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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)

Screenshots:

```
kevin@Workstation:~/Activity-9-$ tree
.
├── ansible.cfg
├── files
│   └── prometheus.service
├── install_prometheus.yml
├── inventory
├── README.md
└── roles
    ├── centos_prometheus
    │   └── tasks
    │       └── main.yml
    └── ubuntu_prometheus
        └── tasks
            └── main.yml
```

- This is the whole playbook

Prometheus.service

```
  GNU nano 2.9.3                  prometheus.service

[Unit]
Description=Prometheus
After=network.target

[Service]
User=prometheus
ExecStart=/usr/local/bin/prometheus --config.file=/etc/prometheus/prometheus.y$
Restart=always

[Install]
WantedBy=multi-user.target
```

- So this playbook helps to run and executes different commands from different playbook

ansible.cfg

```
  GNU nano 2.9.3                          ansible.cfg

[defaults]

inventory = inventory
host_key_checking = False

deprecation_warnings = False

remote_user = kevin
private_key_file = ~/.ssh/
```

- The configuration files govern the behavior of all interaction performed by the control node.

Install_prometheus

```
  GNU nano 2.9.3                  install_prometheus.yml

---

- hosts: all
  become: true
  pre_tasks:

  - name: install updates (CentOS)
    package:
      update_only: yes
      update_cache: yes
    when: ansible_distribution == "CentOS"

  - name: install wget (CentOS)
    package:
      name: wget
      state: latest
    when: ansible_distribution == "CentOS"
```

- This command helps to install the ansible distribution of CentOS .

```
  - name: install updates (Ubuntu)
    apt:
      upgrade: dist
      update_cache: yes
    when: ansible_distribution == "Ubuntu"

- hosts: ubuntu_prometheus
  become: true
  roles:
    - ubuntu_prometheus

- hosts: centos_prometheus
  become: true
  roles:
    - centos_prometheus
```

- This command helps to install the Ubuntu updates and Ubuntu prometheus in the system.

inventory

```
  GNU nano 2.9.3                                inventory

[ubuntu_prometheus]
192.168.56.102

[centos_prometheus]
192.168.56.110
```

- This is the desired IP address of the given prometheus location.

CENTOS PROMETHEUS

```
 GNU nano 2.9.3                          main.yml

- name: Prometheus PATH directory
  file:
    path: ~/prometheus
    state: directory


- name: Creating directory for Prometheus files
  file:
    path:
      - /etc/prometheus
      - /var/lib/prometheus
    mode: 0777
    state: directory

- name: Install Prometheus (CentOS)
  unarchive:
    src: https://github.com/prometheus/prometheus/releases/download/v2.8.1/p$
    dest: ~/prometheus
    remote_src: yes
    mode: 0777
    owner: root
    group: root
```

```
- name: Configuring Prometheus
  shell: |
    cd ~/prometheus/prometheus*
    cp -r . /usr/local/bin/prometheus

- name: Prometheus config file duplicate
  copy:
    src: prometheus.service
    dest: /etc/systemd/system
    mode: 7777
    owner: root
    group: root
```

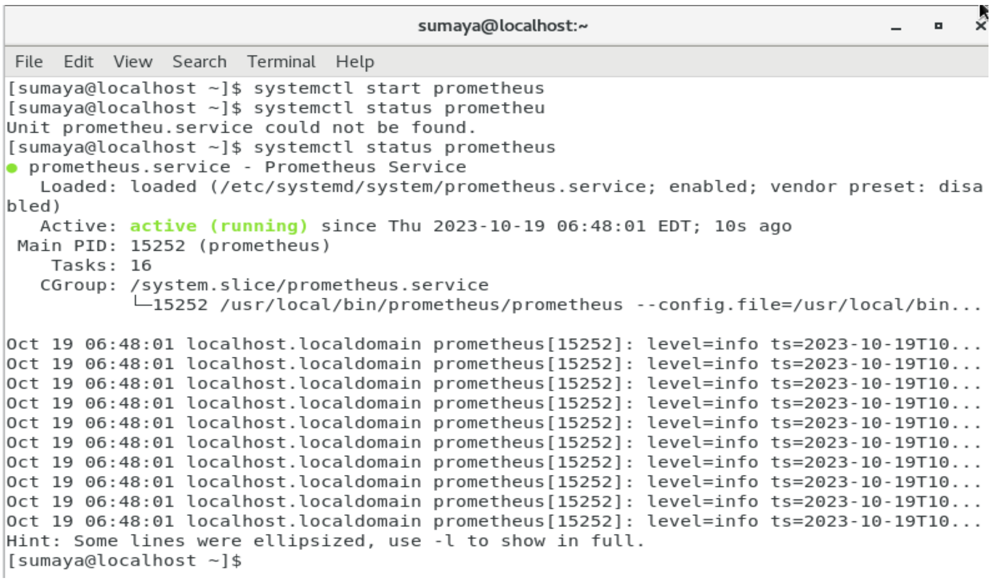
```
 GNU nano 2.9.3                                main.yml

- name: Prometheus Start/Enable Check
  service:
    name: prometheus.service
    state: restarted
    enabled: true

- name: httpd Start/Enable Check
  service:
    name: httpd
    state: restarted
    enabled: true
```

