

# WAVELENGTH

Vocus Wavelength services deliver premium performance and low latency site-to-site connectivity, offering extensive interstate and local coverage plus connectivity to Asia via our Perth to Singapore cable.

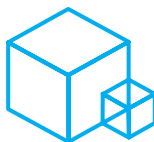
## OUR SOLUTION FOR YOU

Vocus Wavelength provides a premium transmission service for business-critical and latency-sensitive applications between two locations with speeds up to 100Gbps. Typical applications include core network transmission, data replication, data storage connectivity and disaster recovery.

Our Wavelength services are delivered over the Vocus DWDM network, which connects all Australian mainland capitals and our extensive regional network with our undersea cable networks to international locations, including Singapore and Jakarta. Combined with our coverage of all major data centres, over 5000 on-net buildings and within a short distance of many thousands more, Vocus has the network to deliver premium transmission solutions.



Connecting all mainland capitals, regional Australia, Jakarta and Singapore.



Capable of service speeds up to 100Gbps



Highly available and secure network, with a fully redundant architecture.



Supports a variety of interface types to satisfy a wide range of applications.



24x7 operational support and automated service monitoring



Reliability, backed by our SLAs and 99.95% availability target

## WHO IS IT FOR?

Vocus Wavelength suits medium to large businesses seeking highly reliable, private connectivity over transmission grade infrastructure. It delivers Ethernet, SDH and Fibre Channel interfaces to satisfy a wide range of applications.



Medium Business

100 - 500 Staff



Large Business

500+ Staff

## FEATURES AND BENEFITS

### SUPERIOR GRADE OF SERVICE

- Vocus Wavelength is delivered over our DWDM network, which provides dedicated bandwidth for uncompromised quality. If you want maximum performance with the lowest latency and frame loss, then Vocus Wavelength is the right choice.

### FLEXIBLE AND SCALABLE

- The Vocus transmission network is dimensioned for exceptional performance and is capable of service speeds up to 100Gbps. Our protocol transparency supports a wide range of protocols, giving you the freedom to choose your preferred applications.

### HIGHLY AVAILABLE, PRIVATE CONNECTIVITY

- Our Wavelength services provide highly reliable, private connectivity over our transmission grade, self-owned infrastructure. The Vocus core network has a fully redundant architecture, designed and built for continuous operation.
- We offer 99.95% availability with customised protection options to support your risk management requirements.

### CHOICE OF INTERFACES

- Vocus Wavelength provides Ethernet, OTN, SDH and Fibre Channel interfaces to satisfy a wide range of applications including core network backhaul, data replication or interconnecting storage arrays. A range of bandwidth options are available.

### 24X7 TECHNICAL SUPPORT

- The Vocus Service Centre provides ongoing end-to-end monitoring around the clock for our national network, ensuring optimal service availability. 24x7 onshore technical support provides you the assistance you need, if you ever need it.

### SERVICE LEVEL AGREEMENTS

- Vocus Service Level Agreements formalise the Vocus commitment to deliver services that are considered a benchmark for excellence. Backed by commercial service level agreements, your business can depend on Vocus Wavelength services.

