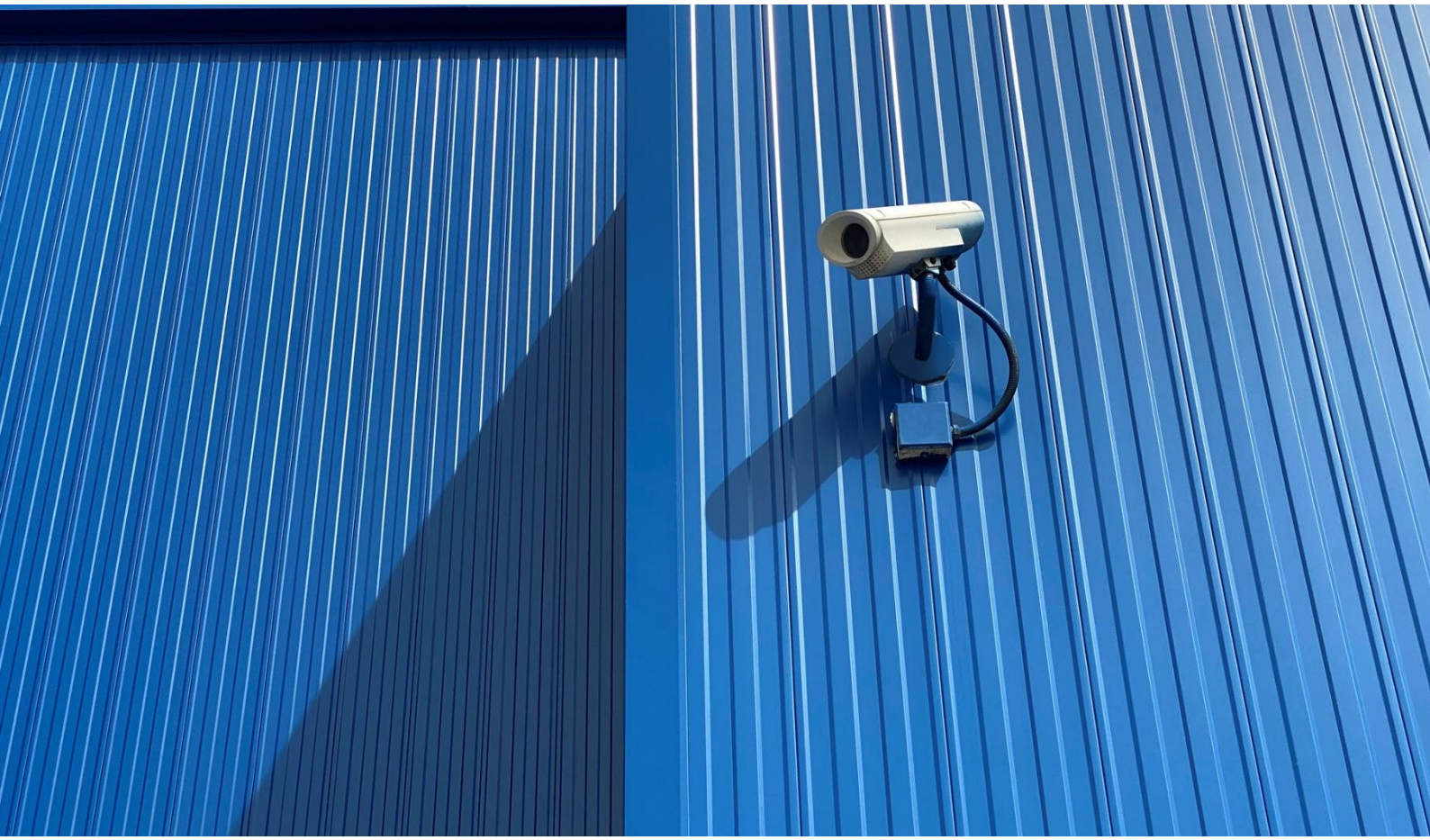

Why is private 5G the most secure form of enterprise connectivity?

Security is one of the most touted benefits for enterprises of adopting a private 5G network, but what is it that makes private 5G more secure than other enterprise connectivity solutions? This article covers why private 5G is so secure, and which industries will value this the most.

