OPENSTACK

OpenStack

- OpenStack is an open and scalable cloud management platform (CMP) for building public and private clouds.
- It is a system designed to provide infrastructure as a service (IaaS)
- OpenStack is free and open-source software released under the terms of the Apache license and managed by the OpenStack Foundation

OpenStack Components

- Keystone – Identity service
- Horizon – Web GUI
- Nova – Compute service
- Glance – Image service
- Neutron – Network services (formerly called Quantum)
- Cinder – Block storage service
- Swift – Object storage service

OpenStack Componenets

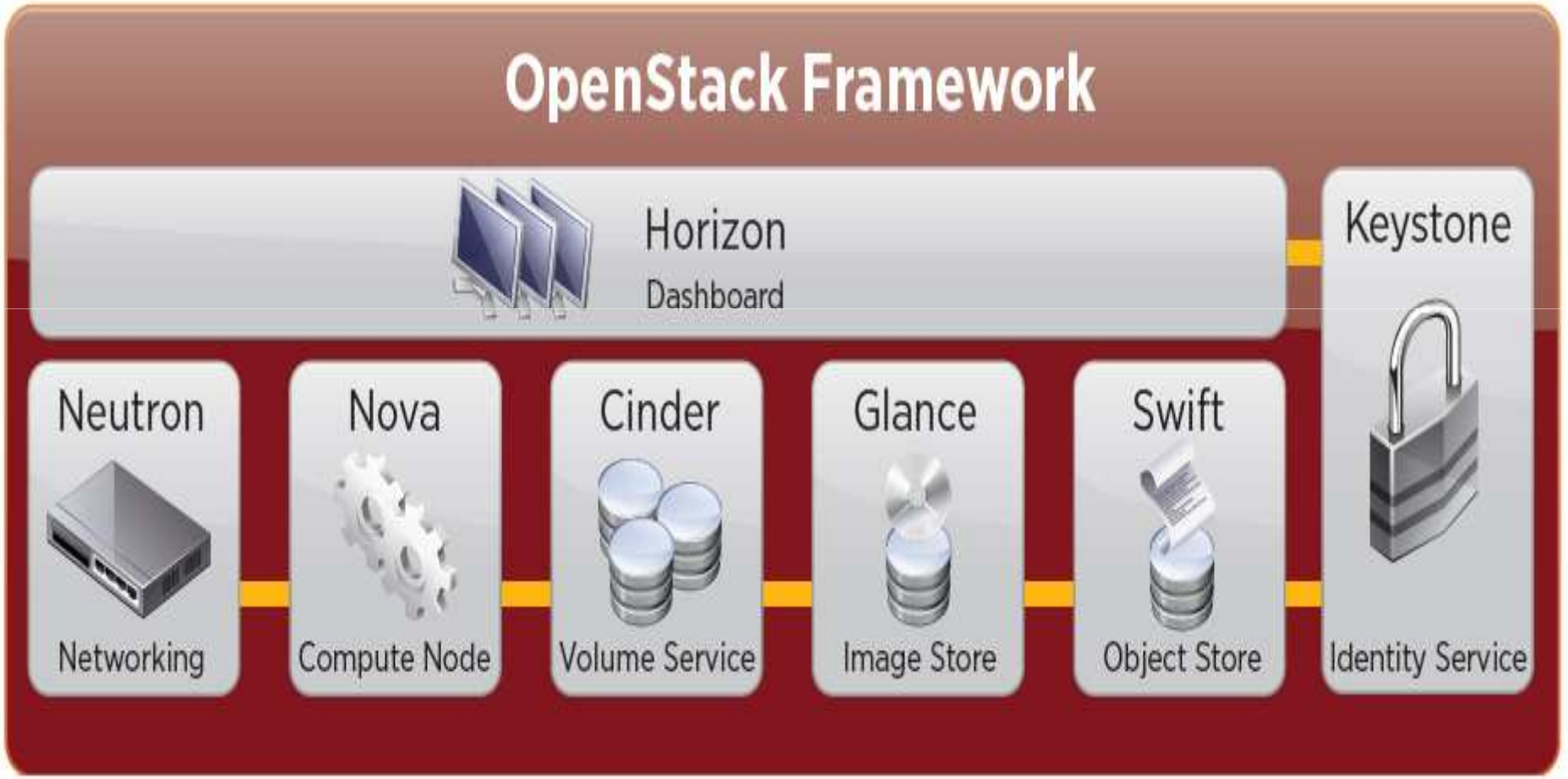


Figure 1. OpenStack Components

Using OpenStack with vSphere

- vSphere has a long history of being a stable and resilient platform that offers many benefits to host cloud infrastructures.
- Many vSphere features facilitate the implementation of OpenStack by simplifying configuration and reducing the number of steps required to provide resources
- vSphere platform capabilities are exposed to OpenStack using drivers that map OpenStack requests into equivalents that VMware solutions can interpret.
- VMware provides these drivers to the OpenStack community free of charge.

