



# **BUILDING THE TELCO EDGE: WITH OR WITHOUT HYPERSCALERS?**

Webinar: Questions and answers

# Building the telco edge: With or without hyperscalers?

This document outlines the questions and answers received from the STL Partners webinar, “**Building the telco edge: With or without hyperscalers?**”, which was hosted on Wednesday 1<sup>st</sup> September 2021. In this document, we seek to address the questions raised in the webinar that we were unable to address in the time available.

**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:

- **02:35** for the introduction to our presenters and panellists
  - **08:26** for the presentation of the research findings
  - **26:01** for the live panel session with:
    - Michael Tadault, Chief Technologist, Telco, Asia Pacific (Red Hat)
    - Dharma Simorangkir, SVP Enterprise Account Management (Telkomsel)
    - Kim Krogh Andersen, Group Executive, Product & Technology (Telstra)
- 

If you have any questions not addressed in the webinar or this Q&A document, or want to hear more about our latest research or from our speakers, please contact:

- Dalia Adib, STL Partners – [dalia.adib@stlpartners.com](mailto:dalia.adib@stlpartners.com)
- Michael Tadault, Red Hat – [ntadault@redhat.com](mailto:ntadault@redhat.com)

For more details on the research findings, stay tuned for the upcoming STL Report, “Building telco edge: why multi-cloud will dominate”, which will be published in October 2021.

# Webinar questions and answers

## 1. When asked about their preferences for which cloud provider they want to work with, CSPs in Asia responded quite differently to the other regions – they seem to be more open to a variety of partners, including AWS, Alibaba, and IBM. What do you think are the drivers behind that?

**Dharma Simorangkir, Telkomsel:** Operators in Asia do seem more open to a variety of partners. A few hyperscalers have been present in the Indonesian market for about 1-2 years, in terms of facilities and infrastructures. Some others have been aggressively entering the market. Right now, the focus in Indonesia is on moving from proprietary, dedicated hardware systems to the cloud. The reason why there are a lot of hyperscalers setting up data centres in Indonesia is because industry sectors have strict data regulations in Asia, such as mining, fracking, etc. That is phase one of Indonesia's strategy. Then, phase two will see hyperscalers moving to the edge.

**Kim Krogh Andersen, Telstra:** It has always been my view that we need to have a multi-cloud strategy. On one hand, Telstra has used different cloud providers for our own infrastructure, storage and cloud use. On the other, we have been a cloud provider to our enterprise customers for many years. We need to work with all of the hyperscalers in order to succeed, at least in my opinion. It is about which hyperscaler has the right application for the specific industries you are going into. Telcos need to build a multi-cloud partner ecosystem because you cannot just go with one partner – customers have their preferences for certain hyperscalers as well. It is about helping our customers to have that flexibility to pick and choose.

**Dharma Simorangkir, Telkomsel:** We did a survey recently in Indonesia on which hyperscalers enterprises wanted to choose. The result was “multi-cloud”, rather than a single hyperscaler. The banking industry, for example, host their core banking mainly on-premises, but they have their mobile banking application run by one hyperscaler, and other applications run by another hyperscaler. Given that flexibility and the fear of lock-in are the key concerns for enterprises, the natural answer is to go multi-cloud.

**Dalia Adib, STL Partners:** Part of the reason why the market in Asia is more open is due to the maturity of the cloud providers. Historically, you have only really had hyperscale data centres in Hong Kong, Japan, China and Singapore. Now, we are seeing the cloud providers only just start to move to new countries, such as Indonesia, so the market is still evolving. The other difference between Asia and some of the Western markets is the position of the telecoms operators – they are seen as a leading technology company with a stronger brand than the hyperscalers.

## 2. We see more and more CSPs moving to public cloud. How do CSPs prevent possible lock-in in the future and ensure they remain flexible and free to choose different options when transforming their networks?

