Integrated Product Roadmap as at July 2017

LEGEND

- Product
- Customer Experience
- IT Releases
- Onboarding
- Trials/Transitions

CATEGORIES

- Broadband & Telephony
- Multicast
- Service Enhancements
- Business Services
- Enterprise Services
- Facilities Access Services
- System
- Feature
- Industry Consultation
- Collateral/ Notification
- Trial
- Service Impact
- Transition

FTTP · **FTTC** · **FTTN** · **FTTB** · **HFC** · **Satellite** · **Fixed Wireless** · **All Technologies**

- NEW — New to the Roadmap
- Brought forward from previous Roadmap
- Delayed from previous Roadmap
- Committed
- Uncommitted

DELIVERED IN Q2 2017

PR114 — Higher TC-1 Speed Tiers for HFC (Phase 1)
500kbps and 1Mbps TC-1 speed tiers for HFC.

PR115 — Enhanced SLAs for HFC
12 hour, 12 hour (24/7), 8 hour and 8 hour (24/7) SLAs for HFC.

PR125 — Dimension-based CVC Pricing (DBD by Industry Average)
Initial implementation of dimension-based discounting mechanism for CVC price. (DBD by Industry Average).

PR128 — Enhanced End of Co-Existence Process
Processes and systems enhancements that will be initiated when all interfering legacy services are disconnected at a DSLAM.

MB018 — Fixed Wireless Business Grade Services Consultation
Product consultation for Fixed Wireless business offerings and higher speed tiers (MB017).

PR142 — NEW — Dimension-based CVC Discounts by RSP
Implementation of dimension-based CVC discounts by Retail Service Provider.

IT026 — IT Release 20
Enhanced End of Co-Existence Process (PR128), **nbn** Business Ethernet (MB015), Higher TC-1 Speed Tiers for HFC (Phase 1) (PR114).

CE037 — Trial of Customer Strong Authentication to nbn Systems
Trial of strong authentication for Customers logging into **nbn** Systems.

JULY 2017

ES007 — Enterprise Satellite Services Consultation
Product consultation for Enterprise Satellite Services.

MB019 — NEW — NEBS Business Bundle (50-90Mbps on TC2 for FTTP)
The addition of five new TC2 speed tiers (50, 60, 70, 80 & 90M) within the NEBS product to create alignment with the upcoming nBE launch in late 2017.

SE011 — Enhanced Testing & Diagnostics Performance Test for Copper Consultation
Product consultation for SE009 Enhanced Testing & Diagnostics Performance Test for Copper.

AUGUST 2017

MB012 — Optional Site Survey Consultation
Product consultation for Optional Site Survey Product Offering.

PR127 — Connect Outstanding Transition Order Support
Develop **nbn** processes and systems for connect outstanding scenarios for Transition Orders, to alleviate customer issues and align **nbn** processes and systems to the upcoming industry code.

MB020 — NEW — Fixed Wireless Business Grade Services Pricing Consultation
Pricing consultation for Fixed Wireless Business Grade Services.

PR143 — NEW — Pricing Evolution Second Consultation
The continuation of the pricing evolution consultation process. The second consultation paper focuses on gathering feedback on the tested solution options.

SEPTEMBER 2017

SE012 — Customer Product Interface Enhancements Consultation
Product consultation for Customer Product Interface Enhancements (SE010).

PR147 — NEW — Dynamic (Auto Profile Selection) Line Management Consultation
Consultation for the introduction of new DSLAM capability to auto-select appropriate line profile depending upon variety of line metrics providing optimum performance for end users.

PR117 — High Speed TC-1 Speed Tiers for HFC (Phase 2)
2Mbps and 5Mbps TC-1 speed tiers for HFC.

PR149 — NEW — FTTN/FTTB MDF Capability Enhancements Consultation
Consultation on bundled capability enhancements for FTTN/FTTB delivered to an MDF; includes ability for RSP to request Test & Tag hand off of service activations at the MDF.

PR120 — Satellite Mobility
A mobility solution for RSPs to support applications suited for large aero and in-flight Wi-Fi.

CE038 — Customer Strong Authentication to nbn Systems - Federated Authentication
Launch of Federated Authentication for Customers logging into **nbn** systems.

