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Activity 9: Install, Configure, and Manage Performance Monitoring tools

1. Objectives

Create and design a workflow that installs, configure and manage enterprise performance tools using Ansible as an Infrastructure as Code (IaC) tool.

2. Discussion

Performance monitoring is a type of monitoring tool that identifies current resource consumption of the workload, in this page we will discuss multiple performance monitoring tool.

Prometheus

Prometheus fundamentally stores all data as timeseries: streams of timestamped values belonging to the same metric and the same set of labeled dimensions. Besides stored time series, Prometheus may generate temporary derived time series as the result of queries. Source: Prometheus - Monitoring system & time series database

Cacti

Cacti is a complete network graphing solution designed to harness the power of RRDTool's data storage and graphing functionality. Cacti provides a fast poller, advanced graph templating, multiple data acquisition methods, and user management features out of the box. All of this is wrapped in an intuitive, easy to use interface that makes sense for LAN-sized installations up to complex networks with thousands of devices. Source: Cacti® - The Complete RRDTool-based Graphing Solution

3. Tasks

1. Create a playbook that installs Prometheus in both Ubuntu and CentOS. Apply the concept of creating roles.
2. Describe how you did step 1. (Provide screenshots and explanations in your report. Make your report detailed such that it will look like a manual.)
3. Show an output of the installed Prometheus for both Ubuntu and CentOS.
4. Make sure to create a new repository in GitHub for this activity.

4. Output (screenshots and explanations)

1. Create a playbook that installs Prometheus in both Ubuntu and CentOS. Apply the concept of creating roles.

```
emncuygn@workstation:~/CUYUGAN_Act9$ cat prometheus.yml
---
- name: Install Prometheus
  hosts: all
  become: yes

  roles:
    - allnodes
```

```
emncuygn@workstation:~/CUYUGAN_Act9/roles/allnodes/tasks$ cat main.yml
---
- name: Install Prometheus on Ubuntu
  apt:
    name: prometheus
    state: present
  when: ansible_distribution == 'Ubuntu'

- name: Add Prometheus repository on CentOS
  yum_repository:
    name: prometheus
    description: Prometheus repository
    baseurl: https://packagecloud.io/prometheus-rpm/release/el/7/$basearch
    gpgcheck: no
  when: ansible_distribution == 'CentOS'

- name: Install Prometheus on CentOS
  yum:
    name: prometheus
    state: present
  when: ansible_distribution == 'CentOS'

- name: Update package cache
  apt:
    update_cache: yes
  when: ansible_distribution == 'Ubuntu'

- name: Update package cache
```

```
- name: Update package cache
  yum:
    name: '*'
    state: latest
  when: ansible_distribution == 'CentOS'
```

2. Describe how you did step 1. (Provide screenshots and explanations in your report. Make your report detailed such that it will look like a manual.)
    a. I created the ansible playbook and main.yml as shown below in the screenshot. prometheus.yml is the main playbook to be executed while main.yml is the task for the allnodes role. 192.168.56.109 for Ubuntu. 192.168.56.112 for CentOS.

```
emncuygn@workstation:~/CUYUGAN_Act9$ tree
.
├── ansible.cfg
├── inventory
├── prometheus.retry
├── prometheus.yml
└── roles
    └── allnodes
        └── tasks
            └── main.yml

3 directories, 5 files
```

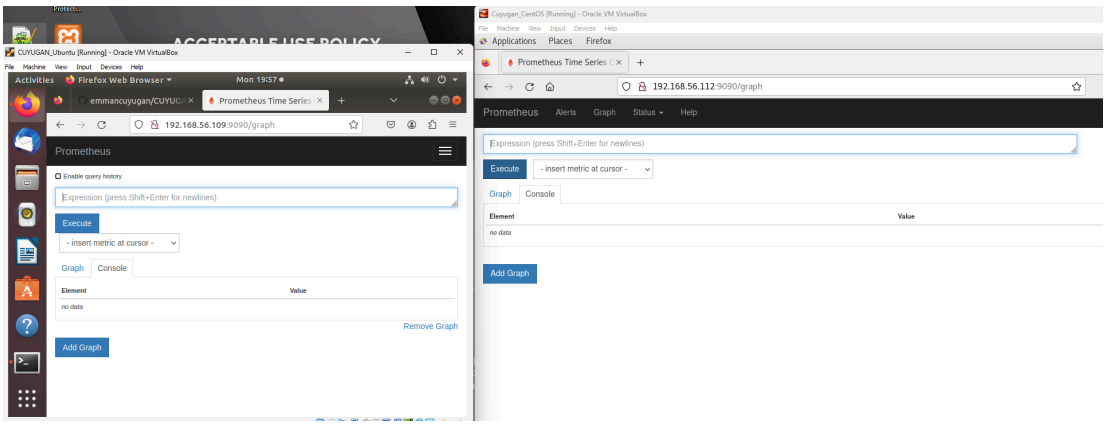
```
emncuygn@workstation:~/CUYUGAN_Act9$ cat inventory
[allnodes]
192.168.56.109
192.168.56.112
```

