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Speed up network innovation with NFV

How carriers can optimise their NFV journey, minimise project risks and bring new, value-added services to market faster

Building an effective Network Function Virtualisation (NFV) strategy isn't just for the largest carriers who have the resources and skills to test and deliver NFV in house. Working with expert, vendor-independent NFV partners, mid-sized and smaller carriers or other service providers can also adopt NFV to improve business agility, prevent vendor lock-in, and reduce infrastructure costs, says Marc Bouteyre, Head of SDN/NFV Solution Management, Kapsch CarrierCom.

Q: What is the best way for mid-sized and smaller carriers to get started with NFV?
A: Starting small with NFV is a great way to learn and to minimise risks, which is hugely important for carriers with limited time and resources to invest. Rather than thinking about ripping and replacing the entire existing infrastructure with NFV services, try starting with a particular use case that complements what is already present. That way, when other infrastructure components become obsolete or unsupported in the future, carriers can replace them incrementally and increase the portfolio of virtualised infrastructure over time. This will help to reduce costs and minimise risk.

Q: Is there a "right way" to deploy NFV?
A: Yes, there are some practical considerations to think about. For example, it's extremely important that the underlying infrastructure for NFV is based on open industry standards and able to support NFV solutions from multiple vendors. Carriers should also check that NFV applications are architected in such a way that they can be deployed across multiple virtual servers and scaled on demand as needs change. Finally, but equally importantly, it's good to use a standard, replicable process for building and deploying NFV applications to ensure they work effectively together and interface seamlessly with existing infrastructure as well.

Q: How can carriers and other service providers move from test use cases to full, carrier-grade NFV solutions?
A: For NFV solutions to be "carrier-grade", they need to be highly resilient, but this is more difficult to achieve with NFV applications than with traditional applications. This is because a typical telecommunications applications deliver multiple functions, so carriers can't rely on hypervisors such as VMware to simply distribute workloads between multiple virtual machines. Instead, resilience has to be built into the application itself, with logic that redistributes specific workloads or functions if necessary to keep them running. Likewise, scaling NFV applications is more complex than scaling traditional applications, and that functionality has to be built into the application itself, rather than the underlying infrastructure.

Q: Can migrating infrastructure to the NFV data centre help carriers or other service providers to reduce network management requirements?
A: Yes, but it's more realistic to think that network management requirements will change rather than disappear altogether. Just for a moment, let's compare the NFV network to a car.

In today's cars, there are lots of automatic processes going on, from ABS enhancing braking, to systems that adjust suspension based on road conditions. But a driver is still needed (at least for the time being). It's the same with NFV networks: there may be automated scaling for individual applications, or automatic configuration for new services deployed in the network, but a human pilot is essential. The role of the network administrator in an NFV network is to create network components such as the virtual packet core (vEPC) or the Home Subscriber Server (vHSS), and to deploy the virtual servers they run on. The day will come when this all happens automatically, but we're still not there yet. For this reason, it's a good idea to start thinking about who's going to manage the NFV network, whether it's a partner or re-trained members of the network operations team.

Q: One of the major challenges for carriers is bringing new, value-added services online fast enough. Can NFV help to speed up innovation?
A: Yes, it's one of the top benefits of NFV. In the past, innovation cycles have been driven by vendors, and changes initiated by carriers have been hugely time consuming and expensive. That means that carriers often lack the speed and agility needed to answer the challenges brought by OTT-players. NFV restores the balance by enabling carriers to develop and deploy new services extremely rapidly and to take advantage of cutting-edge technologies such as Voice-over-LTE (VoLTE) or Voice-over-Wifi (VoWifi). This translates into faster time to market for innovative, customer-centric ►

services, and improved competitive advantage and customer satisfaction.

As an additional benefit, NFV makes it far easier to test new services or applications before they are deployed in the infrastructure, reducing go-to-market risks and delays.

Q: What if the smaller carriers don't have the skills and resources internally to deliver carrier-class NFV solutions? What is the best strategy for them to go "the NFV way"?

A: If carriers don't have the skills in house to develop, deploy and manage NFV applications, there are a couple of options. First, carriers could choose to outsource their entire NFV journey to a third party, but this approach effectively ties them in to a single vendor. That means that carriers won't always be able to choose best-of-breed technologies for the network, and they will still rely on a third-party when it comes to making network changes – which cancels out many of the benefits of NFV. A better approach is to work together with an independent NFV specialist/system integrator who can help carriers to plan, architect and implement an 'open', multi-vendor NFV strategy. This approach means that smaller carriers can deploy and integrate the most powerful NFV applications from multiple vendors and avoid becoming locked into a particular vendor or technology.

