Genesis

Genesis

- Big Data Processing Cloud Platform

Synopsis

Cloud platform dedicated to virtualized big data processing based on commercial system (x86) hardware and open source software (virtualized system software and big data processing middleware)

Function and Performance

- Cloud hardware platform (cloud computing server and cloud storage server)
- Hadoop-based virtual cluster dedicated to big data processing
- Open source-based cloud resource management and monitoring environment
- Support VM creation in less than 10 seconds

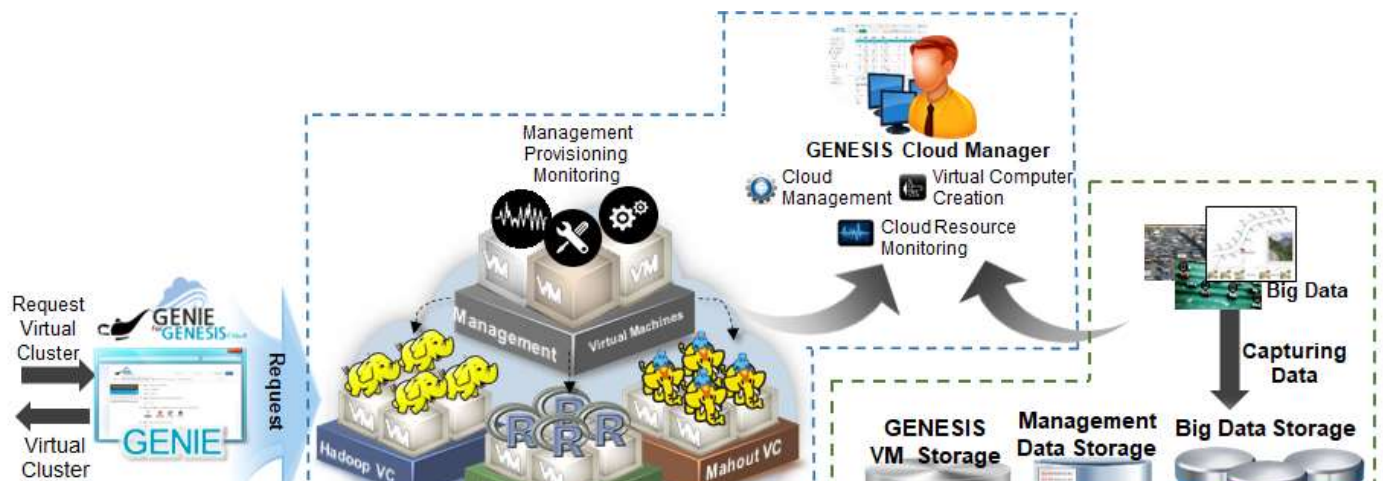|	Physical Host	VM
Scale	6 Machines (ALL : 44 Core) (2 : 6 Core, 4 : 8 Core)	19 VMs (38 Core) (Each : 2 Core)
CPU	AMD Phenom(tm) II X6 1055T AMD FX(tm)-8350	-
Mem	144 GB (16GB*2Hosts + 28GB * 4Hosts)	72GB (4GB * 19 VMs)
DISK	7TB	380GB (20GB * 19 VMs)
Network	1 Gb Network	
OS	Dom0, DomU : Debian Wheezy Kernel : Linux-3.9.0	
Extra	Hypervisor : Xen 4.3 (Unstable) Cloud Management Stack - OpenNebula 4.0 - Ganglia 3.5.0	VM Type : PVM Boot Type : PVOPS

GENESIS 클라우드 관리 시스템

GENESIS 클라우드 모니터링 시스템

GENESIS 클라우드 시스템 전경 사진

GENESIS Cloud System Architecture (Users View)