OpenStack and VMware vSphere

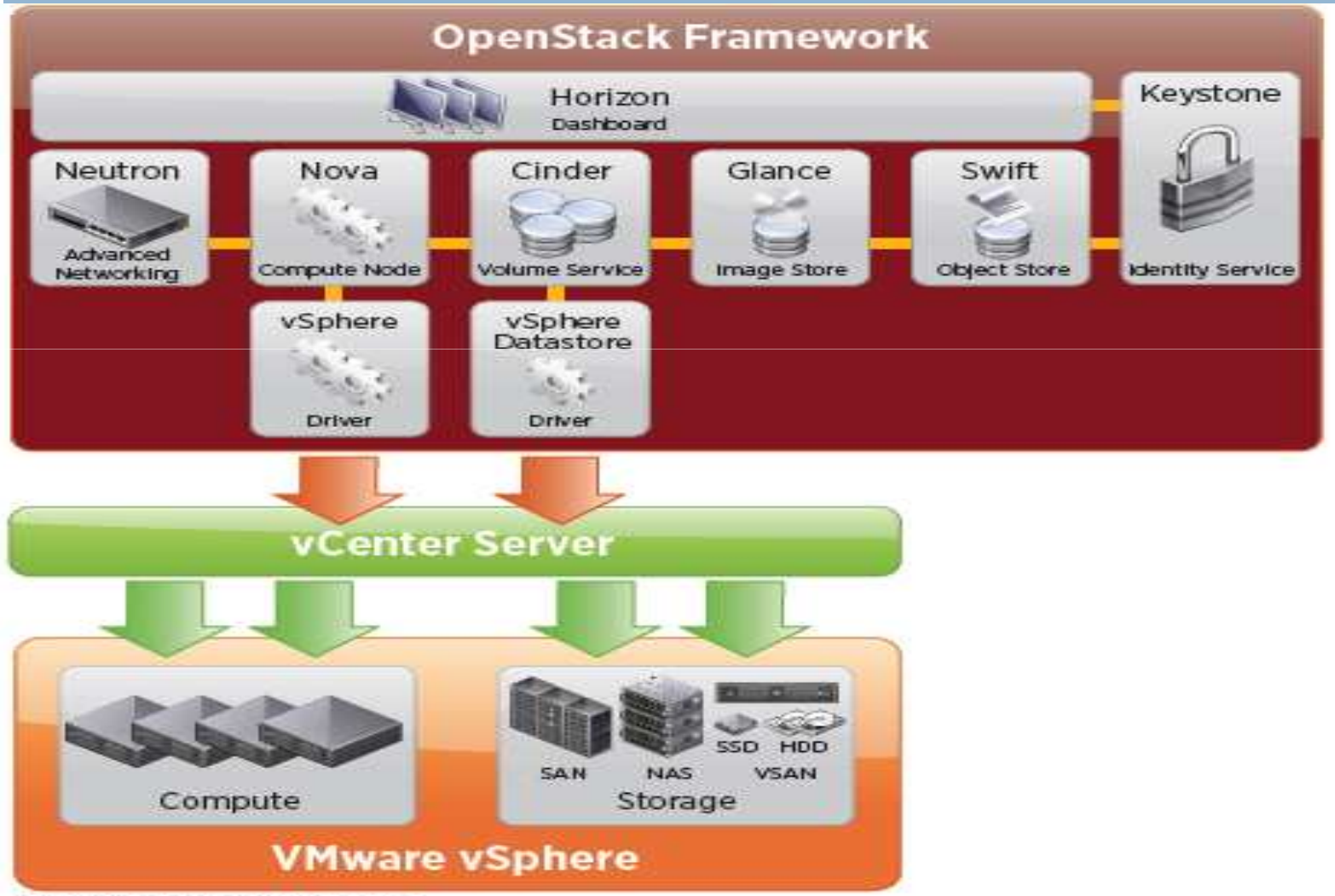


Figure 2. OpenStack and VMware vSphere

OPENNEBULA: OPEN SOURCE VIRTUAL MACHINE MANAGER FOR CLUSTER COMPUTING

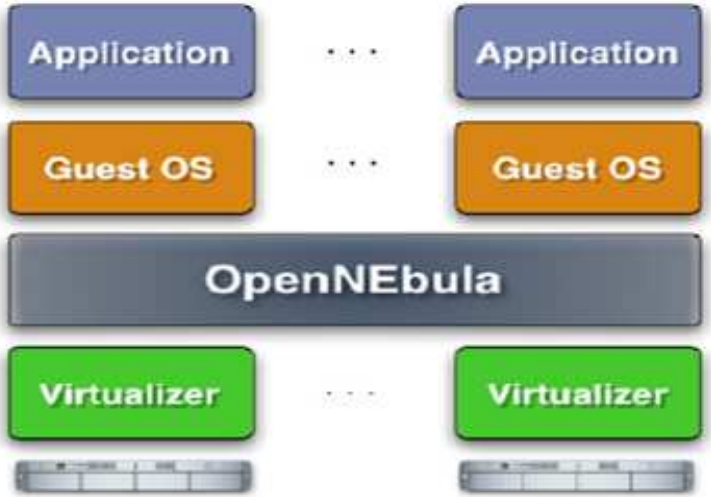
Overview

- What is OpenNebula?
- System Overview
- Dynamic Provisioning of Computational Clusters

