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Course/Section: CPE212 - CPE31S21 **Adviser: Robin Valenzuela**

FINAL EXAM

1. Create a repository and label it as "Final_Exam_Surname"

2. Clone your new repository in your VM

3. Create an Ansible playbook that does the following with an input of a config.yaml file and structure inventory file.

3.1 Install and configure one enterprise service that can be installed in Debian and Centos servers

3.2 Install and configure one monitoring tool that can be installed in Debian and Centos servers (if it is a stack there should be option of different host)

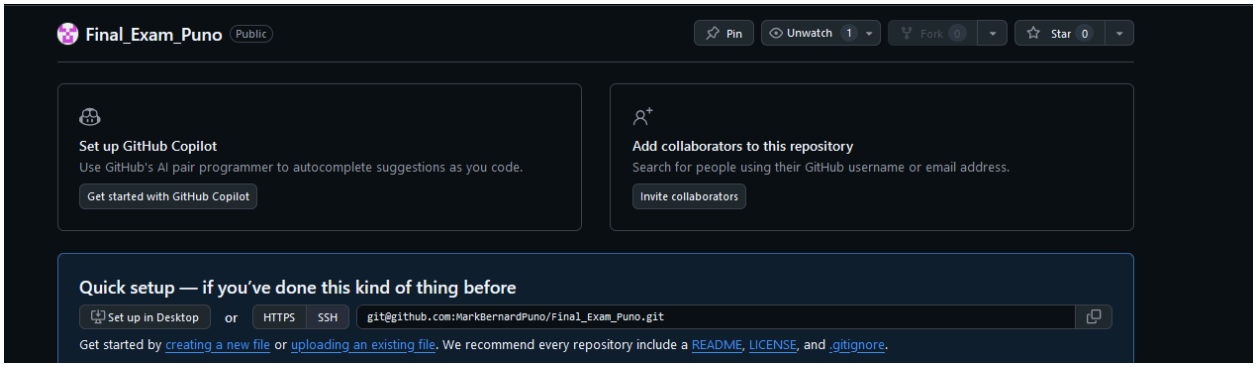
4.4 Change Motd as "Ansible Managed by <username>"

4. Push and commit your files in GitHub

5. Make sure to show evidence of input (codes) process (codes successfully running) and output (evidence of installation)

5. For your final exam to be counted, please paste your repository link as an answer in this exam.

Note: Extra points if you will implement the said services via containerization.



- I’ve Created a github repository for final exam

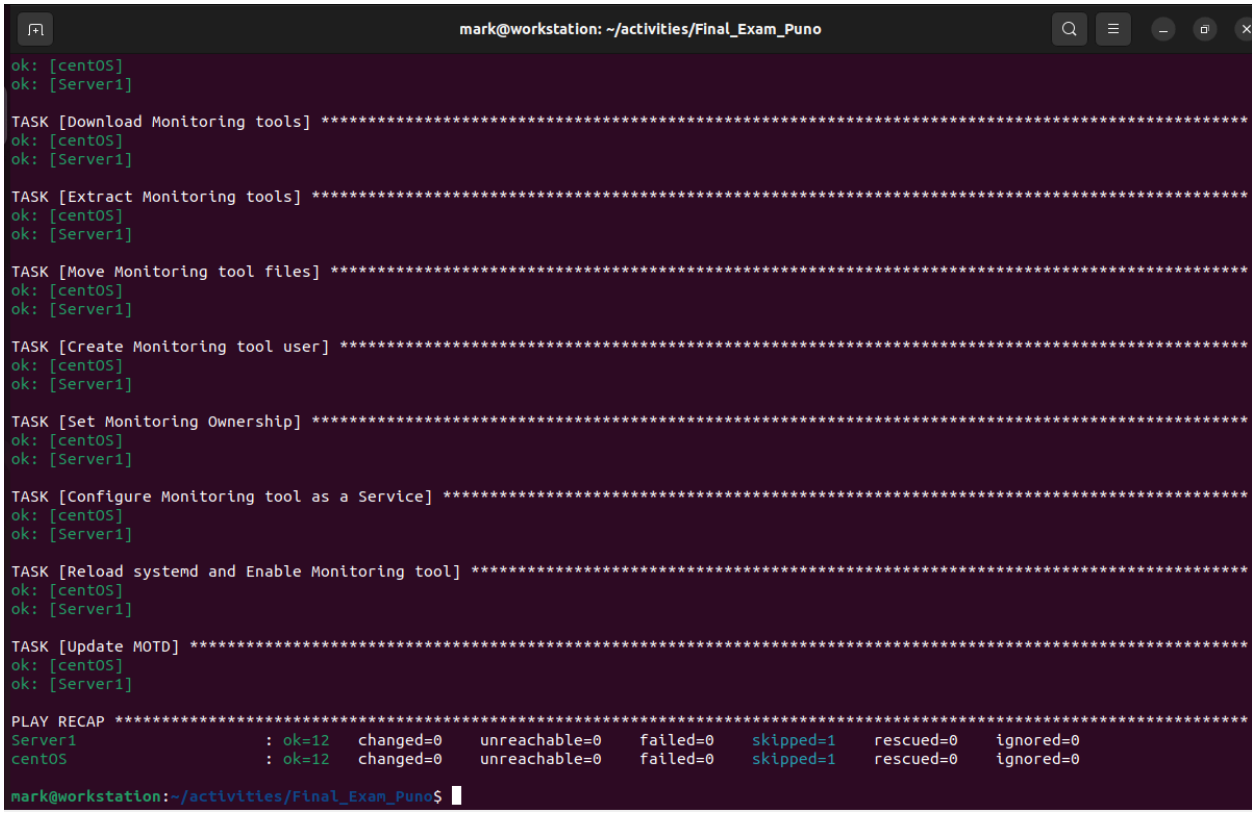
```
mark@workstation:~/activities$ git clone git@github.com:MarkBernardPuno/Final_Exam_Puno.git
Cloning into 'Final_Exam_Puno'...
warning: You appear to have cloned an empty repository.
mark@workstation:~/activities$ ls
act10  act13  act8  CPE_MIDEXAM_PUNO  HOA-6.1
act11  act7   act9  Final_Exam_Puno
```

