National Ethernet
Low latency, high availability Ethernet

High speed, low latency, network control

National Ethernet is a secure, high-performance and low latency Ethernet service that lets you take control of your network. With exceptional availability and scalability, it offers a cost-effective point-to-point (P2P) or point-to-multipoint (P2MP) connectivity solution across Australia. It easily integrates with corporate LANs (local area networks), and caters for varying needs across a Layer 2 based high speed fibre data service. National Ethernet gives you the power to implement changes with your own resources when you need to, with the backing of the Telstra expertise.

Point-to-Point (P2P)
Choose from a range of redundancy and bandwidth options plus the class of service to suit your needs.

**Features**

- Transparently send any C-VLANs between two sites, allowing you to change any C-VLANs without notifying Telstra
- Transparently send L2CP frames between two sites
- Access for both ends are on Telstra fibre
- Access for both ends can be Single Access or Fully Redundant
- Choose from three Classes Of Service (traffic classes)
- Seamless migration between P2P and P2MP without major impact

**Considerations**

- Only one Ethernet Virtual Circuit per Single Access service and two Ethernet Virtual Circuits per Fully Redundant service

Point-to-Multipoint (P2MP)
Seamlessly connect your headquarters to multiple branch sites.

**Features**

- Transparently send any C-VLANs between the two sites, allowing you to change any C-VLANs without notifying Telstra
- You can use the S-VLAN (Service VLAN) at the headend to identify which site Ethernet frames come from
- You only require one EVC service per tail as only one EVC is needed to send any C-VLANs
- The tail can be either Ethernet over nbn™ or Telstra fibre access
- Seamless migration between P2P and P2MP without major impact
- Telstra Fibre has Single Uplink or Fully Redundant options
- Choose from three Classes of Service for Telstra Fibre (traffic classes)

**Considerations**

- One Ethernet Virtual Circuit per Single Access service
- Two Ethernet Virtual Circuits per Fully Redundant service
- One Ethernet Virtual Circuit between a head end and a tail end in a dual head end network
## Data exchange
- Point-to-Point (P2P): Data can be exchanged between A-end and B-end.
- Point-to-Multipoint (P2MP): Data can be exchanged between the head end and a tail end. A tail end can exchange data with another tail end through the head end (the customer is responsible of ensuring the switching).

## Access type
- **Point-to-Point (P2P)**: Telstra Fibre only at both sites.
- **Point-to-Multipoint (P2MP)**: Telstra Fibre or nbn™ access (Ethernet over nbn™ (TC2) on FTTH, FTTN or FTTP). The head end bandwidth must be equal or greater than the sum of all tail bandwidths.

## Bandwidth options
- **Point-to-Point (P2P)**: 10Mbps, 20Mbps, 50Mbps, 100Mbps, 200Mbps, 500Mbps, 1Gbps and 2Gbps.
- **Point-to-Multipoint (P2MP)**: 1G or 10G. (depends on technology type and feasibility).

## Resilience type
- **Point-to-Point (P2P)**: Single Access – a single access delivered from the nearest Telstra Exchange will terminate in a single Network Terminal Unit at the customer premise. Fully Redundant – two accesses delivered on diverse paths from different Telstra Exchanges will terminate into two separate Network Terminal Units at the customer site. Both ends must have the same resilience type. Possible combinations: • Single Access to Single Access (SA to SA) • Fully Redundant to Fully Redundant (FR to FR)
- **Point-to-Multipoint (P2MP)**: Single Access – a single access delivered from the nearest Telstra Exchange will terminate in a single Network Terminal Unit at the customer premise. Fully Redundant – two accesses delivered on diverse paths from different Telstra Exchanges will terminate into two separate Network Terminal Units at the customer site. This design is not available for ‘Ethernet over nbn™ Tails’ or ‘Heads in dual-head networks’. The following combinations are possible: • Single Access Head Telstra Fibre to Single Access Tail Telstra Fibre • Single Access Head Telstra Fibre to Single Access Tail Ethernet over nbn™ • Fully Redundant Head Telstra Fibre to Single Access Tail Telstra Fibre • Fully Redundant Head Telstra Fibre to Single Access Tail nbn™ • Fully Redundant Head Telstra Fibre to Fully Redundant Tail Telstra Fibre

## Service Availability Targets
- **Telstra Fibre only**: 
  - Single Access to Single Access – 99.93%
  - Fully Redundant to Fully Redundant – 99.999%

## Class of Service (CoS)
The Class of Service is a technical feature that enables Telstra to prioritise the layer 2 traffic across our core network for a better performance of Latency (frame delay one way), Jitter (latency variation) and Frame Loss indicators.
- CoS Premium is offered by default for any National Ethernet service.
- CoS Prioritise and Expedite are offered as added value services for Telstra fibre only (extra charge).
- For all CoS available, Committed Information Rate = Peak Information Rate.

