# Case Study – SME Service Provider

# SME Service Provider

*Our client wanted to introduce an AWS like elastic multi-tenant IaaS to its managed service customer base in order to complement its existing traditional VMWare vCloud managed service offering.*

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# The Challenge

*The client wanted to avoid vendor lock in and thus an Open Source product with wide spread community support and a quick release cycle was mandated.*

API based access in addition to traditional enterprise features such as high availability and load balancing was also highly desirable. The client wanted its solution to be scalable and robust with the ability to provide its customers with a self-service portal. Lastly, the client wanted to support live migration and shared storage to provide their customers with transparent failover in case of hardware failure. Finally, the client also wanted to deploy a highly scalable object store to give its enterprise customers an offsite archive and backup solution that integrated with a single identity management system.

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# The Aptira Solution

*Aptira proposed a cloud solution powered by OpenStack to meet the client's requirements.*

OpenStack is a large-scale open source cloud computing initiative, founded to drive community established industry standards, end cloud lock -in, and accelerate the adoption of cloud technologies by service providers and enterprises. OpenStack has various components that work together to provide a scalable and robust public/private cloud solution and allows users to migrate or burst seamlessly from one to the other. OpenStack is fully compatible with the EC2 API and makes migration from AWS to OpenStack very easy.

OpenStack also offers services like Elastic Compute, Network Virtualisation, Block Storage as a Service and Object Storage. To provide the customer with load balancing and availability, Aptira used ngnix frontend for API services. Aptira also deployed a CEPH cluster to provide a distributed storage for the block storage service. Using the same CEPH storage cluster, Aptira were also able to provide shared storage for running instances and enable high availability and live migration. By virtue of using commodity servers, Aptira were able to deliver a cost effective solution that eliminated the need for an expensive SAN or NAS storage.

Aptira also set up Network Virtualisation for the customer allowing each tenant on the system to have its own VLAN and its own security groups. This also allowed the client to extend their existing network to work seamlessly with the new OpenStack setup. Aptira used Zenoss to setup the monitoring for various OpenStack components.

Aptira chose Dell hardware for the project. Ubuntu 12.10 was used as the base operating system to deploy OpenStack Folsom. Aptira used Ubuntu Preseed and Puppet configuration manager to fully automate the deployment of the software and configuration. Aptira also wrote custom Puppet code to install CEPH on various storage nodes. solid.

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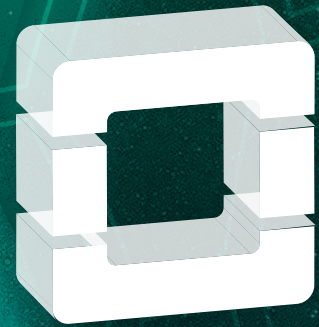
# The Aptira Solution *(Continued)*

## The components and their hardware configurations were as follows:

- OpenStack Keystone Identity Service
- OpenStack Swift Object Store
- OpenStack Glance Image Service
- OpenStack Nova Compute Service
- OpenStack Neutron Network Service
- OpenStack Cinder Block Storage Service
- CEPH Distributed File System

## The following hardware configuration was used to deploy and manage the services:

- 1 x Admin and puppet node comprising of a single Dell R610 Dual Quad core Xeon E5620, 48GB RAM, Dual 1Gb NICs
- 40 x Compute nodes comprising Dell R720xd Dual Hex core Xeon E5-2620, 192GB RAM, Dual 10GbE NICs (480 cores, 7.5 Tb RAM)
- 2 x Swift Proxy and 2 x Glance Image Server comprising Dell R610 Dual Quad core Xeon E5620, 64GB RAM, Dual 10 Gb NICs each
- 10 x Swift Storage nodes comprising Dell R720xd Dual Hex core Xeon E5-2620, 48 GB RAM, Dual 10 GbE Nics, 12 x 3TB SATA HITACHI Drives (360 TB of Storage)
- 3 x CEPH Storage nodes comprising Dell R720xd Dual Hex core Xeon E5-2620, 48 GB RAM, Dual 10 GbE Nics, 12 x 3TB SATA HITACHI Drives (108 TB of Storage)

# The Result

*The client has a cloud solution that provides a competitive product offering to their clients and complememnts their managed services portfolio.*

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