Juniper Networks-ADVA Cloud CPE Solution

Extending Juniper Cloud CPE ecosystem with ADVA NFV optimized demarcation solutions to deliver end-to-end services

Challenge

CPE deployment is a time-consuming, manual process that does not align with dynamic market requirements of today's enterprises. The ability to innovate managed CPE services is inhibited by a closed proprietary platform that restricts scalability and requires upfront capital investments.

Solution

Working together, Juniper and ADVA automate service delivery with a highly scalable Cloud CPE solution. Based on Juniper's comprehensive NFV capabilities and ADVA's NFV-optimized FSP 150 NID devices, the solution delivers a multi-deployment model that incorporates an open framework for third-party VNFs.

Benefits

- Open framework creates an ecosystem that accelerates innovation.
- Automation replaces time-consuming truck rolls with simple mouse rolls.
- Simplified service creation transforms service delivery, enhancing user satisfaction.
- End-to-end NFV enables multi-deployment models that address dynamic market requirements.
- Secure, reliable customer connectivity enables mission-critical service offerings.

Service providers today are facing a number of complex operational challenges, including rigid service delivery infrastructures and operating costs that seldom align with revenue, that hinder their ability to quickly design and deploy new services. Increasingly complex and expensive-to-maintain infrastructures merely compound these challenges, driving costs higher while inhibiting their ability to compete. Service providers must provide secure, high-performance, SLA-compliant services that enable the use of hybrid and public cloud infrastructure.

Juniper Networks and ADVA automate service delivery with a highly scalable, carrier-grade Cloud CPE solution. Based on Juniper's end-to-end NFV solution and ADVA's NFV optimized customer premises demarcation devices, the Cloud CPE solution enables agile service creation, flexible delivery, and an open framework for third-party VNFs.

The Challenge

Customer premises equipment (CPE) is essential to most managed service delivery models that service providers use to serve their customers. While the CPE service delivery model has served the market well for years, there are a number of challenges associated with deploying, managing, and evolving these network and security services. CPE deployment is a time-consuming and manual process—hardware must be shipped to each location, resulting in long lead times and protracted rollouts. Each CPE device needs to be configured and provisioned—a complex and manual process that requires highly specialized skills. Ongoing maintenance and operations contribute their own unique challenges. In short, the order and fulfillment process is not compatible with the speed at which businesses must operate.

Network Functions Virtualization (NFV) technologies have broken down many of these barriers and revolutionized the managed service delivery and life-cycle operation. Enterprise customers can choose from a wide variety of innovative and customized services, available on demand. Thanks to NFV, service providers are less dependent on rigid, physical-only network infrastructure, manual workflows, and service silos, making them more relevant to their customers.
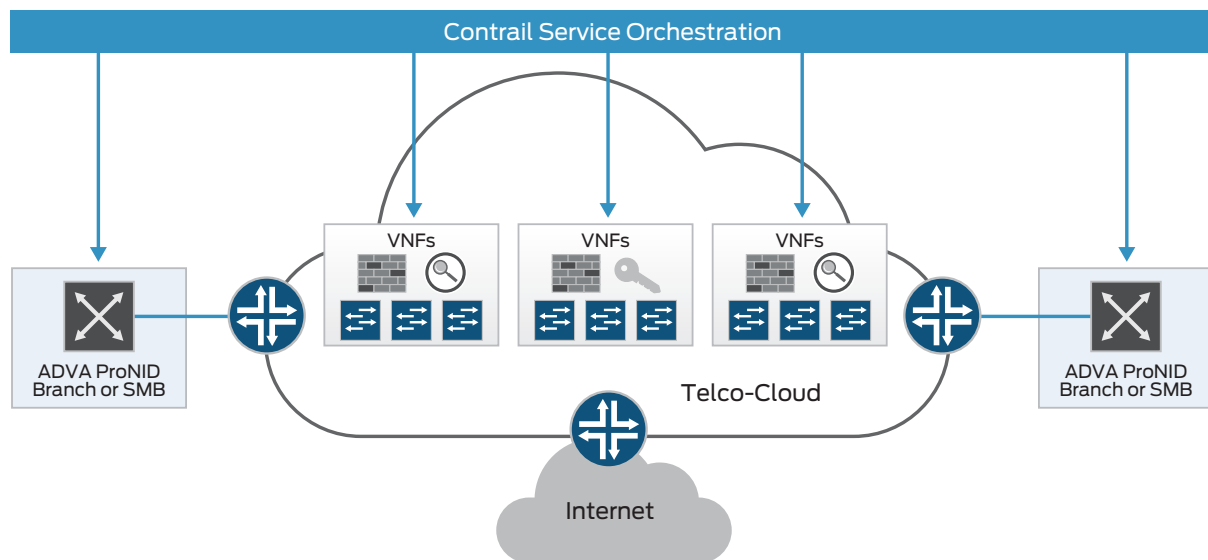
Figure 1: Juniper and ADVA Cloud CPE solution

