VNF Life Cycle Services

Service Overview

Network providers are increasingly seeking strategies that will enable them to continue providing exceptional levels of service while improving the cost per bit equation. One such strategy is Network Function Virtualization (NFV).

As Network Service Providers (NSPs) start to make use of virtualization functionality in a Juniper Solution, Customers need confidence that the introduction of new and innovative services will not impact existing infrastructure and will perform as expected. VNF Lifecycle Services are a suite of capabilities focused on providing customers assurance that 3rd Party Virtual Network Functions (VNFs) are compatible with Juniper's solutions.

Service Description

The ability to provide highly customized solutions, tailored to individual customer and end-user needs, typically comes with high initial up-front costs, which is a barrier to innovation and to anything more than a token level of customization. Juniper Networks® Data Center SDN and Cloud CPE solutions provide a framework that unlocks the ability to quickly customize at lower price points, with little risk to current deployments and no need for traditional truck rolls. The additional agility provided by these solutions allows for innovation around new service, managed services, and support offerings—reducing the barriers to testing market acceptance without the significant investment historically required.

Traditional value-added services (VAS) have typically required substantial investment in equipment. The ability to leverage virtualization technologies for implementation provides the additional benefits of lowering hardware commitments to support a service and scaling in line with consumption, as opposed to traditional models that have relied on significant steps in hardware to support growing feature sets, scaling, and performance of an implemented solution.

New services with high expectations of premium customer experiences add to the often conflicting priorities of maintaining stability while supporting innovation. Juniper's NFV Infrastructure (NFVI) and supporting services provide confidence in the deployment of new and innovative services including those requiring integration with an ecosystem of products.

To support that integration, VNF Lifecycle Services offer varying degrees of standardized inoperability testing support to validate 3rd party VNFs will perform successfully in the End User's cloud architecture.

Access Know you're ready	Interop Know you're ready	Scale Scale your customers	High Performance Know your limits
• Remote Access to Juniper NFVI • Single VNF • Single Service Chain	• Access + Single VNF • ETSI POC #2 • Single Service Chain • Juniper Validates the service • Juniper Assured Interop	• Load and scale testing of single VNF • Use of Juniper or third party provided load testers • Confirm Service Chain readiness	• Load and scale testing of multiple VNF Service Chain or Service Topology • EPC • VNF Vendor to supply test equipment • Custom Quoted
Service Readiness	Service Assurance	Scale with Confidence	Performance Benchmarking

Figure 1: VNF validation services

Your ideas. Connected.™

Juniper Networks Professional Services offers four levels of VNF validation services:

- **Access**: Remote access to Juniper NFVI allows VNF third-party vendors to cost-effectively shake out service deployments

- **Interop**: Access service plus validation by Juniper that your VNF interoperates in a Juniper NFVI

- **Scale**: Interop service plus load testing of your VNF on Juniper or customer provided hardware

- **High performance**: A bespoke customized service for complex service chain environments

Optional: All services may be complemented with a VNF plug-in or Heat Orchestration Template (HOT) creation service that provide assistance and support to create the configuration necessary to support your VNF use case within Juniper NFVI.
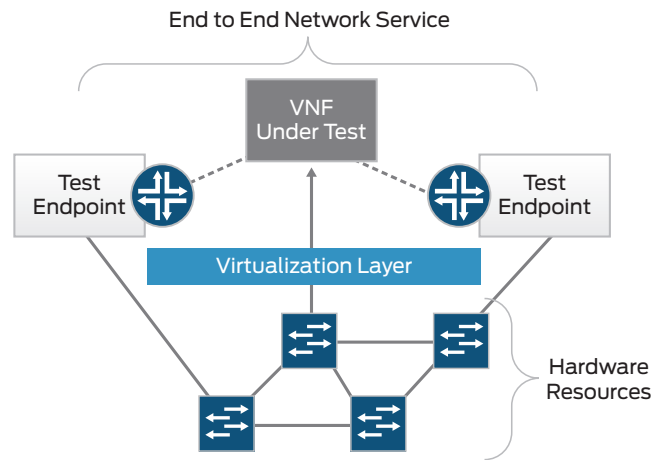

Figure 2: VNF validation topology

Features and Benefits

Access to Juniper NFVI	Customer has remote access to Juniper NFVI running the latest version of Contrail Service Orchestration, Juniper Networks Contrail, and OpenStack platforms.	• Confirm operation of VNF in industry standardized NFVI. • Avoid time and effort in setting up your own NFVI to confirm VNF use cases • Access to Juniper expert
Validation testing	Juniper experts validate your use case and interoperability in Juniper NFVI.	• Assurance that third-party VNFs interoperate • Inclusion in ecosystem of service offerings
Scaling test	Juniper applies load testing to VNF.	• Understand behavior at limit of performance
Plug-in and HOT creation	Juniper experts provide configuration to support VNF in Juniper NFVI.	• Efficient creation of the instantiation configurations for your use case

Service Scope

The service includes a single use case for a single VNF with up to two scale-out permutations.