**Michael Tadault, Red Hat:** When you choose a provider, there is always a risk of a lock-in. One of the values that Red Hat provides to enterprises is a cloud operating system that enables you to easily move workloads whether they are on-premises or hosted in public clouds (even at the edge). Over the

last 20 years, Red Hat has built Linux, one of the dominant operating systems for the data centre which is now widely accepted in the telco industry. We see the same needs in this new cloud world. In fact, we see Red Hat's OpenShift, which is an application development platform based on Kubernetes and containers, as an essential tool where you can get workload portability and independence from the footprint. Benefits of this include enabling enterprises to develop cloud-native functions on public cloud. With a public cloud-agnostic container platform like Red Hat's that can run on any public clouds, as well as on premises and at the edge, we give the enterprises the opportunity to reduce lock-in with a specific public cloud provider.

**Kim Krogh Andersen, Telstra:** As telcos, we have fallen short on having a disciplined architecture, and we have to deal with legacy networks. Additionally, we are slow because we are vertically integrated from the IT stack down to the network. We simply cannot win in this new future if we don't create a stricter architecture that is decoupled for resilience and security, and each layer needs to be partner-agnostic. We need disciplined architecture in order to adopt the agile way of working and ensure faster time-to-market. This means not having to test the entire value chain every time you want to implement a feature change for the customer. Additionally, telcos should take a multi-cloud approach to their own infrastructure, and this is something customer demand from our solutions as well.

**Dalia Adib, STL Partners:** Part of this is about having the ability to build infrastructure in a more modular way, rather than go for a single vendor approach. The reality is that historically, telecoms operators have often worked with a single vendor (for each domain) as it comes with benefits such as cost and simplicity. The fact that 5G is container-based by nature will help to avoid lock-in, as it is based on general hardware and software that should, in theory, make it easier to switch vendors in the longer term.

### **3. What are the key challenges for CSPs and their enterprise customers in adopting multi-cloud?**

**Kim Krogh Andersen, Telstra:** Adopting multi-cloud is a huge challenge because telcos are used to having a vertical, point-to-point integrated architecture. We need to have Network-as-a-Service where we don't put all of the intelligence into the core of the network, which makes it impossible for us to keep iterating and creating better experiences. Finally, we should leverage the hyperscalers' speed to change faster ourselves. COVID-19 has accelerated digital transformation for all the industries that we are supporting, whether it's retail or mining. As telcos, we need to know how to transform and change faster. It's all about us applying the hyperscalers' view at architecture, software, and not the other way around. Hyperscalers were pushing us away from having vertically integrated architecture with network equipment providers. Now, we have the same expectation of them to not lock us into vertically integrated systems when partnering with telcos and our enterprise customers.

**Dharma Simorangkir, Telkomsel:** From our point of view, telcos have three types of applications, from which we decide on the type of infrastructure is that we are going to develop. The first one is your typical network and IT core system. We now have standards for using network function virtualisation (NFV) and software-defined networking (SDN). Secondly, telcos are developing digital applications for

consumers that complement our telco offering. Thirdly, a big part of our business is providing enterprise applications, whether it is third-party or Telkomsel's own applications.

The question is, how do we decouple all of that? The ideal offering would be having modular, API-integrated resources that can be retrieved in real-time, on demand, and Telkomsel is moving towards this, but there are challenges in implementing it. The application providers themselves, for example the likes of Ericsson or Nokia and Huawei for network functions – they need to follow the standards we have for NFV and be able to provide SDN capabilities. This is the same as our enterprises. Oil and gas companies have proprietary, on-premises hardware for their distributed control systems (DCS), which takes about six to nine months from PO to installation. Telcos can deliver this much faster with NFV and SDN capabilities. However, there is no silver bullet – telcos need to work with enterprise customers to iron out the requirements for each application.

**Dalia Adib, STL Partners:** Skill is the primary challenge. On the CSP side, they are still in a transition from operating traditional telecoms networks to cloud-native (IT-like) network platforms. This is a new approach but will accelerate the move to new skills that can use cloud-native technology effectively. This change will also put CSPs in a better position to support their enterprise customers, who face similar challenges today but are often in industries at a more nascent stage of cloud adoption.

