interest, as discussed above.

NBN Co's assessment criteria are set out below. NBN Co will assess Access Seeker's Expressions of Interest against these criteria and the Participation Requirements set out above.

Product availability

- NBN Co would like to test how its Fibre Access Service product interoperates with a range of Access Seeker retail products, such as broadband and telephony, including the use of NBN Co's UNI–Voice.

Operational breadth and capability

- NBN Co needs to test a number of migration scenarios to ensure that we are able to deliver reliable and robust activation processes. For that reason, Access Seekers who can offer a wide range of migration scenarios will be preferred ahead of those offering a narrower range. Migration scenarios include, but are not limited to:
    - Unbundled local loop to fibre;
    - Broadband and voice resale to fibre; and
    - Spectrum sharing service and voice resale to fibre.
- NBN Co needs to work with Access Seekers who have a high degree of technical support and resources that will be provided in some or all of the first release sites to troubleshoot and assure. NBN Co would expect that this capability would be available 24/7 during the network testing.
- NBN Co will be testing a wide range of customer premises, installation and assurance processes. NBN Co therefore requires that Access Seekers have sufficient field force capability to be made available to help test these processes.

- NBN Co would also like to work with some Wholesale Service Providers, who will sell NBN Co products through to other Retail Service Providers.

Testing capability

- NBN Co requires the following:
  - Technical and process staff will need to be able to attend NBN Co's Melbourne Test Facility.
  - All services tested at the National Test Facility must be created using the Access Seeker's documented business processes.
  - Access Seekers must provide staff capable of operating those processes in the National Test Facility.
  - Access Seekers may bring equipment to simulate their network to the National Test Facility for the purpose of Network to Network Interface (NNI) protection certification.
  - Access Seekers must establish a physical connection to the National Test Facility for network layer based certifications.

Section 6 - Conclusion

This paper has outlined NBN Co's plans to develop a robust and efficient onboarding and accreditation process for those Access Seekers wishing to use the NBN. This process is important to ensure that Access Seekers and End Users can take full advantage of the potential of the NBN.

The paper has also outlined the focus of activities in the early months of deployment in the First Release sites. We welcome Access Seeker interest in participating in this early phase of activity although we also flag that we are seeking high levels of commitment and capability to ensure that the testing and development activities are a success.

If Access Seekers are interested in collaborating with NBN Co in the First Release testing phase, Access Seekers should send an Expression of Interest having regard to these requirements to feedback@nbnco.com.au by 23 December 2010. The Expression of Interest should include the completed template in Attachment A to this paper, and any other relevant information.

Access Seekers who prefer to connect to the NBN after the First Release test phase has been completed should review Sections 2 and 3, and make contact with NBN Co via feedback@nbnco.com.au. NBN Co's Account Team will make contact with these Access Seekers to discuss their interest, explain our requirements, and work together to either assist the Access Seeker to get ready to directly connect with NBN Co, or to suggest that the Access Seeker work with a Wholesale Service Provider to connect to the NBN.

Attachment A - Access Seeker template

Part A – Access Seeker compliance statement

Are you a Carrier or Carriage /Content Service Provider? If so, please provide details.	
Do you have existing End Users in First Release Sites? How many End Users do you have at each First Release site?	
Are you willing to complete operational, technical and other training as necessary to ensure an effective testing phase?	
Do you understand that NBN Co will make available a small subset of connections at First Release sites in 2011?	
Are you willing to share learnings with industry at industry forums?	
Please describe the nature of the Tier 1 and 2 Technical Support you are willing to provide.	
Are you willing and able to provide the following support infrastructure: • Service Desk 7 x 24. • Remote diagnostic capability. • Field force for on-site customer fault isolation. • Escalation matrix detailing nominated contact points.	

Part B – Access Seeker capability statement

Product availability	
Please provide an outline of your existing or planned broadband and telephony products that would be available to assist in testing NBN Co's network capability. Please include your detailed product description, and technical specifications.	
Operational breadth and capability	
Please provide advice on the (existing End User only) services that you wish to offer for migration process testing (e.g. LSS, ULLS, Resale, PSTN, Retail broadband, HFC).	
Please detail the technical support and resource you will be able to provide in the First Release Sites to trouble shoot and assure.	
Please advise what field work force you can make available to help test different customer premises and installation and assurance processes.	
Do you plan to offer wholesale services to other Access Seekers?	
Testing capability	
Please advise whether your technical / testing staff (we envisage 2-5 testing engineers) can attend NBN Co's Melbourne Test Facility for between five to eight weeks from April 2011 for testing.	
All services tested in the lab should be created using the Access Seeker documented business processes. Please advise whether staff (we envisage 2-5 staff) capable of operating those processes can attend the Melbourne Test Facility for between five to eight weeks from April 2011.	