Late Aug to Mid-Sep 2017

OB025 — NEW — Onboarding for FTTC Customer Trial
Customer onboarding for the FTTC Customer Trial.

Q4 2017

MB015 — nbn Business Ethernet
Committed Information Rate, uncontended, symmetric bandwidth business ethernet product provided as a single price per point.

SE007 — Test & Diagnostics Interface Improvements
Enhancements of Test & Diagnostics functionality and Interface.

ES009 — Network Extensions for Non-Premises Locations Phase 1
The initial launch of **nbn** Ethernet Bitstream (NEBS) services to non-premises locations for industrial systems such as traffic lights, camera systems, IoT gateways etc.

PR122 — Managed Services over Sky Muster™ Consultation
Product consultation for Managed Services over Sky Muster including distance education.

PR150 — NEW — FTTC Customer Trial
FTTC Trial services to test **nbn** and the Customer's capabilities to supply and support the FTTC Commercial Product.

Mid-Sep to Mid-Nov 2017

Q1 2018

PR118 — Initial TC-2 Speed Tiers for HFC
5Mbps and 10Mbps TC-2 speed tiers for HFC.

PR133 — End User Equipment Relocation & Recovery
nbn Equipment Relocation process to be enhanced with additional access technology support, billing support and expansion of the Authority to Alter across the **nbn** access technologies.

MB013 — Optional Site Survey
Optional Site Survey Product Offering will provide an extra level of treatment and care required for complex SDU deployments to maximise customer satisfaction and promote right first time activations.

PR148 — NEW — Dynamic (Auto Profile Selection) Line Management
Introduce new DSLAM capability to auto select appropriate line profile depending upon variety of line metrics providing optimum performance for end users.

Q2 2018

PR140 — Enhanced SLAs for HFC Phase 2
6 hour, 6 hour (24/7), 4 hour and 4 hour (24/7) SLAs for HFC.

FA005 — POI Redundancy
Capability to access the **nbn** network from alternate POI site/infrastructure.

MB017 — Fixed Wireless Business Grade Services
Introducing Fixed Wireless business offerings and higher speed tiers.

SE009 — Enhanced Testing & Diagnostics Performance Test for Copper
Enhance the Testing & Diagnostics platform to support copper performance tests.

SE010 — Customer Product Interface Enhancements
Enhancement of Product Instance detail in Service Portal and B2B. This item now incorporates the functionality that was previously in SE007 - Test & Diagnostics Interface Improvements.

PR119 — Managed Education Services over Sky Muster™
Managed services for education products and other public interest premises over Sky Muster.

ES006 — Enterprise Satellite Services
The initial launch of Enterprise Satellite Services to support Enterprise and Business applications in regional and remote Australia.

PR145 — NEW — 2000 Byte Frame Size support on HFC AVC
HFC Enablement of 2000B MTU (Frame Size) Support on the AVC.

H2 2018

MC002 — Multicast 2.0
Introducing Multicast capability for all fixed-line access technologies.

2019+

MB001 — Traffic Class 3 on Fibre
CVC speed tiers 50, 100, 150, 200, 250, 300 Mbps to 1 Gbps (in 100 Mbps increments); AVC speed tiers 10, 20, 40, and 100 Mbps.

ES001 — Business Grade NTD
Business-grade Network Termination Device (NTD).

ES002 — High Speed AVC
Symmetrical AVC and CVC from 50 to 1000 Mbps.

ES003 — Access Diversity
Access Diversity on Fibre.

ES004 — Class of Service Markings Drop Priority
Drop priority based on class of service markings.

ES005 — Advanced OAM
Advanced operation, administration and maintenance.

Mid-Dec 2017 to Mid-Jan 2018

OB027 — NEW — Onboarding for FTTC Business Readiness Testing (BRT)
Customer onboarding for the FTTC Business Readiness Testing.

PR151 — NEW — FTTC Business Readiness Testing (BRT)
The testing of end-to-end FTTC business processes in a production environment prior to Commercial Launch.

Late Jan to late Feb 2018

Mid-Feb to Mid-Mar 2018

OB026 — NEW — FTTC Launch Onboarding
Customer onboarding for the FTTC launch.

PR135 — FTTC Launch
Commercial launch of Fibre-to-the-Curb (FTTC), also known as Fibre-to-the-Distribution-Point (FTTdp).

