



Customer
Service

Service Description

Fixed Data



Document Control

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Please note significant document changes with a version increment of 1.0. Minor administrative changes, where the meaning or intention of the document is not altered should increase by an increment of 0.1.

Version	Date	Author	Summary of changes
1.0	19/12/2017	Matt Duniam	Original set of services. Released as part of RFX101331
2.0	02/06/2019	Matt Duniam	Updated to include details of more granular parameters. Released as part of RFX133881
2.1	06/04/2020	Matt Duniam	Minor update for digital.nsw.gov.au

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1. Service Tower Description

Fixed Data Services provide a private network connection for customer fixed sites to enable communication between sites and the customer data centres. The delivery mechanism can be via fixed or wireless technology.

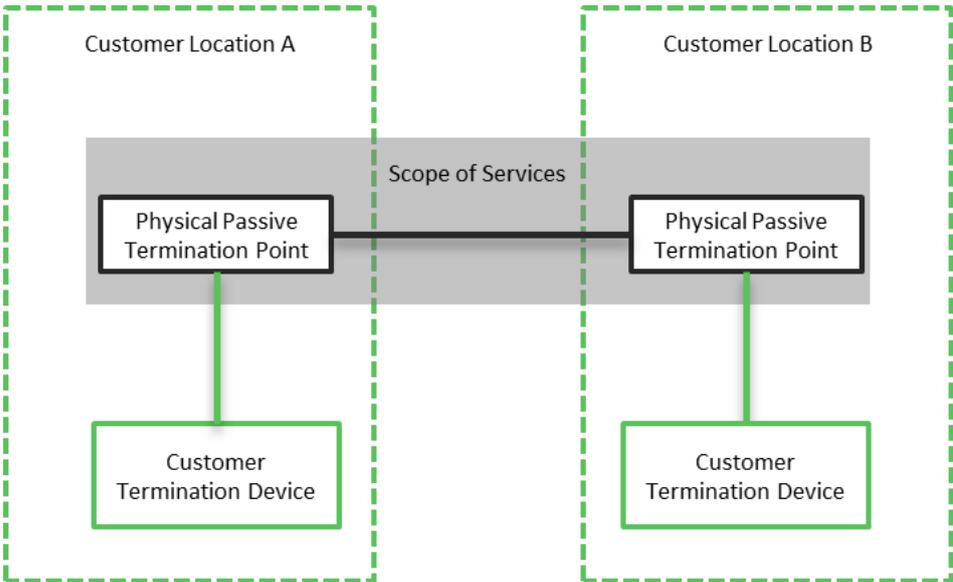
These services are expected to evolve as technology changes and the security and bandwidth demands related to fixed data connectivity escalate, driven primarily by the continual move to public Cloud and adoption of the Government's Digital Strategy.

It is expected that individual services may be consumed from different Suppliers, and that services will be delivered in a modular fashion to facilitate that.

The services within this catalogue must meet the requirements for Fixed Data Services defined in the Requirements Schedule and comply with the Common Services Catalogue.

This catalogue defines the minimum set of base services required by the customers and provides a generalised overview of their current states.

2. Service Category – Point-to-Point Connectivity

2.1 Passive Point-to-Point Connectivity	
<p>Service Overview</p>	<p>This Service is where passive connectivity is required between two locations, and the Eligible Customer requires the unmanaged circuit to be terminated on their equipment (or equipment provided by a third party). An example of this service is a Layer 1 dark (unlit) fibre.</p> <p>As the Service is unmanaged it will be up to the Eligible Customer to determine if there are availability or performance issues, and to report these to the Supplier for resolution.</p> <p>This Service provides connectivity between two locations as per Figure 1 below.</p>  <p style="text-align: center;"><i>Figure 1: Point to Point demarcation and scope</i></p> <p>The Service must provide all components within the scope area highlighted and provide Common Services as per the Common Services schedule.</p>
<p>Service Deliverables</p>	<p>The Base Service will provide:</p> <ul style="list-style-type: none"> • Connectivity between two sites, which could be Eligible Customer or third-party locations. • A standards-based termination at each site to connect to Eligible Customer equipment.

