FlexPod

Solution Brief

FlexPod SF with SolidFire and Red Hat OpenStack Platform

Unlock new business opportunities with easy-to-deploy OpenStack cloud infrastructure

For many businesses, the ability to deploy production-ready cloud infrastructure dependably and rapidly is a competitive differentiator. In a world where change is a constant, new modes of operation are driving increased efficiency and productivity, and the organizations that can tap the right technology to deliver business results will be the ones that succeed.

Enabling Business with a Next-Generation Data Center

Tapping into the advantages of a next-generation data center to deliver an agile, predictable, scalable, and automated cloud infrastructure for OpenStack cloud projects can mean the difference between success and failure.

An agile cloud infrastructure enables businesses to quickly pivot to new growth opportunities that appear. It allows businesses to be effective not only at responding to changing requirements but also at facilitating the innovation of new products, solutions, and services for customers.

A predictable and stable cloud infrastructure delivers confidence that your infrastructure will handle demands no matter how extreme. It must deliver guaranteed performance and support service levels that automatically adjust to meet the needs of specific applications.

Modern businesses also require cloud infrastructure that easily scales with rapidly changing application requirements. Scalability can mean the difference between supporting a handful of customers and supporting tens of thousands

cisco NetApp

FlexPod SF with Red Hat OpenStack Platform

For Next Generation Data Center

SF9608 Storage Node

- Built on Cisco C220 M4 Chassis
- 8 Samsung 960GB SSDs
- 10GE iSCSI
- Supported as a FlexPod configuration
- Minimum 4-node cluster
  - –300,000 IOPS & 30TB effective
- 1-node incremental scaling
  - –75,000 IOPS & 10TB effective

Compute

- Cisco UCS B-Series M5 Blade Servers
- Connect to UCS 6300 and 6200 Fabric Interconnect

Network

- Nexus 5K and 9K

OpenStack

- Red Hat OpenStack Platform 10

of customers. Matching the scalability of your cloud infrastructure to support the scale of the business is fundamentally important.

Finally, no modern-day business can afford to manually maintain its infrastructure at scale. Automation is key. A next-generation data center infrastructure frees your IT staff to do what they were hired for: innovate your infrastructure and advance your business to the next level.

Next-Generation Data Center Realized with FlexPod SF with Red Hat OpenStack Platform

FlexPod® SF is an innovative cloud storage infrastructure solution with the proven performance, proven agility, and proven value required for today's enterprises. It provides all-flash, scale-out, block-based storage built using the NetApp® SolidFire® Element® OS, Cisco Unified Computing System (Cisco UCS) servers, and Cisco Nexus switching. It is designed to support multiple applications, clients, and tenants with the precise storage capacity and performance that each one needs. You can leverage built-in policy-based capacity planning and workload management to maximize economic use of resources and to make sure of consistent performance for all workloads. You can make economical use of resources with native replication and deduplication capabilities.

Building on long-demonstrated FlexPod Datacenter and SolidFire foundations of OpenStack successes, FlexPod SF with Red Hat OpenStack Platform is the first OpenStack solution based upon FlexPod SF. FlexPod SF with Red Hat OpenStack Platform is a joint NetApp, Cisco, and Red Hat solution that delivers all of the key benefits of a next-generation data center infrastructure for cloud environments. The entire solution is a turnkey cloud infrastructure with storage, compute, networking, and OpenStack software all included.

Agility with a Responsive Infrastructure

Standing up an OpenStack cloud is dramatically simplified with FlexPod SF with Red Hat OpenStack Platform. It is a turnkey solution containing all the storage, compute, networking, and software necessary to be up and running quickly. It leverages the NetApp SolidFire Cinder driver to easily provision storage with per-volume quality of service (QoS) without day-zero storage management overhead.

After being deployed, this solution flexibly supports diverse cloud workloads, all running on the same infrastructure. With built-in volume-level quality of service, applications can be added without compromising the performance of other applications. The granular, scale-out design enables independent scaling of performance and capacity to support new applications without downtime.

Automation to Simplify IT

The OpenStack deployment process is completely automated using Red Hat OpenStack Platform director which installs and configures OpenStack services in a highly available manner. Heat Orchestration Templates enable prescriptive guidance for configuring network isolation for different traffic, network interfaces on the OpenStack nodes, NetApp SolidFire Cinder driver and Cisco neutron drivers to provide a pre-validated and risk-free OpenStack cloud experience out of the box.

Predictable Performance

This solution delivers guaranteed storage performance for every cloud workload running on it to make sure that consolidation is effective at scale. With a high-performance infrastructure, more applications can be consolidated. The SolidFire all-flash QoS capabilities eliminate 93% of storage performance issues and remove "noisy neighbors": applications that monopolize storage I/O. SolidFire provides the ability to independently set capacity and minimum, maximum, and burst performance at the storage volume level to guarantee service for scalable multitenant workloads. NetApp SolidFire scale-out all-flash storage delivers guaranteed storage performance to thousands of OpenStack workloads running simultaneously.

Reduced Risk

The FlexPod SF solution has been tested and validated with a Cisco Validated Design. It includes:

- Cisco UCS blade servers to support virtualized and nonvirtualized applications
- Cisco UCS fabric interconnects to provide a single point of management and connectivity for the computing domain
- Cisco Nexus switches with support for 3.6Tbps of bandwidth
- NetApp SolidFire storage cluster for flexible scale-out capacity and performance

Ability to Scale Performance Without Disruption

Dynamically scaling performance and capacity independently and nondisruptively means customers and their workloads receive a consistent level of service at all times. It also enables the ability to respond rapidly to changing business demands. This approach increases overall QoS and leads to greater user satisfaction, without the need to migrate data or interrupt I/O processing.

Worldwide Support

The FlexPod Cooperative Support Model leverages the combined experience, resources, and technical expertise of NetApp, Cisco, and Red Hat to deliver simplified, flexible support. The joint model offers:

- Global 24/7 support
- Streamlined response from technical experts
- Support for new and legacy products from each company

FlexPod SF with Red Hat OpenStack Platform delivers the agility, predictability, scale, and automation required for success.

To learn more about FlexPod SF and other FlexPod solutions, visit https://www.netapp.com/us/products/converged-systems/flexpod-converged-infrastructure.aspx.

About NetApp

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation and optimize their operations. For more information, visit www.netapp.com. #DataDriven