

Transforming global partnerships with Verizon's uCPE platform



Case study: Verizon and Dell Technologies are working to transform the future of uCPE



Universal customer premises equipment (uCPE) promises to bring simplicity and flexibility to managed network services. Using commercial off-the-shelf (COTS) hardware (also known as whiteboxes) a uCPE platform can host several network functions, such as routing, SD-WAN, WAN optimization, and virtualized security elements service chained all on one box, reducing the amount of dedicated hardware appliances needed at a location.

Verizon's Virtual Network Services uCPE platform takes this a step further by using qualified and hardened open source software, with a unified management approach to bring a truly flexible network solution to their customers that supports a wide variety of networks and use cases.

Developing a dynamic uCPE platform

Verizon's development of the VNS platform began in 2016, when the service provider decided to focus on delivering a whitebox solution for its customers that would allow for flexibility and simplified vendor management.

"The ultimate problem we were trying to solve," said Jason Kett, NFV and edge computing product manager at Verizon Business Group, "was to provide our customers with a platform that would provide them with the flexibility to change, modify, and update their network offering via software through virtualization, with full automation, at the click of a button."

Hardware-bound network services are time-intensive and costly to deploy and more importantly, change, since they require manual configuration and multiple truck-rolls to complete the system set up. If an enterprise wants to switch vendors with traditional network solutions, they have to change out their existing hardware to the new vendor's hardware.

"One of the key things that we observed initially was that typical deployments were hard processes to go through," Kett said. "It would take an enterprise about 18 months, and in some cases even longer to deploy new vendor technology at the edge. We wanted to take combining your typical network functions, such as firewalls, WAN optimizers, routers, SD-WAN and VoIP applications, and develop a smarter way of deploying and managing these network applications."

This led to Verizon taking a cloud-based approach to its uCPE platform and to work with their vendors to develop cloud-based applications. Verizon deployed OpenStack technology at the edge and an open source Linux Operating System with their key vendor, ADVA. Taking an open source vendor-neutral approach, allows for a unified management system that's interoperable with multiple network functions. As a result, changing vendors, a process that can take up to a year and a half, can now be done in days.

"If you now want to switch network vendors, with Verizon's uCPE platform, it's as easy as a click of a button to submit a change request to Verizon," Kett said. "And in a matter of days, maybe shorter, with coordination and support from the Verizon Managed Services team, we can rebuild your virtual stack with a new vendor system ready for customer specific configurations. This also provides our customers with the ability to scale services up and down and implement additional features as required. That was the focus of what we were trying to develop as part of this product — giving that level of flexibility that you don't typically get when you're using purpose built hardware appliances."

Verizon has built its product on the [Dell EMC Virtual Edge Platform 4600](#), which runs on a Dell BIOS and uses a Skylake Processor. It's an open platform, supporting OpenStack, and enabling secure SD-WAN, SD-WAN optimization, and a variety of other network services and functions.

The platform’s universal functionality operates with a wide range of vendors, eliminating the space, as well as CapEx and OpEx needed to deploy and maintain separate hardware appliances for different network functions. This makes the platform, in the words of Andru Shaw, OEM Sales Account Manager at Dell, “simple, cost effective, and clean.”

“A datacenter rack filled with nine or 10 different separate hardware appliances, performing one function each can be consolidated into a multi-tenant platform that performs all these functionalities,” Shaw said. “This consolidation saves customers money on equipment as well as on the costs associated with running those devices----increasing the overall business value that Verizon delivers to its customers.”

A global partnership

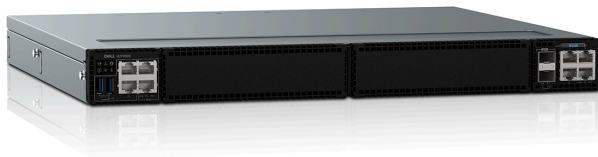
“Verizon worked with Dell because of its global presence and reliable track record with infrastructure,” Kett said.

When Verizon began development of the uCPE platform in 2016, one of the first of such platforms, Verizon worked with Dell to develop hardware from the ground up that could support the flexibility and functionality Verizon wanted to offer its customers.

“Dell understood where we wanted to take this. They listened to us in terms of fundamental requirements for our VNS uCPE platform.” Kett said.

Verizon’s and Dell’s collaboration didn’t just result in a flexible network service solution — it also, Shaw said, fundamentally changed how Dell works with its customers to develop new platforms.

“Verizon helped to fundamentally change our Dell roadmap and the way we bring products to market,” Shaw said. “Verizon opened our eyes to look at how we’ll continue to grow into the future. We’ve got customers that are willing to share their needs with us, we are listening and continuously evolving to support them.”



The Dell EMC VEP 4600 and 1405