

Facilities Access Service

OVERVIEW OF THE NBN CO FACILITIES ACCESS SERVICE



NBNCo
Bringing broadband to life



NBN Co Limited

Overview of the NBN Co Facilities Access Service

April 2012

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This document should be read in conjunction with:

- [1] NBN Co Limited, *Wholesale Broadband Agreements - Modules*
- [2] NBN Co Limited, *Wholesale Broadband Agreement - Facilities Access Service: Product Technical Specification*

1. Document Purpose

The Facilities Access Service is the product that access seekers and backhaul providers (collectively referred to as "Access Seekers" in this document) can acquire from NBN Co and use to establish and maintain a presence in each of the NBN Co Aggregation Node Sites (excluding temporary Points-of-Interconnect ("Temporary POIs")).

This document provides an overview of the long-term Facilities Access Service that will be supplied by NBN Co to Access Seekers under the Wholesale Broadband Agreement in respect of the NBN Co fibre, wireless and satellite access networks. The Facilities Access Service that is supplied by NBN Co in respect of each of the three access technologies will be the same service.

The Facilities Access Service is not supplied in respect of Temporary POIs. Accordingly, the interim facilities access solution supplied by NBN Co during the First Release Sites fibre trial programme is not addressed in this document.

The long-term Facilities Access Service is scheduled to become available at the first NBN Co Aggregation Node Site in April, 2012 - and progressively at other NBN Co Aggregation Node Sites thereafter. It is intended that Access Seekers will be able to begin ordering the Facilities Access Service in time for them to obtain the service at the first permanent NBN Co Aggregation Node Sites as soon as possible after those sites are become active.

2. Facilities Access Service Objectives

At a high level, the Facilities Access Service is designed to:

1. Provide the opportunity for Access Seekers to house the necessary infrastructure to facilitate their use of NBN Co access products, such as the NBN Co Fibre Access Service;
2. Offer the lowest possible barrier to entry for Access Seekers wishing to enter a Connectivity Serving Area to supply NBN Co-enabled services;
3. Allow Access Seekers to modify their network architecture as their business grows (e.g. transmission link growth, diversity, supplier changes, etc.) and;
4. Provide a secure environment where the prospect of inter-Access Seeker interference is minimised.

It is not intended that the facilities in which NBN Co supplies the Facilities Access Service will be used by Access Seekers as an alternative internet data centre hosting facility, to accommodate content distribution network ("CDN") infrastructure, or host any radio transmission equipment that is or will be used for the sole or dominant purpose of operating a wireless voice or wireless data transmission network. The Facilities Access Service and the facilities in which NBN Co supplies the service have not been designed or dimensioned for such purposes.

3. Interconnection Models

Three types of Facilities Access Service (described in section 4) can be acquired by Access Seekers so as to enable them to interconnect with the NBN Co Network in several ways. The following types of interconnection can be achieved:

- **Basic Facilities Access:** Where an Access Seeker connects their transmission links to the allocated NBN Co Network-to-Network Interface (“NNI”) ports with fibre cross connects. The transmission links may be owned by the Access Seeker or by a third-party backhaul provider.
- **Active Facilities Access:** Where an Access Seeker co-locates active equipment, such as switches or transmission devices, in a rack in the NBN Co Aggregation Node Site. In this model, NBN Co will also install and manage fibre cross connects within the facility. This model necessarily incorporates Basic Facilities Access.

4. Product Construct Overview

Before outlining the product construct, it is important that key terms are clearly understood. The ‘NBN Co Aggregation Node Site’ is defined as the physical facility in which equipment and infrastructure is housed. The ‘Point-of-Interconnect’ or ‘POI’ is the function performed by the NBN Co Aggregation Node Site. In other words, the NBN Co Aggregation Node Site is the place and the Point-of-Interconnect is the function.

Of the 121 total NBN Co Aggregation Node Sites, 111 will be in facilities licensed by NBN Co from a third party (referred to in this document and the Wholesale Broadband Agreement as the “Underlying Facility Provider”), and the remaining 10 will be in facilities that are occupied, owned or operated by NBN Co.