Glossary

Access Seeker a person or entity other than NBN Co that is a party to a *Wholesale Broadband Agreement*.

Access Seeker Equipment any network, equipment or Facilities which is owned, used or operated by the Access Seeker, Wholesale Customers, or End Users (including fixed line connection from the UNI to the first connection for End User Equipment) but does not include any NBN Equipment.

Access Seeker Product any service or product supplied by an Access Seeker or Wholesale Customer which requires directly or indirectly NBN Co Fibre Access Services supplied by NBN Co over the NBN as an input.

Connection connection of an address to the NBN at the UNI to enable the address to be supplied with a working NBN Co Fibre Access Service. "*Connected*", "*Connect*" and "C*onnecting"* have a corresponding meaning.

Connectivity VC Connection any connectivity virtual circuit products made available by NBN Co. Further information is available in NBN Co's *Product Overview – Fibre Access Services*.

Drop Fibre the fibre optic cable (or other access mechanism) between NBN Co's preferred point for connection on the National Broadband Network (such as the network access point) and an End User Address.

End User a person, business, institution, Government Agency or other organisation that is the ultimate recipient of Access Seeker Products. An End User does not include a Wholesale Service Provider.

End User Address property owned, leased or licensed by the End User which is (or which is needed for access to) the address to which an NBN Co Fibre Access Service will be supplied (for an Access Seeker's Product to an End User).

Engineering Infrastructure any product offered by NBN Co from time to time other than an NBN Co Fibre Access Service. Examples include:

- system integration (B2B system integration);
- products for Connectivity VC Connection;
- products for Backhaul;
- products for NNI; and
- products providing Facilities access.

Facilities has the same meaning as in Section 7 -*Telecommunications Act*.

Fibre Footprint the set of unique addresses determined by NBN Co from time to time which are or will be capable of being Connected to the NBN by Drop Fibre.

FAN a "Fibre Access Node". The FAN is the first active component of the NBN Co fibre network and will have multiple FSAMs connected to it. Further information is available on the NBN Co website glossary and NBN Co Network & Operations Information Session presentation

FSA Region an area served by a FAN site. FSAs will be described in a geographical manner. Further information is available on the NBN Co website glossary and NBN Co Network & Operations Information Session presentation.

FSAM Region an area which is a module of an FSA Region which will be described in a geographical manner or as a list of addresses (depending on when the region is used).   Further

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	information is available on [NBN Co Network & Operations Information Session presentation](#).
Installer	a person who is certified and authorised by NBN Co to install NBN Equipment.
NBN	the National Broadband Network.
NBN Co Address ID	the unique identifiers for an address in the NBN Database.
NBN Database	the directory of addresses which is maintained and updated by, or on behalf of, NBN Co from time to time for the purposes of the build, operation and maintenance of the NBN.[8]
NBN Equipment	means the Drop Fibre and any Facilities or equipment owned or operated by NBN Co between NBN Co's preferred point and the UNI which is used by NBN Co to make an address Serviceable and to build and operate the NBN.
Network Termination Unit (or NTU)	the NBN service termination equipment at an address.
NBN Co Fibre Access Service	the NBN Co Fibre Access Service as described in [NBN Co's *Product Overview – Fibre Access Services*](#).
NNI	network to network interface. Further information is available in [NBN Co's *Product Overview – Fibre Access Services*](#).
NTU Capacity	the resource availability (including bandwidth) of each NTU.
Operational Manual	the document so titled which is a part of the NBN *Wholesale Broadband Agreement*.
POI	a point of interconnection between the NBN and the network of an Access Seeker, as determined by NBN Co and notified to the Access Seeker.
Ready for Service	NBN Co has determined that: • the addresses are in the Fibre Footprint; and • the addresses are able to be supplied with a working NBN Co Fibre Access Service.
Sandpit	sandpit capability involves NBN Co providing test services from a portion of NBN Co's network that is quarantined from NBN Co's main network.
Serviceable	the address is Ready for Service.
UNI	means the physical End User NBN boundary point.
Wholesale Service Provider	means any person that supplies the NBN Co Fibre Access Service on a wholesale basis to another person (other than an End User).
Wholesale Broadband Agreement	the NBN agreement which is entered into between Access Seekers and NBN Co.

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[8] The NBN Database will also contain some information about addresses and premises outside the Fibre Footprint for the purposes of wireless and satellite services by NBN Co (these are outside the scope of this Consultation Paper).

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