Virtualized Physical Cluster for GENESIS Cloud

Distributed Physical Storage for GENESIS Cloud & Big Data
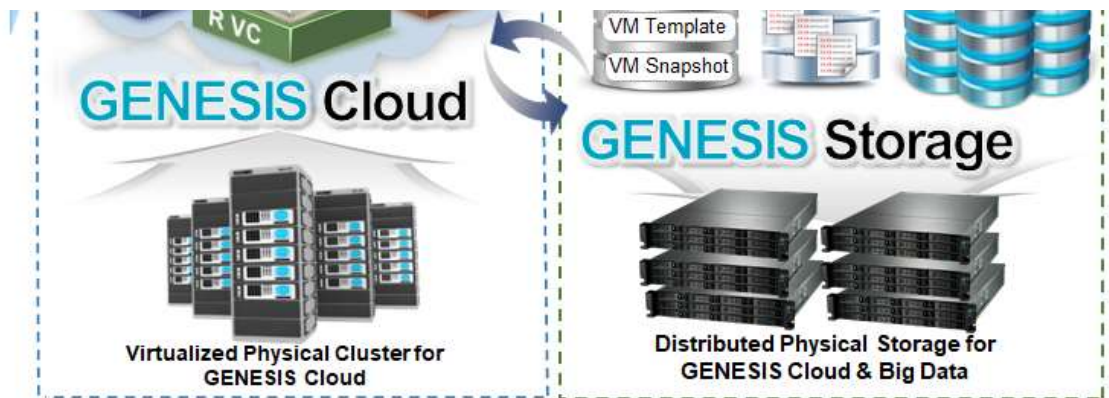
GENESIS Cloud System Architecture (Management View)

GENESIS Cloud Frontend (Web) Service

GENESIS Virtual Cluster Manager

GENESIS Virtual Cluster Scheduling System

GENESIS Virtual Cluster Provisioning System

GENESIS User

GENESIS Cloud Management System

GENESIS Cloud Computing System

GENESIS Cloud Storage System

GENESIS Automated Cloud Computing System Creator

GENESIS Automated Cloud Storage System Creator

GENIE Service : Web-based GENESIS cloud Enabler

Infrastructure Provisioning

GENIE for GENESIS Cloud

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Platform Provisioning

Big Data Platform Deployment —

- Phase 1 : Platform Selection
- Phase 2 : Virtual Resource Configuration
- Phase 3 : Platform Configuration
- Phase 4 : Deployment Status

Application Deployment +

Step1. Select **ONE** of the Platform that you want to deploy

Category	Suite Composition
Event Processing	Esper CEP Drools
Data Analysis	R Hadoop Hadoop + HBase Hadoop + Mahout
Web Services	Tomcat Nginx
Simulation	SUMO

Platform Provisioning

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Infrastructure Provisioning

Big Data Infrastructure Deployment —

- Phase 1 : Virtual Resource Configuration
- Phase 2 : Deployment Status

Step1. Specifying Virtual Hardware

- VCPU(s): 2 VCPUs ▼

- Memory: 2 GB ▼

Step2. Specifying Number of Virtual Computing Resource

Number of VMs

Step3. Select **ONE** of the Operating Systems for the Virtual Computing Resources