# WAVELENGTH PRODUCT SPECIFICATIONS

ATTRIBUTE	VOCUS WAVELENGTH PRODUCTS			
	SDH	FIBRE CHANNEL	OTN	ETHERWAVE
<b>Interface Type</b>	SDH	Fibre Channel <sup>[5]</sup>	OTN <sup>[6]</sup>	Ethernet
<b>Service Speeds</b> <small>(All services are line rate only)</small>	<ul style="list-style-type: none"> <li>• STM-4 (600Mb/s) <sup>[5]</sup></li> <li>• STM-16 (2.4Gb/s) <sup>[5]</sup></li> <li>• STM-64 (9.6Gb/s)</li> </ul>	<ul style="list-style-type: none"> <li>• 1Gb/s</li> <li>• 2Gb/s</li> <li>• 4Gb/s</li> <li>• 8Gb/s</li> <li>• 10Gb/s</li> </ul>	<ul style="list-style-type: none"> <li>• OTU-2</li> <li>• OTU-2e</li> <li>• OTU-4</li> </ul>	<ul style="list-style-type: none"> <li>• 1Gb/s <sup>[1] [5]</sup></li> <li>• 10Gb/s <sup>[1]</sup></li> <li>• 100Gb/s <sup>[1]</sup></li> </ul>
<b>Interface Type</b> <sup>[2]</sup>	STM-4: <ul style="list-style-type: none"> <li>• S-4.1 (~15km) <sup>[5]</sup></li> </ul> STM-16: <ul style="list-style-type: none"> <li>• S-16.1 (~15km) <sup>[5]</sup></li> </ul> STM-64: <ul style="list-style-type: none"> <li>• S-64.1 (20km) <sup>[5]</sup>,</li> <li>• I-64.1 (2km),</li> <li>• S-64.2 (40km)</li> </ul>	<ul style="list-style-type: none"> <li>• 1Gb/s: 100-SM-LC-L</li> <li>• 2Gb/s: 200-SM-LC-L</li> <li>• 4Gb/s: 400-SM-LC-L</li> <li>• 8Gb/s: 800-SM-LC-L</li> <li>• 10Gb/s: 1200-SM-LLL</li> </ul>	OTU2/2e: <ul style="list-style-type: none"> <li>• P111-2D1 (2km),</li> <li>• P1S1-2D2b (40km)</li> </ul> OTU4: <ul style="list-style-type: none"> <li>• 4I1-9D1F (10km)</li> </ul>	1Gb/s: <ul style="list-style-type: none"> <li>• 1000BASE-LX <sup>[5]</sup></li> </ul> 10Gb/s: <ul style="list-style-type: none"> <li>• 10GBASE-LR (10km),</li> <li>• 10GBASE-ER (40km)</li> </ul> 100Gb/s: <ul style="list-style-type: none"> <li>• 100GBASE-LR4 (10km)</li> </ul>
<b>MEF/ITU Standards Category</b>	Not Applicable	Not Applicable	Not Applicable	EPL (Ethernet Private Line)
<b>Frame Structure</b>	ITU-T G.707	ANSI X3T11	ITU-T G.709	IEEE 802.3-2015
<b>Transport Technology</b>	DWDM	DWDM	DWDM	DWDM
<b>Oversubscription</b>	NIL - Wavelength services provide dedicated bandwidth.	NIL - Wavelength services provide dedicated bandwidth.	NIL - Wavelength services provide dedicated bandwidth.	NIL - Wavelength services provide dedicated bandwidth.
<b>Frame Loss Target</b>	Zero	Zero	Zero	Zero
<b>Inter-Frame Variation Delay Target</b>	< 1ms	< 1ms	< 1ms	< 1ms
<b>Maximum Transmission Unit</b>	Not Applicable	2148 bytes (SOF to EOF inclusive)	Not Applicable	9600 bytes (DA to FCS inclusive)
<b>VLAN Transparency</b>	Not Applicable	Not Applicable	Not Applicable	VLANs (IEEE 802.1Q) and Q-in-Q (IEEE 802.1AD)
<b>Service Multiplexing Support</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Physical Connectors</b>	Optical SC or LC Flat (service location dependent)	Optical SC or LC Flat (service location dependent)	Optical SC or LC Flat (service location dependent)	Optical SC or LC Flat (service location dependent)
<b>Fibre Type</b>	Single Mode Fibre	Single Mode Fibre	Single Mode Fibre	Single Mode Fibre
<b>Protection Options</b> <sup>[3]</sup>	Core network, end-to-end and diverse dual service protection options	Core network, end-to-end and diverse dual service protection options	Core network, end-to-end and diverse dual service protection options	Core network, end-to-end and diverse dual service protection options
<b>Availability Target SLA</b> <sup>[4]</sup>	99.95% (protected services) Refer to the Vocus SLA for full details.	99.95% (protected services) Refer to the Vocus SLA for full details.	99.95% (protected services) Refer to the Vocus SLA for full details.	99.95% (protected services) Refer to the Vocus SLA for full details.