The Juniper Networks Cloud CPE Solution with ADVA ProNID

Juniper Networks® Cloud CPE is the only multidimensional solution that supports flexible deployment models, allowing service providers to deliver centralized, distributed, and hybrid deployments. Juniper's centralized Cloud CPE solution, combined with ADVA's NFV NID devices, offers a personalized transformative experience that aligns multiple business requirements, increases competitiveness, and ultimately enables real profits.

Juniper's pioneering Cloud CPE solution incorporates Juniper Networks Contrail Service Orchestration, a modular service orchestration and service assurance layer that features a robust resource management and control layer on an open framework. Automated service creation simplifies the service life cycle, giving service providers the ability to conceive, create, and roll out highly customizable services in just minutes rather than days or weeks. Services and capacities can be dynamically updated, improving the scalability and the flexibility of managed CPE services that eclipse the competition.

ADVA Optical networking interface devices (NIDs) are built on secure demarcation technology as well as pioneering technology in open and automated network control. These technologies, which are vital for the seamless evolution of a service provider's business edge, confirm service levels at the handoff point rather than where the virtual appliance is located, allowing service providers to ensure privacy and confidentiality as traffic traverses the public network.

ADVA's FSP 150 ProNID is a family of demarcation products optimized for service providers initially turning to central hosting of virtualized network functions (VNFs) and a simplified branch device.

Key features of ADVA FSP 150 ProNID include:

- Comprehensive MEF CE 2.0 and Layer 3 service and connectivity assurance
- Additional Layer 2 encryption for secure NFV
- Open programmability for seamless integration

The combination of Juniper Networks Contrail Cloud Platform and ADVA's NFV-optimized FSP 150 ProNID delivers a secure, fully automated end-to-end architecture for centralized Cloud CPE solutions.

Juniper's and ADVA's End-to-End NFV Solution

Juniper's and ADVA's Cloud CPE solution is based on an automated, programmable, end-to-end NFV solution that combines carrier-grade reliability and security with intelligent automation and scalability to simplify the transition to NFV for service providers. This NFV solution consists of three major components:

Management and Orchestration (MANO)—Juniper's MANO layer consists of Juniper Networks Contrail Service Orchestration, which choreographs the design, implementation, and delivery of custom services through an open framework. Additionally, Juniper Networks Contrail Cloud Platform combines Contrail Networking with an OpenStack implementation to provide a turnkey cloud orchestration and automation platform.

Network Functions Virtualization Infrastructure (NFVI)—The NFVI consists of the following products:

- Juniper Networks MX Series 3D Universal Edge Routers, which serve as edge routing platforms for enterprise and service provider applications

- Juniper Networks Service Control Gateway, which performs traffic analysis and policy enforcement

- Data center and cloud networks built on Juniper Networks MetaFabric™ architecture

- Juniper Networks PTX Series Packet Transport Routers for high-performance bandwidth connectivity

- ADVA's FSP 150 ProNID customer premises demarcation device for centralized VNF hosting

VNFs—Juniper is one of the first vendors to introduce VNFs for rapid deployment and scale-out environments. Juniper's VNF solution includes Juniper Networks vSRX virtual firewall, the industry's most efficient virtual security appliance, and vMX, a full-featured, carrier-grade virtual router with complete control, forwarding, and management planes.

