Cloud based IT Infra with Central Identity

{Project reboot} - Phase I - Literature Survey

Project Guide

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Objective

Survey about Cloud Computing & Infrastructure

- Cloud Computing – Introduction, Service Models & Challenges
- Private Cloud – open source tools, comparisons & advantages
- High performace Computing & E - Learning systems

Cloud Computing - Definition

What is Cloud Computing ...?

"Cloud computing is a model for enabling convenient, on- demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction" [1]

Cloud Computing - Characteristics

One can define Cloud Computing with essential characteristics like

- On-demand self-service
- Broad network access
- Resource pooling
- Rapid elasticity
- Measured Service

Cloud Computing - Servcice Models

If we providing any thing as a service comes, that will comes into Cloud Computing. Various Service Delivery Models listed bellow.

- Software as a Service (SaaS)
  - Google Docs, Photo editors, Calculators, etc
- Platform as a Service (PaaS)
  - Harkoo, Aneka, Google App engine, etc
- Infrastructure as a Service (IaaS)
  - AWS, Openstack, Cloudstack, Opennebula, Eucalyptus etc
- Data storage as a Service (DaaS)
  - Amazon S3, DropBox, SkyDrive, etc
- Anything as a Service (Xaas)

Cloud Computing - Challenges

Some challenges that todays Cloud Computing adopts

- Security
- Costing Model
- Charging Model
- Service Level Agreement
- What to migrate

Cloud Computing - Deployment Model

We can deploy the cloud in various ways.

- Public Cloud
- Private Cloud
- Hybrid cloud

Private Clouds – Introduction

As per our concern we mainly focused about private clouds inorder to ensure Organizational data security & High resource utilization

"Private Cloud"

– *It is one of the cloud deployment model where the resources of small or medium organization are united and cattered to users of the that organization or outsourced through internet.*

Private Clouds – Open Soruce Tools

We can construct private cloud using some open source tools like Openstack, Cloudstack, OpenNebula.

We can use this private cloud to deploy various services like Departmental Websites, Notice Boards, Events portal, High Computational Virtual Machines for Virtual Labs, High Performance Computing, Big data analytics.

Private Clouds – Open Soruce Tools – Comparision

	Abicloud	Eucalyptus	Nimbus	OpenNebula
cloud character	publich/private	public	public	private
scalability	scalable	scalable	scalable	Dynamical, scalable
cloud form	IaaS	IaaS	IaaS	IaaS
compatibility	Not support EC2	support EC2, S3	support EC2	open, multi-platform
deployment	pack and redeploy	dynamical deployment	dynamical deployment	dynamical deploymentt
deployment manner	web interface drag	commandline	commandline	commandline
Transplant-ability	easy	common	common	common
VM support	VirtualBox, Xen, VMware, VM	VMWare, Xen, KVM	Xen	Xen, VMWare
web interface	libvirt	Web Service	EC2 WSDL, WSRF	libvirt, EC2, OCCI API
structure	open platform encapsulate core	module	Lightweight components	module
reliability	-	-	-	rollback host and VM
OS support	Linux	Linux	Linux	Linux
development language	ruby, C++, python	Java	Java, Python	Java

Figure : Open Source Tools Comparision [2]