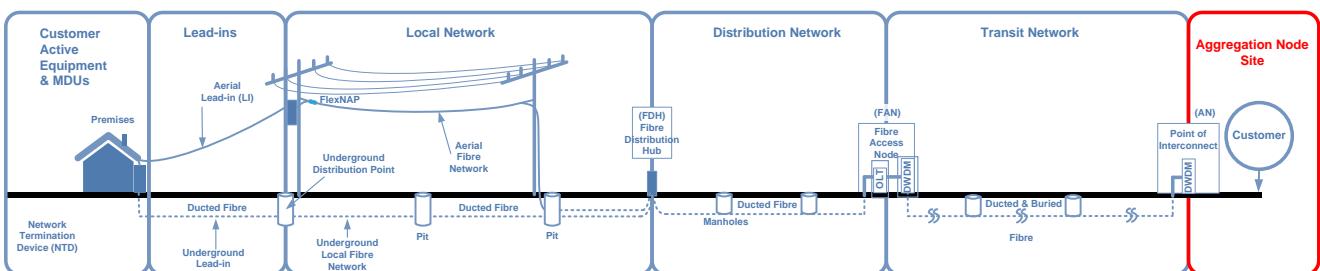


Figure 1: Relationship between an NBN Co Aggregation Node Site and the rest of the NBN Co Network

The Facilities Access Service is available in three types that can be acquired by Access Seekers in different combinations to achieve different interconnection models. It is anticipated that the Facilities Access Service configuration for each Access Seeker will vary depending on NBN Co Aggregation Node Site location, size of the Access Seeker’s customer base and a range of other factors.

The three types of the Facilities Access Service are as follows:

1. CROSS CONNECT

NBN Co will install and maintain point-to-point connectivity through the use of cross connect cables between any of the following locations that are presented on the NBN Co Optical Distribution Frame (“NBN Co ODF”) at the Aggregation Node Site:

1. **Network-to-Network Interface:** the designated point on the NBN Co ODF associated with an Network-to-Network Interface port (NNI);
2. **Backhaul Transmission:** the designated point at which lead-in or backhaul transmission is presented on the NBN Co ODF;
3. **Co-Location (Managed Rack-Space):** the designated point at which an NBN Co Co-location rack is presented on the NBN Co ODF; and

4. Other Locations: the designated point at which any other connection located within the building is presented on the NBN Co ODF.

Cross Connects at the Point-of-Interconnect will be provided as pairs of Single Mode Fibre only. Multi-Mode Fibre is not supported. Access Seekers are not permitted to install their own cross connect cabling within any NBN Co Aggregation Node Site.

Table 1 sets out the types of connections that can be achieved between different points on the NBN Co ODF using Cross Connects.

To/From (Points of presentation on the NBN Co ODF)	Access Seeker's lead-in or backhaul transmission cable	Network-to-Network Interface Port (NNI)	Equipment rack made available to Access Seeker as part of NBN Co Co-location
Access Seeker's lead-in or backhaul transmission cable	Y	Y	Y
Network-to-Network Interface Port (NNI)	Y	N*	Y
Equipment rack made available to Access Seeker as part of NBN Co Co-location	Y	Y	Y

Table 1: Matrix of permissible interconnections that can be achieved using Cross Connects

*Direct NNI to NNI interconnection is not possible because traffic egressing the NNI at the Point-of-Interconnection is required to traverse an IP device prior to being injected back into the NBN Co Network. For more information, please refer to the NBN Co Fibre Access Service – Product Technical Specification.

2. NBN CO CO-LOCATION (MANAGED RACK-SPACE)

NBN Co Co-Location is made available by NBN Co to Access Seekers who wish to deploy active equipment in association with a POI within an NBN Co Aggregation Node Site. It will be a managed rack-space solution where NBN Co is responsible for physical construction of the racks and supporting infrastructure, enabling Access Seekers to install, operate and maintain their own active equipment in such racks. The location at which NBN Co Co-location is supplied may be different to the location of the POI. In such cases, an 'NBN Co ODF Extension' will be utilised to provide connectivity, which will be transparent from the Access Seeker's perspective, from the location at which NBN Co Co-location is supplied to the relevant NBN Co Aggregation Node Site.

Active equipment installed in managed rack-space can only be used for the transmission of data over the NBN Co Network to and from End-Users who have purchased retail products that are enabled by NBN Co fibre, satellite or wireless access products (excluding trial products, such as the Interim Satellite Service and the Beta NBN Co Wireless Access Service).

