IT Security Network

librenms and snmp autoconfiguration

High Level Design

2017 Spring

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IT Technology

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2017.05.30

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1. Introduction

We have been asked to do an implementation task which is related with Chinanet[1] in IT Security 2nd Semester. The audience is all our classmates, who are interested in our work and last but not least the lecturer.

2. Overview

Network monitoring is crucial for businesses to monitor their network in order to be productive and avoid from serious threats. With network monitoring we are able to avertable network failure or server downtime. We proposed to get LibreNMS up and running that can monitor, automatic discovery on your entire network or set customisable highly flexible alerting system via e-mail, slack and more in a great graphical web interface.

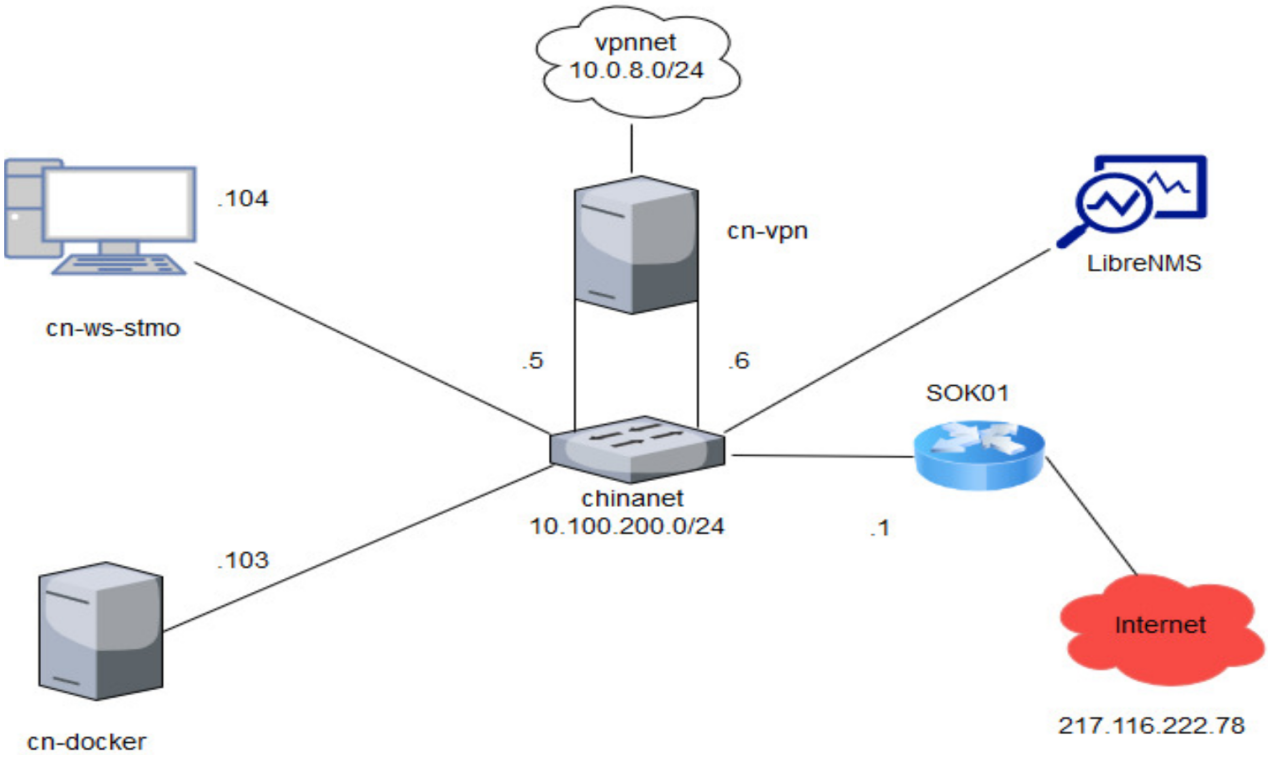

Illustration: Librenms implementation in Chinanet

It is a simple overview of our system and what we are planning to implement. The subject is monitoring and we are going to use LibreNMS to do this. We are planning to gathering data from some internal machines as the CN Router. To have some real data we are going to share SNMP protocol to be able to connect with the rest of the groups.