What is OpenNebula

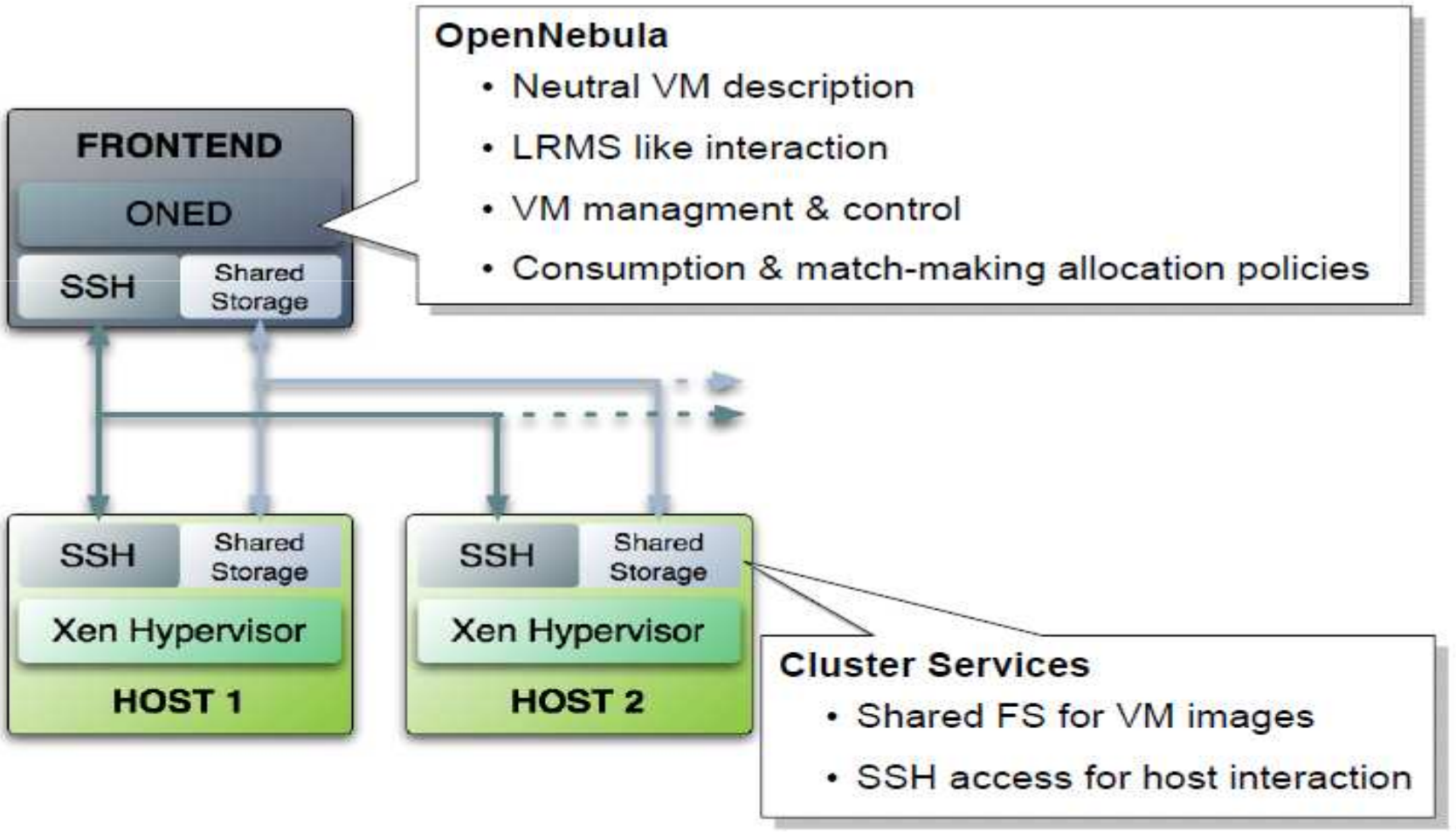
OpenNebula: Open Source Virtual Machine Manager for Cluster Computing

- Transform a distributed infrastructure into a flexible virtual infrastructure
- Adapt it to the changing demands of the the service workload
- OpenNebula is a *distributed virtualization layer*:
  - Extend the benefits of VMMs
  - Decouple the service from the physical infrastructure

