



WHAT IS A PRIVATE NETWORK?

Private networks are playing an increasingly significant role in enterprise connectivity. To take full advantage of the opportunity, it is important for providers and enterprise customers to establish clarity around what constitutes a private network.

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What is a private network?

A private network is a logically discrete cellular network, with dedicated network elements which can include operating functions, infrastructure and/or spectrum, that is customised to meet a customer's specific needs or user groups.

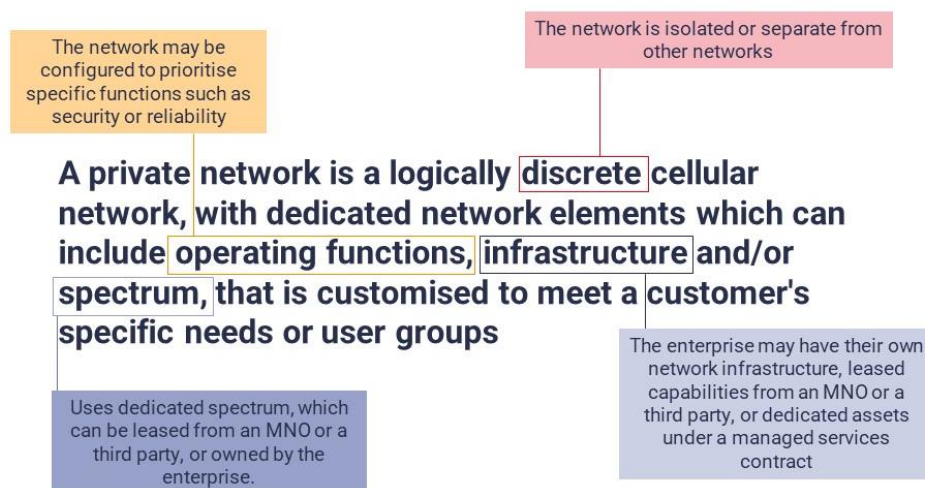
A private network must have the following characteristics:

- **Dedicated resources:** These can include the network infrastructure, platform and/or spectrum. These resources are not necessarily physically dedicated, but can be logically dedicated, as in the case of network slicing.
- **Dedicated user groups/SIMs:** Access is controlled and is limited to certain user groups. Users will have logically dedicated SIMs, which in some cases may be virtual.
- **Customised KPI's:** The private network is designed and customised to meet use case requirements that can't be met by best-effort public networks.

For a network to be classified as a private network it does not have to be entirely dedicated. For instance, the network functions may be dedicated but the spectrum used may not be. The makeup and geographical span of a private network can vary significantly. A private network can consist of a single radio cell covering a factory, or it can extend across a nationwide railway network.

We have chosen to keep our definition of a private network relatively broad to ensure that a range of different propositions, all of which can offer unique performance benefits to customers, can be categorised under the term. The different delivery mechanisms for private networks can be thought of as items under the private networking menu.

A private network is...



Source: STL Partners

Why we need a clear definition of private networks

Private networks offer a new mode of enterprise wireless connectivity. They offer unique capabilities that alternative technologies, such as Wi-Fi, Bluetooth and ethernet, cannot deliver. The benefits that private networks can offer enterprises include, enhanced security, reliability, coverage, control, mobility, and ultra-low latency, which can be tailored to each customers' specific requirements.

Enterprise customers are becoming increasingly intrigued by the ways that private networks can benefit their businesses. In turn, telcos and vendors recognise the significant revenue opportunity that private networks present.

Yet, on both sides; providers and customers, there is still a lack of clarity over what counts as a private network and the packaging of different propositions. In our report, [Private networks: A practical industry guide for manufacturing](#), we found that only 20% of manufacturers who believed they were using a private 5G service were doing so in reality. This lack of enterprise knowledge highlights the need for clarity around private networks. Better communication about solutions will ensure providers and customers can extract the maximum benefit from the private networking opportunity.

What terminology do major vendors/operators use?

We have chosen to use the term private network largely because this is the terminology that is most common among major operators and vendors. However, it is important to acknowledge that a whole host of similar terms are used to describe these networks. The table below outlines some of the terms used.

