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# **HOW PRIVATE 5G IS TRANSFORMING ENTERPRISE BUSINESS OPERATIONS: LESSONS LEARNED FROM REAL DEPLOYMENTS**

Webinar: Questions and answers

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# How Private 5G is transforming enterprise business operations: lessons learned from real deployments

This document outlines the questions and answers received from the STL Partners and HPE webinar, 'How private 5G is transforming enterprise business operations: lessons learned from real deployments' which was hosted on Tuesday 25<sup>th</sup> October 2022.

You can watch the recording of the session, and also access the slides, using the [link here](#). We have included the following timestamps for the webinar recording:

- **01:16** for the introduction to our presenters and panellists
    - **Oded Ringer**, Worldwide Portfolio Strategy, Hewlett-Packard Enterprise
    - **David Gordon**, Consultant, STL Partners
    - **Dalia Adib**, Director, STL Partners
  - **01:53** for STL's presentation on "How private 5G is transforming enterprise business operations"
  - **20:10** for HPE's presentation on "How HPE solutions are already enabling enterprises with private 5G"
  - **40:15** for Q&A session
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*If you have any questions not addressed in the webinar or this Q&A document, or want to hear more about our research findings or from our speakers, please contact:*

- **Oded Ringer**, Worldwide Portfolio Strategy, Hewlett-Packard Enterprise, [oded.ringer@hpe.com](mailto:oded.ringer@hpe.com)
- **Dalia Adib**, Director, STL Partners, [dalia.adib@stlpartners.com](mailto:dalia.adib@stlpartners.com)
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# Webinar questions and answers

The below questions were received from the webinar audience during the live session. The first section includes questions and answers asked during the webinar and the second section includes questions that were not covered on the webinar.

## Live questions and answers

### **What technical skills are mandatory for 5G private networks? (e.g. security, virtualisation, slicing, core etc)**

*Oded Ringer, HPE:* These are skills that are required for the deployment. The skills that I mentioned were of day-to-day operations to the service and the network like adding a subscriber, configuring a new service, slicing etc. These are operational capabilities of cellular networks that we hardly see in enterprises, which provides a role to play for CSPs. Some enterprises grow these skills in house through training but CSPs can also offer these capabilities as an additional service.

*Dalia Adib, STL Partners:* I think the question is quite broad. One of the skill gaps that we've heard in research projects is a disconnect between the business problem and the technology. I think as private mobile networks is such a new domain, most of the time enterprises are unaware of what it means and what it can do for them. Even in some cases, like SIs, it's a new technology they need to understand, operate and deploy. It is important to link the use case to the business requirement. For example, monitoring and managing the quality of a production line has lots of steps before private 5G is the solution. That's the area which the telecoms industry can overlook- the telecoms technology industry is good with technical skills but not as competent with 'softer skills' required for Private 5G.

### **Regarding distributed private 5G for hospitals would it be possible to have one hosted, shared core network to manage different private networks?**

*Oded Ringer, HPE:* Yes, we do this. Not only multiple hospitals but also multiple customers. There is a CSP or systems integrator involved- meaning they have the network commission for multiple hospitals. They have a common multi-tenanted core in the cloud CSP or system integrator. They have a dedicated logical instance for each hospital or company. There is the part that is deployed locally at those hospitals, and these are dedicated but the control functions can be centralised in a common cloud and multi-tenanted structure.

### **How about roaming from private and public network? Any examples where Wi-Fi and private 5G exists as a single pain of glass?**

*Oded Ringer, HPE:* Roaming is always needed when it is connected users. The same people as employees, partners or customers of the enterprise have every day-devices and will roam between private and public network. This is handled normally just to ensure device is open for roaming. This is done conventionally.

*Dalia Adib, STL Partners:* We have explored some use cases that require this. For example, a drone moving between public and private networks at a manufacturing site. This could be more near term. Some of the use cases driving demand are what you might consider 'basic' e.g. tracking goods across a manufacturing plant. Equally, you would want to have visibility of these assets whether it's in transit or at a logistics site. Roaming between 5G and Wi-Fi seamlessly would apply the same principles to private and public networks. Today we have the ability to be able to view and manage your network with a single pane of glass but it's still early days to be able to switch 'seamlessly'. 3GPP and standards set around innovation might be a roadblock.

**With such a complex ecosystem with regards to private networking stack and automation, how will the network be validated to ensure it is behaving/performing as expected?**

*Oded Ringer, HPE:* The design is normally totally cloud native which means that every NF reports its stats to a common observability lake. As part of a private 5G and automation stack, we look at these means of analysing these metrics. The new design of cloud-native makes validation and service assurance simpler than it was before. It's no longer that you need to put different types of technology for different devices. You can collect them from the common observability repository that you manage. It is easier to collect data but the processes of analysing a problem and acting on it is where the smart functions sit.