	<ul style="list-style-type: none"> • Support for standards-based optics e.g. 1000BASE-LX/LH, 1000BASE-EX, 1000BASE-ZX • The Service should support optics that provide a range of bandwidths of up to 100Gbps, dependant on the distance between sites and the optics deployed by the Eligible Customer. • Reactive management of the Service and interconnection points. <p>Service Options that Eligible Customers are interested in, and could also be provided are:</p> <ul style="list-style-type: none"> • A secondary service that is diverse to the primary service, so that the Eligible Customer can deploy the site with High Availability. This service may have Service Level's that differ from the primary service. • Support for optics that provide speeds higher than 100Gbps.
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2.2 Active Point-to-Point Connectivity

Service Overview	<p>Active Point-to-Point connectivity is where connectivity is required between two locations, and the Eligible Customer requires the Supplier to:</p> <ul style="list-style-type: none"> • Monitor and proactively manage availability, capacity, and performance. • Provide an active termination point. <p>Examples of this type of service are coloured wavelength and Fibre channel.</p> <p>This Service provides connectivity between two locations as per Figure 2 below.</p> <div style="text-align: center;"> </div> <p style="text-align: center;"><i>Figure 2: Point to Point demarcation and scope</i></p> <p>The Service must provide all components within the scope area highlighted and provide Common Services as per the Common Services schedule.</p>
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<p>Service Deliverables</p>	<p>The Base Service will provide:</p> <ul style="list-style-type: none"> • Connectivity between two sites, which could be Eligible Customer or third-party locations. • Connectivity at layer 1. • Full proactive management of the Service, including monitoring and proactive response for capacity, availability, and performance. • A standards-based termination at each site to connect to Eligible Customer equipment. • The Service should support a range of bandwidths between 1Gbps and 100Gbps. <p>Service Options that Eligible Customers are interested in, and could also be provided are:</p> <ul style="list-style-type: none"> • A secondary service that is diverse to the primary service, so that the Eligible Customer can deploy the site with High Availability. This service may have Service Level's that differ from the primary service. • Support for speeds higher than 100Gbps. • Provide optical delivery to the Eligible Customer termination equipment, for example to support Fibre Channel • Support for Multi-point connectivity and topologies, where more than one Service is procured.
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3. Service Category – Private Fixed WAN Connections

3.1 Managed L3VPN

Service Overview

The Managed L3VPN service is where there are two or more sites that need to connect to the same Private Network, and where the Eligible Customer requires the Supplier to:

- Monitor and proactively manage availability, capacity, and performance.
- Provide the CPE for the site, allowing the Eligible Customer LAN to connect directly.
- Provide connectivity from the site to a Private Network.
- Provide connectivity from the Private Network to the Government Data Centres by default.

This Service provides connectivity to a site as per Figure 3 below. For illustration purposes only one Eligible Customer site is shown, however there could be many. The Data Centre Demarcation is shared for all sites.