<table>
<thead>
<tr>
<th>CoS available</th>
<th>Latency target</th>
<th>Jitter target</th>
<th>Frame Loss target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-161Km</td>
<td>162-1609Km</td>
<td>1610-16093Km</td>
</tr>
<tr>
<td>Premium</td>
<td>Not Specified</td>
<td>&lt;10ms</td>
<td>&lt;20ms</td>
</tr>
<tr>
<td>Prioritise</td>
<td>&lt;5.68ms</td>
<td>&lt;14.51ms</td>
<td>&lt;375ms</td>
</tr>
<tr>
<td>Expedite</td>
<td>&lt;5.68ms</td>
<td>&lt;14.51ms</td>
<td>&lt;375ms</td>
</tr>
</tbody>
</table>
The below table describes which protocols are supported and which aren’t:

<table>
<thead>
<tr>
<th>Layer 2 Control Protocols</th>
<th>P2P topology</th>
<th>P2MP topology</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP, RSTP, MSTP</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>LACP/LAMP</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Link OAM (EFM)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Port Authentication</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>E-LMI</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>LLDP</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>GARP/MRP</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>CDP</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>VTP</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>UDLD</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Paused frame</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Any requirements for other protocols not listed above must be assessed through Product Management or Product Engineering.

**MTU size**
- 1,596 bytes – default
- 9,000 bytes – subject to feasibility

**Frames tagging**
The product has been designed to enable customers to operate changes to their frames tagging without any assistance from or dependency on Telstra.

Customers can send **untagged** or **tagged** traffic.

In a P2P topology, Customers can transparently send any C-VLAN IDs over the network which means that they can change their VLAN IDs without notifying Telstra. Also, they can send any Layer 2 Control Protocols between the two sites without having to inform Telstra.

In a P2MP topology, Customers can transparently send any C-VLANs between the head end and the tail end, allowing them to operate changes without any dependency on Telstra. In order to identify which tail end a certain frame came from, Customers will have to use the S-VLAN (Service VLAN) at the head end. Telstra will assign the STAG as best effort with preference towards customers’ nomination from the defined range. Shared infrastructure supporting multiple customers uses a single pool of STAGs for all services.

802.1q – supported on both topologies, P2P and P2MP
Q-in-Q – supported on both topologies, P2P and P2MP

**Customer Interfaces available**
- 100Base-Tx
- 1000Base-BX-D
- 1000Base-T
- 1000Base-SX
- 1000Base-LX
- 10GBase-SR
- 10GBase-LR

Only 1G and 10G interfaces will be supported at the head-end in a P2MP topology.
Business continuity solution
Dual head-end networks for data access

High availability of your network is critical to the success of your business. It is crucial that you are able to access data in real time in event of an outage at the main hub. To ensure this, all branches must have a way to access the same data, but in a different location.

P2MP National Ethernet allows for dual-head networks that allows you to build a second head. In the case of an outage at the main head, all branches will send data towards the second head, ensuring that no data will be lost. With an additional link between the main head and the secondary head, a fully resilient network is built, meaning all tails can access data from the main head while pushing data to the main hub through the secondary head.

About Telstra

We provide network services and solutions to more than 200 of the world’s top 500 companies. They rely on us to do business across 240 countries and territories and to enable greater productivity, efficiency and growth.

Our solutions offer the best of all worlds – skilled people and a rich portfolio of services delivered on our world-class Telstra Next IP® network and Next G® network. To ensure reliable performance, they’re monitored and maintained from our dedicated centres using advanced management and operational systems.

And they’re backed by Telstra Enterprise-grade Customer Service and one of Australia’s largest and most qualified field and technical workforce.

Things you need to know

Service Availability: Services, access types, bandwidth and resiliency options not available in all locations. Availability confirmed through service qualification.

Speeds: Actual speeds experienced can vary due to various factors including your access type, your premises’ maximum line speed, hardware and software capability and configuration.

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For more information please refer to the National Ethernet section of Our Customer Terms at https://www.telstra.com.au/customer-terms/business-government#data-services

Contact your Telstra account representative for more details.