1 Chinanet example

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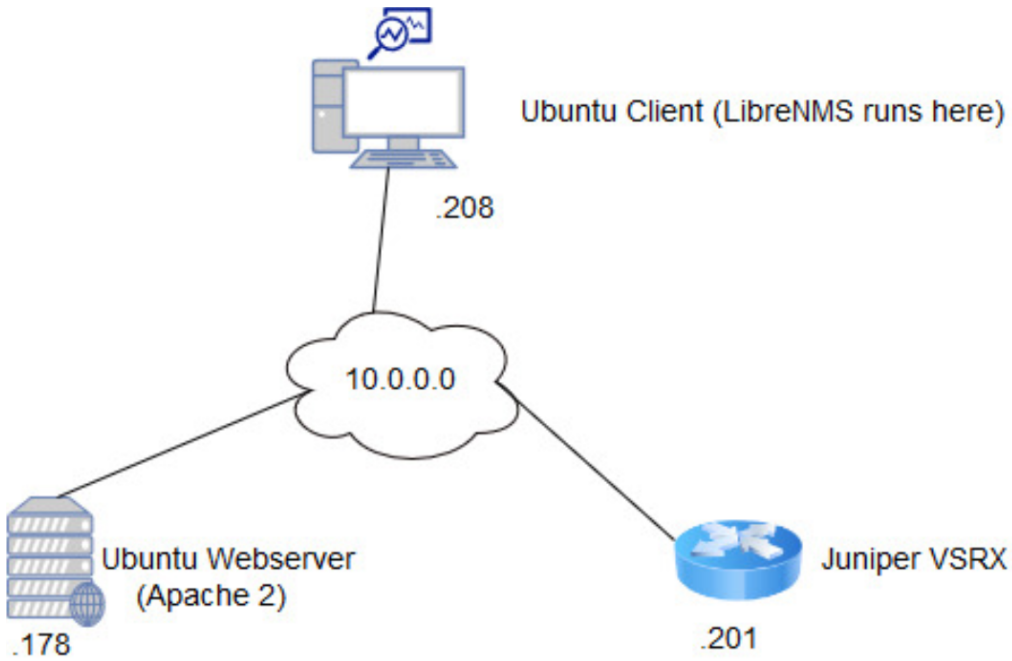

Illustration 2: Librenms test network with an Ubuntu Server,Client and a Juniper VSRX

The test will be done before deploying the machines to Chinanet, we are going to use VMWare to test our virtual environment and spin up the machines from Illustration 2:

- Ubuntu Client – 10.0.0.208 – A linux machine where LibreNMS is running and monitor the whole environment.
- Ubuntu Webserver – 10.0.0.178 A linux machine where data is coming from.
- Juniper VSRX – 10.0.0.201 A Juniper Router where data is coming from

3. Performance

LibreNMS is running on Ubuntu 16.04 Desktop Client. It is using 4GB of RAM, and 4 cores processor. The machine contains the LibreNMS and it's based on Apache2.

4. Hardware

LibreNMS[2] is an autodiscovering PHP/MySQL-based network monitoring system.

Ubuntu 16.04 64-bit with 4GB of RAM.

Ubuntu Webserver(14.04) with 1GB of RAM.

Juniper VSRX Router with 2GB of RAM

2 LibreNMS

5. Protocols and standards

SNMP is an universal protocol which can be used to monitor and manage networked devices.

6. IP layout

6.1. Chinanet

The IP layout of Chinanet is the following:

- Chinanet: 10.100.200.0/24
  - SOK01: .1
  - cn-vpn: .5
  - cn-vpn: .6
  - cn-docker: .103
  - cn-ws-stmo: .104
  - vpnet: 10.0.8.0/24

6.2. Test

- Test network: 10.0.0.0
  - Ubuntu 16.04 Client: 10.0.0.207
  - Ubuntu 14.05 Server: 10.0.0.178
  - Juniper VSRX: 10.0.0.201

7. Naming convention

Comparing the names in chinanet where seems every host has prefixed “cn-” keeping with this convention a host same like “cn-librenms” or “cn-monitor” looks promising.

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