- I’ve cloned the repository to my workstation

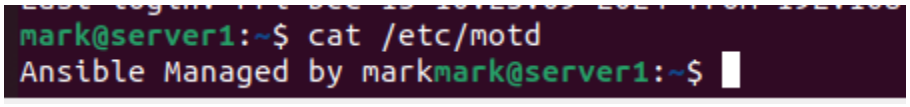
```
mark@workstation:~/activities/Final_Exam_Puno$ cat install.yml
- name: Enterprise Service and Monitoring Setup
  hosts: all
  become: true
  vars:
    username: "mark"
    apache_port: 80
    prometheus_version: "2.46.0"
  tasks:

    - name: Install Apache on Ubuntu
      apt:
        name: apache2
        state: present
      when: ansible_os_family == "Debian"

    - name: Install Apache on Centos
      yum:
        name: httpd
        state: present
      when: ansible_os_family == "RedHat"

    - name: Enterprise Service
      service:
        name: "{{ 'apache2' if ansible_os_family == 'Debian' else 'httpd' }}"
        state: started
        enabled: true

    - name: Configure Enterprise
      lineinfile:
        path: "{{ '/etc/apache2/ports.conf' if ansible_os_family == 'Debian' else '/etc/httpd/conf/httpd.conf' }}"
        regexp: "^Listen"
        line: "Listen {{ apache_port }}"
      notify: Restart Apache

    - name: Download Monitoring tools
      get_url:
        url: "https://github.com/prometheus/prometheus/releases/download/v{{ prometheus_version }}/prometheus-{{ prometheus_version
}}.linux-amd64.tar.gz"
        dest: /tmp/prometheus.tar.gz
```

```
- name: Extract Monitoring tools
  unarchive:
    src: /tmp/prometheus.tar.gz
    dest: /opt
    remote_src: true

- name: Move Monitoring tool files
  command:
    cmd: mv /opt/prometheus-{{ prometheus_version }}.linux-amd64 /opt/prometheus
  args:
    creates: /opt/prometheus

- name: Create Monitoring tool user
  user:
    name: prometheus
    shell: /sbin/nologin

- name: Set Monitoring Ownership
  file:
    path: /opt/prometheus
    owner: prometheus
    group: prometheus
    state: directory
    recurse: yes

- name: Configure Monitoring tool as a Service
  copy:
    dest: /etc/systemd/system/prometheus.service
    content: |
      [Unit]
      Description=Prometheus Monitoring
      After=network.target

      [Service]
      User=prometheus
```

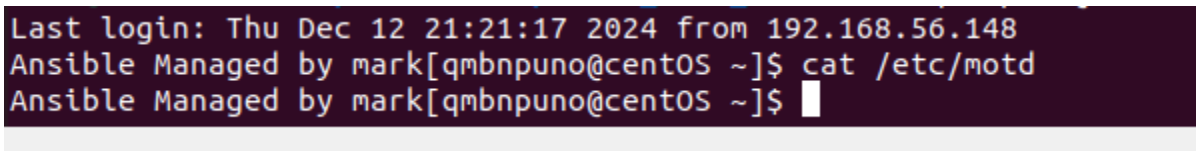
```
        ExecStart=/opt/prometheus/prometheus \
          --config.file=/opt/prometheus/prometheus.yml \
          --storage.tsdb.path=/opt/prometheus/data
        Restart=always

        [Install]
        WantedBy=multi-user.target

- name: Reload systemd and Enable Monitoring tool
  systemd:
    daemon_reload: true
    name: prometheus
    state: started
    enabled: true

- name: Update MOTD
  copy:
    dest: /etc/motd
    content: "Ansible Managed by {{ username }}"
```



