



Your business
uninterrupted

**Our Dedicated
Ethernet**

The future is exciting.

Ready?



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Ethernet Services at a glance

A marked increase in organisations adopting Cloud, network-based business applications such as remote video conferencing, Office 365 and Salesforce.com promises smarter, more collaborative and affordable ways of working. For these new technologies to really take your customers business forward, Carriers need higher bandwidth, resiliency and scalability across the network.

Vodafone Ethernet Services deliver the fast and agile connectivity needed to stay ahead of the market.



Dedicated Ethernet

Dedicated Ethernet provides deterministic connectivity. It is delivered using standard Ethernet interfaces at 100Mbps, 1Gbps, 10Gbps or 100Gbps.

Dedicated Ethernet Optical

Point-to-point connectivity provided over Vodafone's optical transmission network supporting ultra-low latency and very high bandwidth connectivity.

Dedicated Ethernet E-Line

E-Line supports point-to-point and point-to-multipoint (hub and spoke) connectivity. Available as Ethernet Private Line (EPL) or Ethernet Virtual Private Line (EVPL).



Switched Ethernet

Switched Ethernet provides routed connectivity. It is delivered using standard Ethernet interfaces at 10Mbps, 100Mbps, 1Gbps.

Ethernet Wireline (EWL)

Ethernet Wireline provides point-to-point or point-to-multipoint (hub and spoke) connectivity to extend LAN capability between sites.

Switched Ethernet Virtual Private Network (E-VPN)

Ethernet Virtual Private Network (E-VPN) is an Ethernet LAN (E-LAN) service providing mesh or any-to-any connectivity over Vodafone's Global MPLS network.

Comparing our Ethernet Services

Dedicated Ethernet



Dedicated Ethernet provides deterministic connectivity. It is delivered using standard Ethernet interfaces at 100Mbps, 1Gbps, 10Gbps, 100Gbps.

Optical

Point-to-point connectivity provided over Vodafone's optical transmission network supporting ultra-low latency and very high bandwidth connectivity:

- Dedicated, high performance, uncontended bandwidth in multiples of 1Gbps, 10Gbps or 100Gbps
- Optical network links major cities in UK, Europe, US and Asia. With in depth local networks in 13 countries
- Diverse routing available with 5 protection options on each link element (access-core-access), to provide service availability to 99.995% (measured monthly)
- Support for interfaces including Ethernet, SDH, OTN, Fibre Channel & FICON

E-Line

E-Line services are provided over our new packet optical infrastructure. The connectivity maintains a deterministic route and the bandwidth is dedicated to the circuit provided.

- Granular bandwidth from 10Mbps to 10Gbps (access tails from 100Mbps):
 - From 10Mbps to 100Mbps in 5Mbps increments
 - From 100Mbps to 1Gbps in 50Mbps increments
 - From 1Gbps to 10Gbps in 500M increments
- Transparent to layer 3 protocols
- Multiple Class of Service (CoS) supported
- VLAN tagging and Jumbo Frames supported
- Performance monitoring options – self-service online portal
- Link Loss Forwarding

Both Dedicated Ethernet services feature:

- Ultra-low latency
- Multiple protection paths

Switched Ethernet



Ethernet Virtual Private Network (E-VPN) is an Ethernet LAN (E-LAN) service providing mesh or any-to-any connectivity over Vodafone's MPLS network. Ethernet Wireline (EWL) provides point-to-point or hub and spoke connectivity.

Ethernet Wireline (EWL)

Ethernet Wireline provides point-to-point or point-to-multipoint (hub and spoke) connectivity to extend LAN capability between sites.

- For point-to-point and point-to-multipoint connectivity
- Traffic type prioritisation
- MEF Certified

Ethernet Virtual Private Network (E-VPN)

Ethernet Virtual Private Network (E-VPN) is an Ethernet LAN (E-LAN) service providing mesh or any-to-any connectivity over Vodafone's MPLS network.





- For Mesh or any-to-any connectivity
- End to End performance reporting and monitoring

Both Switched Ethernet services feature:

- Granular bandwidths available from 1Mbps to 1Gbps in 1Mbps increments (access tails from 100Mbps)
- Two bandwidth service options:
 - Guaranteed bandwidth: Committed Information Rate (CIR)
 - Guaranteed bandwidth + burst bandwidth: CIR + Excess Information Rate (EIR)
- The Peak Information Rate (PIR) is the sum of the CIR and the burstable EIR
- Multiple classes of service supported
- VLAN tagging and Jumbo frames supported
- Multi-service demarcation: Managed NTE provides connectivity tests and optional performance monitoring and incident management diagnostics
- Link loss forwarding, supported as a default
- Multi Serviced Access Bearer (MSAB). EWL can be ordered/delivered over the same access bearer as an Internet link (DIA)

Is your network ready for the next wave of innovation?

