

# Cloud based IT Infra with Central Identity

## {Project reboot} - Phase I

### Project Guide

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Presenting by

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# About us

We are from team *r3b00+* {reboot}

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# Objective

To construct new Cloud based IT Infra with Central Identity.

## Objective Continued ...

The main objective of “Cloud based IT Infra with Central Identity” is to utilize existing hardware, turn them into private clouds and access all of its services using Central Identity, which can be available to third party developers as API with dynamic role management and service endpoints.

New private cloud based IT Infra is aimed to develop using some opensource tools like OpenStack, NFS, LDAP, Ubuntu and etc

Expecting to serve with high computational virtual machines to the research, academic, learning purpose, virtual labs rather than dedicated lab hardware.

# Motivation

- No Central Identity, Central Storage & High capacity hardware resource pool.
- Failed to maintain large user load web services like ONB, Exam servers, etc.
- Dedicated computer course labs like Matlab, VLSI, etc.
- No proper Web Application Security & Standards.
- Inadequate resource requirements for Research.

# Users & IT Services

We are grouping all IT Services that are required for University into one and identifying the user who will going to use them. All Users are catagorized into 4 groups <sup>[1]</sup>

- Studens, Developers, Staff, faculty & Researches

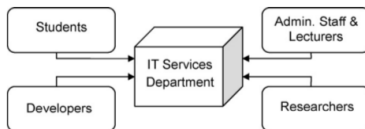


Figure : Simplified structure of the main users of IT services.

# Cloud Infrastructures

All University IT Services are deployed in a private cloud, constructed over existing infrastructure, that can be broadly viewed as

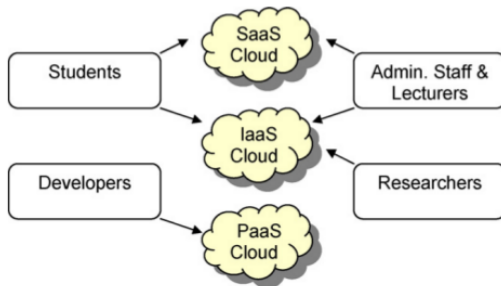


Figure : IT Services and Users in Cloud Computing

# Proposed System - Main Components

- Central Identity
  - Single Sign on
  - Federated Identity
  - Dynamic Role Based Access Control
  - REST API to third party
- Network Components Configurations
  - AAA, LDAP, NFS
- Cloud Infrastructure
  - Cloud Computing, Private Cloud, Open source tools



# 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 - Service 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)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)
- Anything as a Service (XaaS)



Figure : Cloud Computing - Service Models

# Cloud Computing - Deployment Model

We can deploy the cloud in various ways.

- Public Cloud
- Private Cloud
- Hybrid cloud

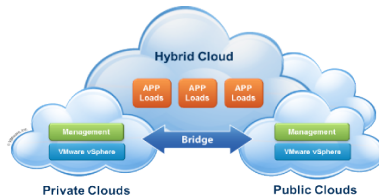


Figure : Cloud Computing - Deployment Models

# Private Clouds – Introduction

As per our concern we mainly focused about private clouds in order 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 catered to users of the that organization or outsourced through internet.*

# Private Clouds – Open Source 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.



Figure : Private Cloud - Open source tools

# Questions?

Questions ?

# One word to say ..

Thank you