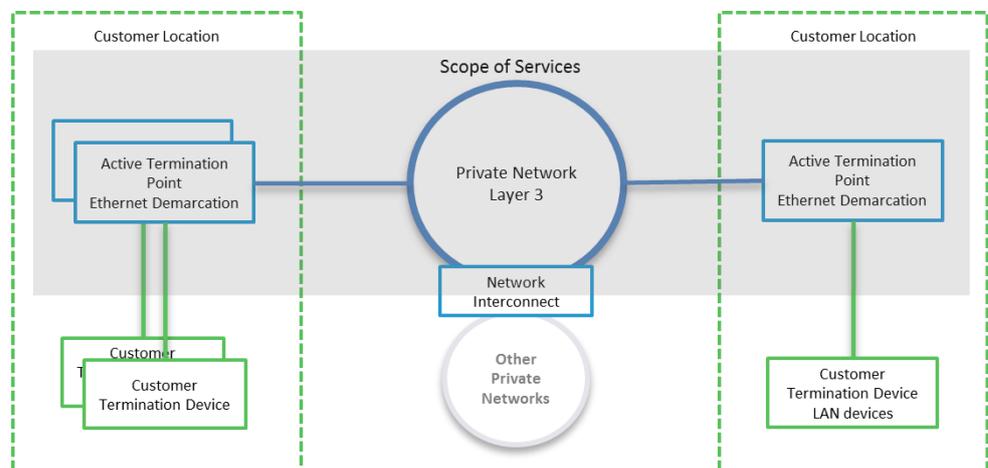


Figure 3: Managed Private Fixed Connection with CPE

The Service must provide all components within the scope area highlighted and provide Common Services as per the Common Services schedule.

Services will be differentiated by the access network that is used, in terms of:

- Type; head-end, tail
- Physical layer; satellite, fixed wireless, copper, fibre
- Provider; respondents, NBN, 3rd party
- NBN Traffic Class; TC4, TC2, Enterprise Ethernet

<p>Service Deliverables</p>	<p>The Base Service will provide:</p> <ul style="list-style-type: none"> • A Private Layer 3 network that supports Quality of Service. • Support for up to 6 service classes. Each with its own set of performance criteria relating to bandwidth contention, latency, jitter and packet loss. • Connectivity to an Eligible Customer site, which could be an Eligible Customer or third-party location. • Guaranteed symmetrical bandwidth. • A range of Eligible Customer selectable bandwidths. • Full proactive management of the Service, including monitoring and proactive response for capacity, availability, security and performance. • A CPE with a standards-based termination to interconnect with Eligible Customer equipment. <p>Service Options that Eligible Customers are interested in, and could also be provided are:</p> <ul style="list-style-type: none"> • Internet offload i.e. the ability to send Internet destined traffic to the Internet directly from the site. • Circuit aggregation and load balancing, i.e. the ability to connect additional circuits (with potentially different circuit technology from a range of Suppliers) and utilise the additional circuits based on a range of factors, such as the traffic type. • A Private Network interconnection, allowing routed connectivity to other trusted networks.
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<h3>3.2 Low-Cost Managed L3VPN</h3>	
<p>Service Overview</p>	<p>The Low-Cost Managed L3VPN service is where a site requires a private connection and Internet access provides the required attributes. The Eligible Customer requires the Supplier to:</p> <ul style="list-style-type: none"> • Monitor and proactively manage availability, capacity, and performance. • Provide the CPE for the site, allowing the Eligible Customer LAN to connect directly. • Provide connectivity from the site to the Internet. • Provide a Private Network over the Internet, that sites and the Data Centres connect to secure traffic. <p>This Service provides connectivity to a site as per Figure 44 below. For illustration purposes only one Eligible Customer site is shown, however, there could be many. The Data Centre Demarcation is shared for all sites.</p>

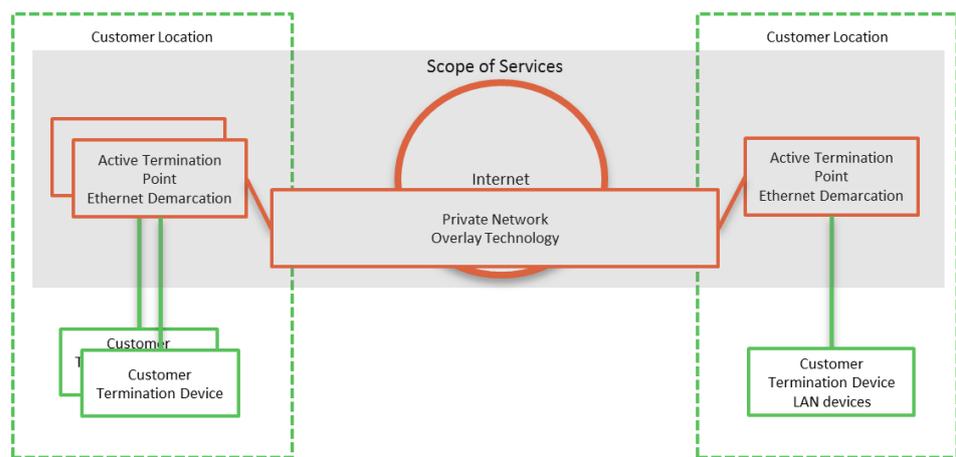


Figure 4: Internet VPN with Site CPE

The Service must provide all components within the scope area highlighted and provide Common Services as per the Common Services schedule.

