

## Trusted providers

LUMEA™ data services operate across one of the largest fibre network that spans NSW, the ACT and Victoria, servicing key inter-capital and regional routes.

Our extensive and independent 'Fibre in the Sky' Optical Ground Wire (OPGW) network provides true network diversity from other terrestrial fibres, and has proven to continue operating reliably during extreme weather events such as fires and floods.

Our Carrier Ethernet network is the first in Australia and New Zealand to be certified to the globally recognised MEF CE 3.0 standards, and we continue to develop and innovate our service capabilities. By partnering with the nbn<sup>TM</sup>, we can now expand our access network to customers that are not located within our network footprint and beyond.

We are a selected provider on the NSW Government Telecommunications Purchasing Arrangement (TPA) Panel for Data, SD-WAN and Internet services. We are committed to delivering NSW and Australia's digital future.



#### Speed

We have deployed the latest DWDM and Carrier Ethernet switches delivering cutting edge products and services which include Ethernet, Internet, SD-WAN and large bandwidth Wavelength DWDM technologies.



#### Tailored solutions

We provide customised solutions because we work to meaningfully understand your needs and goals.



#### Reliable

Our telecommunications network is built and supported to the same high level as the high voltage transmission network.



#### Security

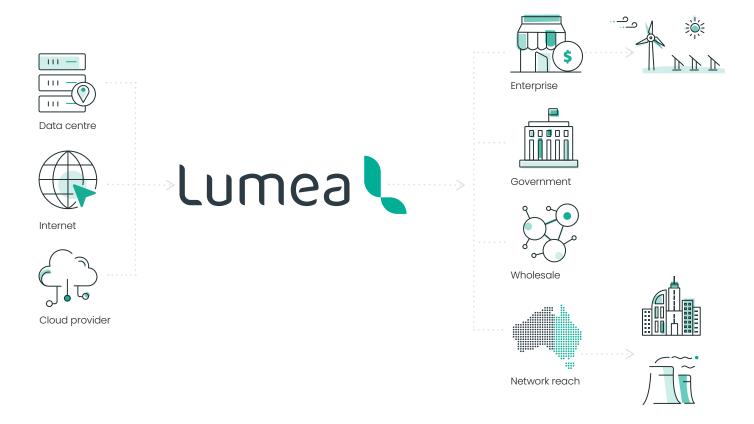
As critical infrastructure our network has been built to the highest standards and has been endorsed by the Critical Infrastructure Centre (CIC).



Leading Australia to a more digitally connected future is part and parcel of what we do.

Our services provide you with the network connectivity and bandwidth that you need - either via our direct fibre connections or third party partners' networks, such as nbn™ Enterprise Ethernet. By constantly innovating and updating our systems, we ensure we are bringing the best solutions that support your digital transformation journey today, and well into the future.





## Wavelength

A high capacity, point to point data carriage service utilising the OPGW aerial fibre network and the latest Dense Wavelength Division Multiplexing (DWDM) technology.

A perfect customer solution for large bandwidth applications such as Data Centre Interconnect (DCI) and database replication to satisfy bandwidth demanding and dynamic business environment which could be between any of the 25\* connected data centres across NSW/QLD/ACT/VIC.

\* Note: Additional data centre might be available. Please contact us for more information.

Lumea Wavelength (LW) enables you to extend or supplement your telecommunication network. Built on next generation DWDM technology, LW utilises technology compliant with international standards supporting a range of customer interfaces at data speed of 10Gbps, 100Gbps and higher.

The high-capacity and resilient fibre network delivers high speed services for our Enterprise, Wholesale & Government customers across the Australia's Eastern States.

#### Overview



#### Features and benefits

Lumea Wavelength solution empowers bandwidth demanding businesses to scale their network in a dynamic business environment.



#### Scalability

nx10Gbps or 100Gbps options.



#### Savings

Reduce your cost by utilising cost effective solution.



#### Coverage

Lumea's network offers CBD, metro and regional coverage using aerial and underground fibre.



#### Fast and reliable

Our network offers low latency routes and network redundancy.

#### Carrier Ethernet

Adhering to the Metro Ethernet Forum CE (MEF) 3.0 standard, our Carrier Ethernet is a scalable, reliable and feature-rich network solution for private network and cloud connectivity.

Our network offers extensive coverage in CBD, Metro and regional areas using a combination of aerial, underground fibre and third party access networks.

Lumea Carrier Ethernet (LCE) can accommodate multiple traffic types, including voice and video, as well as non-IP based traffic. LCE is a Layer 2 Virtual Private Network (VPN) solutions which gives you a simple alternative to the traditional Layer 3 IP VPNs.

For customers' sites where the Lumea network is unavailable, we will leverage our 3rd party partner networks to extend our service reach. LCE powered by nbn™ Enterprise Ethernet is a perfect example of extending our business grade LCE service, interconnecting seamlessly between two MEF compliant networks to your locations.

Flexible bandwidth increments and standardised service features give our customers the ability to carry different service attributes using one technology.

#### Overview



#### Features and benefits

LCE enables your growing businesses to scale in a dynamic business environment.



#### Scalability

Supports speed ranging from 2Mbps to 4Gbps.



#### Privacu

Secure Layer 2 connectivity supporting point-to-point or point-to-multipoint connections.



#### Coverage

Our network offers CBD, Metro and regional coverage using aerial and underground fibre and third party access networks via ENNI (External Network to Network Interface) including nbn™ Enterprise Ethernet and Telstra Ethernet Access/Managed Leased Line services.



#### Fast and reliable

Lumea's network offers low network latency.