Equipment Racks

NBN Co will provide equipment racks (suitable for 19 inch equipment mounting) with external rack dimensions of 2195mm high and 1000mm external depth as per ANSI/EIA RS-310C. Access will be provided from the front and rear of the racks only. Internal depth clearance of 955mm will be provided between the front and rear doors of the racks. Side panels, fibre management and power distribution units (“PDU”) will be fitted to racks.

Access Seekers may order up to two racks within an NBN Co Aggregation Node Site, and NBN Co will endeavour to provide NBN Co Co-location in non-adjacent racks to support diversity, where requested. Lockable half and full rack options will be available, with keys kept by both the Access Seeker and NBN Co's operations teams.

As an example of rack order configurations, Access Seekers can order (subject to availability):

1. One full height equipment rack at the relevant NBN Co Aggregation Node Site;
2. One half height equipment rack at the relevant NBN Co Aggregation Node Site;
3. Two full height equipment racks at the relevant NBN Co Aggregation Node Site;
4. Two half height equipment racks at the relevant NBN Co Aggregation Node Site (where each half height equipment rack is provided in a separate equipment rack); or
5. One full height equipment rack and one half height equipment rack at the relevant NBN Co Aggregation Node Site.

Power Source

NBN Co will supply -48V DC telecommunications power with an operating voltage in the range of -40.5V DC to -60V DC. A power feed of up to 3kW will be provided to each lockable full-height equipment rack, and a feed of up to a maximum of 1.5kW at each lockable half-height equipment rack presented on a PDU installed in the rack by NBN Co. NBN Co will request that Access Seekers provide a forecast of their power requirements as part of the NBN Co Co-Location ordering process. Access Seekers will be able to install individual circuit breakers to suit their active equipment requirements.

If Access Seekers require more than 3kW (up to a maximum of 6kW of power in respect of a particular lockable full-height equipment rack) an option exists to acquire a directly adjacent lockable full-height equipment rack that enables active equipment to consume a full 6kW in the footprint of one of the two lockable full-height equipment racks and 0kW is consumed in the adjacent lockable full height equipment rack. If a directly adjacent lockable full height equipment rack is not available, then the standard power limitations will apply.

Heating, Ventilation and Air-Conditioning

NBN Co will use reasonable endeavours to provide climate control up to a maximum ambient temperature of 45 degrees Celsius with a maximum rate of change of temperature of 1.33 degrees Celsius per minute.

Cameras

Access Seekers may install cameras within equipment racks where NBN Co Co-location is supplied in facilities that are occupied, owned or operated by NBN Co, and with the Underlying Facility Provider's consent where NBN Co Co-location is supplied in facilities that are licensed by NBN Co from the Underlying Facility Provider. Installation of cameras must satisfy the conditions outlined in the NBN Co *Wholesale Broadband Agreement Facilities Access Service: Product Description*.

Alarms

Equipment racks will be fitted with door switches on the front and rear doors that are designed to enable Access Seekers to monitor door states (i.e. open/closed). Please note, Access Seekers must provide their own monitoring equipment and monitoring cabling. For more information on Alarms, please consult the NBN Co *Wholesale Broadband Agreement Facilities Access Service: Product Technical Specification*.

Access Control and Security

NBN Co will provide Access Seekers with access to the area in which NBN Co Co-location is supplied as follows:

1. Planned Access: Available between 9am-5pm on business days. Access Seekers are able to request a site visit by submitting a service request in the NBN Co Service Portal.
2. Emergency Access: NBN Co will accommodate emergency access requests subject to the conditions set out in the NBN Co *Wholesale Broadband Agreement Facilities Access Service: Product Description*. Access Seekers are able to request an emergency site visit by submitting a service request in the NBN Co Service Portal, and then calling to the NBN Co Network Service Operations Centre.

Note, all Access Seeker personnel and contractors need to demonstrate currency in all appropriate site induction courses before entry, and comply with Occupational Health and Safety requirements as notified by NBN Co from time to time.

3. NBN CO ODF TERMINATION POINT

NBN Co ODF Termination Point is made available by NBN Co to Access Seekers who wish to terminate backhaul transmission links from outside the NBN Co Aggregation Node Site to the NBN Co ODF within the Aggregation Node Site. For example, backhaul providers can order NBN Co ODF Termination Point to establish a backhaul presence at the NBN Co Aggregation Node Site.

