



The private 5G edge opportunity: a deep dive on three use cases

Private 5G edge is a unique opportunity for enterprises to transform operations with new use cases, and for telcos to become a more vertical player with customers. We spoke to five innovative ISVs working within three use cases which we feel will drive deployments of the private 5G edge.

Miriam Sabapathy, Consultant

The private 5G edge provides a unique opportunity for both enterprises and telcos alike. For enterprises, the combined technologies offer the reliability and security benefits of private networks together with on-premise edge benefits such as reduced backhaul, data localisation and flexibility. For telcos, the private 5G edge provides a way to move beyond the role of a more horizontal player providing connectivity offerings, to a more vertical player who can address industry-specific use cases.

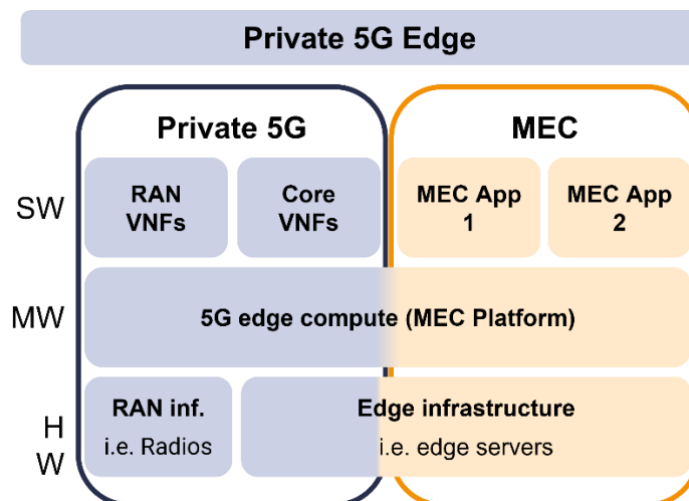
This article covers what the private 5G opportunity is and three key use cases that benefit from its combined capabilities. We also spoke to five ISVs working within these three use case spaces to hear more about their experience working within the space.

What is the private 5G edge?

As the name suggests, the private 5G edge involves the two main components of the **private 5G network** and the **enterprise edge**. The private 5G network uses dedicated operating functions and provides both secure and reliable connectivity. The enterprise edge, or MEC, hosts applications or use cases (e.g. advanced predictive maintenance) that the enterprise can run to improve their operational KPIs to drive automation and overall transformation.

Whilst private 5G and edge can be deployed separately, where perhaps enterprises have been on separate connectivity and cloud journeys, we are increasingly seeing the two technologies deployed together. In our previous research, enterprises are often deploying private networks and edge together in two major pathways: either to drive an enterprise-wide transformation or a drive to invest in network.

Figure 1: The private 5G edge



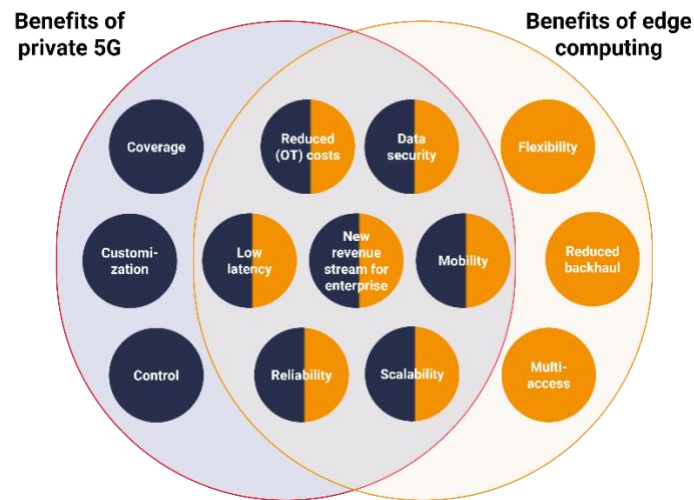
Source: STL Partners

The private 5G edge opportunity combines the unique capabilities of private 5G networks, such as providing better coverage, customisation, and control, and of edge computing, such as flexibility, reduced backhaul and data localisation. Furthermore, the combined technology enhances those benefits that both private 5G and edge computing bring, such as low latency, reliability and security, as the two technologies deliver them in different ways. Through a combination of the two, the private 5G edge provides dedicated capabilities that are more reliable, powerful, lower cost and future-proofed, alongside a reduced distance for data to travel

The private 5G edge opportunity: a deep dive on three use cases

facilitating real-time and data-intensive applications. The unique opportunity enables use cases that may reduce operational costs and in turn create new revenue streams for the enterprise due to the transformation and automation it steps toward.

Figure 2: The benefits of the private 5G edge



Source: STL Partners

The private 5G edge ecosystem is complex

Effective partnerships are critical for vendors looking toward offering these more holistic solutions to capture the private 5G edge opportunity. To offer these more holistic and vertical solutions, vendors must work across the value chain and ecosystem to find the various partners (e.g. app developers, telcos, hyperscalers, etc) required for the end solution. Most importantly, they must ensure that these partners are compatible for the end solution that will address the customer need.