#### nbn™ BackHaul & V-NNI

Lumea's POI Backhaul and Virtual NNI (V-NNI) services are designed for Retail Service Providers (RSPs) already onboarded with nbn™. It allows for better control of the traffic contention and thus provides a better end customer experience. The POI Backhaul extends the customer's nbn™ Network Interface (NNI) from selected POIs in NSW/ACT/VIC to a nominated handoff location via the Lumea Wavelength (LW) or Lumea Carrier Ethernet (LCE) service.

Traffic can be delivered as an aggregated handoff via a single physical interface, or multiple discrete interfaces in a point-to-point configuration. With POI V-NNI, you have the ability to deploy backhaul capacity without incurring the cost of setting up a presence at each POI.

\*Please contact your Lumea Account Manager on the serviceable nbn™ Point of Interconnect (POI) list.

#### POI Backhaul and VNNI benefits



#### Performance

High speed direct backhaul connectivity to selected nbn™ POIs and superior Carrier grade services by bundling the performance of the nbn™ and Lumea Carrier Ethernet network with the selected CoS (Class of Service) to match with your applications or dedicated high speed wavelength service for 10Gbps and above.



#### Reliability

Harness a fibre access network, with dedicated point-to-point fibre that is completely separate from other network.



#### Speed

Gain access to nbn's range of port speeds in up to 1GE, 10Gbps\* or 100Gbps\* for your POI backhaul service.

\*Speed option availability is subject to service qualification process



#### Efficiency

Reduce your upfront costs with a network traffic aggregation option at selected headend location for POI backhaul service on selected nbn™ POIs. Further saving could be realised in the nbn™ NNI port costs by leveraging Lumea NNI port when V-NNI option is selected.



## nbn<sup>™</sup> Enterprise Ethernet

# Providing high-speed business grade connectivity across one of Australia's largest fibre optic networks

Accelerate your customers' digital transformation with Lumea Carrier Ethernet powered by nbn™ Enterprise Ethernet, and POI backhaul connectivity from a market leader.

LUMEA, as owner-operator of one of Australia's largest fibre optic networks, has partnered with the nbn™ to expand the service reach for our LCE services to bring you enterprise-grade, layer 2 Ethernet connectivity.

Our network has been certified to meet stringent MEF 3.0 CE standards and delivers high standards of quality control, procedure and service assurance processes. Our customers value our bespoke solutions, experienced team and depth of network resources. Because of the ease of network compatibility in interconnecting Lumea CE and nbn™ Enterprise Ethernet networks, we are able to pass on the unique service features and benefits to you.

#### nbn™ POI locations

nbn™ POI name	State
Civic	ACT
Berkeley Vale	NSW
Blacktown	NSW
Campbelltown	NSW
Coffs Harbour	NSW
Dalley	NSW
Edgecliff	NSW
Eastern Creek	NSW
Gosford	NSW
Grafton	NSW
Hamilton	NSW
Lidcombe	NSW
Liverpool	NSW

nbn™ POI name	State
Maitland	NSW
Mayfield	NSW
Peakhurst	NSW
Pendle Hill	NSW
Penrith	NSW
Queanbeyan	NSW
Tamworth	NSW
Wagga Wagga	NSW
Windsor	NSW
Wollongong	NSW
Bendigo	VIC
Port Melbourne Depot	VIC
Shepparton	VIC

<sup>\*</sup> Note: Additional nbn™ POIs might be available. Please contact us for more information.

#### Internet

## Lumea Internet provides two options to meet customer's needs.

Whether it be Lumea Business Internet (LBI) service for enterprises, or Lumea IP Transit (LIPT) service designed specifically for Internet Service Providers or aggregators, Lumea Internet (LI) solutions use the latest technology on the Lumea Wavelength and Carrier Ethernet networks.

Our internet services are scalable and flexible that can fit to your growing business' needs with extensive peering and upstream international IP transit providers that maintain service performance and reliability.

#### Overview



#### Features and benefits

LBI enables organisations to thrive on the internet ecosystem in the world of cloud, virtual applications and low cost access.

LIPT provides low latency, high speed and uncontended internet service enabling Internet Service Providers to provide a great experience to their downstream end-users.



#### Scalability

Both LBI and LIPT support speed ranging from 2 Mbps to 10Gbps.



#### Reliability

Stay connected with LBI and LIPT with a high target access network availability of 99.95%.

### SD-WAN

Lumea SD-WAN (LSD-WAN) solution is an overlay Software Defined Wide Area Network service with centralized control functions that are designed to help optimise network topology and minimize or eliminate network points of failure and latency.

A variety of underlying transport services including MPLS VPN, mobile 4G LTE, broadband internet or any combination of these services may be supported resulting in an enhanced user experience and service reliability.

A comprehensive range of Virtual Network Function (NFV) options are available to improve the network security and applications based traffic prioritisation.

#### Overview



#### Features and benefits

Digitalisation and transition to Multi Cloud connectivity demands rapid changes in Customer's WAN architecture. LSD-WAN software intelligently directs different types of traffic across the WAN based on priority, quality of service and security requirements in accordance with business needs.



#### Savings

Reduce Opex/Capex costs with application driven least cost routing capability, thus lowering the total cost of ownership.



#### Secure and highly reliable

Improves network security by encrypting WAN traffic and segmenting the network to minimise damage if breaches occur. Optional virtual network infrastructure services available, such as firewall and WAN optimisation



#### Scalability & Business Agility

Programmable network devices enabling new site be added quickly with zero-touch provisioning (ZTP), traffic performance be improved through dynamic bestpath routing.



## Automatic Load Balancing & Performance Monitoring

Centralised service orchestration and embedded software on virtual CPE (Customer Premises Equipment) monitors the conditions of all underlying carriage services enabling automatic load balancing and congestion management to optimise traffic performance.



