



LG U+ DEPLOYS FIRST CARRIER- GRADE NFV ROUTER IN KOREA TO ACCELERATE EVOLUTION TO 5G

Summary

Company:
LG U+

Industry:
Telecom

Business Challenges:

- The evolution to 5G demands the flexibility and agility offered by a carrier-grade NFV infrastructure.
- Customer satisfaction and increased network monetization require a reliable, agile infrastructure optimized for rapid and automated service creation and delivery.

Technology Solution:

- vMX Virtual Router (S-VRR, Virtual Route Reflector)

Business Results:

- Accelerates the efficient rollout of 5G services with carrier-grade features, scale, and performance
- Increases service agility with high-performance, virtualized routing services, including virtual route reflection and enhanced DDoS protection
- Enables rapid, cost-effective scale, with quick installation and simple service scale-up and scale-out
- Reduces operational costs by reducing reliance on underutilized dedicated hardware and by dynamically allocating server CPU and memory resources on-demand

LG U+ was formed in 2010 with the merger of LG Telecom, Internet data services provider LG Dacom, and cable service company LG Powercomm. The company provides a comprehensive suite of communications services in Korea, covering areas such as mobile communications; optical, IP, and hybrid fiber coaxial (HFC) network services; Internet phone services; device sales; as well as converged broadcasting and telecommunications services such as Internet multimedia broadcasting.

Since its formation, LG U+ has achieved significant breakthroughs such as the launch of 4G LTE commercial services in 2011; the introduction of free Wi-Fi and the nationwide rollout of LTE in 2012; and the growth of its mobile subscriber base to over 10 million the same year.

In 2013, the company became the first in the world to successfully commercialize “100% LTE” and launched LTE-A, which doubled the speed of existing LTE services. It went on to introduce “Paynow”, an easy mobile payment system and a smart unmanned locker system using Internet of Things (IoT) technology.

Business Challenge

To strengthen its position in a highly competitive market, LG U+ knew that it had to prepare for the advent of 5G and the next generation of mobile services. Given the fast pace of innovation associated with these services, coupled with consumers’ high expectations with regards to service uptime, it was important for LG U+ to build a networking platform that was both flexible and highly reliable.

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- Jae-ho Choi, IP Network Development Team, LG U+

After evaluating its options, LG U+ decided that a Network Functions Virtualization (NFV)-based solution utilizing virtualized routers was the best path forward. Virtualized routers could optimize service creation, activation, and assurance processes, and running them on off-the-shelf servers would also help LG U+ lower operational costs and better align infrastructure investment with its business goals. However, at the time of the evaluation, NFV solutions were perceived as immature, and LG U+ was concerned that issues around stability and reliability made virtual routers unsuitable for commercial deployment.

As an existing customer with an installed base of Juniper Networks® MX Series Universal Routing Platforms, LG U+ engaged Juniper to further explore the viability of virtualized routers. The long-standing, “trusted advisor” relationship that Juniper maintains with LG U+ allowed for close collaboration, and a strategy for comprehensive evaluation quickly emerged.

Technology Solution

The Juniper Networks vMX Virtual Router, a full-featured, carrier-grade virtual MX Series router, went through an exhaustive technical evaluation by LG U+. The vMX maintains complete feature and operational consistency with the physical MX Series routers that LG U+ was already using, which helped streamline the effort and build LG U+'s confidence in NFV and virtual routing.

The Juniper Networks solution involved two innovative technologies—vRR and NFV orchestration based on Open Stack. With no reference case for these technologies in Korea, Juniper Networks and Wind River, another LG U+ supplier, worked together from the earliest stages of the project to mitigate risks as they co-developed a stable and highly reliable solution. Juniper also conducted a preliminary proof of concept (POC) evaluation to uncover and pre-empt potential technical problems prior to the official POC.

After the official POC, which successfully met all technical requirements, LG U+ deployed the NFV solution in its production network, using Juniper's virtual route reflection technology to back up its physical route reflectors, with a plan to evolve to all virtual route reflection in the future. The project

broke new ground for LG U+ and Juniper. LG U+ became the first service provider in Korea to deploy a carrier-grade NFV-based router with a failure rate of less than 1/1,000,000. The project was also Juniper's first carrier-grade NFV-based routing solution deployed on the Korean peninsula.

Business Results

The Juniper Networks NFV solution delivered carrier-grade stability and performance, enabling LG U+ to build a cost-effective, scalable, and robust NFV infrastructure for the rollout of 5G services. “As the first service provider in Korea to deploy a carrier-grade virtualized router in a commercial network, we were able to improve routing performance and also provide more secure and varied services to customers,” says Jae-ho Choi, a member of the IP Network Development Team at LG U+.

The solution greatly enhanced network operations, and now LG U+ is able to deploy a new virtual router with just a few mouse-clicks. In addition, the vMX supports various hypervisors and third-party orchestration tools, providing greater choice and flexibility in the NFV implementation. Operational costs were also reduced by eliminating underutilized, dedicated physical elements and optimizing CPU and memory utilization based on actual service or application requirements.

The NFV solution also delivered greater flexibility in service creation, and LG U+ now uses the vMX to deliver IPv6-based routing and security services, including blocking threats such as distributed denial of service (DDoS) attacks, and has plans to add more virtualized network services in the future.

Next Steps

LG U+ is looking to expand the scope of its NFV deployment and apply virtualization sequentially to other routers that require a high level of flexibility. The aim is to take advantage of the NFV-based infrastructure to accelerate its evolution into a 5G network. “We will gradually ramp up the deployment of NFV and lead the market with the best NFV infrastructure for the delivery of 5G services,” Choi says.

About Juniper Networks

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