Services will be differentiated by the access network that is used, in terms of:

- Type; head-end, tail
- Physical layer; satellite, fixed wireless, copper, fibre
- Provider; respondents, NBN, 3rd party
- NBN Traffic Class; TC4, TC2, Enterprise Ethernet

Service Deliverables

The Base Service will provide:

- A Private Network that runs over the Internet.
- A Private secure tunnel from the site to the Virtual Private Network.
- Internet connectivity to an Eligible Customer site
- Through the capabilities of the overlay; hub-and-spoke or mesh topologies
- Best efforts bandwidth. The Service should provide a range of Eligible Customer selectable bandwidths and contention ratios.
- Full proactive management of the Service, including monitoring and proactive response for capacity, availability, security and performance.
- A standards-based Ethernet termination at each site to connect to Eligible Customer equipment.

Service Options that Eligible Customers are interested in, and could also be provided are:

- Internet offload, i.e. the ability to send Internet destined traffic to the Internet directly from the site.
- Circuit aggregation and load balancing, i.e. the ability to connect additional circuits (potentially with different circuit technology from a range of Suppliers) and utilise the additional circuits based on a range of factors, such as the traffic type.
- Traffic engineering, or other methods to improve performance.

3.3 Unmanaged L2/L3VPN

Service Overview

The Unmanaged L2/L3VPN service is where there are many sites that need to connect to the same Private Network, and where the Eligible Customer requires the Supplier to:

- Monitor and proactively manage availability.
- Provide connectivity from the site to a Private Network.
- Provide connectivity from the Private Network to the Government Data Centres by default.

The Eligible Customer will provide a CPE to connect to the Service at a site.

This Service provides connectivity to a site as per Figure 5 below. For illustration purposes only one Eligible Customer site is shown, however there could be many. The Data Centre Demarcation is shared for all sites.

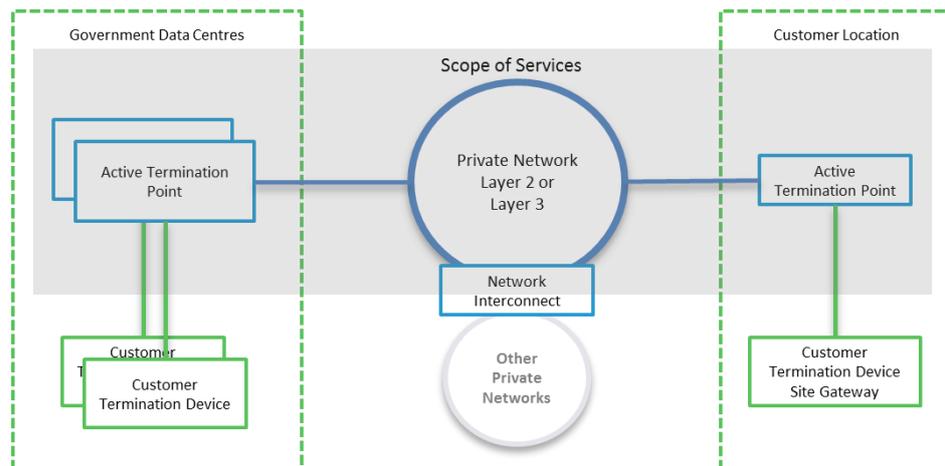


Figure 5: Managed Private Fixed Connection without CPE

The Service must provide all components within the scope area highlighted and provide Common Services as per the Common Services schedule.