OB024 — NEW — HFC Installation Options Onboarding
RSP onboarding workshops for HFC Installation Options.

01/05/2017 – 30/09/2017

PR136 — Trial of HFC Installation Options Phase 1 & 2
Trial of **nbn** dispatch of an NTD self-installation kit to an end user.

PR112 & PR129 — HFC Installation Options Phase 1 & 2
Phase 1: Enable RSP-led installation of NTD. Phase 2: Enable **nbn** to dispatch NTD self-installation kit to end user.

23/10/2017 – 30/03/2018

PR144 — NEW — HFC DOCSIS 3.0 NTD Swapout
Replacement and upgrade of HFC DOCSIS 3.0 NTDs to 3.1.

01/07/2017 – 30/06/2022

PR141 — FTTN/B Co-Existence Period Migrations
Ongoing migrations to remove the co-existence period for premises served by the **nbn** FTTN and FTTB network.

15/11/2013 – 30/09/2017

PR027 — Cell Site Access Service (CSAS) Test Services
Availability of Cell Site Access Service (CSAS) test services.

01/01/2014 –31/12/2018

PR064 — Temporary POI Migration
Temporary POI Migration Transition Period.

Australia's broadband network

Integrated Product Roadmap as at July 2017

ABOUT THIS DOCUMENT

Expanding on nbn's Initial Roadmap, which sets out key information and targeted timelines in relation to nbn's initial planned Product, Product Component and Product Feature releases, nbn has developed an Integrated Product Roadmap. The aim of the Integrated Product Roadmap is to provide a coordinated view of customer experience, IT enablement and on-boarding developments with the details of the product feature releases. It should be noted that the forward looking statements set out in the Integrated Product Roadmap represent nbn's current position at the time of publication. This may change through further development and is not binding.

NEW		**MB020**	Fixed Wireless Business Grade Services Pricing Consultation	**SE010**	Customer Product Interface Enhancements
PR148	Dynamic (Auto Profile Selection) Line Management	**PR150**	FTTC Customer Trial	**PR129**	HFC Installation Options Phase 2
MB019	NEBS Business Bundle (50-90Mbps on TC2 for FTTP)	**PR151**	FTTC Business Readiness Testing (BRT)	**MB013**	Optional Site Survey
PR144	HFC DOCSIS 3.0 NTD Swapout	**CHANGED**		**MB015**	nbn Business Ethernet
PR143	Pricing Evolution Second Consultation	**SE009**	Enhanced Testing & Diagnostics Performance Test for Copper	**PR136**	Trial of HFC Installation Options Phase 1 & 2
OB024	Onboarding for FTTC Customer Trial	**ES006**	Enterprise Satellite Services	**ES008**	Network Extensions for Non-Premises Locations Trial
OB026	Onboarding for FTTC Business Readiness Testing (BRT)	**PR119**	Managed Education Services over Sky Muster	**CE037**	Trial of Customer Strong Authentication to nbn Systems
OB025	FTTC Launch Onboarding	**ES007**	Enterprise Satellite Services Consultation	**REMOVED**	
PR145	2000 Byte Frame Size support on HFC AVC	**PR122**	Managed Services over Sky Muster Consultation	**SE007**	Test & Diagnostics Interface Improvements
PR149	FTTN/FTTB MDF Capability Enhancements Consultation	**PR127**	Connect Outstanding Transition Order Support	**PR138**	Second Satellite Mobility Consultation
PR147	Dynamic (Auto Profile Selection) Line Management	**PR112**	HFC Installation Options Phase 1		

BROADBAND & TELEPHONY

PR027 CELL SITE ACCESS SERVICE (CSAS) TEST SERVICES

Availability of Cell Site Access Service (CSAS) test services.

Availability of CSAS test services commencing 1 July 2016 and finishing 30 June 2017, which will enable RSPs to test the features of the CSAS product developed for commercial launch.

PR064 TEMPORARY POI MIGRATION

Temporary POI Migration Transition Period.

Migration commencement of CSAs currently serviced by Temporary POIs to Permanent POIs. Introduction of migration tools to assist Customer migrating one or more Ordered Products from a Temporary POI to a Permanent POI.

PR112 HFC INSTALLATION OPTIONS PHASE 1

Enable RSP-led installation of NTD.