**4. Since edge is going to be an ecosystem play, who in the edge value chain, e.g. operator or hyperscaler, is going to orchestrate the ecosystem and provide managed services and visibility? What is stopping CSPs, who own the network, from becoming hyperscalers themselves?**

**Michael Tadault, Red Hat:** If telco service providers want to maintain control and get a bigger share of the pie they have to develop, nurture, control and know their own ecosystem. Of course, there will be bigger ecosystems but it is up to the telco service provider. You don't want to go to one provider who can give you everything because then you don't maintain your independence. To really keep control you need to nurture and develop your ecosystem. You might not have all the capabilities in house to develop these kinds of solutions but then you can use system integrators who can help you build and implement it. Overall, telco service providers should have a more active role in developing this kind of ecosystem depending on their customers and the segmentation.

**Dalia Adib, STL Partners:** The question about who will orchestrate the ecosystem will vary from by vertical and use case. For example, in some cases, the telecoms operator will take the service to the customer and take on the role of bringing in other partners. However, in other cases, it may be more appropriate for a systems integrator or local solutions provider to take that role. Telcos will need to build such an ecosystem to do this though and work with new types of partners they haven't in the past, e.g. developers and solution providers. Hyperscalers could play the role, but they are often reliant on third parties to provide the end-to-end service. They have an ecosystem of developers that are certified to use their cloud platforms, but that is only one part of the orchestration role.

**5. Is the CSP's role to be a platform enabler or an industry solution provider? Have you seen examples of operators leading the relationship with the customer needing a solution, which is then implemented by a system integrator partner?**

**Michael Tadault, Red Hat:** I've seen fixed service providers in Japan working with partners to offer video analytics solutions throughout their central offices, and they are offering the service directly to enterprise customers. There are models where the telco offers cloud computer services as well, either with or without hyperscalers. It is important to build an architecture where the telco is not too reliant on a single player, for example a hyperscaler, in order to retain control and independence.

**Kim Krogh Andersen, Telstra:** This is the core value of 5G and 5G-enabled industry solutions. At Telstra, we have Telstra Purple, which is Australia's biggest professional services business. You really need a professional service division, or partner with someone who do, in order to help these physical industries go through digital transformation. It's valuable for telcos to play in industry verticals and work with partners to create the full, multi-vendor value chain. On the private network layer, we tend to work with existing partners, like Nokia, Huawei, or Samsung. On the cloud, you will need to work with multiple hyperscalers. When you go up to the application layer, we have partnered with hyperscalers like Microsoft and AWS to create our own solutions for video analytics, digital twins, autonomous driving, etc.

In some industries, we will more or less only provide Network-as-a-Service in a B2B2X model; in others, we will be able to have bigger portions of that value chain. We need to create a decoupled architecture for each layer, rather than a vertical stack that is plug-and-play for an industry. Telcos need to have programmable interfaces in order to be a valid partner to others in the ecosystem. We need to create IP, capabilities, and programmable interfaces in order to have a right to play in the ecosystem and to partner with hyperscalers. If you don't have professional services yourself, partner with those who do. That's where the value is.

**Dharma Simorangkir, Telkomsel:** To win in this space, operators have to provide the infrastructure that enterprise customers need – on-demand, affordable and real-time. By infrastructure, I mean compute, storage and analytics capabilities. I think that the ecosystem should actually be built around the network. Operators in Indonesia are well positioned to orchestrate different parts of the ecosystem and provide these services to our customers. It's not about who leads or controls the ecosystem. It's about whether you want to put in the necessary efforts to integrate different ecosystems to serve the market. Telkomsel is part of the Bridge Alliance – our philosophy is to make telcos more relevant in the digital world.

**Dalia Adib, STL Partners:** CSPs could take either role and each comes with its pros and cons. They are currently more geared to provide horizontal services, however these require significant investment (to create a compelling platform) and the ability to scale (likely globally, which is not easy for a telco). The solution provider role allows the CSP to take a large proportion of the deal, but it strays into territories the CSP is less familiar with, e.g. compute, applications, etc. and requires a different type of investment, e.g. equipping the sales teams with the right tools and know-how to engage customers effectively on business-level topics.

