

# Post Installation Report for Linux Server Installations at GCOEA

## Introduction

In all four (04) servers have been configured with Red Hat Enterprise Linux (RHEL4) as the operating system. The configurations have been carried out primarily for providing secure email, name server and PXEboot services for the 500 node network at GCOEA. This report first of all explains the logical layout along with the IP addressing scheme and the nomenclature of the various servers used for this setup and then explains the services and functionality being provided by the various servers.

## Logical Layout, Server Nomenclature and IP addressing

Figure-1 depicts the logical layout of the servers, router, ASA, Content engine and the Core switch VLANs used in the setup. The setup assumes that the college will be connected to Internet using only one ISP. The IP network with network address as 10.239.0.0/16, 10.1.0.0/16, 10.238.0.0/16 has been made as the DMZs. All the security related configurations have been incorporated in the ASA, Router and the CORE SWITCH. Hence in this implementation only server hardening has been done using the Iptables. .

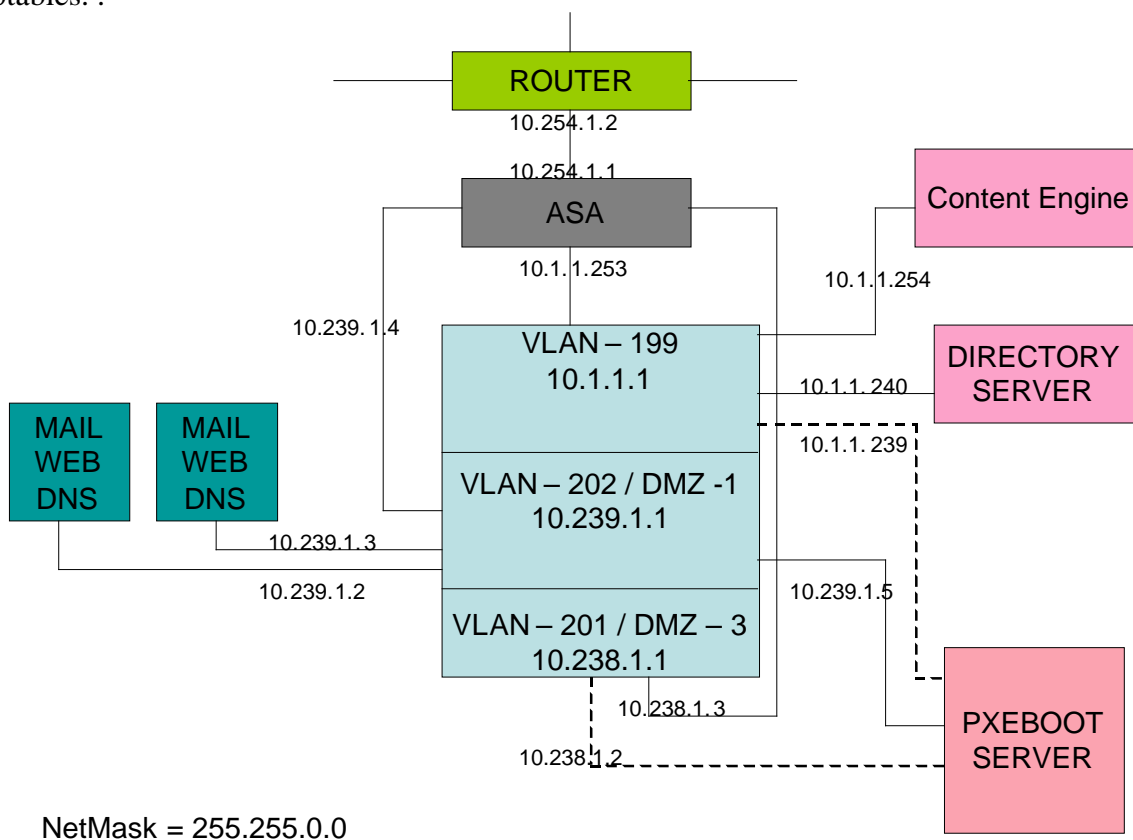


Figure-1: Logical layout of the servers

As indicated in the figure above following names and IP addresses have been given to the various servers.

