Piston Enterprise Openstack Cloud-in-a-Box

The coolest, hyperscalable turnkey Openstack cloud-in-a-box solution on the market... literally.

Cirrascale® provides a great starter platform for your Cloud-in-a-box solution with 9 nodes in a rackmountable Cirrascale Modular Blade Chassis, featuring Piston Enterprise Openstack. Specifically tuned to be a balanced node offering plenty of CPU compute and dedicated drive capacity, the solution contains the Cirrascale VB1416 and provides up to 72 cores and 27TB of Virtual Machine storage. This is all tied together with an Arista Networks 10Gbase-T Ethernet switch and integrated SSD for provisioning all the nodes once they are powered up. Cirrascale allows you to scale as your cluster needs to grow. These 9 blades can migrate into a 72 slot BladeRack 2 XL for a truly dense, extremely energy-efficient, hyper-scalable Piston Cloud deployment.

Bare-Metal Private Cloud

Piston Enterprise OpenStack is a bare-metal cloud operating system for deploying and managing an infrastructure-as-a-service private cloud environment. A turnkey solution that delivers virtual servers, storage and networking through self-service interfaces, Piston Enterprise OpenStack can scale to manage tens of thousands of physical cloud nodes.

Piston Enterprise OpenStack is 100% interoperable with other OpenStack products and is perfect for deploying on commodity hardware, such as in a Cirrascale Modular Blade Chassis with nine VB1416 blade servers, in combination with modern networking switching hardware from Cisco, Brocade, Arista or Juniper. No additional storage equipment or proprietary hardware is required.

Moxie HA for High Availability

Piston Cloud's Moxie HA high-availability framework implements Paxos as a distributed lock manager in the control and management plane of the converged infrastructure. We've done this by building upon ZooKeeper (a distributed consensus system) to deliver configuration management and service orchestration with multi-server idempotency. Beyond getting the right jobs running in the right places, however, you need to keep them running. Moxie HA provides a fault-tolerant, master-elected job runner with a distributed watchdog service that implements strong fencing.

Storage

True high-availability requires a flexible shared storage fabric. Piston Enterprise OpenStack delivers this, out of the box, using Ceph - a commercially supported open source distributed software storage solution. Using MoxieHA, we automate the provisioning and management of your underlying Ceph devices. Using a null-tier architecture approach, this delivers a complete virtual SAN solution using nothing but direct-attached drives off of the same servers that provide capacity for your virtual machines.

Features at a Glance

- True cloud philosophy is baked into every part of this solution.
- 9 customizable blades contained in 17U (XL) of space.
- Built on industry standard Openstack Release 6.
- Utilizes Industry Leading Patented Vertical Cooling Technology™
- Bare-metal private cloud, MoxieHA fault tolerance, and high availability storage with Ceph.
- Enterprise class compute with VMS.

PISTON {CLOUD} COMPUTING

Cirrascale's Piston Enterprise Openstack Cloud-in-a-Box Modular Blade Chassis

For best performance, we recommend using solid-state drives (SSDs) in JBOD mode for this converged storage, and allowing Ceph and MoxieHA to manage redundancy and replication. Enterprise OpenStack also supports pass-through mode, allowing you to take advantage of existing infrastructure with more traditional RAID-based SAS or SATA equipment.

Compute

KVM is the world's most popular open source hypervisor, used in the vast majority of OpenStack deployments. But KVM doesn't support true no-downtime live migration, and its lack of memory oversubscription can hurt the economics of a private cloud deployment by limiting the number of VMs on each host. Piston Enterprise OpenStack includes Virtual Memory Streaming (VMS), a commercial extension to KVM that provides true live migration and powerful multi-server memory oversubscription. Even more exciting, VMS provides a unique instance cloning capability that allows you to launch additional virtual machines to a completely running state in less than a second.

Modular Blade Chassis Platform Specifications

Below are the generalized specifications for the Cirrascale Modular Blade Chassis configured for use with Piston Enterprise Openstack v2.

Description	Specifications
Total Blade Capacity	9 Blades
Units per Standard Rack	3
Cooling Technology	Patented Vertical Cooling
Max Cores	Up to 72 cores
Virtual Machine Storage	Up to 27TB
BladeRack 2 Compatibility	Yes, Blades are interchangable with the BladeRack 2 XL
Blade Management	IPMI 2.0 / AMT
Dimensions	Height: 756 mm (29.75 in.) Width: 609 mm (24.0 in.) Depth: 914 mm (36.0 in.)
Max Weight	181.4kg (400 lbs.)
Power System	Auto-Sensing 208V - 240V, 50/60Hz, 20A Power Input High-Efficiency: In Excess of 85% at 208VAC Input Power

About Cirrascale

Cirrascale Corporation is a premier provider of blade-based GPGPU, cloud computing and storage infrastructure for conventional and containerized data centers. Cirrascale leverages its patented Vertical Cooling Technology to provide the industry's most energy-efficient standards-based platforms with the lowest possible total cost of ownership in the densest form factor. Cirrascale sells to large-scale infrastructure operators, hosting and managed services providers, Cloud Service Providers, and HPC users. Cirrascale also licenses its award winning technology to partners globally.

Contact Us Today

To learn more about Cirrascale and its unique data center infrastructure solutions, please visit us on our website at www.cirrascale.com or contact one of our Account Managers by calling (888) 942-3800.

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