HFC Installation Options Phase 1 allows for RSPs to take control of the NTD installation process for certain Service Classes. This may be either installation by an RSP technician or End User self-installation.

PR114 HIGHER TC-1 SPEED TIERS FOR HFC (PHASE 1)

500kbps and 1Mbps TC-1 speed tiers for HFC.

Currently the HFC access platform supports low speed TC-1 (150kbps & 300Kbps). These TC-1 tiers are typically used by service provides for the provision of one or two voice services. The introduction of additional TC-1 speed tiers expands this to support additional voice services for small and medium business.

PR117 HIGH SPEED TC-1 SPEED TIERS FOR HFC (PHASE 2)

2Mbps and 5Mbps TC-1 speed tiers for HFC.

This item expands on the functionality introduced in PR114 – Higher TC-1 Speed Tiers for HFC (Phase 1) by offering 2Mbps and 5Mbps speed tiers, further enhancing the voice services available for medium and large business.

PR118 INITIAL TC-2 SPEED TIERS FOR HFC

5Mbps and 10Mbps TC-2 speed tiers for HFC.

Currently the HFC access platform does not support mid-speed committed information rate services. The introduction of these TC-2 tiers enables this capability on the HFC access platform. TC-2 speed tiers are typically used by service provides for the provision of Video Conferencing and medium business services.

PR119 MANAGED EDUCATION SERVICES OVER SKY MUSTER

Managed services for education products and other public interest premises over Sky Muster.

Enhanced services for education including support for video and multicast, and managed plans to allow unmetered data over Sky Muster.

PR120 SATELLITE MOBILITY

A mobility solution for RSPs to support applications suited for large aero and in-flight Wi-Fi.

PR122 MANAGED EDUCATION SERVICES OVER SKY MUSTER CONSULTATION

Product consultation for Managed Services over Sky Muster including distance education.

Consultation for providing enhanced services including support for video and multicast for distance education, and managed plans including unmetered data over Sky Muster.

PR125 DIMENSION-BASED CVC PRICING (DBD BY INDUSTRY AVERAGE)

Initial implementation of dimension-based discounting mechanism for CVC price.

PR127 CONNECT OUTSTANDING TRANSITION ORDER SUPPORT

Develop **nbn** processes and systems for connect outstanding scenarios for Transition Orders, to alleviate customer issues and align **nbn** processes and systems to the upcoming industry code.

Implement the ability for customers to place a Transition Order in a Connect Outstanding use case as defined by Industry Code where the service identifier required to be matched for successful order validation may not be known and is currently a block to placing an order.

PR128 ENHANCED END OF CO-EXISTENCE PROCESS

Processes and systems enhancements that will be initiated when all interfering legacy services are disconnected at a DSLAM.

Enhancements to the process for managing network upgrades in support of the ending of the co-existence period. These changes will ensure customers have visibility of the co-existence upgrades and the status of premises for activation and assurance activities. In addition, **nbn** will be introducing the capability to commence removal of inactive exchange pair connections.

PR129 HFC INSTALLATION OPTIONS PHASE 2

Enable **nbn** to dispatch an NTD self-installation kit to an end user.

HFC Installation Options Phase 2 facilitates **nbn** dispatching an NTD self-installation kit directly to the end user for SC23 premises. It will also instigate charging the RSP for an **nbn** professional truck roll for SC23 premises.

PR133 END USER EQUIPMENT RELOCATION & RECOVERY

nbn Equipment Relocation process to be enhanced with additional access technology support, billing support and expansion of the Authority to Alter across the **nbn** access technologies.

PR135 FTTC LAUNCH

Commercial launch of Fibre-to-the-Curb (FTTC), also known as Fibre-to-the-Distribution-Point (FTTdp).

Launching **nbn's** Fibre-to-the-Curb (FTTC) product variant. FTTC is the evolution of FTTN, extending fibre deeper into the **nbn** network. FTTC delivers fibre to the curb, closer to the end user premises than FTTN, while leveraging the existing copper as the lead-in.

PR136 TRIAL OF HFC INSTALLATION OPTIONS PHASE 1 & 2

Trial of **nbn** dispatch of NTD self-installation kit to an end user.

PR141 FTTN/B CO-EXISTENCE PERIOD MIGRATIONS

Ongoing migrations to remove the co-existence period for premises served by the **nbn** FTTN and FTTB network.