Juniper's and ADVA's Cloud CPE solution is based on an open standard framework that is easily integrated into existing operations support systems and business support systems (OSS/BSS). This ubiquitous and open framework has been fully tested and evaluated, enabling service providers to select best-in-class technologies and third-party VNFs to accelerate innovation.

Features and Benefits

Revenue Growth

Unlike traditional managed CPE solutions, where service deployment is a lengthy and manual process, the Juniper Networks Cloud CPE solution drastically reduces the service delivery process from months to just minutes. This frees service providers to adopt a low-risk fast-fail approach for introducing customized services, opening a potentially rapid path to revenue for innovative new services and target segments.

Improved Capital Efficiency

The Juniper Networks Cloud CPE solution improves CapEx efficiency for managed services. Derived by reducing dedicated on-premises equipment and service silos with a single CPE device, or VNFs at the service provider network, cost efficiency enables service providers to effectively launch innovative new services while protecting margins for existing services.

Reduced Operational Expenditure

Cloud CPE reduces OpEx by adopting automation along with a centralized service management and orchestration system. Automation improves all facets of the service life cycle, simplifies operations, and eliminates extensive manual processes such as provisioning, configuration, equipment installation, service delivery, and back-end database administration.

Service Agility

Customer business requirements often change to reflect market dynamics. The Cloud CPE solution lets service providers react and respond to these changes in near real time, quickly moving from a one-size-fits-all model to a highly personalized reactive model that transforms providers into a trusted partner. This leads to greater customer satisfaction, creating an opportunity to sell additional value-added services for expanded revenue growth.

Reliability

The Cloud CPE enables highly dynamic multi-deployment models with zero-touch provisioning and management that accelerates remote- and branch-office deployments. End-to-end visibility into network performance enables proactive detection and maintenance of application performance on the premises or in the cloud.

Security

Juniper Networks vSRX virtual firewall and ADVA's ConnectGuard™ advanced Layer 2 encryption address the security challenge by protecting user traffic. Complete transparency and low latency assure communication privacy without compromising the service performance.

Summary

Juniper Networks and ADVA Optical Networking's Cloud CPE solution revolutionizes traditional managed services, overcoming the challenges associated with service deployment, management, and evolution by simplifying and automating the creation and delivery of customizable services from a comprehensive, vertically integrated, open NFV solution. The Cloud CPE solution supports flexible deployment models with unprecedented scale for expanding on site and scaling up in the cloud, enhancing network performance, lowering costs, and delivering differentiated services that elevate customer satisfaction and ultimately lead to increased profitability.

Next Steps

For more information about Juniper Networks Cloud CPE and ADVA Optical Networking's NFV optimized NID devices, please contact your Juniper or ADVA representatives, or go to www.juniper.net/us/en/solutions/nfv/cloudcpe/ or http://www.advaoptical.com/en/innovation/network-functions-virtualization.aspx.

About ADVA Optical Networking

ADVA Optical Networking is creating new opportunities for tomorrow's networks, a new vision for a connected world. ADVA's intelligent telecommunications hardware, software and services have been deployed by several hundred service providers and thousands of enterprises. Please visit us at www.advaoptical.com.

About Juniper Networks

Juniper Networks challenges the status quo with products, solutions and services that transform the economics of networking. Our team co-innovates with customers and partners to deliver automated, scalable and secure networks with agility, performance and value. Additional information can be found at Juniper Networks or connect with Juniper on Twitter and Facebook.

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3510586-001-EN July 2016

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