**NOTE:**

[1] Etherwave (Ethernet) services are currently offered at interface rate only.

[2] All optical interfaces support single mode optical fibre only.

[3] Protection options are subject to availability.

[4] Availability target applies where the service is delivered over the Vocus fibre network.

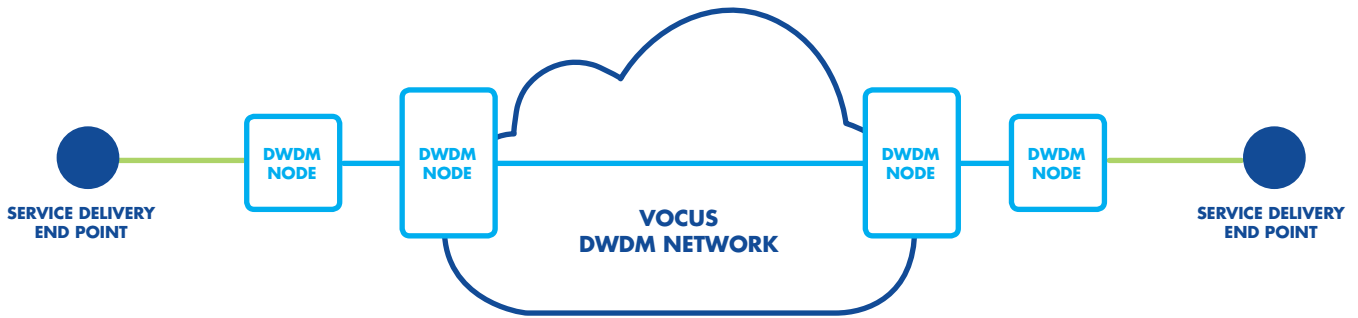
[5] Not available on services between Perth, Singapore, Jakarta or Christmas Island.

[6] Only available on services between Sydney, Perth, Singapore, Jakarta or Christmas Island, subject to infrastructure availability.

Specification only applies for services delivered over Vocus infrastructure.

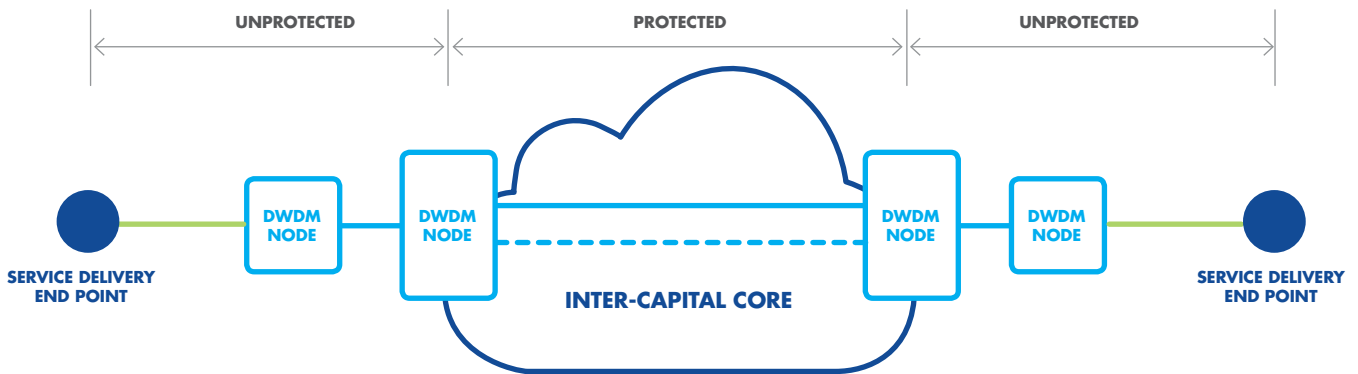
# WAVELENGTH NETWORK OVERVIEW

## UNPROTECTED WAVELENGTH SERVICE



## PROTECTED WAVELENGTH SERVICE – INTER-CAPITAL CORE PROTECTION

Subject to availability.