PR144 HFC DOCSIS 3.0 NTD SWAPOUT NEW

Replacement and upgrade of HFC DOCSIS 3.0 NTDs to 3.1.

IT026 IT RELEASE 20

Enhanced End of Co-Existence Process (PR128), **nbn** Business Ethernet (MB015), Higher TC-1 Speed Tiers for HFC (Phase 1) (PR114).

Enhanced End of Co-Existence Process (PR128). Introduction of **nbn** Business Ethernet including a single price per point business product and higher speed TC-2 for FTTB and FTTN. Introduction of higher speed TC-1 for HFC.

PR148 DYNAMIC (AUTO PROFILE SELECTION) LINE MANAGEMENT NEW

Introduction of new DSLAM capability to auto-select the appropriate line profile depending upon a variety of line metrics to provide an optimum performance for end users.

MB019 NEBS BUSINESS BUNDLE (50-90MBPS ON TC2 FOR FTTP) NEW

The addition of five new TC2 speed tiers (50, 60, 70, 80 & 90M) within the NEBS product to create alignment with the upcoming nBE launch in late 2017.

PR143 PRICING EVOLUTION SECOND CONSULTATION NEW

The continuation of the pricing evolution consultation process. The second consultation paper focuses on gathering feedback on the tested solution options.

OB024 HFC INSTALLATION OPTIONS ONBOARDING NEW

RSP onboarding workshops for HFC Installation Options.

OB025 ONBOARDING FOR FTTC CUSTOMER TRIAL NEW

Customer onboarding for the FTTC Customer Trial.

OB027 ONBOARDING FOR FTTC BUSINESS READINESS TESTING (BRT) NEW

Customer onboarding for the FTTC Business Readiness Testing.

OB026 FTTC LAUNCH ONBOARDING NEW

Customer onboarding for the FTTC launch.

PR142 DIMENSION-BASED CVC DISCOUNTS BY RSP NEW

Implementation of dimension-based CVC discounts by Retail Service Provider.

PR149 FTTN/FTTB MDF CAPABILITY ENHANCEMENTS CONSULTATION NEW

Consultation on bundled capability enhancements for FTTN/FTTB delivered to an MDF; includes ability for RSP to request Test & Tag hand off of service activations at the MDF.

PR147 DYNAMIC (AUTO PROFILE SELECTION) LINE MANAGEMENT CONSULTATION NEW

Consultation for the introduction of new DSLAM capability to auto-select appropriate line profile depending upon variety of line metrics providing optimum performance for end users.

PR150 FTTC CUSTOMER TRIAL NEW

The supply of FTTC Trial services to participating Customers and their end-users, for the purpose of testing **nbn** and Customer's initial capabilities to supply and support the FTTC Commercial Product. The Trial will test product features, operational processes, and performance characteristics of FTTC.

BUSINESS SERVICES

MB001 TRAFFIC CLASS 3 ON FIBRE

CVC speed tiers 50, 100, 150, 200, 250, 300 Mbps to 1 Gbps (in 100 Mbps increments); AVC speed tiers 10, 20, 40, and 100 Mbps.

Medium Business Phase 2 plans to include the release of symmetric bandwidth profiles with the introduction of Traffic Class 3. Traffic Class 3 has been designed to provide a committed capacity with an ability to burst to a peak speed. The symmetric Traffic Class 3 AVC bandwidths being introduced are:

- 10 Megabits per second, 20 Megabits per second, 40 Megabits per second and 100 Megabits per second.

The symmetric Traffic Class 3 CVC bandwidths being introduced are:

- 50 Megabits per second, 100 Megabits per second, 150 Megabits per second, 200 Megabits per second, 250 Megabits per second, 300 Megabits per second to 1 Gigabit per second (in 100Mbps increments).

MB012 OPTIONAL SITE SURVEY CONSULTATION

Product consultation for Optional Site Survey Product Offering.

The principle for the development of the Optional Site Survey Product Offering is off the back of customer deep dives with business customers who reside in complex SDU dwellings. It was confirmed that additional feasibility/walkout activities are required to ensure right-first-time installations and to provide the industry with the confidence of migrating their complex business premises onto the **nbn**.