To facilitate such connections, NBN Co will make a fibre termination tray available to Access Seekers. Access Seekers will be responsible for introducing the backhaul into the facility in which the NBN Co Aggregation Node Site is located, and must provide at least 15 metres of slack to allow NBN Co to terminate the Access Seeker's backhaul to the NBN Co ODF. NBN Co will be responsible for connecting the Access Seeker's backhaul to the NBN Co ODF. Please note, only Single Mode Fibre backhaul, with a maximum order size of 72 fibres (one full tray), will be supported by NBN Co ODF Termination Point. NBN Co may require existing trays to be efficiently utilised by an Access Seeker before further trays will be allocated by NBN Co to that Access Seeker.

Introduction of Transmission Links

Access Seekers may engage an NBN Co-approved contractor to install Access Seeker transmission links up to the NBN Co ODF Termination Point, but must not permit the NBN Co-approved contractor to connect those links to the NBN Co ODF Termination Point. NBN Co will perform this connection work.

In the case of NBN Co Aggregation Node Sites that are located in facilities that are licensed by NBN Co from the Underlying Facility Provider, the Access Seeker is responsible for acquiring Building Entry Rights from the Underlying Facility Provider for the installation of their transmission links within the facility (e.g. access to duct and cable chambers).

In the case of NBN Co Aggregation Node Sites that are located in facilities that are owned, occupied or operated by NBN Co or NBN Co's related bodies corporate, the Access Seeker is responsible for acquiring Building Entry Rights from NBN Co for the installation of their transmission links within the facility.

5. Interconnection Scenarios

Figure 2 illustrates a type of interconnection that can be achieved using a combination of NBN Co ODF Termination Point, Cross Connects and NBN Co Co-location in respect of the same Point of Interconnection.

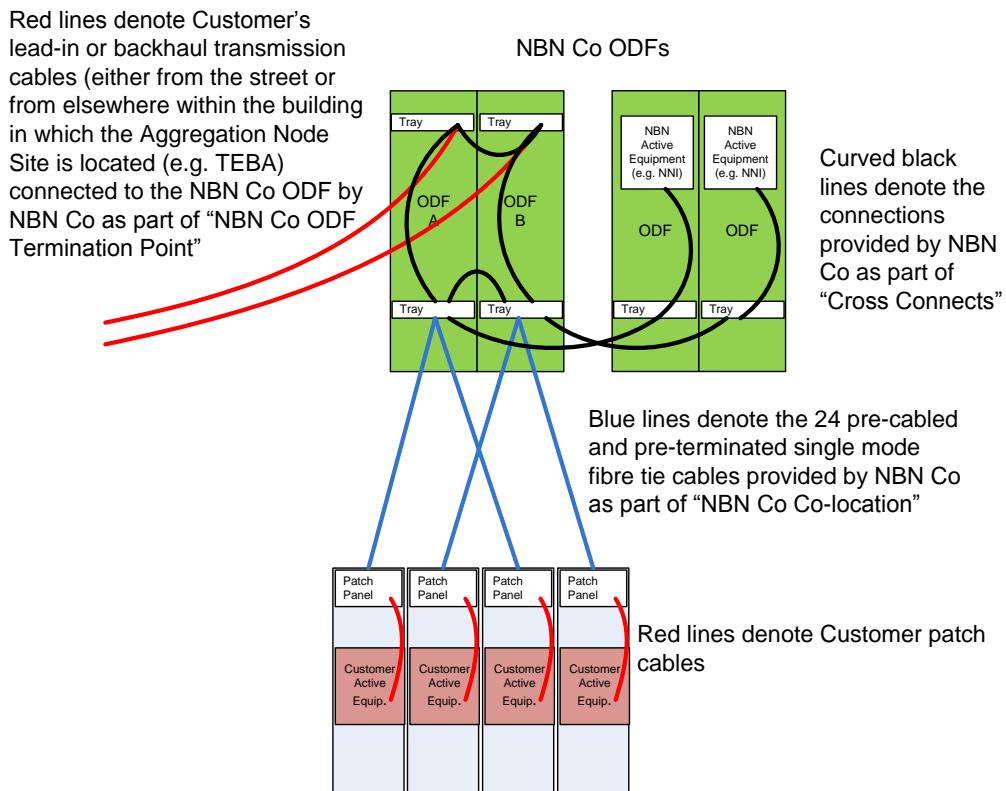


Figure 2: Type of interconnection that can be achieved using a combination of NBN Co ODF Termination Point, Cross Connects and NBN Co Co-location.

