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NEC/Netcracker* NaaS Delivers Flexible, Low-Cost vCPE Solution

NEC/Netcracker's Network as a Service (NaaS) offers a hybrid deployment model across the data center and customer premises that delivers low-cost vCPE services with fast time to market and easy expansion to value-added services.

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Introduction

Communications service providers (CommSPs) are embracing virtualized customer premises equipment (vCPE) solutions to provide a flexible foundation for delivering personalized, on-demand services. With vCPE, CommSPs can lower their network costs and improve new service deployment agility, leading to new revenue opportunities in the enterprise and consumer markets. A hybrid vCPE service offering—one that is hosted in a data center and deployed with an on-premises server—can help to maximize the benefits of bringing virtualized infrastructure to the network edge. Intel® Network Builders partner NEC/Netcracker* is leveraging its network functions virtualization (NFV) experience to bring this flexible cloud model to the market.

The Challenge

The advent of ever-higher-speed broadband services provides an opportunity for CommSPs to offer both differentiated data services as well as new service types that could have a significant impact on overall revenues. At the same time, these CommSPs need to reduce deployment and management costs while providing the network agility required for innovative new services.

The speed of broadband access services is increasing as consumers embrace 100 Mbps and higher ultrabroadband services, and as enterprises seek Gigabit and higher services for even their smallest facilities. For CommSPs, supporting these services traditionally means deploying high-cost CPE.

Moreover, new competition from over-the-top service providers is driving CommSPs to accelerate the launch of more personalized on-demand services, which allow the customer to add or delete services, modify existing services, or monitor and control services by themselves from a web portal. This is increasingly difficult in the traditional hardware CPE-based scenario.

In response, CommSPs are revolutionizing their networks with network functions virtualization (NFV), which decouples software from hardware, allowing CommSPs to choose best-of-breed virtual network functions (VNF) software that is easily deployed on common white box Intel® Xeon® processor-powered servers. A key element of this initiative is embracing vCPE to bring cost savings and agility to the customer premises.

vCPE can be deployed as a standalone server on the customer premises, interacting with the CommSP's cloud to load the VNFs needed to provide the services requested by the customer. These cloud services can also be extended to the customer premises in a more centralized model with a low-cost vCPE server on premises providing connectivity services and leveraging VNFs in a data center

to provide additional, high-value services. NEC/Netcracker's Network as a Service (NaaS) is a solution that leverages the company's NFV expertise and experience with carrier networking to deliver a full range of services, with the ability to easily add innovative new services over the same vCPE infrastructure in many cases.

NEC/Netcracker Network as a Service for vCPE

NEC/Netcracker's NaaS is a hybrid vCPE solution that utilizes both the centralized and customer premises cloud deployment models.

As seen in Figure 1, NaaS is a full-stack solution comprising a DevOps/agile service design environment for rapid VNF onboarding and service creation, hybrid operations management (HOM) for hybrid service and network orchestration across physical and virtual components, and business enablement applications providing a self-service portal and digital marketplace of value-added services.
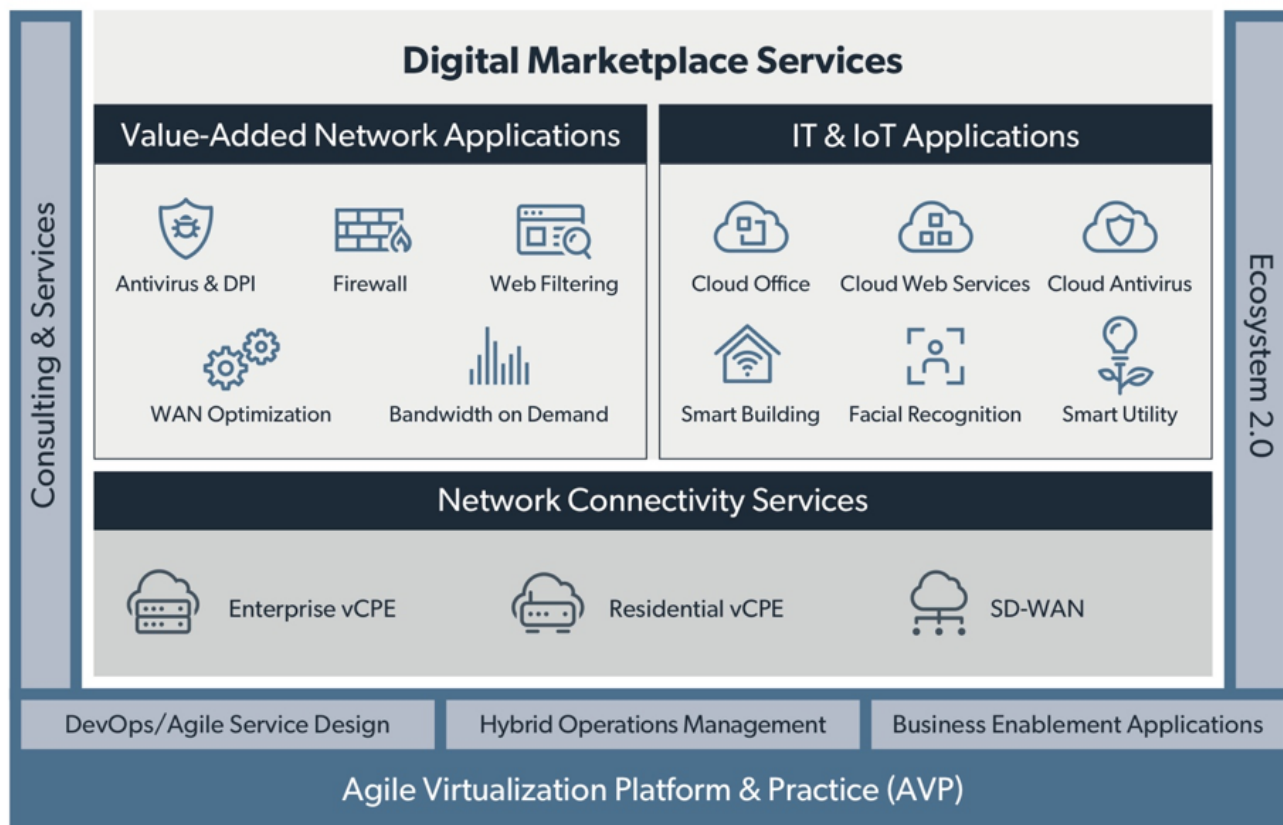