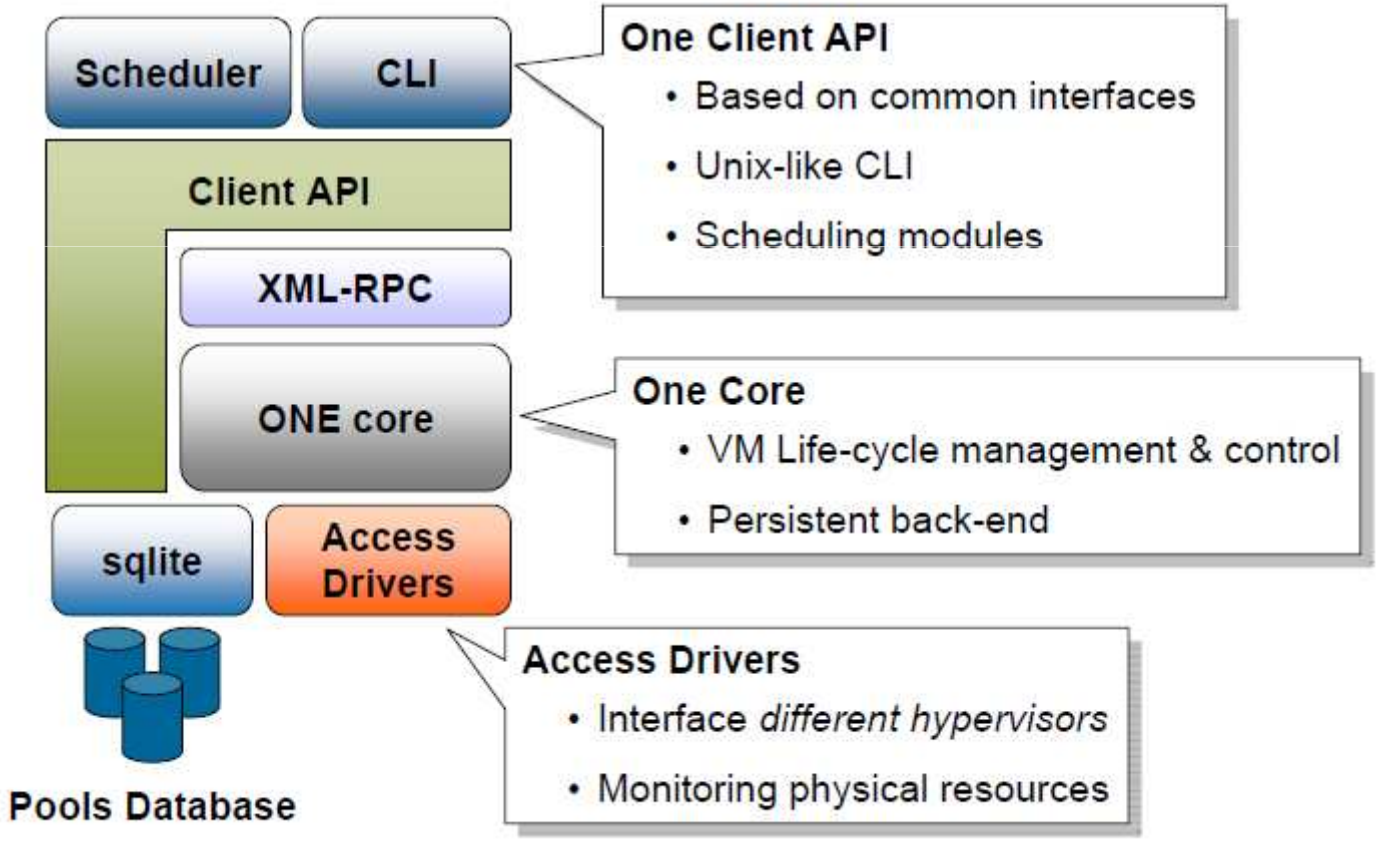


System Overview

OpenNebula: Open Source Virtual Machine Manager for Cluster Computing