## 6. What are your priorities to take edge computing solutions to market in the next 12 months?

**Dharma Simorangkir, Telkomsel:** We are having a lot of joint collaboration with the customers right now. For manufacturing, we are working with Schneider, state-owned enterprises, as well as oil and

gas companies. We want to start with the customers and look at how we can produce the most efficient economy of scale and get real benefits. Previously, we have tried starting from our infrastructure – setting that up, and then seeing what the customers will do – and that fails a lot of the time. Now, we have a good idea of where we need to invest, or where we need to build out, but before making a billion-dollar investment, we want to test out small use cases with different customer verticals first, and then scale up from there.

**Kim Krogh Andersen, Telstra:** For us, it is really about continuing to evolve our network and incorporating more advanced network slicing, so that we can create a service-defined, experience-based products for our consumer mobile and enterprise businesses. It is about helping industry vertical customers migrate from physical environments to cloud environments, providing private networks for those who need capabilities like resiliency and efficiency. On top of that, we have to work with our ecosystem partners like Azure, AWS, and Red Hat to scale these with use cases like video analytics and robotics. Our focus is to evolve this ecosystem and help physical industries become more efficient and more sustainable.

**Michael Tadault, Red Hat:** It is an exciting area, and we are just at the beginning of cloud computing adoption. In terms of B2B edge computing, every enterprise is learning to do analytics, machine learning, and AI – with the sheer amount of data that enterprises have to process in the next 10 years, they won't be able to do it on centralised public clouds. It will inevitably happen at the edge. It is going to be up to the CSPs, with the help of suppliers and regulators, to find out how this is going to unfold and what will be their share of the business.

## **7. Recently, NTT launched the first globally available private 5G platform. What is your take on this model?**

**Dalia Adib, STL Partners:** Very interesting play, but NTT is also in a position to do this given that they have an international business already, which not all CSPs have. Verizon has done something similar in that it is providing private 5G outside of its core market, the US. One of the challenges for these business models is whether the CSP is able to scale the know-how and skills of operating a mobile network in these international operations (given the expertise is in teams that usually work in the domestic market).

**Kim Krogh Andersen, Telstra:** Telstra will launch a dedicated 5G network solution - Telstra Industrial Network Solutions (TINS) – shortly that provides a private network experience as a managed service capability. This model allows customers to leverage a 5G network solution for their localised needs but takes away the challenge of building and managing it as a separate private network including spectrum handling, software lifecycle, subscription management and complex network configuration and optimisation. The benefit of this approach is that there is no requirement for the customer to procure spectrum, and network slicing can be enabled not only in the wireless access network but through the fixed network to deliver end-to-end QoS.

## 8. What is your view on charging the customer for these new B2B services, as time- and volume-based charging may no longer be useful or advisable?

**Dalia Adib, STL Partners:** This is another challenge CSPs are facing. 5G is different to previous generations and it is able to compete with fixed networks, as well as Wi-Fi and other wireless technologies. Although it does have unique characteristics, the economic model needs to be appropriate for the enterprise customer so they can see a clear rationale to use 5G (say for connecting their industrial equipment) as an alternative to Wi-Fi/fixed. If CSPs can generate revenue through the business value the solution brings (i.e. outside of just connectivity) then they will find it easier to charge for connectivity in a new way, rather than by GB/time-based.

**Kim Krogh Andersen, Telstra:** There are likely to be a range of charging models as the market and application architectures mature, and depending on customer preferences. We can see the emergence of a 'powered by edge' or 'better on edge' proposition which provides enhanced service levels and improved outcomes to customers, and to charge a premium for these. These could be based on static or dynamic network constructs. Depending on the service and the use cases, this may be realised through a combination of enhanced latency, performance, resiliency, bandwidth utilisation, and cost/operational outcomes for customers.