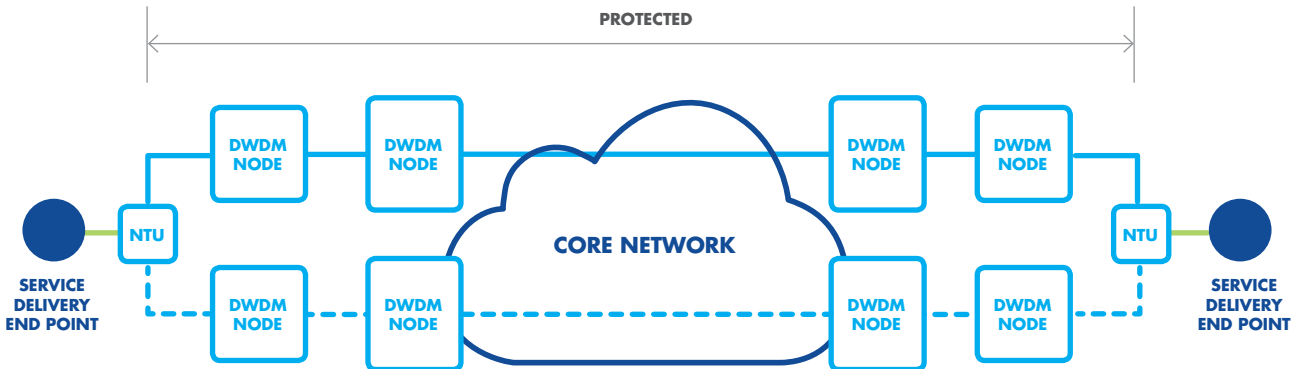
### DIAGRAM KEY

-  Dark Fibre (Interface handoff)
-  Active DWDM Path
-  Backup DWDM Path

# WAVELENGTH NETWORK OVERVIEW

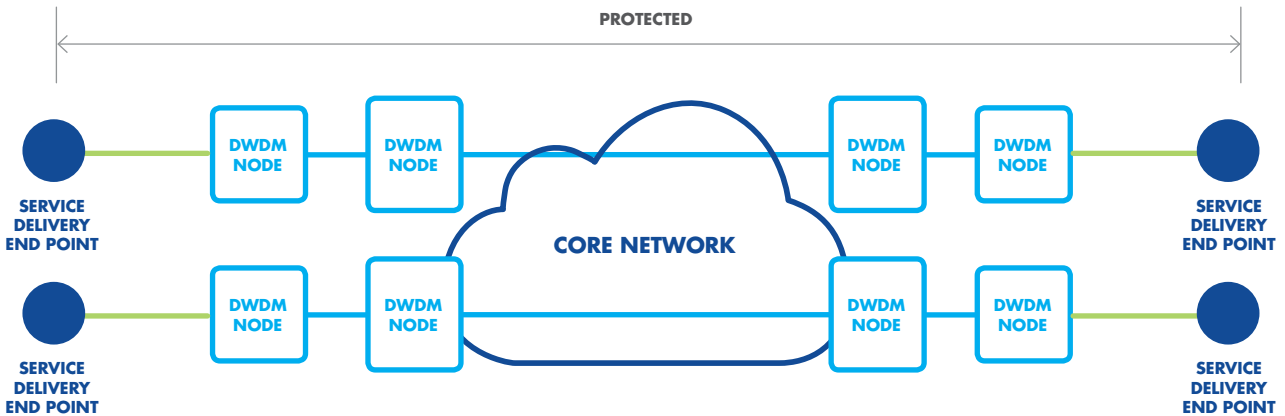
## PROTECTED WAVELENGTH SERVICE – END-TO-END PROTECTION

Subject to availability.



## PROTECTED WAVELENGTH SERVICE – DUAL SERVICES

Dual unprotected services with diversity. Subject to availability.



### DIAGRAM KEY

-  Dark Fibre (Interface handoff)
-  Active DWDM Path
-  Backup DWDM Path

Want to learn more about how we can help you? Contact your Vocus Account Manager or call us on 1300 88 99 88 or visit [vocus.com.au](http://vocus.com.au)