debian ubuntu CentOS fedora openSUSE Windows 7
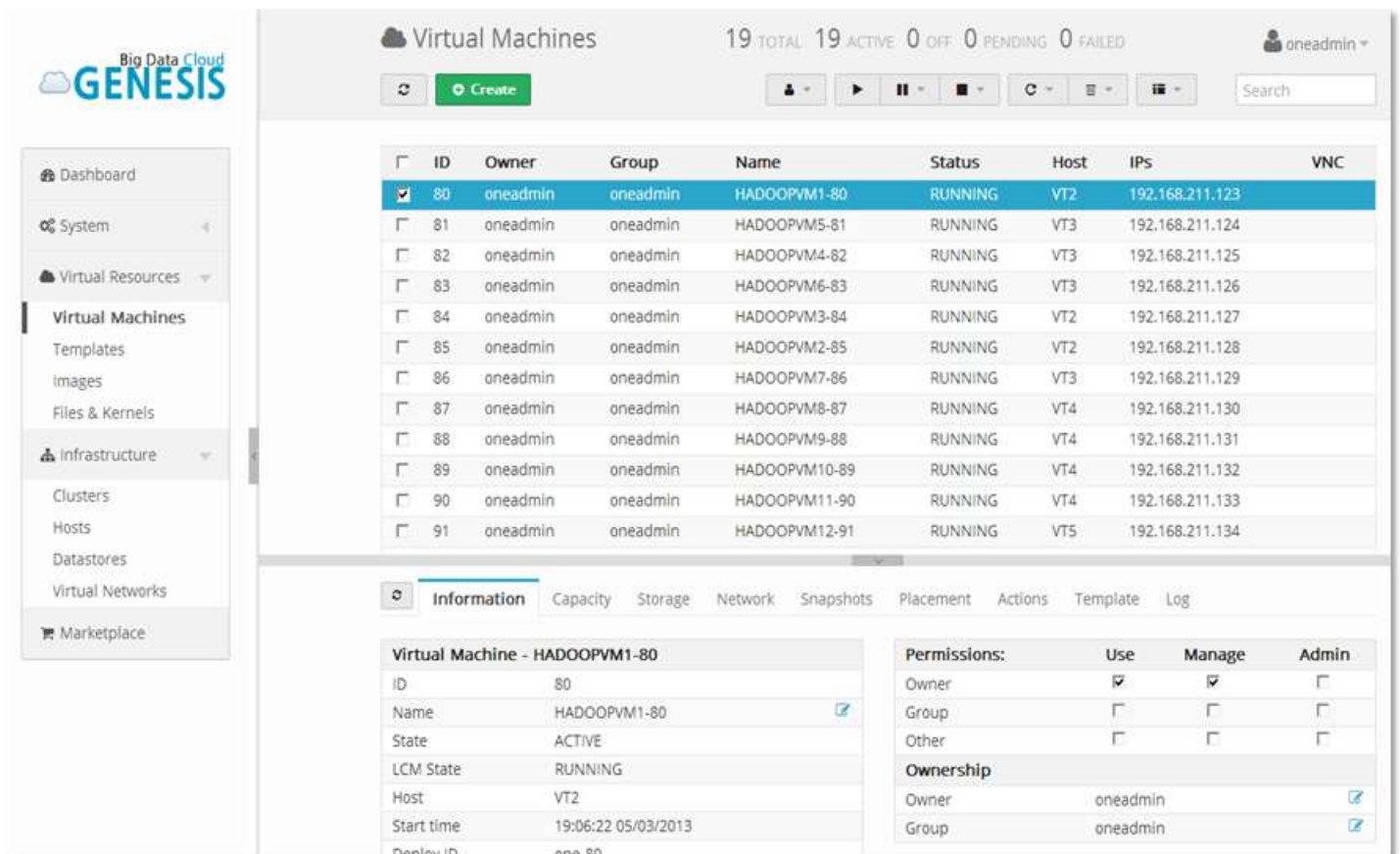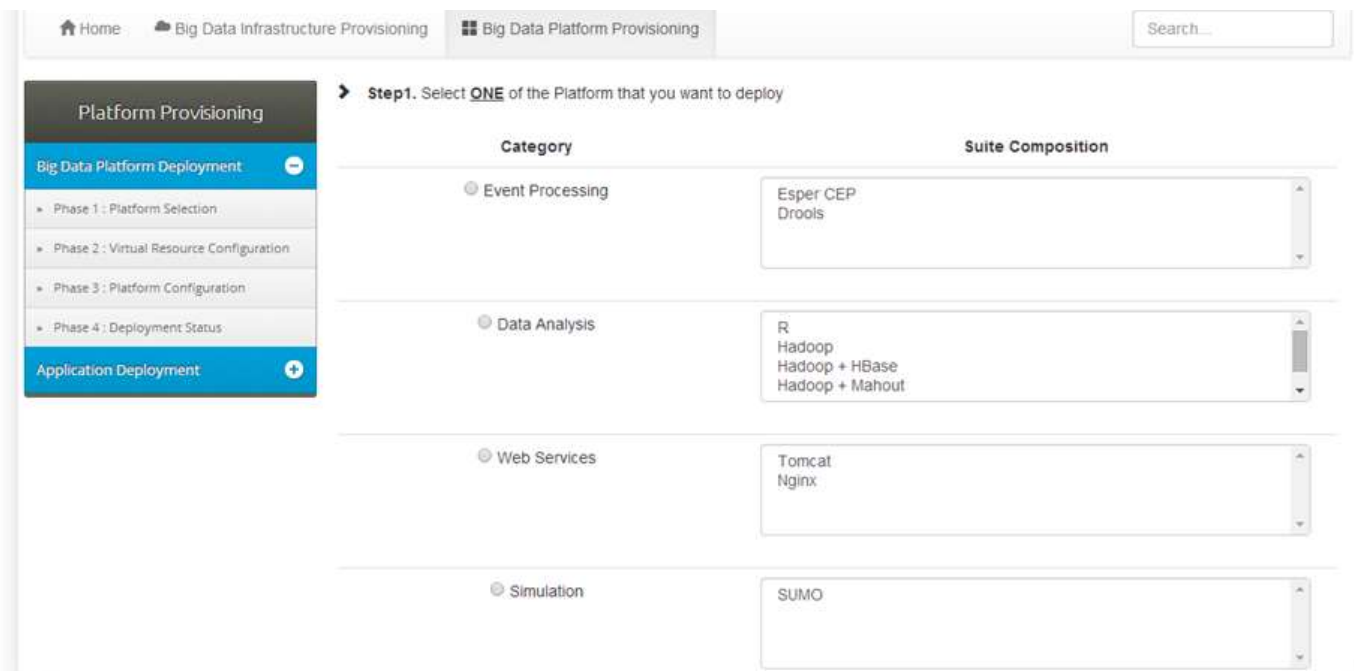
Step4. Naming your Big Data Infrastructure