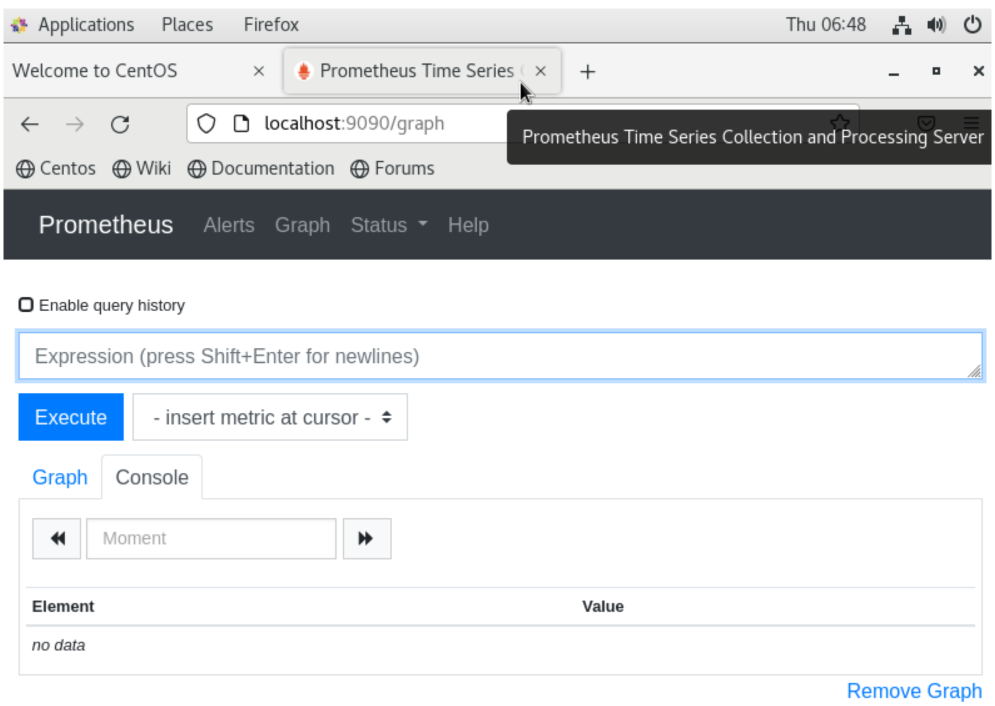
- This command helps to run and install the given file of the prometheus installation library from the internet.

UBUNTU_Prometheus

```
 GNU nano 2.9.3                                main.yml

- name: install prometheus (Ubuntu)
  apt:
    name: prometheus
    state: latest

- name: Prometheus Start/Enable Check
  service:
    name: prometheus
    state: restarted
    enabled: true

- name: Apache Start/Enable Check
  service:
    name: prometheus
    state: restarted
    enabled: true
```

- This command helps to run Prometheus inside the Ubuntu.





- After running the playbook the prometheus began to successfully executes.

Reflections:

Answer the following:

1. What are the benefits of having a performance monitoring tool?

    - Performance monitoring tools are software applications that help you measure and optimize the performance of your IT systems, such as servers, networks, applications, databases, etc.

Conclusions:

I discovered after completing the exercise that prometheus is a performance monitoring tool that aids in improving the performance of the specified database or activity.