Q: What should carriers keep in mind when choosing an NFV partner?

A: Apart from being vendor-independent, experience really counts when it comes to minimising project risk. Consider choosing a partner that has experience in delivering and deploying carrier-grade NFV solutions, from designing NFV infrastructure on open platforms, to architecting NFV applications for optimal resilience and on-demand scaling. Above all, any prospective NFV partner should understand the requirements for integrating NFV applications so they work together seamlessly, while also communicating with all of a carrier's other existing infrastructure components.

Q: Why should carriers and SPs consider partnering with Kapsch CarrierCom for their NFV projects?

A: First and foremost, we have the experience to help carriers deliver projects faster, and with less risk. We've delivered multiple generations of carrier networks over the last 20+ years, through 2G, 3G and now 4G, and we understand the requirements for "carrier-grade" solutions. Also, we specialise in bringing together infrastructure from multiple vendors to create best-of-breed networks for our customers. We are now drawing on our extensive integration expertise to deliver NFV projects for some of the world's leading carriers.

Q: Can Kapsch CarrierCom prove its NFV credentials?

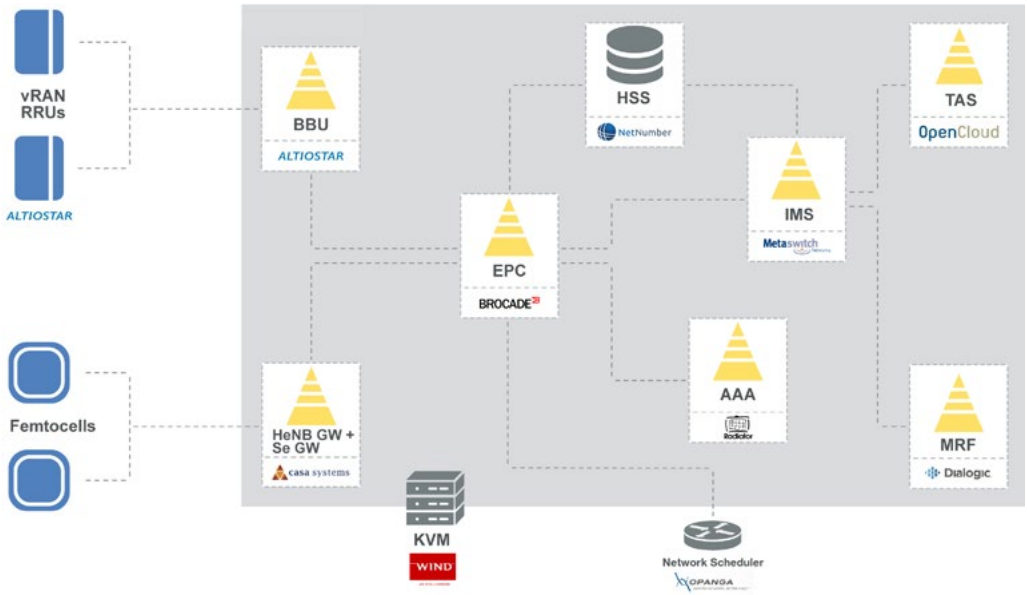
A: Yes, we are one of the very few organisations who have built an open, multi-vendor NFV solution in the lab. Carriers who are interested can come and see the architecture, which incorporates best-of-breed NFV infrastructure from at least a dozen vendors. The entire environment runs on OpenStack, which provides an open, replicable platform for deploying and integrating new NFV applications and services.

To show the extent of what can be achieved, we have also orchestrated network processes in the lab where possible. This means that applications and interfaces are configured automatically when they are deployed in the environment, enabling them to communicate with all the other elements of the NFV system. We have also built automated scaling features into each individual application to ensure that services can flex with changing demand, and to increase the resilience of network functions.

Q: How can carriers find out more and take the first steps on their NFV journey?

A: If you'd like to talk about any of the issues raised in this article, or if you want more information on how Kapsch CarrierCom can help you to adopt NFV more quickly and efficiently and with less risk, **please contact us at: kcc.carriers@kapsch.net**

To receive updates on our SDN/NFV milestones, please subscribe to our newsletter at **www.kapschcarrier.com/subscribe**



Fully virtualised core solution (vCore) Proof of Concept in our NFV lab