

Zenoss- and perfect Server Mechanism of FOSS for Monitoring, Manipulate Network Management and Sharing

Anand Dhananjay Walsangkar

Lecturer

Dept. of Management Science, Dr.Babasaheb Ambedkar Marathwada University, Sub-Campus, Osmanabad

Abstract: - Network management is the process of administering and managing the computer networks of one or many organisations. Various services provided by network managers include fault analysis, performance management, provisioning of network and network devices, maintaining the quality of service etc. Software that enables network managers to perform their functions is called software. We know that Network means generally connection link between 'n' no. Systems to establish the Communication as well as sharing are an distribution of data between networks. To possibly happen this task we have to require server technologies. Now a day's problem of tampering of data between networks, quality of network used entitlements are emphesizly occur. My study of research paper is based on removing these conflictions and strongly runs data transformation using different kinds of servers.

Keywords: - Networking and sharing, FOSS, FLOSS, Server Technologies.

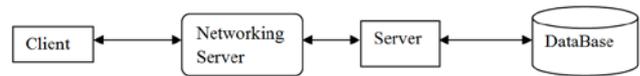
I. INTRODUCTION

What is FOSS?

It is abbreviated as Free and open-source software (FOSS) is computer software that can be classified as both free software and open-source software. That is, anyone is freely licensed to use, copy, study, and change the software in any way, and the source code is openly shared so that people are encouraged to voluntarily improve the design of the software. This is in contrast to proprietary software, where the software is under restrictive copyright and the source code is usually hidden from the users.

The benefits of using FOSS can include decreasing software costs, increasing security and stability (especially in regard to malware), protecting privacy, and giving users more control over their own hardware. Free, open-source operating systems such as Linux widely utilized today, powering millions of servers, desktops, smart phones (e.g. Android), and other devices. Free software licenses and open-source licenses are used by many software packages.

FLOSS:-



It is abbreviated as Free Libre Open Source Software which aimed to solve the ambiguity problem, FLOSS aimed to avoid taking sides in the debate over whether it was better to say "free software" or to say "open-source software".

Server:-

In computing, a server is a computer program or a device that provides functionality for other programs or devices, called "clients". This architecture is called the client-server model, and a single overall computation is distributed across multiple processes or devices. Servers can provide various functionalities, often called "services", such as sharing data or resources among multiple clients, or performing computation for a client. A single server can serve multiple clients, and a single client can use multiple servers. A client process may run on the same device or may connect over a network to a server on a different device. Typical servers are database servers, file servers, mail servers, print servers, web servers, game servers, and application servers.

Client-

server systems are today most frequently implemented by (and often identified with) the request-response model: a client sends a request to the server, which performs some action and sends a response back to the client, typically with a result or acknowledgement. Designating a computer as "server-class hardware" implies that it is specialized for running servers on it. This often implies that it is more powerful and reliable than standard personal computers, but alternatively, large computing clusters may be composed of many relatively simple, replaceable server components.

What is Zenoss ?

Zenoss is today's premier open source IT management solution. Through integrated monitoring, it enables you to manage the status and health of your infrastructure through a single, Web-based console. The power of Zenoss starts with its in-depth Inventory and Configuration Management Database (CMDB).

Why Use Zenoss for Network Monitoring?

Monitoring all of the different networking technologies that support your IT infrastructure typically means juggling several different vendor-specific network tools — a time-consuming challenge. There's nothing worse than getting hundreds of false server alarms when a router interface fails — unless it's configuring false alarm detection in two, three, or even four different network management tools.

Having a single, unified, end-to-end network monitoring solution that allows you to view all of your network events, correlated and in context with all of the other events generated by components in your physical, virtual, converged, and public/private cloud infrastructure, is essential. Zenoss Service Dynamics provides IT infrastructure monitoring to some of today's largest private networks — networks with 50,000+ network devices. Zenoss automatically builds and maintains a topology model of your entire network, including devices, routers, interfaces, and routes. Zenoss also keeps up with rapidly changing network usage patterns. With Zenoss, network administrators and IT Operations teams have the network monitoring capabilities they need to obtain unified service insight and ensure service delivery across all of the components in their physical, virtual, converged, and public/private cloud IT infrastructure.

II. TECHNOLOGY OVERVIEW

Zenoss Core combines original programming and several open source projects to integrate data storage and data collection processes with a web-based user interface.

Zenoss Core is built upon the following open source technologies:

- *Zope*: Application server: An object-oriented web server written in Python.
- *Python*: Extensible programming language.
- *Net-SNMP*: Monitoring protocol that collects systems status information.
- *RRDtool*: Graph and log time series data.

- *MySQL*: A popular open source database.
- *Twisted*: An event-driven networking engine written in Python.
- *Lucene*: A full text search library written in Java.
- *OpenTSDB*: Time series database (from Zenoss Core 5).
- *Docker_(software)*: Container virtualization (from Zenoss Core 5).
- *D3.js*: Interactive graphic Javascript library (from Zenoss Core 5).

