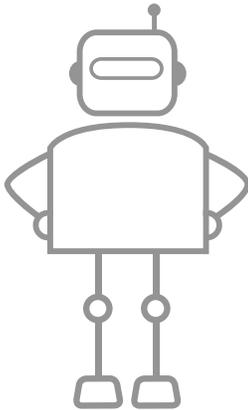


A SolidFire Datasheet

OpenStack Use Case: Network Function Virtualization (NFV)

Build a cloud-enabled, next generation network



Networking is the backbone of any data center, and its critical role has often meant a slow evolution. Network Function Virtualization (NFV) is rapidly evolving how network functions, such as routers and firewalls, are deployed and maintained — quickly becoming the foundation upon which next generation networks will be built. NFV is replacing dedicated networking appliances with software and automation, offering agility, flexibility, and simplicity. As such, it's become a key use case for telecommunication companies deploying OpenStack.

NFV with OpenStack

Next generation service provider and telecommunication networks can accelerate NFV deployments with OpenStack. NFV allows physical network appliances to become software running within virtual machines or containers. NFV decouples software from hardware, making network functions — such as firewalls, load balancers, and packet inspection, among others — independent from underlying hardware. As functions move to more flexible API-driven software, new opportunities for innovation emerge. Barriers for cutting-edge services are reduced, and new capabilities can be brought to market faster.

NFV runs best on OpenStack because it is “essentially a fit-for-purpose cloud for deploying, orchestrating, and managing virtual network functions.”¹ Because OpenStack is open source and modular by design through its myriad core and big tent projects, it enables telcos to deploy bespoke-on-commodity systems and eliminate unnecessary components and features.

OpenStack Tacker

OpenStack developers have created the Tacker project for NFV. Tacker controls deployment of virtual network functions within an OpenStack cloud. Utilizing an NFV approach is appropriate in OpenStack when:

1. The economics make sense

NFV is powerful for organizations with large networks that can take advantage of economies of scale. Because NFV virtualizes specialty network appliances onto commodity hardware, purchasing larger quantities of generic hardware can reduce both CapEx and OpEx. Additionally, assets can be recycled to build a larger OpenStack cloud that leverages next generation platforms, and vendor choices expand without specialty hardware lock-in.

2. Increased innovation and flexibility are desired

With no hardware to build and deploy, organizations can accelerate time to market for applications, network devices, and new services. The entire network becomes more flexible, scalable, and elastic. NFV allows network operators to avoid the long innovation lifecycle of specialty hardware and take advantage of software innovation on a commodity hardware cloud platform. As workloads shift and new user requirements emerge, the network adapts via software automation.

Why SolidFire for NFV

NetApp SolidFire — optimized for large scale, elastic clouds — is an ideal storage platform on which to run OpenStack NFV workloads. SolidFire provides a resilient, integrated system well-suited for many small VMs.

Resiliency at the storage layer

SolidFire is ideal for virtualized cloud workloads. These environments consist of large populations of virtual machines or containers driving diverse storage workloads. SolidFire's guaranteed Quality of Service (QoS) and self-healing architecture allow network functions to run without concern of disruption from the storage layer. VMs and containers supporting network functions receive predictable performance through SolidFire's guaranteed QoS, ensuring that no one virtualized network function becomes a noisy neighbor for others.

Cloud elasticity meets demands quickly

Our scale-out architecture allows the OpenStack NFV deployment to physically scale up or scale down seamlessly and non-disruptively as needed to meet demands with minimal management intervention. Furthermore, SolidFire supports a

utility-consumption model, whereby new services can be spun up quickly from a secure, shared pool of available performance and capacity resources and given back to the pool when no longer needed.

Deep OpenStack integration

With our fully API-driven capabilities, SolidFire is a strong platform that was built from the ground up for cloud. Our deep integration with OpenStack and plug-in for Docker containers simplifies management through automated storage provisioning workflows for virtualized network functions. As an entirely API-driven storage platform, workflow automation goes beyond simply storage provisioning. SolidFire features such as QoS, replication, and snapshots can all be managed from within OpenStack.

Rapid time to value

SolidFire is a totally modern storage platform built from the ground up, making it simple to operate and deploy. Growing, shrinking, refreshing, and adjusting to ever-changing performance goals all become simple software-controlled operations. SolidFire enables fast time to value by rapidly creating environments and workflows and cloning existing production resources to use as templates for new resources. Through our OpenStack integration, SolidFire is able to service API calls to our storage system from the cloud orchestration layer. From storage deployment to cloud integration, SolidFire is all about making the cloud faster and easier.

For more information on SolidFire and OpenStack, visit www.solidfire.com/openstack.

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