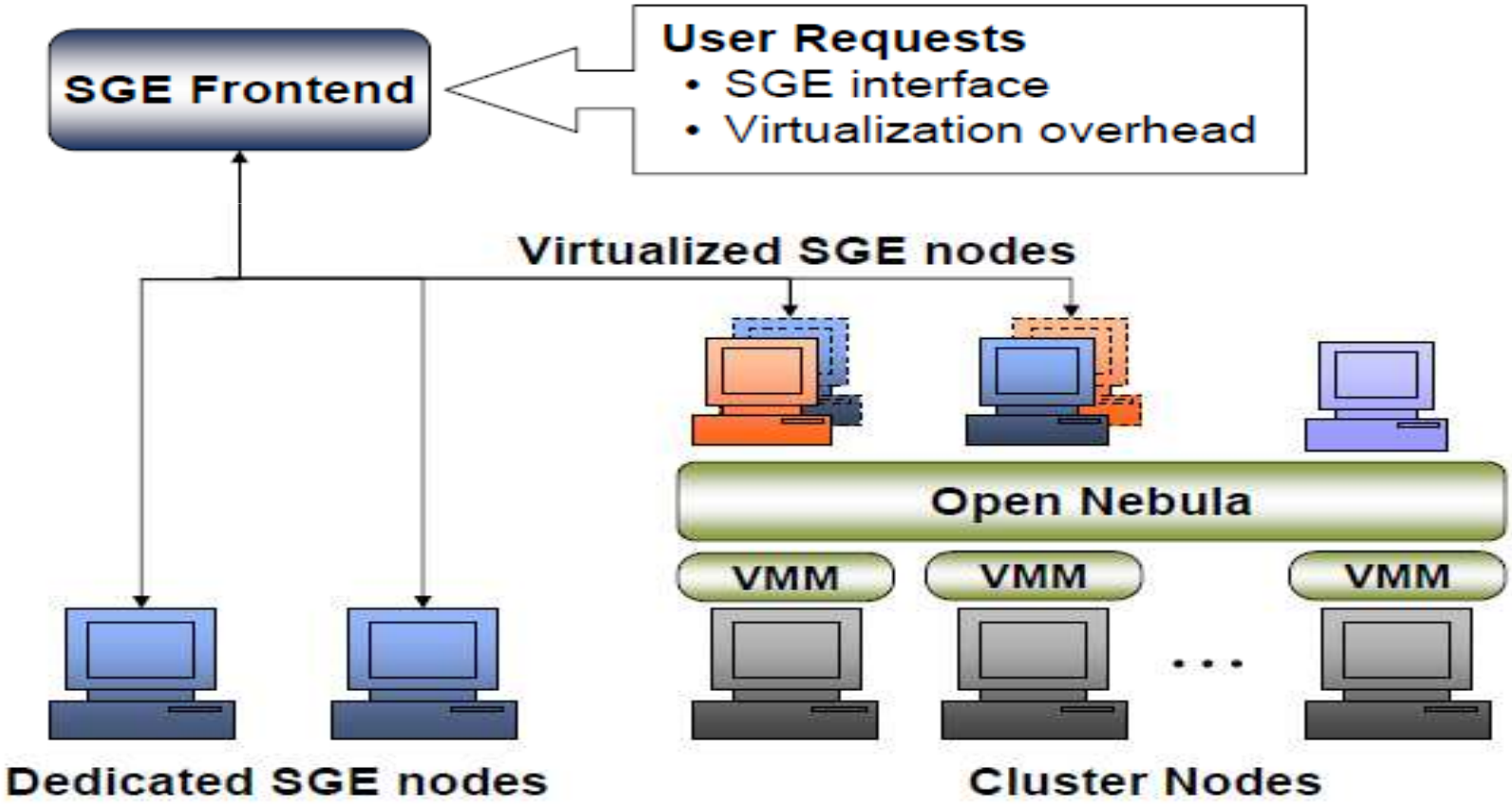


System Overview



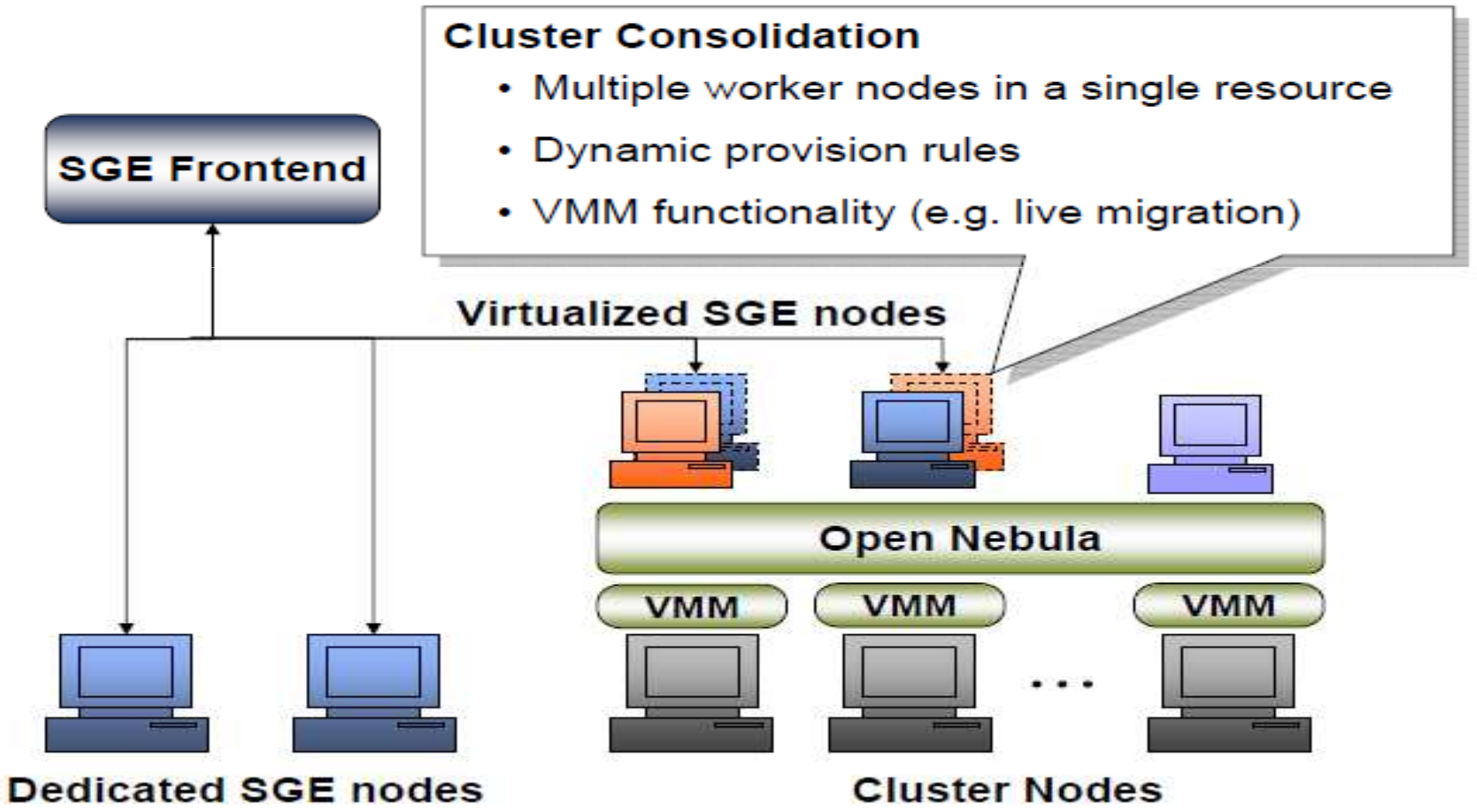
Dynamic Provisioning of Computational Clusters