III. PLATFORM REQUIRED

Zenoss Inc. lists the following operating systems for Zenoss Core on their download page

Zenoss versions 5.1 support

- Red Hat Enterprise Linux / CentOS (7)
- Centos (7)

Zenoss version 4.2 support

- Red Hat Enterprise Linux / CentOS (5, 6)
- Centos (5, 6)
- Ubuntu (via community build scrip)

A web-based portal provides operating system agnostic access to configuration and administration functions. Chrome, Firefox, and Internet Explorer/Edge are supported.

Zenoss Network Monitoring Capabilities

- Unified monitoring and correlation of networking events in context with other device and component events in the IT infrastructure
- Discovery of chassis, processors, fabric cards, ports, power supplies, fans, and other key network infrastructure components
- Dynamic, centralized network and IP address inventory for discovered devices
- Integration and monitoring of SNMP traps with other IT infrastructure event streams

- Automatic network topology map creation and updates, including automatic, dynamic updates of the network topology map as network administrators update or reconfigure the network based on changing business and application needs
- Performance and availability monitoring for metrics like inbound/output traffic speeds and operational status, as well as fast discovery and notification when network devices or interfaces go down
- Suppression of symptomatic events during Layer 3 networking failures, which eliminates event “noise” and speeds issue isolation and root cause identification.
- Monitoring availability of network devices using SNMP, SSH, WMI
- Monitoring of network services (HTTP, POP3, NNTP, SNMP, FTP)
- Monitoring of host resources (processor, disk usage) on most network operating systems.
- Time-series performance monitoring of devices
- Extended Microsoft Windows monitoring via WS-Management and Zenoss open source extensions
- Event management tools to annotate system alerts
- Automatically discovers network resources and changes in network configuration
- Alerting system provides notifications based on rule sets and on-call calendars
- Supports Nagios plug-in format

How to Install Zenoss Core for Monitoring on Linux: - The main advantage of zenoss is that you don't need to install any software on the client side for monitoring.

Zenoss has the following two versions:

1. Zenoss Core (this is free)
2. Zenoss Enterprise. This is also called as Zenoss Resource Manager, which is a paid version. This provides several additional features: High-availability, distributed architecture, event correlation etc.

3. By default, it uses SNMP for monitoring. On Windows, it uses WMI (Windows Management Instrumentation)

Following is an processing for how to install and configure the Zenoss Core edition for your enterprise monitoring.

IV.Pre-Req for Zenoss Install

Before you install ZenOSS, make sure you do the following:

- Open these ports on your firewall, as they are used by Zenoss and its related services: 11211, 8080, 514, 162, 25
- Install Java and make sure JAVA_HOME is set appropriately (Use java version 6 or above)

```
# java -version
```

```
java version "1.6.0_31"
```

```
Java(TM) SE Runtime Environment (build 1.6.0_31-b04)
```

```
set | grep JAVA_HOME
```

```
JAVA_HOME=/usr/java/default/bin
```

2. Install Zenoss Dependency Package

Install the zenoss dependencies repository. Download the appropriate version for your platform from

```
# rpm -Uvh zenossdeps-4.2.x-1.el5.noarch.rpm
```

3) Install My SQL:-

Make sure to set the following parameters in your /etc/my.cnf file after the MySQL installation.

```
max_allowed_packet=16M
```

```
innodb_buffer_pool_size=256M
```

```
innodb_additional_mem_pool_size=20M
```

Also, for now, don't set any password for the MySQL root account. Leave it empty.

4) Other RPM and Service Dependencies: -

Depending on your environment, when you install zenoss core rpm as shown in the next step, you might get lot of missing dependencies messages. You have to install all of

those missing packages one by one. On my instance, I ended-up installing the following packages

- net-snmp.x86_64 and net-snmp-utils.x86_64
- gmp.x86_64
- sysstat.x86_64
- dmidecode.x86_64
- memcached.x86_64
- binutils.x86_64
- liberation-fonts-common.noarch, liberation-mono-fonts.noarch, liberation-sans-fonts
- rrdtool.x86_64
- Several nagios-plugins packages. For example: nagios-plugins-dig.x86_64, nagios-plugins-dns.x86_64, etc.
- liberation-serif-fonts
- libxslt.x86_64
- libgcj.x86_64
- rabbitmq-server-2.8.6-1.noarch

If you are using ‘Amazon Linux AMI 2013.09.1’, to install libgcj, you need to create a repo file in /etc/yum.reposd.d/centos. Repo with following lines:

```
[centos] name=CentOS $releasever - $basearch
baseurl=http://ftp.heanet.ie/pub/centos/5/os/$basearch/
enabled=1
gpgcheck=0
```

Also, make sure the following services are started before installing zenoss:

```
servicememcached start
servicesnmpd start
servicerabbitmq-server start
```

5. Install Zenoss Core RPM

If you have SELinux enabled, you need to make sure to allow appropriate Zenoss ports and programs in your SELinux configuration. If you are not sure how to do that,

you may want to temporarily disable SELinux until you figure out how to do it.

