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MAKING NETWORK SLICING A REALITY: HOW SHOULD TELCOS TRANSFORM

Webinar: Questions and Answers

Making network slicing a reality: how should telcos transform?

This document outlines the questions and answers received from the STL Partners and Volt Active Data webinar, **Making network slicing a reality: how should telcos transform?**, which was hosted on Tuesday 15th February 2022.

You can watch the recording of the session, and also access the slides, using the link here. In this document, we seek to address the questions raised in the webinar as well as questions that we were unable to address in the time available.

The presentation is based on insights and findings from 17 interviews with telcos, vendors, and application providers across Europe, Asia Pacific and North America. **We published the in-depth report on the impact of 5G on IT systems based off this research earlier this year. The report can be found here.**

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 panellists, please contact:

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Please note: Since this webinar took place, VoltDB has changed its name to Volt Active Data. If you are interested in learning why, please see an explanation around their renaming in **this blog post**.

When do we envision network slicing being available in a production environment?

Patrick Montague-Jones, STL Partners: Widespread network slicing in a production environment is likely to be at least 2-3 years away – many PoCs, however, are ongoing in lab environments. Each country will have its own timeline related to this, and the timeline will be dependent on 3 key factors: regulation, technological readiness, and people readiness. To begin 5G programme scaling in earnest, operators need spectrum to be available in the country – regulators have the power to assign spectrum (based on an auction or quotas). In many countries, the spectrum assignment process has not yet started. From a technical perspective, the full power of 5G and network slicing requires a standalone 5G core, with scalable cloud-native network functions. Many operators will opt to begin offering services from a 5G non-standalone core, leveraging existing 4G infrastructure, before transitioning to a standalone core. Finally, operators need to organise themselves in an Agile manner to deliver the most value for customers in network slicing. Cross-functional, interdisciplinary teams (IT, OT, Product, Strategy) will be key drivers to an efficient pathway towards offering network slicing.

Can network slicing work in 4G/LTE networks?

Reah Jamnadass, STL Partners: The dynamic network slicing that we discussed in the presentations is very much a 5G standalone capability, because it depends on the flexibility of cloud native. However, 5G slicing is a nascent area and will not be a fully-fledged solution for a few years yet. There are deployments and tests being run for slicing over 4G, but that is more of a basic isolation of a service over common infrastructure. Whereas 5G slicing is more about tailoring the network and customising it to meet the specific quality of service demands for individual services or customers.

How does Volt fit in to enable Private LTE architectures?

Dheeraj Remella, Volt Active Data: A private LTE/5G network is, in contrast to a network slice, specifically built for an enterprise or an organisation. This network is not shared with others. While this does decrease the complexity involved in network slicing, it does require a dedicated capital expenditure on the part of the enterprise to set it up. Once the network is setup, there are two things that need to be in play: policies and security. Additionally, in some cases, depending on internal charging model, there could be a "billing" component which could be used for tracking utilisation by processes and lines of businesses. In all these cases, there is a lot of user data and network data that needs to be processed and analysed to ensure the maintenance of quality of service. This is where Volt plays a very strong role. Volt, being a data platform that can take in data at millions of events per second and apply business logic to drive decisions and actions, is widely used for applications like real-time dynamic policy management, network intrusion detection/prevention, DDoS attack prevention, IoT authentication and authorisation. This is just on the network side of it. The enterprises that are utilising the private LTE can also leverage Volt's offering within their business processes. After all, data is only as valuable as the decisions and actions it enables.

In such a complex billing/charging environment, how will revenue assurance work and disputes be resolved?

Dheeraj Remella, Volt Active Data: Billing and charging does get complicated, especially when multiple partners are working together to provision a usage-based infrastructure. The key point to remember is that charging, revenue assurance and disputes/resolution all stem from the same data: the usage data. It is important to be able to capture all the relevant usage data for the pertinent period. While the data is used in real-time, the raw data is useful to establish context, make decisions and take actions. Once the real-time value of the data is complete, the auditing can be done on an aggregated basis by broadly splitting the data to be either normal or representing an exception. This will allow disputes to be resolved by looking at the exception data to understand what SLAs were breached and what effects these breaches have created. In an ideal environment, the real-time decisions and actions automated, based on a combination of static baseline rules and dynamic machine learned rules, will reduce SLA breaches significantly, thus reducing the possibility of disputes.

Is there a way to create network transparency and data exposure with legacy systems plus an overlay? Are entirely cloud-native platforms mandatory to create that network control and visibility?

Dheeraj Remella, Volt Active Data: If the goal is just to create network control and visibility, then exposing network data via API could get you to the first step. Once you take into account the need for agility, dynamic scaling and introduction of new policies, deployment of cloud-native microservice architecture becomes much more important.

From an end customer perspective, how aware are enterprises of slicing technology and its potential benefits?

