Cloud based IT Infra with Central Identity

Team r3b00+

August 12, 2014

Abstract

The main aim of Cloud based IT Infra with Central Identity is to develop central identity services for network based applications and web services using API calls. After implementing this we will get the services like single sign-on, role based user identity thus reduces the redundancy of data. We will mainly have 3 components Master Architecture, Slave Architecture and Cloud which connects both which will sufficiently provides the research and development requirements to our University.

Contents

1 Objectives

1. Central Identity for all applications and services.
2. Efficient utilization of existed Hardware.
3. Well structured & controllable Network monitoring.
4. Dynamic user roles in Central Identity
5. Provide High computational power for research and development work.

2 Present System

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

3 Proposed System

- Cloud based hardware resource clustering.
- Central Identity to access Network Applicaitons using well designed API.
- Dynamic user roles in Central Identity for extended application support.
- New CPanel for Network Administration.
  - Providing different user modes in OS, controlled remotely from CPanel.
  - Providing Virtual Labs (machines) with desired resource capabilities.
  - Providing a right to verify and approve user application requests.

4 Architecture

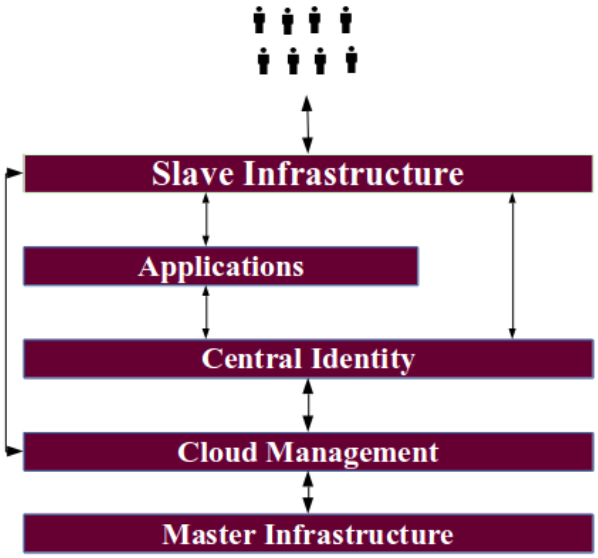

Figure 1: Archtitecture

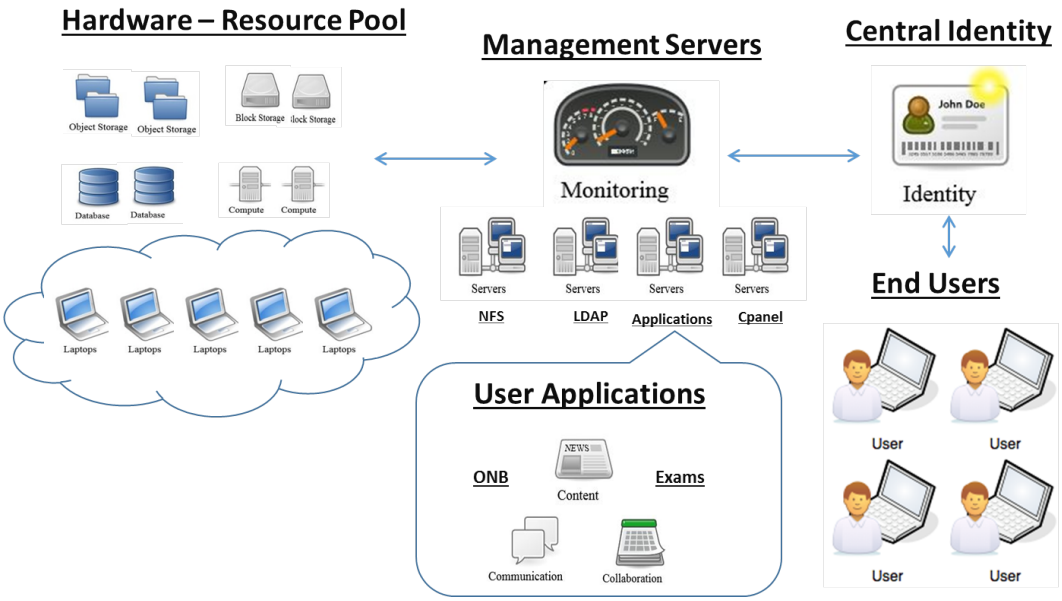

Figure 2: Archtitecture Implementation

5 Architecture Explained

5.1 Central Identity

It is an Identity as a Services for network based applications and web services using API calls. Using this we are going to implement the services like single sign-on, role based user identity thus reduces the redundancy of data.