Download the zenosscore RPM package from here.

Install the zenoss core rpm package:

```
rpm -Uvh zenoss_core-4.2.4-1897.el6.x86_64.rpm
```

6. Start Zenoss and Verify

Start the zenoss service as shown below:

```
# servicezenoss start
```

Loading initial Zenoss objects into the Zeo database

When you start the zenoss for the first time, it will take a while, as it will few database schemas like zenoss_zep, zodb and zodb_session. This will also add rabbitmqvhost.

Rabbitmq is an open source messaging queue server which is implemented in latest version of zenoss to process events faster. In the previous versions, Zenoss event processing was done by zenhubdaemon.

Once zenoss is started for the 1st time, connect to the MySQL database and verify that it has created the zenossrelated database schemas:

```
mysql> show databases;
```

```
+-----+
| Database
+-----+
| information_schema |
| mysql |
| performance_schema |
| test |
| zenoss_zep |
| zodb |
| zodb_session |
+-----+
```

7 rows in set (0.00 sec)

7. Verify Zenoss Services

Execute the zenoss command as shown below to view the status of all the Zenoss services. It should all say running.

```
# zenosxstatus
```

Status	PID	Daemon
Running	23594	zeneventserver
Running	21003	zopectl
Running	22103	zenrrdcached
Running	21036	zenhub
Running	21116	zenjobs
Running	22140	zeneventd
Running	21174	zenping
Running	21206	zensyslog
Running	21238	zenstatus
Running	21271	zenactiond
Running	21307	zentrap
Running	21339	zenmodeler
Running	21371	zenperfsnmp
Running	21727	zencommand
Running	21760	zenprocess
Running	22096	zredis

Verify that the zenossrabbitmq queues are created using the rabbitmqctl command as shown below.

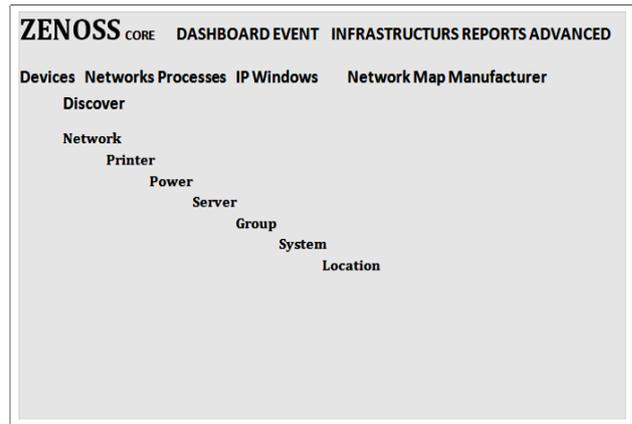
```
# rabbitmqctl -p /zenosslist_queues
```

Listing queues...

```
celery 0
zenoss.queues.zep.migrated.summary 0
zenoss.queues.zep.migrated.archive 0
zenoss.queues.zep.rawevents 0
zenoss.queues.zep.zenevents 0
zenoss.queues.zep.modelchange 0
zenoss.queues.zep.signal 0
...done.
```

8. Launch Zenoss UI and setup Admin User

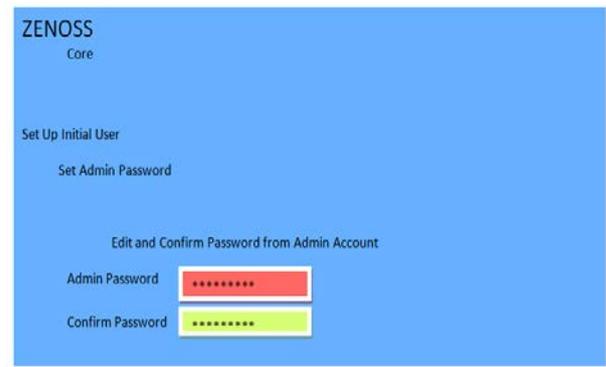
Once Zenoss is installed, go to <http://{your-ip-address}:8080> for the first time, it will launch a setup screen. Click on “Get Started”. From here, do the following two steps: Assign a password for the admin user
Set the Admin password



9. Login to Zenoss

After the above setup, login either with the “admin” user or the new user that you’ve created.

Click on the “Infrastructure” link from the top menu. From here, you can start adding the clients and devices that you like to monitor.



V. CONCLUSION

We know that in today’s IT Sector, forcefully necessity of controlling the network data which is make transformation between them. The aim of my research paper is to protect the server and transformed data from unauthenticated and unauthorised access. By using Zenoss core network software we provide an efficient platform for network security ,controlling and manipulate users task.any user can access Zenoss platform which based on FOSS.

REFERENCE

- 1) www.Zenoss.com
- 2) www.google.com/linux
- 3) www.wikipedia.com/zenoss/zenpack