We recently held a webinar about how to approach the complexity of the private 5G edge ecosystem and how to engage with partners effectively to work toward a more open business model, to scale the opportunity. [Click here to watch the recording.](#)

Three use cases will drive the private 5G edge opportunity

Three use cases that we see as drivers for deployments of private 5G edge are:

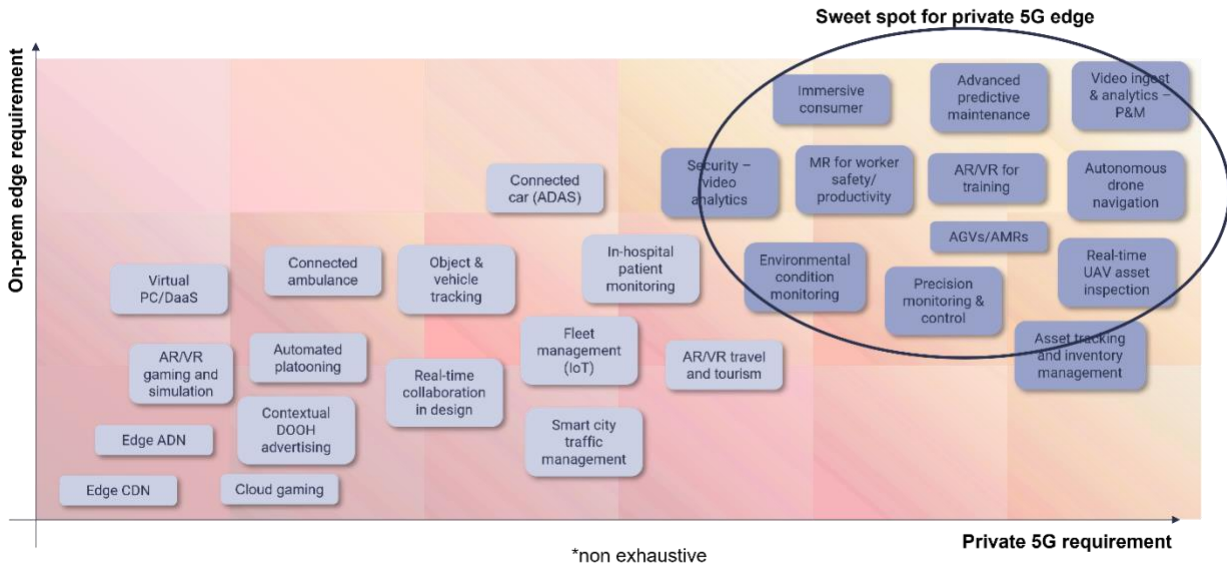
- Advanced predictive maintenance
- Video ingest and analytics for quality assurance/production and maintenance
- AR/VR for worker productivity, safety, and training.

These use cases reside in what we call the 'sweet spot' for private 5G edge which have both a high private 5G requirement and an on-prem edge requirement.

The private 5G edge opportunity: a deep dive on three use cases

© STL Partners

Figure 3: Sweet spot for private 5G edge use cases



Source: STL Partners

We spoke to five ISVs working across these three use cases to find out more about the industry and their experiences working across the complex ecosystem.

Advanced predictive maintenance

How it works

Advanced predictive maintenance processes data from sensors to assess its condition and performance of a piece of equipment to flag pre-emptively any required repairs. This enables a shift toward AI informed 'condition-based monitoring', and away from a fixed maintenance schedule, reducing unplanned downtime and future unforeseen machine failures. Data from a large number of sensors is processed in combination with machine learning/AI at the edge to accurately predict and assess the equipment's condition.

Why private 5G edge?

Advanced predictive maintenance requires large volumes of sensor data to be collected and quickly analysed in real-time and reliably. Private 5G edge provides the ultra-low latency and data localisation that is required for the real-time reporting of the asset's performance analysed by the large amounts of sensor data.

ClearBlade

Bio from the organisation: ClearBlade, Inc., is a privately held Internet of Things (IoT), Edge computing, and AI software company headquartered in Austin, Texas. ClearBlade's award-winning software connects millions of assets worldwide across multiple industries, including energy, transportation, and industrial. For more information about ClearBlade, Inc., visit www.clearblade.com.

- **STL Partners:** What are the capabilities you require/look for in a strong partner when working across the ecosystem?
- **ClearBlade:** We look for partners with vertical industry expertise, geographic presence, and deep technical capabilities in operational technologies. This specialized expertise is critical for configuring our software

The private 5G edge opportunity: a deep dive on three use cases

for advanced predictive maintenance, video AI, and AR/VR visualization applications. For example, our software is deployed in thousands of outdoor industrial environments that require specific knowledge to understand the details of the solution.

Atos

Bio from the organisation: Atos is a global leader in digital transformation and the European number one in cybersecurity, cloud and high performance computing. Working as a Systems Integrator, Atos provides tailored end-to-end solutions for all industries in 71 countries. Atos is an accredited leader in infrastructure and data management domains, IoT, big data & analytics with advanced analytics and cognitive solution capabilities as part of the Atos Codex Analytics offering.

