Bringing Visualization to Virtualization: How Operators can Claim Back Ground from OTT

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The telecoms industry has changed dramatically over the past ten years, with mobile service providers' voice and messaging revenues being eroded as OTT players come to dominate the landscape. According to a recent study, operator-billed mobile voice revenues are set to fall by almost half over the next five years, from $354 billion to $197 billion, as a result of the widespread adoption of OTT messaging and VoIP services.

As a result, more competitive mobile service providers have moved to unlimited data plans, forcing larger, more established operators to change and offer unlimited packages and data-driven business models in an effort to keep up.

Unlike born-in-the-cloud OTT players, such as Skype and WhatsApp, however, operators have historically lacked the infrastructure and processes they need to survive in this new digital environment. If they are to remain competitive, they must completely disrupt their networks. Shifting functions to the cloud is now the only way for operators to achieve the agility they need to keep pace with OTT service providers and to create the cost savings they need for future investments in their networks.

Operators are therefore increasingly turning to virtualization, migrating their IP networks from purpose-built to virtualized, software-based platforms. Many are adopting network functions virtualization (NFV) and software-defined networking (SDN) as a means of boosting efficiencies, launching services faster, and supporting a wider range of applications. Implementing these technologies will enable traditionally complex, rigid and inflexible networks to evolve into something significantly more dynamic in which existing services can be changed 'on the fly.' By offering operators this greater degree of flexibility, these new virtualized architectures enable them to effectively scale up and down in order to meet rapidly changing capacity requirements which, with 5G pending and the IoT rapidly taking off, will become increasingly important as data demands continue to grow.

These new virtualized networks are increasingly complex, however, and their relative immaturity is currently serving as a barrier to full-scale NFV adoption, presenting operators with a wide range of new challenges.

The need for visibility

Operators are faced with having to keep track of everything that's happening on their newly virtualized network once they have deployed new virtual network functions, such IMS and VoLTE, and new infrastructure, such as cloud-RAN and Mobile Edge Computing (MEC), needed to support 5G and IoT requirements. It is essential for operators to have visibility into this increasingly complex environment—into both public and private cloud and all points in between—if they are to identify and resolve past, present and future problems. After all, you can't fix what you can't see.

When you consider the wide range of mission-critical services that now rely on the delivery of seamless connectivity, there has never been a more important need for visibility into every aspect of an operator's network, from the cloud to the core and the physical to the virtual. Even a single moment of downtime could have serious consequences, especially when you consider what could happen if an autonomous vehicle, a power plant sensor, or a remote heart monitor lost its connection to the network.

It's not just extreme cases such as these that demand seamless connectivity either. Businesses and consumers depend on calls and data sessions being successfully processed. If these fail, operators could face customer complaints and loss of revenue.

Achieving this pervasive visibility requires operators to have insight into the "North and South" and "East and West" traffic of their multi-level networks, and the ability to see exactly what's happening for every one of their subscribers. In order to quickly identify and rectify any issues before they make a negative impact, operators will need to receive information in real time.

Smart data, insight and intelligence

The increasing volume of data processed by mobile operators today makes it challenging for them to quickly and efficiently identify the right information amid all the noise. What's more, the data is both structured and unstructured, and generated by internal and external sources, creating complexity that further complicates matters. Although operators rely on vital intelligence gleaned from this data to optimize the subscriber experience, few are able to manage it with the necessary speed, fidelity and quality.

To overcome these challenges, more forward-thinking operators are now utilizing smart data. Prepared and organized at the point of collection, smart data is ready and optimized for analytics at the highest possible quality and speed. By extracting all the important information from all of the IP data that crosses the network—in real time—it arms operators with the actionable intelligence they need to identify issues and optimize their infrastructure in line with traffic demands. And smart data can be especially cost-effective when used with virtualized instrumentation that can be pervasively deployed throughout the network.

The actionable intelligence that smart data provides will become even more valuable as operators virtualize their networks in preparation for 5G. Bringing with it a wealth of new use cases and technologies, and fragmented standards around how virtual network functions (VNF) are introduced and orchestrated in the network, the next-generation technology is full of unknowns. As they enter largely uncharted territory, operators will be forced to guess at the best way forward. And with analysts predicting that the number of IoT devices in use will reach 125 billion by 2030, and with no past precedent from which to work, the future only looks to be more challenging.

With so many devices on the network, the only way that operators can know if they are functioning as they should is through pervasive visibility and smart data insights. Together these will be key in providing additional valuable information into how the devices behave and how they consume network resources.

What's more, smart data is also network-, vendor-, service-, and device-agnostic and supports all technologies and standards. This will prove hugely beneficial in a time when different service providers are taking different approaches to the introduction of VNF and backing different low-

power wide-area network technologies for the IoT. Operators with the ability to adapt to a rapidly evolving market will be better able to quickly scale up to meet the demands of their subscribers.

Virtualization bringing operators forward

Challenged with tackling the disruption to their business models posed by tough competition, operators have recognized the enormous potential for NFV to transform their networks, to become far more flexible and agile and empower new services. As operators continue to virtualize their network elements and move network infrastructure closer to the edge, harnessing NFV and cloud to deliver new services and support the demands of 5G and the IoT, the need for visibility becomes more abundantly clear.

Through the analysis of smart data, operators will be able to monitor the entire breadth and depth of their networks, both physical and virtual, to assure the ongoing quality of their service delivery. Only through leveraging smart data can they gain the visibility and insight they need into each and every element of the network—no matter how new or complex—that will enable them to successfully deploy NFV strategies and, thus, successfully digitally transform their business models. With the ability to see, secure, and optimize their network, mobile operators can now begin to claim back the ground lost to OTT service providers.