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April 2024

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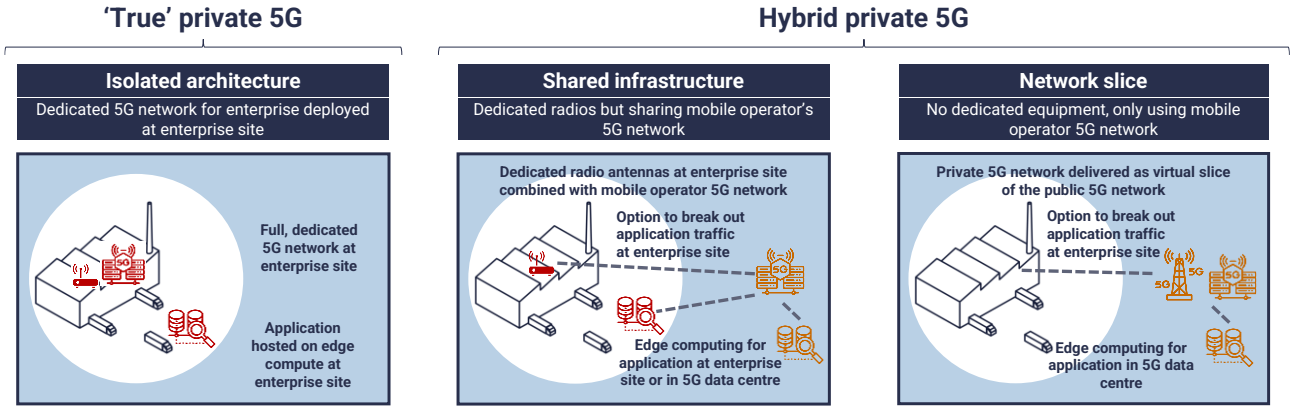
Are private networks more secure than other enterprise connectivity options?

The security of a private 5G network depends on the architecture and whether it is a 'true' private 5G network. At STL Partners we define a true private network as being an isolated architecture with the entire network hosted and operated by the end-user/enterprise on their own site. These are the most secure networks as the enterprise has full control of the network which is not connected to the public network, this massively reduces the risk of any security breaches. WiFi is the other main connectivity option for enterprises and it is significantly less secure than a private network, with hackers needing only the SSID (network name) and password to enter the network.

This physical characteristic of private networks greatly enhances the security and is a big driver for adoption of both private LTE and now private 5G networks. This is even more so the case when a private network, as is often the case, is combined with on-premise edge computing. As enterprises host both the connectivity and cloud infrastructure on their own site they have full operational control and a high confidence in their security.

However, not all private networks have this architecture – there are more hybrid models, for example an enterprise may share some of the public network infrastructure or may even take a slice of the public network (this is only applicable with 5G). For these other models security is lower, as the connection with the public network presents more attack planes and an easier route to a customer's data. This is why we define a 'true' private network as thus, and for enterprises it is the most secure connectivity option available to them.

Figure 1: private 5G has several different deployment models



Source: STL Partners

Is private 5G more secure than private LTE?

5G has some technical capabilities which make it more secure than previous iterations of mobile technology. As a much more software-defined network, it is much easier to spot potential threats to a network. As a result, if a bad actor managed to access a private 5G network they should be detected more quickly than with a private LTE network. 5G also encrypts more data than 4G or LTE which makes it more difficult to intercept any data if a network is accessed, anti-tracking and spoofing means that individual device connections are harder to manipulate. These features are particularly important as an extra barrier of security for running mission critical applications on private networks.

However, private LTE is still a very secure network option, and the variance in security for different types of private networks is greater between a true private network and a hybrid private network than it is between LTE and 5G.

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Which industries will benefit the most from enhanced private 5G security?

The security of private LTE was one of the main drivers for industries amongst the early-adopters of private networks. This, along with a lack of public network coverage, are characteristics which explain early adoption trends in oil and gas, along with other extractive industries like mining. Customers in these industries place a high value on security, and this only increases as they introduce more advanced technologies and process more and more data. Private 5G will continue to cater to the needs of industries such as this, supporting new applications in a highly secure way.

Manufacturing has been one of the key industries driving private 5G adoption and security is a massive factor here as well. Data security is important to protect from competitors as well as from other bad actors seeking to disrupt or learn from manufacturing processes. Other industries placing a high value on security include government, aerospace and transportation. If data is intercepted or devices can be manipulated this can have a huge negative impact and industries seek enterprise connectivity solutions which can guard against this. Private LTE was highly secure and provided network coverage for customers in remote areas, but now that 5G has enabled a whole host of new applications we will see more industries looking towards 5G as a solution and wanting the higher security afforded by a private network.

Matt Bamforth is a Senior Consultant at STL Partners, specialising in private networks, 5G, and edge computing.

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