## 9. What are the key challenges for CSPs in implementing edge computing without hyperscalers?

**Dalia Adib, STL Partners:** The time it will take to go to market and the expertise. Telecoms operators have significant expertise in connectivity, but less in cloud and computing, although this is changing with network virtualisation. Nonetheless, cloud providers already have this. In addition, the hyperscalers already have an ecosystem of customers (developers) who use their cloud platforms, whereas a CSP implementing edge on its own would need to develop this from scratch. CSPs do, however, have strong relationships with enterprises which could be their first customers for edge, plus they are experienced in managing a highly distributed network of infrastructure, which puts them in a different position to hyperscalers.

**Kim Krogh Andersen, Telstra:** CSPs have existing solutions and operational models, such as managed network devices/solutions, that can be extended to support edge computing constructs. Some of the challenges that are being addressed at the moment through forums such as 5GFF are the current lack of standards, the relative maturity of vendor solutions, and the investment required to develop and/or integrate HW and SW. It will also be important for CSPs need to develop and mature engagement with ISVs and application developers.

## 10. Do you think ISVs like Red Hat and VMWare will have a significant role in telco-hyperscaler partnerships?

**Kim Krogh Andersen, Telstra:** Working with an ecosystem of ISVs to enable and optimise applications at the edge will be a key component of a successful edge strategy. This ecosystem will



need to encompass software providers across platform systems, , video, analytics, IoT and enterprise systems and applications.

### 11. How you differentiate between on-premises MEC and private 5G? How can operators maintain their dominance or control when it comes to hyperscaler collaboration?

**Dalia Adib, STL Partners:** In a nutshell, on-premises MEC refers to (on-premise) compute that processes third party applications, whereas private 5G infrastructure will only process the network function requires to run the private network.

**Kim Krogh Andersen, Telstra:** 5G is designed to take advantage of edge compute and edge applications supporting many features to handle selection of the best edge environment and local traffic handoffs. The combination of these technologies is what we see as being powerful capabilities for many emerging products. It is important that CSPs work with Hyperscalers as well as ISVs to enable this ecosystem to emerge for the benefit of everyone and that is why Telstra is one of the founding members of the 5G Future Forum (5GFF) that seeks to bring this ecosystem together in a globally standardised way. The importance of the network is critical for future network edge services and the need for the end to end application experience over the network domain and hyperscaler domain is a continuum that must work together to realise the customer's application needs whether that be latency boundaries, throughput needs or other geospatial restrictions/guardrails.

### 12. What would be the role of towercos in telco-hyperscaler partnerships, as towercos are also keen to offer neutral host services to monetise their assets?

**Dalia Adib, STL Partners:** As you hinted, they can provide the real estate (towers) where compute would reside. We are not seeing many instances of edge computing at the towers yet, however. Most of the telco-hyperscaler partnerships are focused on locations such as aggregation points in the transport network.

**Kim Krogh Andersen, Telstra:** Towercos are likely to see a medium-term opportunity to build small scale DC capability at some sites, noting that many sites will be unsuitable. Depending on network architecture, there is a potential for telcos to leverage these sites as a deployment option for customer or network edge services.

### 13. Are CSPs ready to deploy a fractal edge network with distributed core and RAN functions running as VNFs on a common server along with content provider application, as this will bring significant cost savings to telcos and can improve efficiency in telco operations? If not, what is stopping them to do that today?

**Dalia Adib, STL Partners:** I believe that was the initial vision for MEC, however part of the reason why this is not happening today is because there are (perceived) risks to doing this. For example, telecoms operators' requirements for uptime of the network are more stringent than some content providers'. Security is another concern; they are hesitant to put applications on the same infrastructure as the network functions.

**Kim Krogh Andersen, Telstra:** Distributed architectures may emerge based on maturity of 5G SA deployments, and be determined by considerations such as density, distance and capital requirements. While consolidating distributed core/RAN and applications workloads on common infrastructure could in some cases deliver efficiencies, there is a risk of complicating operations and creating resource conflicts and impacts to core network operations that need to be considered.

# PARTNERS



Research



Consulting



Events