Services will be differentiated by the access network that is used, in terms of:

- Type; head-end, tail
- Physical layer; satellite, fixed wireless, copper, fibre
- Provider; respondents, NBN, 3rd party
- NBN Traffic Class; TC4, TC2, Enterprise Ethernet

Service Deliverables

The Base Service will provide:

- A Private Layer 2 or 3 network that supports Quality of Service.
- A range of Eligible Customer selectable bandwidths.
- Support for up to 6 service classes. Each with its own set of performance criteria relating to bandwidth contention, latency, jitter and packet loss.

	<ul style="list-style-type: none">• Connectivity to an Eligible Customer site, which could be an Eligible Customer or third-party location.• Guaranteed symmetrical bandwidth.• Full proactive management of the Service, including monitoring and proactive response for availability.• A standards-based termination at each site to connect to Eligible Customer equipment. <p>Service Options that Eligible Customers are interested in, and could also be provided are:</p> <ul style="list-style-type: none">• High Availability assurance, where, on a regular basis, the paths are audited, and failover is tested.• Asymmetric bandwidth• Quality of Service for the Service to the site.• A secondary service that is diverse to the primary service, so that the Eligible Customer can deploy the site with High Availability. This service may have Service Level's that differ from the primary service.
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4. Glossary

Term or short form	Long-form	Definition
aaS	as-a-Service	An item, or grouping of items, made available to a customer as a service
Active Termination		Where the Service Provider provide a device that terminates the service at a site and enables end-to-end management.
ADSL	Asymmetric Digital Subscriber Line	
APN	Access Point Name	A gateway between a mobile network and another network, such as the Internet or a Private WAN.
bps or bit/s	Bits per second	
BYO	Bring your own	
CAB	Change Advisory Board	
Circuit		For data connections, a circuit a path that data transverses between two points. A circuit is a component of a Service.
CMS	Configuration Management System	
Contract Authority		The central entity that is accountable and responsible for the Head Agreements of the TPAs
CoS	Class of Service	
		TPA Release Version
CSI	Continual Service Improvement	
Customer		NSW Government Agency, or any organisation procuring services from the Service Catalogues.
CPE	Customer Premise Equipment	A device that is used by Service Providers to terminate services at a site.
Customer Termination Device		A Customer device that is connected to the Provider's equipment
DHCP	Dynamic Host Control Protocol	
DISS	Digital Information Security Strategy	
DoS (or DDoS)	Denial of service (or distributed denial of service)	An attack that attempts to make a service unavailable by overwhelming it with traffic from multiple sources.
DWDM	Dense Wavelength Division Multiplexing	
Error		A design flaw or malfunction that causes a failure of one or more IT services or other configuration items.
Event		A change of state that has significance for the management of a service.

Term or short form	Long-form	Definition
Gateway device		A layer 3 device at a site that acts as the site's router, to transmit packets to the WAN. Host devices have a gateway device configured, typically via DHCP.
Gbps or Gbit/s	Giga (billion) bits per second	
Grey Area Diagnostics		The process to proactively diagnose in-scope services and interconnections to help identify the cause of an incident or problem. The result is to identify that the cause of the incident or problem: <ul style="list-style-type: none"> - Is caused by in-scope services - Is not caused by in-scope services - Could be caused by in-scope services, and further diagnostics are required
ICT	Information and Communications Technology	
ICT Risk Management		Information Communication Technology (ICT). The NSW Digital Information Security Policy mandates a risk-based approach to securing information, based on the ISO 27001 standard. DFSI has implemented a framework in line with the policy, with ICT risks being managed through an Information Security Management System (ISMS).
Incident		An unplanned interruption to a service or a reduction in the Quality of a service. Failure of a configuration Item that has not yet impacted service is also an Incident.
IP	Internet Protocol	
IPSLA	Internet Protocol Service Level Agreement	Cisco IOS feature that allows for the collection of network performance information.
ISM	Information Security Management	
ISMS	Information Security Management System	
ISO	International Standards Organisation	
ITSM	IT Service Management	
IVR	Interactive Voice Response	
kbps or kbit/s	Kilo (thousand) bits per second	
Known Error		A Problem that has a documented root cause and workaround.
Location, Site		A Customer site or location is a place where services are to be delivered. Depending on the service, this may not necessarily be a physical building.
MACD	Move, Add, Change or Delete	