OpenNebula: Open Source Virtual Machine Manager for Cluster Computing



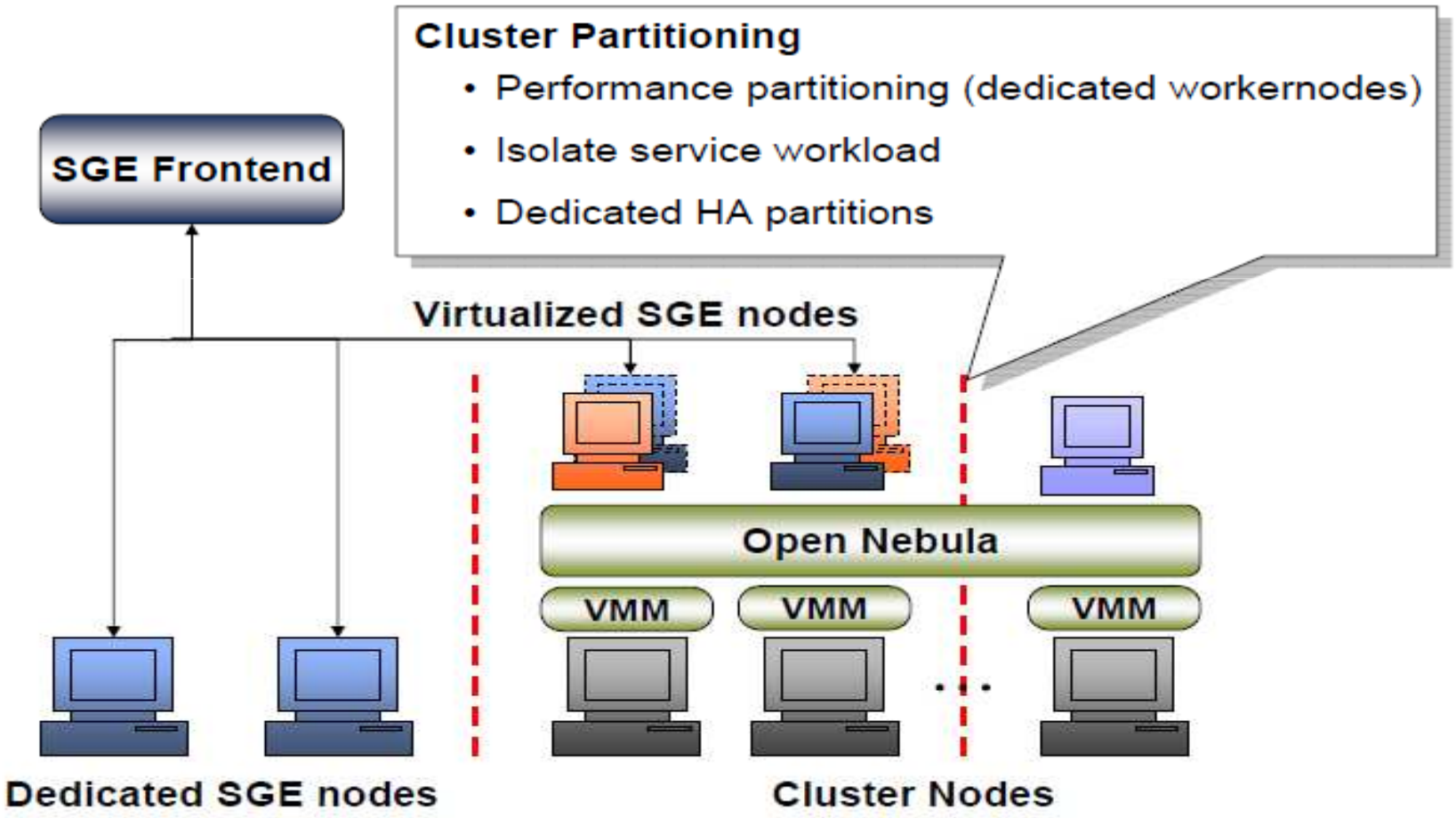
Dynamic Provisioning of Computational Clusters

