Unlocking the data path from 4G to 5G is easier said than done (Reader Forum)

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Mobile operators have found themselves in a tough spot with 5G. For many, their legacy subscriber data management systems can't provide the capabilities they need to monetize and access services as they make the gradual shift to 5G. That's because, in order to launch new services like network slices across public and private networks, operators need to be able to access application, profile and subscriber data with low latency across several different sites in a decentralized way and effectively manage their interworking with 4G.

Without this level of agility, or a "common network layer," operators can quickly find themselves bogged down with duplicate and fragmented data. This makes onboarding new services cumbersome and the rollout of new services far more difficult than it needs to be.

The visibility challenge

If there's one thing operators need to rapidly roll out services and provide a competitive package to consumers and enterprises, it's the ability to see and manage data seamlessly across data silos. Despite the imminent rollout of 5G, this is still a surprisingly common problem for operators in 2021. Many operators have to grapple with vendor lock-ins and lack the sufficient control of their own data when transitioning from 4G to 5G.

Either they stick with a legacy 4G system, which makes transitioning to 5G slow and cumbersome, or they invest in 5G but lose the agility anyway because they still need access to application and subscriber data on the 4G layer. It would appear to be a lose-lose scenario for operators, and it's preventing many from realizing the true potential of both 5G and data. In a 5G cloud-native solution, applications must be allowed to be stateless and separated from the processing of the data. Surely a new approach is needed.

Until very recently, there haven't been any meaningful attempts to bridge this visibility gap. Most operators simply haven't had a comprehensive cross-silo view of data to help them optimize their return on 5G investment. What's needed is a common network data layer architecture that spans legacy and 5G systems, allowing control and user plane functions to write and update data to a common layer while also making it accessible anywhere in the system.

Living on the edge

Of course, data visibility isn't the only challenge facing operators in 2021. Yesterday's technology was designed and built in a way that only required data to be stored in large, centralized databases. It's not scalable by its very nature, requiring services at the edge to constantly make multiple paths back to the core just to get whatever data they need to function. Naturally, this results in latency and accumulated delay that undermine the very purpose of edge computing.

A chain is only as strong as its weakest link, and it's this weak link that is holding 5G back from achieving its full, *real* potential. It perpetuates a legacy pain point that makes it difficult for operators to introduce new services where changes need to be made and echoed in different parts of the network — simultaneously.

To address the issues outlined above, both in terms of data visibility and data access, operators need to embrace new data management systems such as a virtualized schema that allows full interoperability with 4G systems and the 5G core. Being able to access multiple data sources, which is crucial when it comes to synchronicity and resolving latency issues, will create a more harmonized data layer for operators to work with. Given that 3GPP Release 16 stipulates the separation of 5G functions and 5G data, service providers are thus able to consider the best choice based on their direction and vision. What's more, such solutions can cut hardware total cost of ownership (TCO) by up to 50% and support operator sustainability initiatives to drive their green agendas.

Given issues with vendor lock-in, which is arguably holding this kind of innovation back, operators will instead have to turn to a virtual overlay or edge-based schema that will allow for secure, reliable read-write capabilities from the core to the edge. Only then will operators have a 5G core system that gives them complete control and visibility over their entire data ecosystem, allowing them to focus on 5G-driven innovation instead of risk management and damage mitigation.

Such a system can drive revenue growth and deliver on virtualization's true promise — 5G devices that can access a 5G system any-time, any-place that is fully interoperable with seamless 4G interworking. Some operators have struggled to achieve this and complain that 4G vendor lock-ins have stifled their innovative capabilities. Let's not repeat the same mistakes with 5G.