

Building the Virtual Customer Edge in the Cloud with vRouter

HIGHLIGHTS

- Moving from hardware to software enables greater service agility
- Centralized Virtual Network Functions (VNF) management and orchestration enables reduced operation cost
- A small footprint with the ability to serve a high density of subscribers supports scalable services and highest Return on Investment (ROI)
- The ability to use third-party VNFs for value-added services eliminates vendor lock-in

Increasing Service Agility with vCE

An increasingly competitive service provider market is challenging providers to continually evolve service offerings to meet the needs of enterprise customers. As a result, service providers have an incentive to continually discover new ways to improve service agility and create a scalable platform capable of upselling on-demand services, so that they can remain relevant to their enterprise customers, adapt to changing needs, and develop new revenue opportunities. This can mean updating costly legacy business Customer Premises Equipment (CPE), and migrating to a newer, sleeker, faster platform that can meet the business demands of today's enterprises.

The virtual Customer Edge (vCE) solution enables providers to provide an infrastructure at the Central Office (CO) or Point of Presence (POP) using a Commercial Off-the-Shelf (COTS) compute node with vCE routers or vCE VNFs located on top of the Network Function Virtualization (NFV) infrastructure. This transforms the remote location or branch from an intelligent premise to a Layer 2 Network Interface Device (NID), with all of the network intelligence driven into the service provider infrastructure. Because every office or customer premise has its own specific and unique Customer Edge (CE) whether for routing, firewalling, or any other service providers want to maintain the same separation of service for their customers in virtualized environments by

instantiating unique vCEs per customer within their CO or POP and by chaining more value-added service VNFs with the vCE.

Although vCE creates a simplified solution for the delivery of on-demand services, it creates new challenges. These include:

- The integration of a new management framework into existing legacy architectures
- The ability to drive a high degree of density with respect to individual customer endpoints that you want to virtualize in this new virtual infrastructure
- The ability to ensure the performance, reliability, and redundancy that each customer expects

In order to create a viable, scalable service, the new vCE architecture must support a high-density CO/POP environment and offer the ease and simplicity of a turnkey solution.

The Brocade Solution

Brocade enables service providers and their customers to realize the agility and cost benefits of vCE without sacrificing flexibility. By using the Brocade® vRouter as a CE gateway, service providers can leverage a proven, integrated secure solution for routing, firewalling, and Virtual Private Networking (VPN). This multiservice solution not only reduces the need to service-chain, it also supports easy integration with programmable Application Programming Interfaces (APIs) and an open API controller-based architecture. The Brocade vRouter

utilizes a single virtual Central Processing Unit (vCPU) to drive upwards from 200 megabits per second (Mbps) to above multi-gigabits per second (Gbps) on a per-subscriber basis with a single virtual router. The result is a vCE solution designed to provide high efficiency in packet handling, allowing for a smaller footprint deployment with higher densities of vCE instances per server and better monetization of new network equipment that service providers use and install in the POP. (See Figure 1.)

Delivering Benefits with Partnerships

The Brocade vCE solution replaces the traditional CPE with NIDs from one Brocade partner, which enables providers to more easily troubleshoot at branch locations. This also creates a seamless

transition from standard CPE functions into VNFs that then are hosted either at the service provider's CO or at its POP. The longer equipment lifecycle, lower overhead for troubleshooting, and greater opportunity for add-on solutions creates significant operational and cost-saving benefits.

With an ecosystem of partners delivering NIDs to replace existing CPEs, the Brocade vRouter solution provides virtualized infrastructure management at both the CO and POP locations, as well as APIs and models that integrate vCE in various management and orchestration environments for provisioning, monitoring, and management of VNFs.

Learn More

Brocade simplifies direct connection to the cloud with rapid service deployment and automated application delivery. To find out more about Brocade NFV solutions, or to arrange a demonstration or product evaluation, please visit www.brocade.com.

About Brocade

Brocade networking empowers organizations to maximize investments for the New IP by transforming data center networking with open, virtual, and automated solutions. Our solutions help organizations achieve their critical business initiatives as they transition to a world where applications and information reside anywhere. Learn more at www.brocade.com.

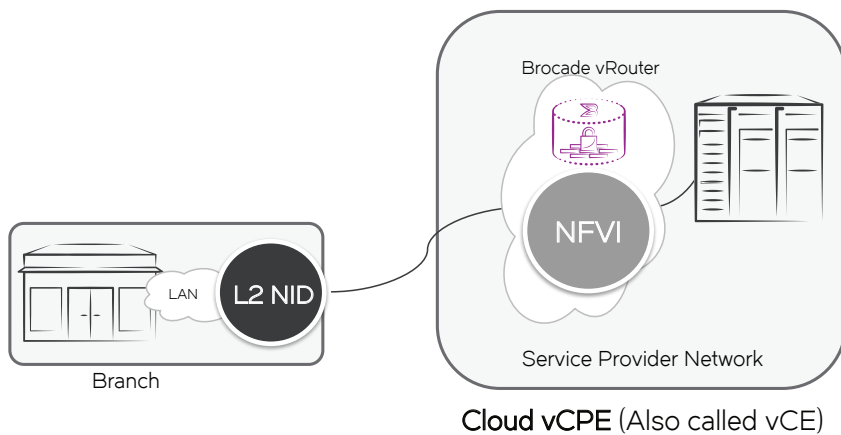


Figure 1: The Brocade vCE solution.

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