MB013 OPTIONAL SITE SURVEY

Optional Site Survey Product Offering will provide an extra level of treatment and care required for complex SDU deployments to maximise customer satisfaction and promote right first time activations.

The principle for the development of the Optional Site Survey Product Offering is off the back of customer deep dives with business customers who reside in complex SDU dwellings. It was confirmed that additional feasibility/walkout activities are required to ensure right-first-time installations and to provide the industry with the confidence of migrating their complex business premises onto the **nbn**.

MB015 NBN BUSINESS ETHERNET

Committed Information Rate, uncontended, symmetric bandwidth business ethernet product provided as a single price per point.

Medium Business Phase 4 plans to introduce: **nbn** Business Ethernet. A single price per point business product that will provide a committed information rate (CIR), uncontended, symmetric bandwidth service. The **nbn** Business Ethernet bandwidth profiles being introduce are: 5/5Mbps; 10/10Mbps; 20/20Mbps; 30/30Mbps;40/40Mbps; 50/50Mbps; 60/60Mbps; 70/70Mbps; 80/80Mbps; 90/90Mbps; 100/100Mbps. FTTN and FTTB shall provide bandwidth profiles from 5/5Mbps to 40/40Mbps; with FTTP profiles available from 5/5Mbps to 100/100Mbps.

MB017 FIXED WIRELESS BUSINESS GRADE SERVICES

Introducing Fixed Wireless business offerings and higher speed tiers.

Business offerings include:
- Enhanced SLAs, Activation, Assurance, After Hours
- TC-1: 500Kbps, 1Mbps & 2Mbps.
- TC-2: 5Mbps & 10Mbps.
- TC-4: 100/40Mbps.
- WNTD version 3.

MB018 FIXED WIRELESS BUSINESS GRADE SERVICES CONSULTATION

Product consultation for Fixed Wireless business offerings and higher speed tiers (MB017).

PR115 ENHANCED SLAS FOR HFC

12 hour, 12 hour (24/7), 8 hour and 8 hour (24/7) SLAs for HFC.

PR140 ENHANCED SLAS FOR HFC PHASE 2

6 hour, 6 hour (24/7), 4 hour and 4 hour (24/7) SLAs for HFC

PR145 2000 BYTE FRAME SIZE SUPPORT ON HFC AVC

HFC Enablement of 2000B MTU (Frame Size) Support on the AVC.

MB020 FIXED WIRELESS BUSINESS GRADE SERVICES PRICING CONSULTATION NEW

Pricing consultation for Fixed Wireless Business Grade Services.

ENTERPRISE SERVICES

ES001 BUSINESS GRADE NTD

Business-grade Network Termination Device (NTD).

The business-grade Network Termination Device used for the Enterprise Ethernet Service is proposed to be backwards compatible to support a Gigabit Passive Optical Network uplink interface. This allows Service Providers to build a solution with a device that is capable of delivering features and bandwidths consistent with the NFAS offering, while at the same time enabling an efficient and transparent migration path to direct fibre point-to-point (Enterprise Ethernet Service) when their end-users/customers require additional bandwidth and scalability. **nbn** will release a full description of the Business NTD device including additional technical details closer to launch.

ES002 HIGH SPEED AVC

Symmetrical AVC and CVC from 50 to 1000 Mbps.

nbn's Enterprise Ethernet Service is intended to support the needs of large, more complex enterprises and government customers, by providing very high capacity, transparency and redundancy. **nbn's** Enterprise Ethernet Service is intended to be delivered via a dedicated point-to-point Access Fibre from the end-user's premises to the Fibre Access Node using a business-grade Network Termination Device, with symmetrical speeds from 50 Megabits per second to in excess of one Gigabit per second.

ES003 ACCESS DIVERSITY

Access Diversity on Fibre.

In addition to the Standard Single Uplink connectivity, the Enterprise Ethernet Service plans to provide access diversity/resiliency options to enable high and ultra-high service availability. These will include:

1. Dual Diverse Uplink Access with Single Network Aggregation Element – Single Network Termination Device connected using diverse lead-in fibres, distribution fibres – using a single port from different line termination cards on the same Network Aggregation element at the Fibre Access Node site.
2. Dual Diverse Uplink Access with Dual Network Aggregation Elements – Single Network Termination Device connected using diverse lead-in fibres, distribution fibres – using a single port from different line termination cards on physically separate and diverse Network Aggregation elements.
3. Fully Redundant Access – Two Network Termination Devices connected using diverse lead-in fibres, distribution fibres – using a single port from different line termination cards on different Network Aggregation Elements.