Cluster Name :

Request

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Platform Provisioning Interface

> **Step1.** Select **ONE** of the Platform that you want to deploy

Platform Provisioning

- **Big Data Platform Deployment** −
  - » Phase 1 : Platform Selection
  - » Phase 2 : Virtual Resource Configuration
  - » Phase 3 : Platform Configuration
  - » Phase 4 : Deployment Status
- **Application Deployment** +

Category	Suite Composition
○ Event Processing	Esper CEP / Drools
○ Data Analysis	R / Hadoop / Hadoop + HBase / Hadoop + Mahout
○ Web Services	Tomcat / Nginx
○ Simulation	SUMO

Big Data Cloud GENESIS

Virtual Machines — 19 TOTAL 19 ACTIVE 0 OFF 0 PENDING 0 FAILED — oneadmin

Dashboard
System
Virtual Resources
  Virtual Machines
  Templates
  Images
  Files & Kernels
Infrastructure
  Clusters
  Hosts
  Datastores
  Virtual Networks
Marketplace

	ID	Owner	Group	Name	Status	Host	IPs	VNC
☑	80	oneadmin	oneadmin	HADOOPVM1-80	RUNNING	VT2	192.168.211.123	
☐	81	oneadmin	oneadmin	HADOOPVM5-81	RUNNING	VT3	192.168.211.124	
☐	82	oneadmin	oneadmin	HADOOPVM4-82	RUNNING	VT3	192.168.211.125	
☐	83	oneadmin	oneadmin	HADOOPVM6-83	RUNNING	VT3	192.168.211.126	
☐	84	oneadmin	oneadmin	HADOOPVM3-84	RUNNING	VT2	192.168.211.127	
☐	85	oneadmin	oneadmin	HADOOPVM2-85	RUNNING	VT2	192.168.211.128	
☐	86	oneadmin	oneadmin	HADOOPVM7-86	RUNNING	VT3	192.168.211.129	
☐	87	oneadmin	oneadmin	HADOOPVM8-87	RUNNING	VT4	192.168.211.130	
☐	88	oneadmin	oneadmin	HADOOPVM9-88	RUNNING	VT4	192.168.211.131	
☐	89	oneadmin	oneadmin	HADOOPVM10-89	RUNNING	VT4	192.168.211.132	
☐	90	oneadmin	oneadmin	HADOOPVM11-90	RUNNING	VT4	192.168.211.133	
☐	91	oneadmin	oneadmin	HADOOPVM12-91	RUNNING	VT5	192.168.211.134	

Information | Capacity | Storage | Network | Snapshots | Placement | Actions | Template | Log

Virtual Machine - HADOOPVM1-80

ID	80
Name	HADOOPVM1-80
State	ACTIVE
LCM State	RUNNING
Host	VT2
Start time	19:06:22 05/03/2013
Deploy ID	one-80

Permissions:	Use	Manage	Admin
Owner	☑	☑	☐
Group	☐	☐	☐
Other	☐	☐	☐

Ownership

Owner	oneadmin
Group	oneadmin

GENESIS Creation Demo

(Youtube Link)