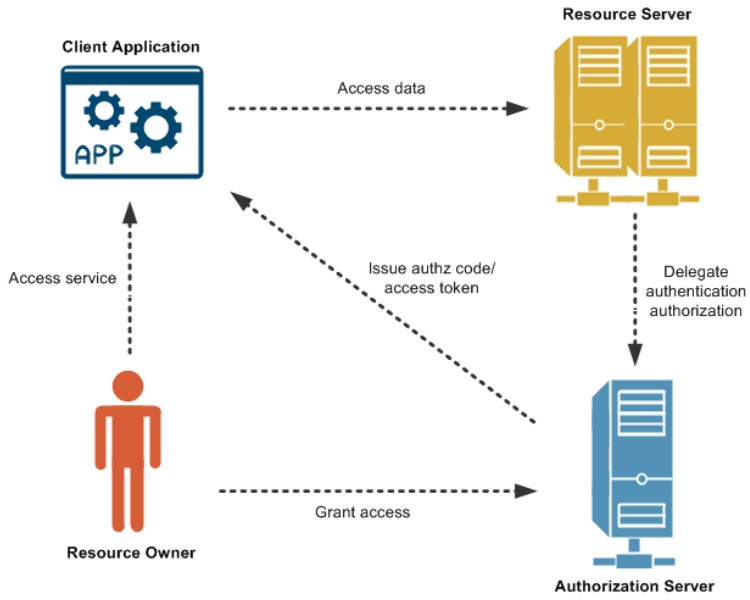

Figure 3: Central Identity

5.2 Hardware Resource Pool

Here we will try to cluster all the hardware resources provided as a pool, by this we can achieve highly configurable systems

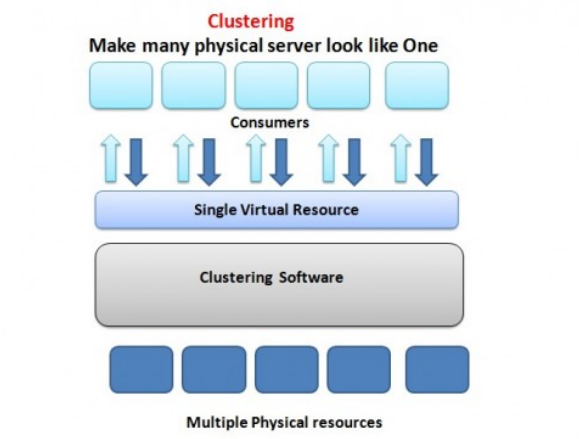

Figure 4: Hardware Resource Pool

6 Advantages

- Well structured & controllable Network Administraion
- Efficient hardware utilization
- No registration for new Network based applications through Central Identity API
- Provding Virtual Machines with high hardware configuration for Researchers & Developers
- Facilitates high availability of all web-services (Like ONB, Examination, Course registration Helping hand website, SDCAC website and all departmental websites etc.)
- It will provide High computational power for research work of Faculty, research scholars and students.
- Get full recovery and achieve 100% Services up time.

7 Requirements

- 10 Laptops with 2 NICs
- 8 GB RAM systems - 4
- 4 GB RAM systems - 6
- (2013 Sep Model (Acer Travel mate) available with 4 GB Ram, 500 GB HD and One NIC. We need to extend 4GB Ram to 8 GB RAM, We need to Extend One more NIC) 10 Static IP with Full Internet Access For Laboratory [SF9 10.4.19.x] 10 Proxy Accounts with Unlimited Downloading Uninterrupted Power Supply For Laptops in Lab Uninterrupted Internet and Intranet work Connectivity with 512KBPS+ Downloading Speed Basically we getting 10-15 KB Speed while Class Hours. This thing should be avoided. Configurable 24 Port switches for construction private network with in Cloud Laboratory.