Term or short form	Long-form	Definition
MAN	Metropolitan Area Network	
Mbps or Mbit/s	Mega (million) bits per second	
MNO	Mobile Network Operator	Provider of wireless/mobile communications services that owns or controls all the elements necessary to sell and deliver services to an end user, e.g. radio spectrum, wireless network infrastructure, back haul, billing, customer care, provisioning systems and repair capabilities.
MVNO	Mobile Network Operator	Provider of wireless/mobile communications services that does not own the wireless network infrastructure over which it provides services to its customers. Instead they enter a business agreement with an MNO to obtain bulk access to network services at wholesale rates. They do have their own customer service, billing systems, marketing, and sales personnel.
MPLS	Multi-Protocol Label Switching	
MTU	Maximum Transmission Unit	
NBN	National Broadband Network	
NBN Co		The entity responsible for the design, build and operation of the NBN
NFV	Network Function Virtualisation	
NIVR	Network Interactive Voice Response	
OADM	Optical Add-Drop Multiplexer	
Operational Risk		Risks associated with business-as-usual activities at the Division / Business Unit / Related Entity level that is normally managed within that area, unless the level of risk requires a review by the DFSI Executive and/or Secretary.
OSS	Operational Support System	
OTT	Over-the-top	
Passive Termination		Where the Service provider provides a physical termination point which can't be monitored.
PE	Provider Edge	
Peering		The exchange of data directly between Content Providers and Customers, rather than via the Internet.
Performance		A measure of what is achieved or delivered by a system, person, team, process or service
POI	Point of Interconnect	
POP	Point of Presence	

Term or short form	Long-form	Definition
Priority		The value given to an Incident, Problem or Change to indicate its relative importance in order to ensure the timeframe within which action, such as Response and Resolution, is required.
Private Data Network		A network or networks that utilises private infrastructure to deliver physically or logically private services
Problem		A cause of one or more Incidents. The cause is not usually known at the time a Problem Record is created, and the Problem Management Process is responsible for further investigation.
Public Data Network		A network or networks that utilises publicly available, shared infrastructure such as mobile networks or the Internet
Public Holidays		All NSW public holidays as gazetted, except for Bank Holidays specific to only banks and financial institutions as per the Retail Act.
QoS	Quality of Service	
RACI	Responsible, Accountable, Contributor, Informed	
Resolver Group		Specialised groups that have the knowledge and skill to solve an Incident or Problem.
R-OADM	Reconfigurable Optical Add-Drop Multiplexer	
Root Cause		The underlying or original cause of an incident or problem.
RSP	Retail Service Provider	
Sandboxing		A security mechanism for separating untested or untrusted programs or code to mitigate system failures or software vulnerabilities from spreading.
Satellite		Satellite based connectivity to deliver NBN connectivity
SDN	Software Defined Network	
SD-WAN	Software Defined Wide Area Network	
SD-WANaaS	SD-WAN-as-a-Service	
Service Window		Service window is defined as the timeframe within which service availability and service management (incident response, incident resolve) are measured and managed.
Significant Event		This is an event that materially impacts a Customer, and is likely to be a P1 or P2.
SIP	Session Initiation Protocol.	
SLA	Service Level Agreement	

Term or short form	Long-form	Definition
SoR	Statement of Requirements	
TDM	Time Division Multiplexing	
TPA	Telecommunications Purchasing Arrangements	
User		A person who uses a service on a day-to-day basis.
VIP	People with critical roles within an organisation, and identified to Service Providers.	
VNF	Virtual Network Function	
VPN	Virtual Private Network	
WAN	Wide Area Network	
WoG or WofG	Who of government	All Clusters and Agencies within the NSW Government.

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