Breakdown of terminology used by operators/vendors

Term used	Operator/vendor
Private network	Verizon, BT, Telefonica, JIO, Nokia, Ericsson, Huawei
Private cellular	AT&T
Campus network	Deutsche Telekom
Mobile private network	Vodafone

Source: STL Partners

The range of terms used undoubtedly adds confusion to the topic, but we hope that this article can provide some clarity.

Is network slicing a type of private network?

Network slicing refers to the ability for an MNO to virtually segment its network to create discrete end-to-end networks (network slices) over common infrastructure. The fact that these networks are functionally discrete means that they can be categorised as 'private'.

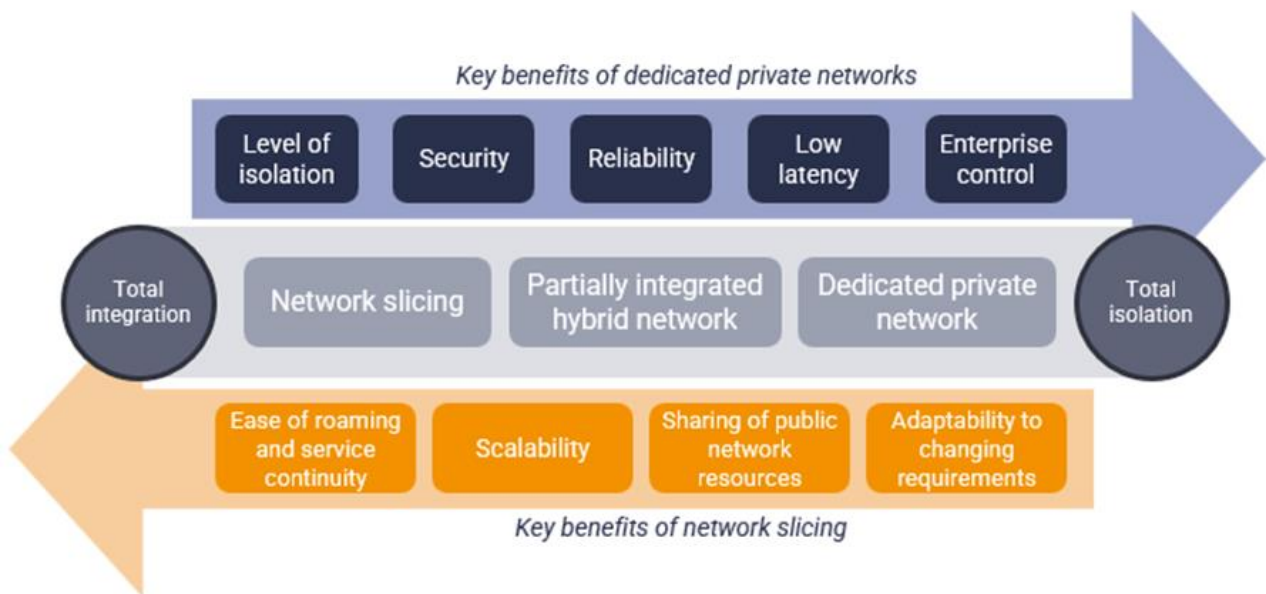
We consider slicing to be one of the many hybrid private networking delivery mechanisms. The level of physical and logical isolation in private networks varies significantly, as do the different combinations of spectrum, radio and core networking.

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Categorising slicing in this way helps to highlight the fact that network slices can be tailored to meet a customer's needs. The term 'private network' emphasises how a slice can be created to serve only specific users. It may also reassure customers with concerns about network security and reliability.

The figure below highlights the key benefits of dedicated private networks and network slicing. We expand on this in our article [Dedicated private networks vs. network slicing: How do they compare?](#).

Benefits of dedicated private networks vs network slicing



Source: STL Partners

Private network examples

There are many verticals in which private networks are currently being deployed. Leading verticals include ports, manufacturing, transport and healthcare.

A notable example of a private network deployment is BT and Ericsson's instalment of private 5G in Belfast Harbour. The aim of the deployment is to drive operational efficiencies and enable automation across the harbour. The performance benefits of 5G enable a whole range of use cases including air quality monitors, video surveillance and a digital twin. Read more about this and other port deployments in our article ['Top private networking providers in ports.'](#)

Ultimately, establishing clear lines around what constitutes a private network will benefit both providers and buyers, allowing all stakeholders to take advantage of the opportunity presented.

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