**What are the key use cases where 5G can make a difference compared to other technologies like Wi-Fi or 4G?**

*Dalia Adib, STL Partners:* There is a debate on why 5G over other technologies. At least with some of the nearer term use cases, part of it is performance- clear latency and reliability improvements. Wi-Fi is evolving as well and is becoming more reliable as a technology. The key use cases will be ones that require that reliability. When you move from IT use cases, utilising non-real time data, and transitioning to the OT side, it becomes mission critical to collect that data and be able to act on it immediately. For example, in manufacturing it could be Automated Guided Vehicles- to be truly autonomous it needs to know what is around it at all times and if the network goes down it could hit an employee. Equally, as manufacturing starts to move to flexible working models where the compute is not on the machine itself and instead at the edge, it becomes mission critical because the robot has to adapt to what it's doing. Near-term these use cases are not mature so a lot of the time it is to be able to access greater bandwidth. Sometimes the comparison is between 5G and fixed so when you have these facilities it can be quite cumbersome to install a fixed network or to change how a fixed network is designed. Being able to go wireless and use 5G but have high bandwidth connections is where the value lies. The last advantage is coverage in comparison to Wi-Fi where there can be blackspots.

*Oded Ringer, HPE:* We are particularly seeing this last example [that Dalia mentioned above]. Coverage is important for a large facility with nomadic use cases and for this you need cellular. We are this coverage issue as a key driver of private 5G. Wi-Fi can be the cheaper option but when you want to connect a farm or huge industrial site you will need cellular.

**How do you [HPE] position yourselves as part of this ecosystem in relation to partnerships with telcos?**

*Oded Ringer, HPE:* HPE has had a longstanding relationship with telcos in the core, network and automation. We are very comfortable to work with telcos and offer solutions that they can implement at the enterprise. HPE is well placed with SIs and this is becoming more commonplace in the ecosystem. HPE is also very active in the enterprise space which is where we sell our Wi-Fi Aruba brand and now can add the private 5G model. The CSP is the most common partnership. We don't see hypervisors as particularly active and don't see them as a road to market- more as a hosting partner.

**What are some of the key steps that teams use to identify the use case with the end user and what are some of the biggest lessons learned from that exercise?**

*Oded Ringer, HPE:* The goals and objectives are always the application. No one deploys for the sake of 5G technology. Success is measured based upon the application you are serving. We are continually learning because it is a maturing technology so we're still far from being at a 'status quo' with this technology.

**What considerations should be made when deploying 5G in environments with existing Wi-Fi connectivity?**

*Oded Ringer, HPE:* You need to consider the people operating the existing system. Make sure the private 5G is smoothly integrated. Think about the devices, how do they connect to each network? How do you manage identities in a way that applies to both networks? Make sure each application is accessible by both networks- the user plane needs to be accessible between the two networks. As HPE is both a Wi-Fi and telco provider, we are being approached with these considerations all the time, perhaps more than others.

*Dalia Adib, STL Partners:* Sometimes we are fixated on Wi-Fi vs 5G when there are other networks in these facilities. Simplifying across networks is equally important. It goes back to the skills question, how are you able to use the skills that you have as a network provider in designing, deploying and managing the network while taking these burdens off the customer.

## Post-webinar questions and answers

1. **What do you see as the pros / cons of Licensed spectrum vs CBRS spectrum for private wireless deployments?**

**STL Partners:** The main differentiating feature of a CBRS licence is that an enterprise can access this licence directly. This could be a pro (greater control, not having to work with a licensed mobile operator) but also a con (cost of managing licence and working with spectrum). Depending on the type of CBRS licence, interference may become a problem, e.g. GAA licences do not protect from interference. For some use cases, the frequency band that CBRS vs. the licensed spectrum operates in may impact application performance (e.g. whether or not ultra-reliable low latency requirements are met).

2. **Given the cost and complexity of 5G, do you see enterprises adopting a 'wifi or fixed where you can, 5G where you must' type model?**

**STL Partners:** This is a good question as it rightly questions why enterprises would adapt 5G at all. Enterprises need to see the ROI from an investment into private 5G, meaning where wifi or fixed connectivity will suffice, they will not venture to deploy private 5G. That said, there are many enterprises who do see the benefit, such as in the manufacturing vertical where 5G is helping to fuel the move to automation and Industry 4.0, or in the entertainment vertical where 5G can support an enhanced viewer experience enabling new revenues.

### **How do you see the role of neutral hosts in private networks?**

**STL Partners:** Based on our insights into private networks globally (from our global insights tool), we are not seeing a significant role for neutral hosts in private network deployments. There is a significant challenge to telcos and other members of the private networks ecosystem in proving the value of private 5G to enterprises which would make choosing the location of network infrastructure equally as difficult for neutral hosts. There may be wholesale opportunities such as in the case of a business park for neutral hosts, but we are yet to see any mass commercialisation of this.