- a. PXEBOOT as pxeboot.gcoea.ac.in (10.239.1.5/10.1.1.239/10.238.1.2)
- b. WEB-1 as web-1.gcoea.ac.in (10.239.1.2)
- c. WEB-2 as web-2.gcoea.ac.in (10.239.1.3)
- d. Directory-1 as directory-1.gcoea.ac.in (10.1.1.240)

## **Various Services configured on the servers**

Following is the detailed explanation of the configurations carried out on the servers in the above mentioned setup:

### **1) pxeboot.gcoea.ac.in**

The prime functionality of this server is to provide PXEbooting services and act as backup for various configurations of all the servers of this setup. The necessary configuration of DHCP/TFTP/PXEBOOT have been done on this server. All the DMZ servers and the college network servers can be connected to this servers and RHEL4 installations can be carried out from this server. The server has only one interface hence the server has to be physically disconnected from one DMZ and then connected to the other DMZ. Also, one needs to change the IP address and the Gateway information in the OS. The files of interest are as follows:

/etc/sysconfig/network-scripts/ifcfg-eth1 (For IP address)  
/etc/sysconfig/network (For Gateway)

In the diagram above, the connections shown as dashed indicate that the pxeboot server is right now disconnected from those two VLANs.

### **2) web-1.gcoea.ac.in**

The prime functionality of this server is to act as an external email/web and dns server for the gcoea.ac.in domain. It is one of the load balanced servers in the DMZ. Secure DNS services using the DJBDNS, web services using the APACHE web server and email services using QMAIL with SPAMcontrol package has been configured on this server.

Two components of the DJBDNS namely the tinydns and djbdns has been configured on this server. The configurations for denying recursive queries from outside have also been carried out.

Web services using the APACHE web server with port 80 and server name as web-1.gcoea.ac.in has been configured to serve the gcoea.ac.in domain web pages.

Email services for gcoea.ac.in domain using the qmail and spamcontrol package has also been configured on this server. The spamcontrol package acts as a viruswall also. It filters out any email containing viruses detected using the clamscan antivirus software installed on this server.

### **3) web-2.gcoea.ac.in**

The prime functionality of this server is to as an external email/web and dns server for the gcoea.ac.in domain. It is one of the load balanced servers in the DMZ. Secure DNS services using the DJBDNS, web services using the APACHE web server and email services using QMAIL with SPAMcontrol package has been configured on this server.

Two components of the DJBDNS namely the tinydns and djbdns has been configured on this server. The configurations for denying recursive queries from outside have also been carried out.

Web services using the APACHE web server with port 80 and server name as web-2.gcoea.ac.in has been configured to serve the gcoea.ac.in domain web pages.

Email services for gcoea.ac.in domain using the qmail and spamcontrol package has also been configured on this server. The spamcontrol package acts as a viruswall also. It filters out any email containing viruses detected using the clamscan antivirus software installed on this server. Email forwarding for the actual gcoea.ac.in domain server has been configured for directory-1 server.

### **4) directory-1.gcoea.ac.in**

The prime use of this server is to provide all the necessary services to the campus network users. It acts as a LDAP directory server, SQUID, SPAMASSASSIN, SMTP, IMAP, POP, WEB and DNS servers for the internal network users.

Squirrelmail has been configured for providing web based email access to the campus network users. PINE has been configured to provide text based email access to the users.

SQUID has been configured to provide necessary web proxy services to the users.

SPAMASSASSIN has been configured to provide the network based spam controlling mechanisms

Fedora directory server has been configured for providing LDAP based directory services and necessary PHP scripts have been written for web based account creation and deletion.