6. Commercial Construct

STRUCTURE OF RELATIONSHIPS

Where Access Seekers are acquiring any of the types of the Facilities Access Service in respect of an NBN Co Aggregation Node Site that is located in a facility that is occupied, owned or operated by NBN Co, Access Seekers will only need to work with NBN Co in regards to the acquisition of those types of the Facilities Access Service.

Where Access Seekers are acquiring any of the types of the Facilities Access Service in respect of an NBN Co Aggregation Node Site that is located in a facility that is licensed by NBN Co from the Underlying Facility Provider, Access Seekers will need to work with NBN Co and the Underlying Facility Provider in regards to the acquisition of those types of the Facilities Access Service. For example:

1. Access Seekers will be required to enter into an undertaking (the Facilities Access 'Deed of Undertaking') for the benefit of the Underlying Facility Provider which obliges Access Seekers to comply with certain directions from the Underlying Facility Provider, such as ceasing certain behaviours or removing non-compliant equipment.
2. Access Seekers and their personnel, contractors and invitees will need to comply with the Underlying Facility Provider's conditions, limitations and requirements - such as safety and technical practices which apply to the installation of active equipment in racks and access and use of the facility.
3. Access Seekers who wish to bring transmission links into an NBN Co Aggregation Node Site that is located within a facility that is licensed by NBN Co from the Underlying Facility Provider are responsible for making separate arrangements with the Underlying Facility Provider to use the Underlying Facility Provider's infrastructure, based on the Underlying Facility Provider's commercial terms and processes.

Access Seekers will be required to comply with technical specifications, operational manuals and Occupational Health and Safety requirements notified by NBN Co to the Access Seeker.

Access Seekers will not be permitted to sub-lodge or sub-lease rack spaces to third parties.

