

Rewire your CloudStack Storage for Guaranteed QoS

Using CloudByte ElastiStor



Introduction

Apache CloudStack

Apache CloudStack is a leading open source cloud computing and Infrastructure-as-a-Service (IaaS) platform to create and manage cloud services. Many of the world's largest public and private clouds use CloudStack.

CloudStack is easy to implement, yet massively scalable. It is flexible and can cope with demanding requirements.

The ease of deployment and use is accompanied by an interactive web UI alongside encompassing multiple hypervisor support for the world of VMs.

But wait; have you thought about the assurance that you have on the Quality of Service?

All is great, except for the legacy approach to storage

When it comes to Quality of Service, the basic issue to overcome in CloudStack is that it is built from ground up to expect storage to be preallocated by an administrator and then added as a primary storage.

All the VMs' root disks and data disks are meant to share a given primary storage. Therefore, when you scale the VMs, each VM can't guarantee Quality of Service, making it a major management worry.

The administrator has to go through several layers to expose a storage volume to CloudStack. From the CloudStack perspective, this model is easy and simple. But unfortunately, it lacks the storage automation and Quality of Service.

In a large-scale cloud infrastructures, it is all too easy for one application to consume a disproportionate amount of storage resources. This creates a scenario where many applications suffer performance degradation at unpredictable intervals. In fact this drawback is what hinders the enterprises to move their mission-critical applications to the cloud these days.

- Introduction
- Augmenting CloudStack with CloudByte ElastiStor
- CloudByte ElastiStor Plug-in for CloudStack features
- How to integrate CloudByte ElastiStor with CloudStack
- Further reading

**CloudByte ElastiStor
Supports
CloudStack 4.5**

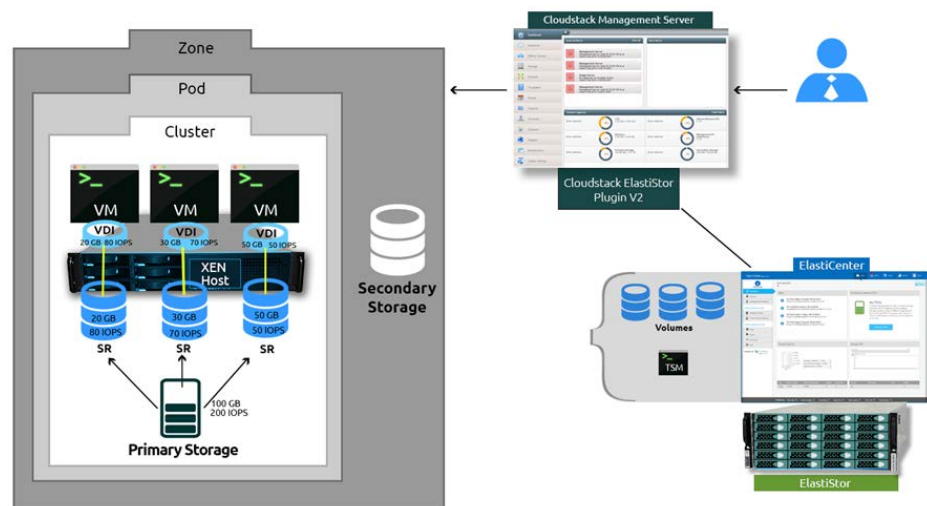
Augmenting CloudStack with CloudByte ElastiStor

CloudByte offers a storage plug-in for CloudStack 4.5 that addresses the QoS concerns in the cloud environment as well as storage automation.

The plug-in rewires the storage framework to guarantee QoS to every VM. It sets up a one to one mapping between a CloudByte volume (supporting both NFS and iSCSI) to a VM's disk, eliminating the noisy neighbor issue.

Integration architecture

As illustrated in the following diagram, CloudByte resolves the noisy neighbor issue by creating a one-to-one mapping with its Storage Volumes to the VMs on CloudStack.



You have a dedicated Volume for each VM that guarantees QoS. Primary Storage is mapped to VSMs in ElastiStor and the Volumes are mapped to the Storage Repositories (SR). SRs in turn map to the VM disks. Therefore, each VM can be tiered in to different IOPS and sizes.

CloudByte ElastiStor Plug-in features

- Guarantees QoS for each VM disk thereby eliminating the noisy neighbor issue.
- Supports resizing of the Volume.
- Can change the Volume IOPS on the fly as per the requirement.
- Supports both ISCSI and NFS protocols.
- QoS-guaranteed storage support for all major hypervisors such as Xen, VMware and KVM.
- Support for storage level snapshots and hypervisor level snapshots.
- Fully automated storage provisioning through CloudStack.
- Easy management. For details see the following section.

Easy Management using CloudStack dashboard

CloudByte ElastiStor REST APIs provide a bundle of functions that encompasses all the features in the CloudByte ElastiStor Administrator Console (CloudByte ElastiCenter).

A CloudStack Administrator can provision all the virtual storage infrastructure of CloudByte ElastiStor from the CloudStack itself.

The screenshot shows a 'Add Primary Storage' dialog box with the following fields and values:

- Scope: Cluster
- * Zone: zone
- * Pod: pod
- * Cluster: xencluster
- * Name: CloudbyteSR
- Storage Tags: CB-SR
- Provider: CloudByte
- * Pool: devpool1
- * Capacity (In GB): 200
- * IOPS: 300 (with a slider and a 250 input field)
- * TSM IP: 20.10.22.59
- * Subnet: 16
- * TSM Interface: em0 (active)
- * Domain: ROOT

Buttons: Cancel, OK

How to integrate CloudByte ElastiStor with CloudStack

The procedures to integrate CloudByte ElastiStor with CloudStack are elaborately documented at the following URL:

<http://www.docs.cloudbyte.com/cloudbyte-elasticstor-plugin-for-apache-cloudstack/>

Further reading

[Citrix Success Story](#)

Find out why Citrix chooses CloudByte ElastiStor for deploying a private cloud.

[Guaranteed QoS for shared storage](#)

Learn how CloudByte ElastiStor guarantees QoS right from shared storage.

[CloudByte ElastiStor REST APIs](#)

CloudByte ElastiStor provides REST APIs to configure and manage ElastiStor Node. You can build your own GUI to manage the Nodes.

[Virtual Storage Machines](#)

Know more about the patent-pending VSM architecture.



20863 Stevens Creek Blvd, Suite 530
Cupertino, CA 95014 USA
Toll Free: +1-855-380-BYTE (2983)
+1-(408)-663-6900