Outline Methodology

When customers leverage these services, depending on level purchased, they will be provided with:

1. Access Service

- Remote access to a standard NFVI topology for their use

- Introductory call with Juniper expert to provide orientation of the topology along with contact details for support

- Two weeks of access to remote lab

2. Interop Service

All of the above, plus:

- Juniper will validate VNF use case by confirming the following tests

  - VNF instantiation

  - VNF deletion

  - VNF reconfigurations (as per scale-out use cases)

3. Scale Service

All of the above, plus:

- Juniper will apply load testing to the candidate VNF to show performance at limit

  - Bandwidth

  - Flows

4. High Performance

- For more complex testing and service chaining topologies, please contact your Juniper Networks representative to discuss

Service Deliverables

Specific deliverables will be defined for your requirements; the VNF Life Cycle services include:

- **Access**

  - Up to two weeks access to Juniper NFVI

  - Access to Juniper expert

- **Interop**

  - Test report

- **Scale Service**

  - Test report with scaling data

Additional Services to Optimize Your Network

Juniper Networks provides additional consulting services to consider along with the VNF Lifecycle Services. In addition to engagements that are customized for individual customers, a broad range of consulting and packaged implementation services is available to help you enhance your network design and optimize your production environment.

- **Cloud CPE Service Creation Advisory** - The Cloud CPE Service Creation Advisory Service is designed to enable Juniper virtualization solution (such as Cloud CPE) customers to accelerate the adoption of virtualization for business services and to help them to identify, define, evaluate and launch new services as well as evaluate the potential impact of new business models on existing services.

- **Cloud CPE Assessment** — The Cloud CPE assessment service enables network service providers to examine the existing services delivered by physical CPE devices and lay out a plan and roadmap for the decoupling of these services from physical hardware to virtualized solution.

- **Customer Field Trial Service** — The Customer Field Trail Service accelerates deployment and time to value by guiding and managing an initial Cloud CPE deployment. Juniper Professional Services can be engaged to launch initial field trials in limited markets before expanding across the entire customer portfolio.

- **NFV OSS Assessment** - The NFV OSS Assessment service focuses on the OSS/BSS design, management, orchestration, and integration aspects of NFV providing a roadmap and recommendations that can help justify the business case, and clarify how business objectives can be achieved through the deployment and integration of the Contrail Service Orchestration platform with OSS / BSS.

- **Cloud CPE Design and Deployment Services Package** — Cloud CPE Planning and Deployment services ensure the optimized design and deployment of Cloud CPE based networks with the Juniper Cloud CPE reference architecture.

In addition to the above services, Juniper can deliver capabilities to help customers plan, build and operate their Cloud CPE and other virtualization capabilities in their network. These include education services to help accelerate the training and knowledge of your own staff, on-site resident engineers to provide technical assistance and customer focused technical support services to deliver focused troubleshooting skills to help identify and resolve issues specific to customer deployment.

Juniper Networks Service and Support

Juniper Networks is the leader in performance-enabling services that are designed to accelerate, extend, and optimize your high-performance network. Our services allow customers to maximize operational efficiency while reducing costs and minimizing risk, achieving a faster time to value for your network. Juniper Networks ensures operational excellence by optimizing the network to maintain required levels of performance, reliability, and availability. For more details, please visit www.juniper.net/us/en/products-services.

Ordering Information

To order the VNF Life Cycle services or for additional information, please contact your Juniper account manager. Before the service begins, a statement of work (SOW) will be established outlining the scope of effort to be performed.

Model Number	Description
PRO-CONSULT-CUSTOM	VNF Life Cycle Services

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

Corporate and Sales Headquarters

Juniper Networks, Inc.

1133 Innovation Way

Sunnyvale, CA 94089 USA

Phone: 888.JUNIPER (888.586.4737)

or +1.408.745.2000

Fax: +1.408.745.2100

www.juniper.net

APAC and EMEA Headquarters

Juniper Networks International B.V.

Boeing Avenue 240

1119 PZ Schiphol-Rijk

Amsterdam, The Netherlands

Phone: +31.0.207.125.700

Fax: +31.0.207.125.701

JUNIPER
NETWORKS