OpenNebula: Open Source Virtual Machine Manager for Cluster Computing



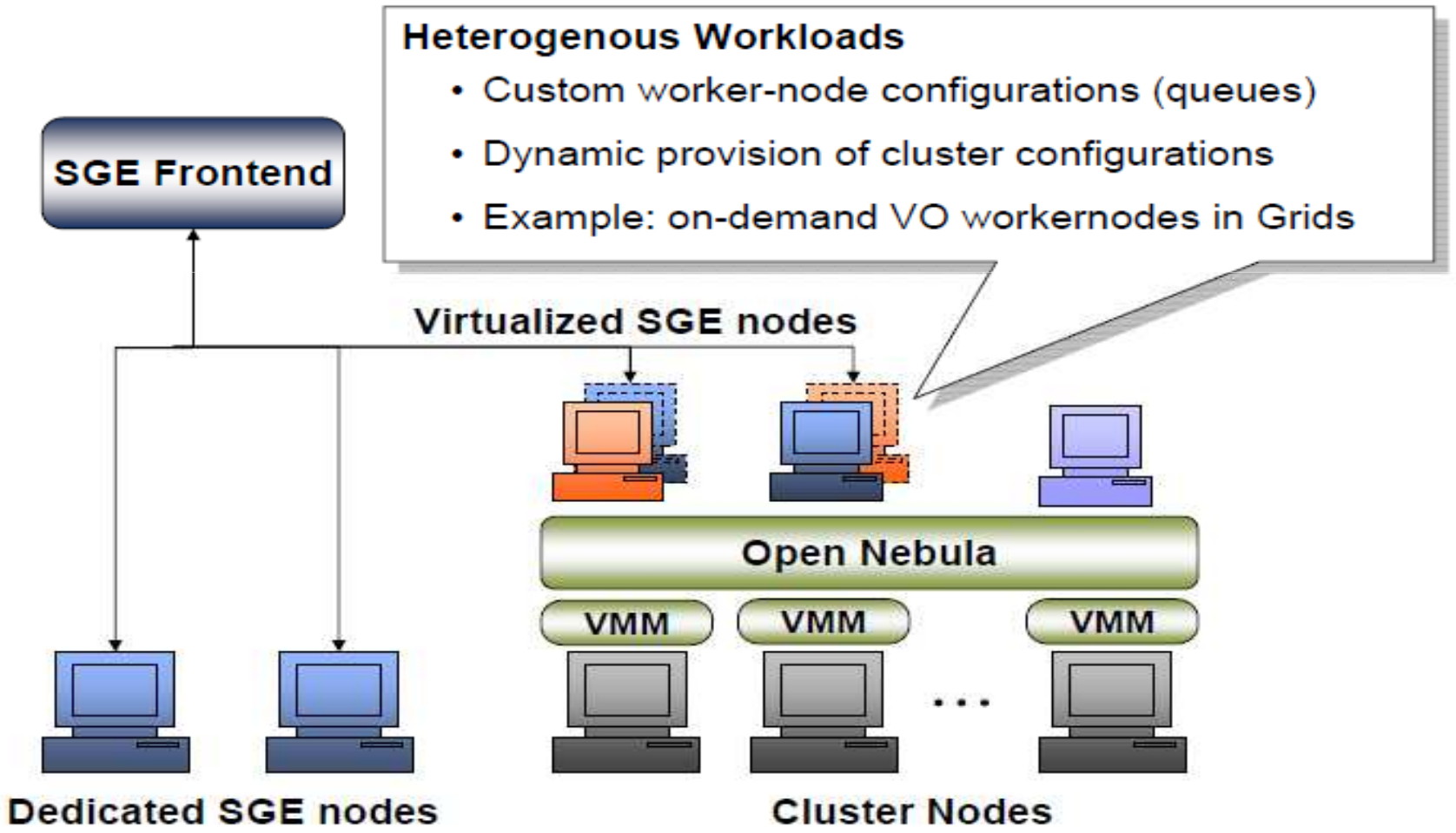
Dynamic Provisioning of Computational Clusters