Vodafone's range of Carrier Ethernet Services allows carriers to select Ethernet with the best characteristics and right options for their customers business needs.

Ethernet Service	Access Speeds	Presentation Type	Latency	Granular bandwidth	Topology supported	Deterministic?	CoS/QoS Support	EVCs	VLAN Support	Protection Options
 Dedicated Ethernet Optical	1Gbps, 10Gbps, 100Gbps	Ethernet SDH/OTN Fibre-Channel FiCON	Ultra low	✗	Point-to-point	✓	✗	✗	✗	5
 Dedicated Ethernet E-Line	100Mbps – 10Gbps	Ethernet	Ultra low	✓	Point-to-point; Point-to-multipoint (hub and spoke)	✓	✓	✓	✓	5
 Switched Ethernet Ethernet Wireline (EWL)	10Mbps – 1Gbps	Ethernet	Low/Variable	✓	Point-to-point; Point-to-multipoint (hub and spoke)	✗	✓	✓	✓	2
 Switched Ethernet Ethernet Virtual Private Network (E-VPN)	10Mbps – 1Gbps	Ethernet	Low/Variable	✓	Any-to-any	✗	✓	✓	✓	2

...and what does this all mean for carriers?



Benefit from a reliable and secure network

Taking advantage of Vodafone's global network and local reach, carriers can quickly extend their network. High speed dedicated connectivity is ideal for providing services to customers who expect instant video connectivity and high performance data centre access. Vodafone Carrier Services provides hundreds of new Ethernet circuits a month across the globe to other carriers, MNOs and cloud service providers.



Optimising critical traffic for Carrier customers

Ensure your critical sites are always connected with the performance and network quality you need, together with the availability to optimise business-critical traffic.



Achieve consistent high-quality communications

Make the most of an enhanced and consistent user experience across the network with a choice of access options, with bandwidth up to 100Gbps.



Future proof and flex your network infrastructure

We make it easy to add or change sites, and scale bandwidth access up as the business grows.



A service that supports all your needs

Switched Ethernet - reliable multi-routed global MPLS network with deep national capabilities and competitive access costs.
Dedicated Ethernet - high bandwidth, for vast data transfers with granular bandwidth options, low and fixed latency, deterministic routes with a suite of protection options.



Application Programme Interface

API for Ethernet Wireline – allowing carrier customers to automate quote and ordering process for single or bulk services.



Drive down costs

Vodafone Ethernet Services could help reduce network costs and complexity whilst increasing speed, flexibility and control.

Choose Vodafone Ethernet Services, for a more cost-effective, faster and fully secure solution.

Why Vodafone Carrier Services?

We're making substantial ongoing investment in our Ethernet Services roadmap, service experience, Global Packet Optical and MPLS network infrastructure.

Currently, Vodafone offers:

- 800 Global Optical PoPs supporting up to 10Gbps and growing to expand and support 100Gbps
- Global network coverage, depth and direct reach to 150 countries
- Top 10 global internet provider carrying 28Tbps of traffic
- Local access networks in 13 countries
- 73 subsea cable systems, 25 major routes
- A global IP backbone (AS1273) is connected to major internet backbones and content distribution networks. Carrying 12Tbps of customer traffic at any time, with a total capacity of 28Tbps. This makes us one of the Top Tier 1 IP network providers worldwide

We're not standing still

We are continuously enhancing our network infrastructure to grow our coverage and extend our services.

Global reach with local presence

We have greater reach and superior depth as a connectivity provider with local access networks in 13 countries – UK, The Netherlands, Spain, Italy, Germany, Turkey, India, South Africa, New Zealand, Greece, Romania, Ghana, Egypt.

True agile, dynamic connectivity and choice

Launched our Ethernet Wireline API in the UK, allowing carrier customers to automate quote and ordering process for single or bulk services.

Rollout of new Packet Optical Network across markets

Using new equipment we are able to offer granular bandwidth in steps from 5Mbps to 500Mbps, on Bandwidths 10Mbps to 10Gbps, across our Global Network.



Let's talk about how your business networks are coping now, and what you'd like to see from a single offering and a simpler, more cost-effective network in the future. Then we'll explain how Vodafone Ethernet Services can achieve that for you.

To get the ball rolling, please contact your Account Manager or get in touch at: carrierservices@vodafone.com

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