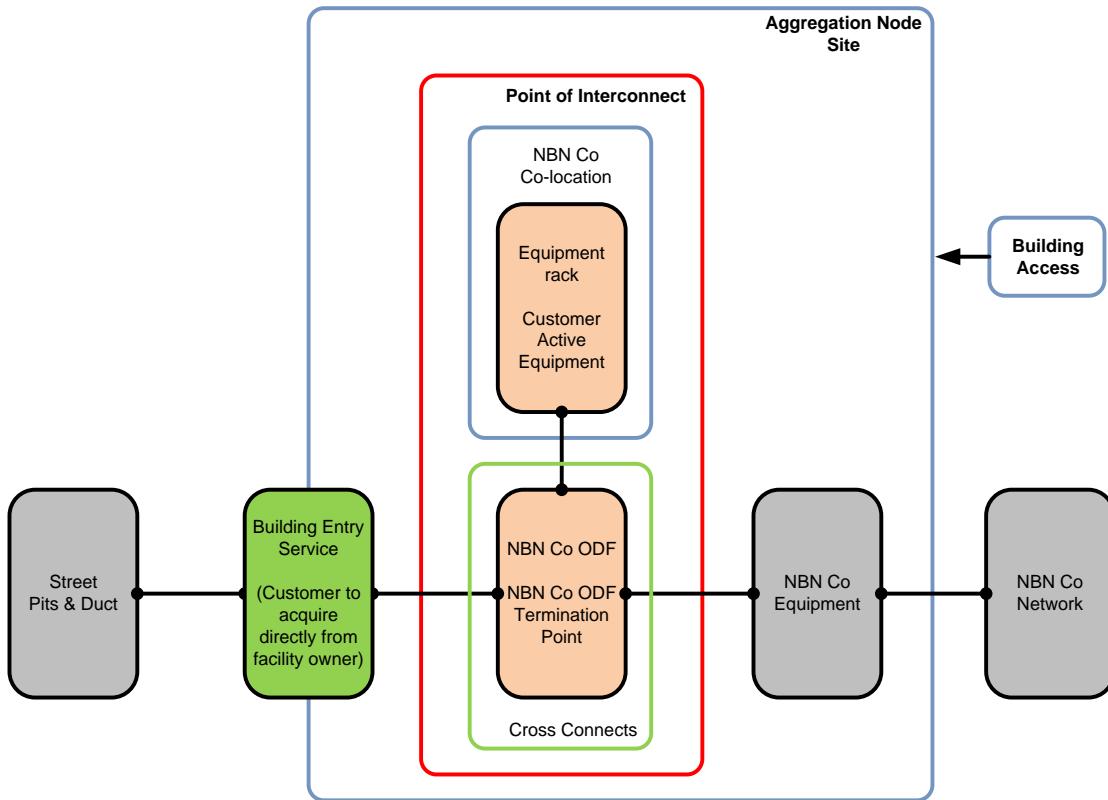


Figure 3: Relationship between different types of the Facilities Access Service

ELIGIBLE ACCESS SEEKERS

The Facilities Access Service will be made available by NBN Co to all Access Seekers who have entered into the Wholesale Broadband Agreement with NBN Co, have completed the on-boarding process in relation to the Facilities Access Service and - where required - executed the undertaking referred to in the 'Structure of Relationships' section above.

Backhaul providers who wish to establish a presence at NBN Co Aggregation Node Sites will also be required to enter into a Wholesale Broadband Agreement with NBN Co, complete the on-boarding process in relation to the Facilities Access Service and, where required, executed the 'Deed of Undertaking' referred to in the 'Structure of Relationships' section above.

BUSINESS RULES

Technical and commercial business rules will apply to the supply of the Facilities Access Service, and will be set out, or provided, in accordance with the Wholesale Broadband Agreement. Key business rules include:

- Customer Types:** The Facilities Access Service will only be made available to Access Seekers who have entered into a Wholesale Broadband Agreement with NBN Co, have completed the on-boarding process in relation to the Facilities Access Service and, where required, executed the undertaking referred to in the 'Structure of Relationships' section above.
- Equipment Types:** NBN Co will permit active equipment to be installed in managed rack space only if it is used exclusively for transmission of data over the NBN Co Network, to and from End-Users who have purchased retail products that are enabled by NBN Co fibre, satellite or wireless access products

(excluding trial products, such as the Interim Satellite Service and the Beta NBN Co Wireless Access Product). Active equipment must also be type-approved by NBN Co before installation.

3. Rack Limits: An Access Seeker may only purchase a maximum of 2 NBN Co Co-location equipment racks at any single NBN Co Aggregation Node Site. Refer to section 2 of this document for more information.
4. Initial Allocation: All Facilities Access-related infrastructure (e.g. racks, ducts, trays, etc.) will be allocated on a “first come, first served” basis – with associated “use it or lose it” provisions.

STANDARDS AND PRACTICES

Access Seekers utilising NBN Co Co-location will be subject to work practices, Occupational Health and Safety, and other technical standards and operational manuals as advised by NBN Co and, where applicable, the Underlying Facility Provider.

RESOURCE ALLOCATION POLICY

Each NBN Co Aggregation Node Site will have a limited allocation of Access Seeker rack-space and optical distribution frame positions. Initially, NBN Co intends to make available 15 Access Seeker racks at each NBN Co Aggregation Node Site.

PRICING

The proposed pricing has been developed to foster migration onto NBN Co Access products and encourage interconnection to the NBN Co Network. A single price-point has been developed for NBN Co Co-location, and no charges will be levied for the Cross Connects or NBN Co ODF Termination Point.

NBN Co Co-location

The charges for NBN Co Co-location for the period between 1/2/2012 to 31/12/2013 are outlined in the table below.

Price Structure	Price
Setup Fee	\$1500 per rack \$900 per half-rack
Recurring charge (monthly)	\$2000 per rack \$1200 per half-rack

Cross Connect

No charge.

NBN Co ODF Termination

No charge.

Ancillary Charges

The Ancillary charges for NBN Co Co-location for the period between 1/2/2012 to 31/12/2013 are outlined in the table below.

Activity	Charge
Additional / Replacement Access Card (excluding the First Access Card)	\$100 per access card
Missed Appointment (During Business Hours)	\$300 per missed appointment
Missed Appointment (Outside Business Hours)	\$450 per missed appointment

7. Next Steps

Please contact your relevant NBN Co Account Manager or Solution Architect if you wish to learn more about the Facilities Access Service. Alternatively, you can send your enquiry to sales@nbnco.com.au.



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