- **STL Partners:** How have you found your role working across the ecosystem for private 5G edge solutions?
- **Atos:** For private 5G edge, Atos acts as a system integrator working closely with a big number of partners on integration and orchestration. In addition, Atos is a supplier providing private 5G network solutions comprising of BullSequana E edge servers, advanced AI based applications like Computer Vision and 5G private radio systems. Atos is in a unique position in this domain, and has put all resources needed to make private 5G happen.

Trilogy Networks

Bio from the organisation: Lack of standard methods of capturing and processing data from the ground makes current solutions limited, complex, expensive and while creating data silos discouraging adoption. Trilogy disrupts the market with a standardized platform that abstracts network technologies, simplifies data gathering and delivers it to the cloud in real time. FarmGrid, an award-winning platform delivers unified experience for food production and distribution market. ConEx™ Market, a digital solutions marketplace delivers a fully integrated digital solutions built through an ecosystem of global innovative app developers.

- **STL Partners:** What are the emerging ecosystem models you see being successful for navigating the private 5G edge ecosystem?
- **Trilogy Networks:** Marketplace models can accelerate rapid go to market for application developers. By working with other players across the stack, solutions can be packaged and templated. Enterprises looking at private 5G edge solutions benefit from the abstraction and standardization.

Video ingest and analytics for quality assurance/production and maintenance

How it works

Video analytics uses data provided by the camera streams alongside AI and analytics to provide real-time insights and actions for a variety of use cases. For example, video analytics can be used for production and maintenance to pre-empt production errors and potential product defects by monitoring the video feeds, and triggering automatic corrective action to mitigate any faults and reduce further defects. Video analytics can also be used for security surveillance, where it is used to monitor and detect any security risks or incidents and to trigger real-time actions and alarms as a result.

Why private 5G edge?

Video analytics requires the high bandwidth and low latency capabilities provided by the private 5G edge to process the high-definition video stream in real-time. Additionally, data localisation at the edge is essential to reduce the backhaul and to ensure that data is processed reliably and in real-time to trigger the automatic commands as required.

The private 5G edge opportunity: a deep dive on three use cases

Atos

- **STL Partners:** What are the capabilities driving the use of edge and 5G for video analytics use cases?
- **Atos:** Computer vision requires edge from the beginning as it needs the data localisation and low latency. Specific use cases might require 5G, which can mix network uplink and downlink to run more efficiently, but often 4G is enough.

AR/VR for worker productivity, safety and training

How it works

AR/VR use cases can provide virtual support to onsite workers to safely conduct and complete complex tasks such as maintenance and repair, in place of a remote specialist, by enabling critical information, parameters and instant hazard warnings as an overlay for real-time interactions. Alternatively, AR/VR may be used for employee training to provide critical information for complex procedures and operations of equipment.

Why private 5G edge?

AR/VR applications must be hosted locally rather than the cloud to ensure minimal lag for required user experience. It requires ultra-low latency and high bandwidth to reliably transmit the live overlay for the training or repair. Reliability is also a critical capability required, as this use case is often used in difficult and remote locations and also operating critical repairs on expensive equipment.

SummitTech

Bio from organisation: Summit Tech provides solutions for the telecom, tech, retail and entertainment sectors. We are specialists in designing, developing and delivering real-time communications and experiences for mobile and VR devices using telecom industry standards. Summit's Odience platform enables remote participation at live events by streaming high resolution 360 video while simultaneously showing users on video walls at the event. The experience is interactive and immersive with commercial application for live shopping, sports and music.

- **STL Partners:** What are the specific use cases that you are seeing being built over 5G and edge? What is the advantage over other connectivities?
- **SummitTech:** Delivering immersive virtual and real world experiences are use cases that will drive deployments of public 5G, private 5G and edge. These often have demanding compute requirements, need predictable low latency connectivity, and high data rates to deliver compelling user experiences. 5G enables far greater flexibility than fixed connectivity to support ad hoc pop up live events on location.

Aumenta Solutions

Bio from organisation: Aumenta Solutions offers solutions based on Augmented Reality technology aimed at industry, engineering and architecture professionals. Our developments provide solutions to unresolved issues with conventional technologies, increasing productivity and efficiency in fundamental business processes. Aumenta Solutions has a team of highly qualified professionals and technological partners that will offer you the most appropriate Augmented Reality solution for your company.

- **STL Partners:** How does the capabilities of 5G augment your application?
- **Aumenta Solutions:** The benefits of 5G are important, but having an option that can make connectivity faster is the main goal for us.

The private 5G edge opportunity: a deep dive on three use cases

Miriam Sabapathy is a Consultant at STL Partners, specialising in private networks strategies and deployments.

Get in touch with the author to learn more

miriam.sabapathy@stlpartners.com

Or visit STL Partners' Private Networks Hub

<https://stlpartners.com/private-cellular-networks/>