b. The Ubuntu Prometheus installation is straightforward compared to CentOS. In CentOS, you need to go the repository itself for Prometheus in GitHub to install it first to your CentOS node before installing Prometheus itself to CentOS as shown in the prometheus.yml above. With that we installed Prometheus in both CentOS and Ubuntu.

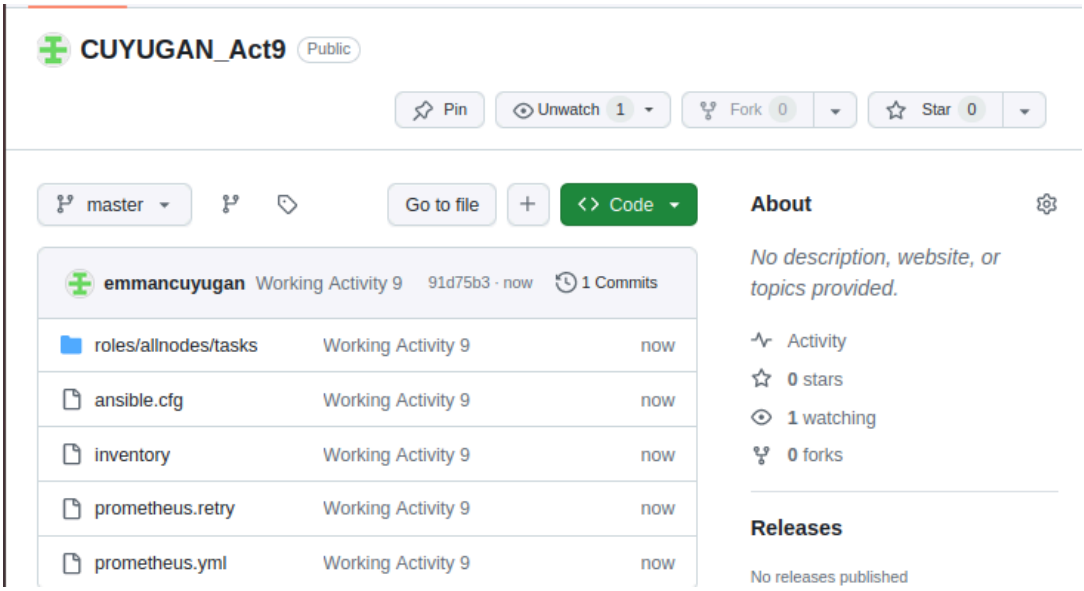
```
TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.109]
ok: [192.168.56.112]

TASK [allnodes : Install Prometheus on Ubuntu] *********************************
*
skipping: [192.168.56.112]
ok: [192.168.56.109]

TASK [allnodes : Add Prometheus repository on CentOS] **************************
*
skipping: [192.168.56.109]
changed: [192.168.56.112]

TASK [allnodes : Install Prometheus on CentOS] *********************************
*
skipping: [192.168.56.109]
changed: [192.168.56.112]

TASK [allnodes : Update package cache] *****************************************
*
skipping: [192.168.56.112]
changed: [192.168.56.109]
```

```
TASK [allnodes : Update package cache] *****************************************
*
skipping: [192.168.56.112]
changed: [192.168.56.109]

TASK [allnodes : Update package cache] *****************************************
*
skipping: [192.168.56.109]
changed: [192.168.56.112]

PLAY RECAP *********************************************************************
*
192.168.56.109             : ok=3    changed=1    unreachable=0    failed=0
192.168.56.112             : ok=4    changed=3    unreachable=0    failed=0
```

3. Show an output of the installed Prometheus for both Ubuntu and CentOS.



4. Make sure to create a new repository in GitHub for this activity.



https://github.com/emmancuyugan/CUYUGAN_Act9.git

Reflections:

Answer the following:

1. What are the benefits of having a performance monitoring tool?
   - They are essential for maintaining and optimizing the performance of computer systems, especially ones using Linux. Its benefits can be that it optimizes resources, prevents downtime, improves security, ease of troubleshooting, and more.

Conclusions:

Creating a task can be both simple and challenging especially when it comes to installing Prometheus in CentOS. At first, I thought it would be as simple as installing it in Ubuntu. But in the end, it has been a learning experience for me. As it installed it in both systems in the end.