ES004 CLASS OF SERVICE MARKINGS DROP PRIORITY

Drop priority based on class of service markings.

This service is intended to be delivered via a dedicated point-to-point Access Fibre from the end-user's premises to the Fibre Access Node using a business-grade Network Termination Device. **nbn** is proposing a semi-intelligent pipe model with drop priority based on the Service Provider's Class of Service markings. Semi-Intelligent pipe model with drop priority based on Service Provider's Class of Service markings (Priority Code Point/Priority-Bit), which is important for contended services that may experience congestion. Service Providers will have the opportunity to provide an uncontended (1:1) AVC and CVC bandwidth contention ratio or potentially contend AVC connections into a CVC using the semi-intelligent pipe model, thus ensuring traffic prioritisation through their network, during times of congestion.

ES005 ADVANCED OAM

Advanced operation, administration and maintenance.

nbn plans to offer Advanced Service Operations, Administration and Maintenance features, including 802.1ag Connectivity Fault Management with the potential for Operations Administration and Maintenance peering for Fault Propagation and early fault detection for Service Providers.

ES006 ENTERPRISE SATELLITE SERVICES

Sky Muster capacity used for remote SMB and Enterprise customers.

The initial launch of Enterprise Satellite Services to support Enterprise and Business applications in regional and remote Australia.

ES007 ENTERPRISE SATELLITE SERVICES CONSULTATION

Product consultation for Enterprise Satellite Services.

ES008 NETWORK EXTENSIONS FOR NON-PREMISES LOCATIONS TRIAL

Technical trial of **nbn** Ethernet Bitstream Service (NEBS) at non-premises Traffic Control Units.

ES009 NETWORK EXTENSIONS FOR NON-PREMISES LOCATIONS PHASE 1

The initial launch of **nbn** Ethernet Bitstream (NEBS) services to non-premises locations for industrial systems such as traffic lights, camera systems, IoT gateways etc.

FACILITIES ACCESS SERVICES

CE037 TRIAL OF CUSTOMER STRONG AUTHENTICATION TO NBN SYSTEMS

Trial of strong authentication for Customers logging into **nbn** systems.

CE038 CUSTOMER STRONG AUTHENTICATION TO NBN SYSTEMS – FEDERATED AUTHENTICATION

Launch of Federated Authentication for Customers logging into **nbn** systems.

FA005 POI REDUNDANCY

Capability to access the **nbn** network from alternate POI site/infrastructure.

Redundant POI Access for NNI to enable additional redundancy options and higher availability.

MULTICAST

MC002 MULTICAST 2.0

Introducing multicast capability for all fixed-line access technologies.

Expanding capabilities of the Multicast feature to support all fixed-line access technologies, Domain 0 access.

SERVICE ENHANCEMENTS

SE009 ENHANCED TESTING & DIAGNOSTICS PERFORMANCE TEST FOR COPPER

Enhance the Testing & Diagnostics platform to support copper performance tests.

Enhance the Testing and Diagnostics platform to enable copper performance tests for Frame Delay, Frame Loss and Frame Delay variation. Scope includes Network and CPE support for Y.1731 performance testing standards. Remote testing for Y.1731 for both **nbn** and RSP's.

SE010 CUSTOMER PRODUCT INTERFACE ENHANCEMENTS

Enhancement of Product Instance detail in Service Portal and B2B. This item now incorporates the functionality that was previously in SE007 - Test & Diagnostics Interface Improvements.

Enhancement of Product Instance detail in Service Portal and B2B. This will enable a consolidated or 'single-pane of glass' view in Service Portal, and expose the content for consumption via B2B.

SE011 ENHANCED TESTING & DIAGNOSTICS PERFORMANCE TEST FOR COPPER CONSULTATION

Product consultation for Enhanced Testing & Diagnostics Performance Test for Copper (SE009).

SE012 CUSTOMER PRODUCT INTERFACE ENHANCEMENTS CONSULTATION

Product consultation for Customer Product Interface Enhancements (SE010).

Australia's broadband network