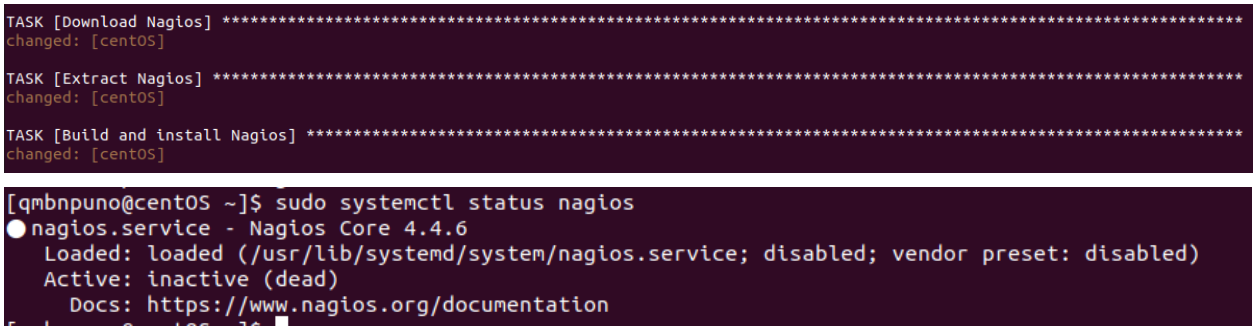
- Here I downloaded the monitoring tool and enterprise services



- MOTD on server1



- MOTD on centOS



- Nagios on centOS

```
[qmbnpuno@centOS ~]$ sudo systemctl status prometheus
[sudo] password for qmbnpuno:
● prometheus.service - Prometheus Monitoring
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor preset: disabled)
   Active: active (running) since Thu 2024-12-12 19:58:32 EST; 1h 40min ago
 Main PID: 1171 (prometheus)
    Tasks: 11
   CGroup: /system.slice/prometheus.service
           └─1171 /opt/prometheus/prometheus --config.file /opt/prometheus/pr...

Dec 12 19:59:25 centOS prometheus[1171]: level=info ts=2024-12-13T00:59:25.3...l
Dec 12 19:59:25 centOS prometheus[1171]: level=info ts=2024-12-13T00:59:25.54…µs
Dec 12 19:59:25 centOS prometheus[1171]: level=info ts=2024-12-13T00:59:25.5..."
Dec 12 19:59:44 centOS prometheus[1171]: level=info ts=2024-12-13T00:59:44.1...s
Dec 12 19:59:44 centOS prometheus[1171]: level=info ts=2024-12-13T00:59:44.1…2µs
Dec 12 19:59:47 centOS prometheus[1171]: level=info ts=2024-12-13T00:59:47.3...s
Dec 12 19:59:47 centOS prometheus[1171]: level=info ts=2024-12-13T00:59:47.3…5µs
Dec 12 19:59:47 centOS prometheus[1171]: level=info ts=2024-12-13T00:59:47.3...0
Dec 12 19:59:47 centOS prometheus[1171]: level=info ts=2024-12-13T00:59:47.8...s
Dec 12 21:21:09 centOS systemd[1]: Current command vanished from the unit f...d.
Hint: Some lines were ellipsized, use -l to show in full.
```

- Monitoring tool for centOS

```
mark@server1:~$ sudo systemctl status apache2
[sudo] password for mark:
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor prese>
     Active: active (running) since Fri 2024-12-13 08:59:32 +08; 1h 40min ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 1284 (apache2)
      Tasks: 6 (limit: 2265)
     Memory: 2.1M
        CPU: 275ms
     CGroup: /system.slice/apache2.service
             ├─1284 /usr/sbin/apache2 -k start
             ├─1312 /usr/sbin/apache2 -k start
             ├─1313 /usr/sbin/apache2 -k start
             ├─1314 /usr/sbin/apache2 -k start
             ├─1315 /usr/sbin/apache2 -k start
             └─1316 /usr/sbin/apache2 -k start

Dec 13 08:59:19 server1 systemd[1]: Starting The Apache HTTP Server...
Dec 13 08:59:32 server1 apachectl[993]: AH00558: apache2: Could not reliably de>
Dec 13 08:59:32 server1 systemd[1]: Started The Apache HTTP Server.
```

- Enterprise service for ubuntu

GITHUB LINK:
https://github.com/MarkBernardPuno/Final_Exam_Puno.git