Figure 1. Block diagram showing NEC/Netcracker NaaS vCPE service offering.

NEC/Netcracker has developed its Ecosystem 2.0, a program that includes more than 200 onboarded VNFs and IT apps, to provide a rapid path to onboard and design services. These are divided into three categories:

- VNFs for network connectivity for enterprise and consumer applications: This includes VNFs for routing, broadband network gateway, network address translation, and dynamic host configuration protocol.

- VNFs for value-added network applications: CommSPs can draw from these applications to offer customized services to subscribers, including security services such as antivirus, firewall, or web filtering. WAN optimization or bandwidth-on-demand VNFs are also available.

- IT and internet of things (IoT) apps: These include a range of enterprise apps like cloud web and office services, as well as IoT services, including sensor antivirus, facial recognition and smart building and smart utility services.

To onboard these new services and manage them throughout their life cycle, NEC/Netcracker NaaS delivers comprehensive orchestration, assurance, and security management capabilities. The European Telecommunications Standardization Institute (ETSI)*-certified management and orchestration (MANO) solution, part of HOM, is combined with the digital marketplace and a self-service customer portal to allow customizable services. The service also features a set of integration adapters for existing business support systems and operations support systems (BSS and OSS), allowing service providers to monetize new offerings without upgrading existing environments.

The agile/DevOps service design environment facilitates back-end service design that service developers can use to create personalized service bundles through the digital marketplace. This lets CommSPs offer services like SD-WAN and vCPE bundled with a wide range of value-added services and IT apps.

Intel® Network Builders Partner

NEC/Netcracker is an Intel Network Builders partner and member of the program's Network Edge Ecosystem. It has worked with Intel to develop and provision the NaaS utilizing Intel technologies. NEC/Netcracker has optimized its data plane architecture for Intel Xeon processors, including support for Data Plane Development Kit (DPDK), an Intel-developed open source technology that improves data plane performance on servers powered by general purpose processors.

NEC/Netcracker specifies servers that are powered by Intel Xeon processors and utilizes Intel® Converged Ethernet Network Interface Cards. NEC/Netcracker relies on Intel® Hyper-Threading Technology (Intel® HT Technology), Intel® Virtualization Technology (Intel® VT) for virtualization performance, and Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) for accelerated packet encryption.

Intel servers are also used in the NEC/Netcracker Executive Briefing Center, which is the company's premier demonstration data center where senior CommSPs come to see how they can apply the performance and functionality of NaaS to their networks.

Conclusion

The comprehensive feature set and DevOps customizability of NEC/Netcracker's NaaS can accelerate a CommSP's vCPE initiative. With the power of Intel® technology, CommSPs can use NaaS to build out flexible last mile connectivity for both enterprise and residential customer services.

About Netcracker Technology

Netcracker Technology, a wholly owned subsidiary of NEC Corporation, is a forward-looking software company, offering mission-critical solutions to service providers around the globe. Its comprehensive portfolio of software solutions and professional services enables large-scale digital transformations, unlocking the opportunities of the cloud, virtualization, and the changing mobile ecosystem. With an unbroken service delivery track record of more than 20 years, its unique combination of technology, people, and expertise helps companies transform their networks and enable better experiences for their customers. For more information, visit www.netcracker.com.

About Intel® Network Builders

Intel Network Builders is an ecosystem of infrastructure, software, and technology vendors coming together with communications service providers and end users to accelerate the adoption of solutions based on network functions virtualization (NFV) and software defined networking (SDN) in telecommunications and data center networks. The Network Edge Ecosystem is a new initiative gathering ecosystem partners with a focus on accelerating network edge solutions. As an integral part of the broader Intel Network Builders program, this initiative aims to facilitate partners' access to tested and optimized solutions for network edge and cloud environments. Learn more at http://networkbuilders.intel.com.