Reah Jamnadass, STL Partners: I think there will be benefits for operators in educating enterprises on what slicing can enable. For example, the ability to meet more advanced and mission-critical use cases and how slicing fits into the private networking portfolio. It is also important that operators think about enterprise concerns about network security and reliability. When we have spoken to enterprises, they have expressed significant concerns regarding security breaches, non-malicious failures and bandwidth issues across slicing. The education should centre around use case enablement and alleviating enterprise concerns.

Are there particular customers/segments that at Volt you see are grappling with the best way to transform?

Dheeraj Remella, Volt Active Data: Volt has been heavily involved with customers from manufacturing, retail (e-commerce and brick and mortar), insurance and telecom BSS/OSS OEMs. Some of the use cases we have been looking to enable are payment processing, hyper-personalisation, customer value management, network security and bot-attack prevention, among others. While our BSS/OSS partners have made the most progress in their transformation journey, we are now seeing our customers in manufacturing, brick & mortar retail and the customer value management space making good progress in their business process modernisation and data-driven transformation.

What is the potential of network slicing for residential and small business customers?

Patrick Montague-Jones, STL Partners: There is significant potential for the residential and small business customers. They will be able to experience the same benefits as large enterprises, but are likely to have to wait a while. Operators seem to be targeting large enterprises heavily in the initial roll out of 5G services, perhaps as it is perceived as a quicker win. Operators will be able to create dedicated network slices for residential customers for a range of use cases to ensure a specific quality of service. Deutsche Telekom has been trialling network slicing for cloud gaming in a lab environment with Samsung. It is also possible that slices could be used to monitor smart home devices critical for resident safety (e.g. smoke alarms, security alarms).

Dheeraj Remella, Volt Active Data: Network slicing can be utilised for geographically localised settings, such as a residential building or a small business building. On the other hand, a better solution could be just going with a fixed wireless access model. It comes down to whether the entity, residential or small business, is looking for a higher-level control on the network access or just looking for better connectivity options.

Dalia Adib, STL Partners: We are early stage now for network slicing, but once we see real commercial models evolve it will become more interesting. Network slicing could be more compelling than private, dedicated campus 5G networks for small business customers. These customers may not need such a high level of control, but still want to prioritise data and application workloads and benefit from a secure network. Their network budgets are much smaller than large enterprises and they may not have the skills to manage a private network centrally. Another consideration for small businesses is spectrum availability in densely populated urban areas. Spectrum for dedicated networks is a finite resource and therefore acts as another inhibitor for small businesses to look to private networks.

Are there any models where non-mobile network operators provide network slicing?

Patrick Montague-Jones, STL Partners: Yes, absolutely. This is likely to be heavily dependent on local 5G regulation, but it is possible. In Germany, the government has allocated a tranche of spectrum for industrial use cases. Enterprises, or even systems integrators, may acquire this spectrum and create slices for specific types of traffic. While many enterprises themselves are unlikely to programme the network without any assistance, some enterprises have dedicated network teams and may look to do this. In the case of systems integrators, they could offer slices to a specific customer or slices across customers.

How big a pain point is network orchestration for telcos?

Dheeraj Remella, Volt Active Data: With the advent of 5G and E2E softwarisation of network functions, network orchestration is a very important yet a challenging aspect for telcos. The main challenges come from the dynamism a cloud-native environment introduces. In addition, the possibility of the dynamic changes needed in policies, IoT deployments create a challenge around the real-time needs of the policy management for network orchestration. Volt has been used extensively in these areas due to the data platform's ability to perform complex decisions in very low latency manner while scaling horizontally meet the scale needs and the ability to incorporate machine learning-based rules into the active decisioning thus allowing the decision-making process to evolve with changing conditions in the network.

The concept of slicing seems to apply to 5G SA. How does it relate to fixed-mobile convergent services? I am not thinking specifically of FWA, but of the strategy to provide slices over multiples access types?

Dalia Adib, STL Partners: Many operators are planning to include both fixed and wireless networks under network slicing. 5G SA core is, for some, an enabler to accelerate fixed-wireless convergence and use the 5G core to manage both types of networks, rather than separate cores for each. In this case, it makes it much easier to then implement slicing that is network-agnostic, otherwise we would anticipate a trajectory whereby slicing is only in mobile networks for the initial roll-out, then incorporate fixed networks as a second stage.

Can the Industry Verticals wait for CSPs to enable 5G SA as opposed to private 5G and edge enablement?

Patrick Montague-Jones, STL Partners: As mentioned above, it will take time for widespread roll-out of network slicing offerings. It should be noted that deployment of a private network is not likely to be particularly rapid either. True Private 5G, with dedicated spectrum, on-site servers and access points will require significant investment, for both initial purchase and ongoing maintenance. This may well achieve secure 5G connectivity more quickly that waiting for network slicing. Before making any decisions, enterprises need to understand the outcomes they are looking to drive and the business case related to either of these options. They also need clarity on whether there any new outcomes or sets of use cases that they must enable immediately which their current network could not support.

We published an in-depth report on the impact of 5G on IT systems based off this research in January 2022. The first two chapters will focus on key 5G opportunities and challenges presented for billing/charging and policy control systems. All registrants to the webinar can find the report here

Get in touch with our panellists to learn more:

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