OpenNebula: Open Source Virtual Machine Manager for Cluster Computing



Dynamic Provisioning of Computational Clusters

OpenNebula: Open Source Virtual Machine Manager for Cluster Computing



Dynamic Provisioning of Computational Clusters

OpenNebula: Open Source Virtual Machine Manager for Cluster Computing

Cluster Configuration

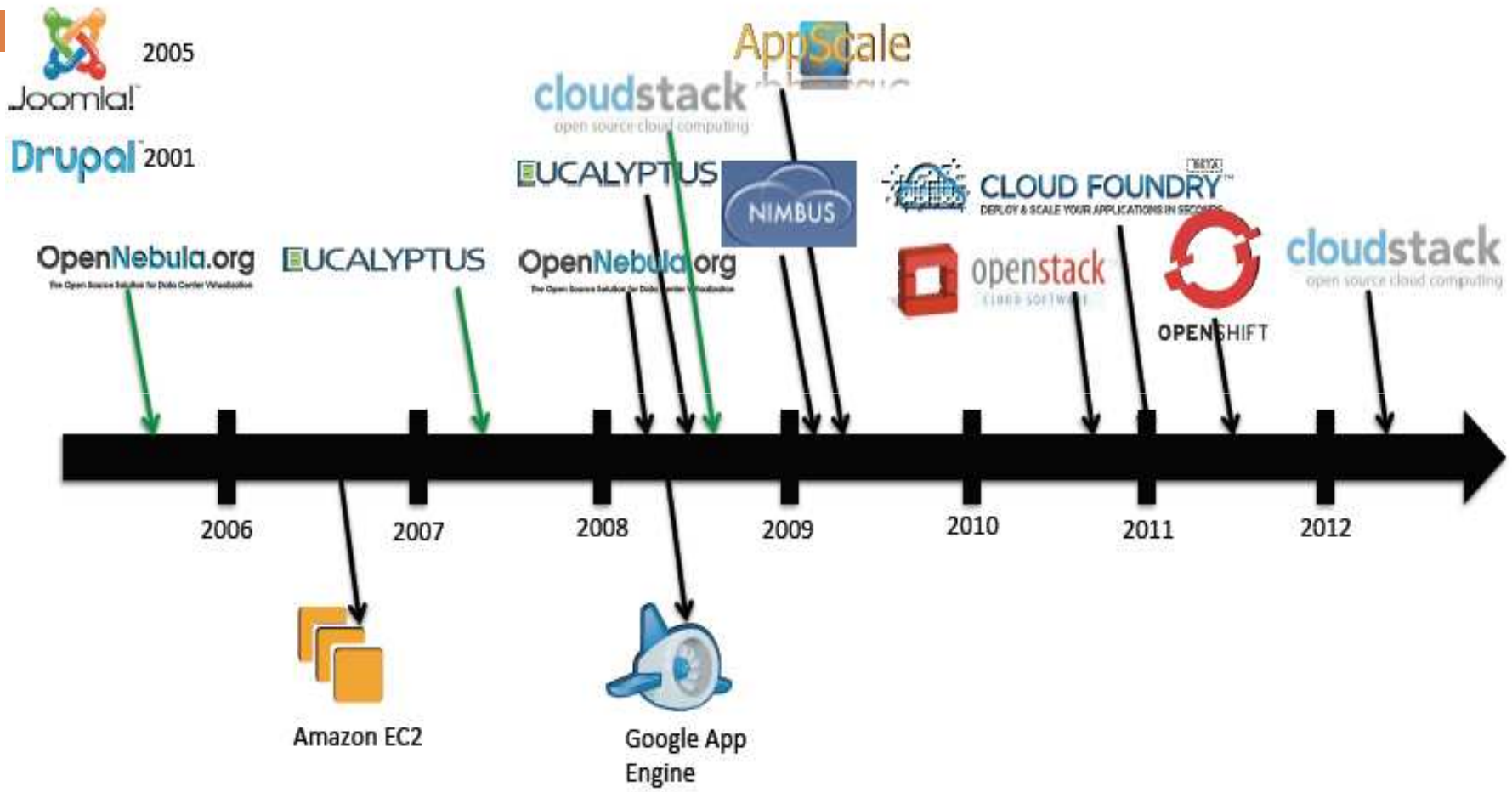
- Pre-defined queues for each workernode type
- Basic standard cluster services (NIS,NSF...)

Workernode Configuration

- Workernodes pre-registered to sgemaster
- IP & hostname assigned through DHCP (MAC)
- Copy images to create new nodes
- Basic cluster services installed

License of Cloud Open source

Time Line for Cloud Open Source



IaaS and PaaS open source projects trail their commercial counterparts by ~ 2 - 3 years

Thank You