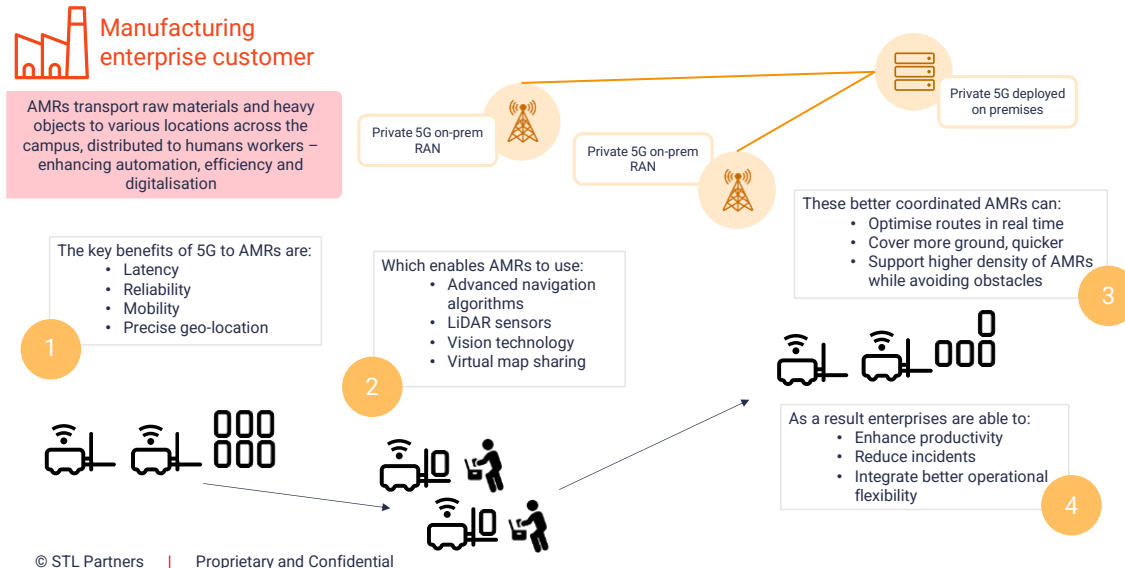
3. **What kind of use case would require Wi-Fi and cellular co existent? What industry would require it and what would be the benefit vs only cellular?**

**STL Partners:** The key point about the interplay between wifi and private 5G is not that there are use cases that will require both, but that where there is an enterprise leveraging 5G connectivity there most likely already exists wifi connectivity. For those ecosystem players deploying use cases and applications at enterprise sites, being able to connect them to both the wifi network and the private network will invariably be beneficial with one network acting as a back up for the other.

4. What function or feature is mandatory for mission critical use case on private network?

**STL Partners:** An example of a use case that requires private 5G is a highly intelligent and autonomous mobile robot use case. You can see the connection between the connectivity enablers of private 5G and the enhanced performance of the AMR in the figure below.

## 5G connectivity enables smarter, better coordinated AMRs that will maximise returns to the enterprise customer



5. Will telcos offer 5G private Networks only in service territory? Does economics change if in or out of territory?

**STL Partners:** Not necessarily and we are already seeing operators using private networks as a way to provide services outside their spectrum territory. For example, Verizon Business has a private networks offering in Europe and other regions. However, this is only possible in markets where there is the ability for others, outside the domestic licensed MNOs, to own spectrum. Economics would differ in and out of service territory, but this is more due to the ability to use the operator’s own core in-territory for distributed models, i.e. where the radio is on-site but the core is off-site (in telco’s core).

6. **Is the TCO of a Private 5G getting closer to Wi-Fi Deployment?**

**STL Partners:** TCO will often depend on the nature of the site, e.g. its size, whether it is indoor and outdoor and types of materials that may impact interference in networks. The cost of Private 5G will continue to come down as it scales and as competition for solutions ramps up with options that leverage open RAN using COTS infrastructure.

7. **What type of end-user devices are required to be used within a Private 5G? Shall all be 5G SA enabled?**

**STL Partners:** It depends on the use case and supply chain issues in recent years have partly contributed to slow availability of 5G devices. Device manufacturers, such as Zebra, are starting to launch 5G devices into the market.

8. **What do you see re demand for 5G SA Core vs NSA Core?**

**STL Partners:** It's very early to discuss demand for each. Most telecoms operators have not yet implemented SA core at scale, however we are starting to see real demand for the types of services it enables. Many operators who are providing 5G services are finding their enterprise customers often prefer using the public 5G network with some breakout mechanism (enabled by distributed UPF in SA core), rather than deploying a RAN and core on-site.

9. **In a 5G private network, there are different types of companies (HCP, SI, etc). Do customers prefer different types of companies depending on industry type? For instance, do manufacturing customers prefer SI or vertical solution providers for 5G private deployment?**

**STL Partners:** It can be influenced by the industry, for example manufacturing, oil and gas has historically been served by industrial SIs. However, our research shows that it is the pathway of adoption that has a bigger determinant. In other words, if the Private 5G deployment is driven by the networks team, then it is more likely that a telecoms operator would be the first port of call. However, if it is driven by the innovation team, it could be the application provider, and if it is part of a larger transformation project, then an SI and cloud provider could be a front-runner.

**Get in touch:**

*If you have any questions intended for HPE or would like to learn more about their private 5G solutions, please contact:*

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