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Activity 8: Install, Configure, and Manage Availability Monitoring tools

1. Objectives

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

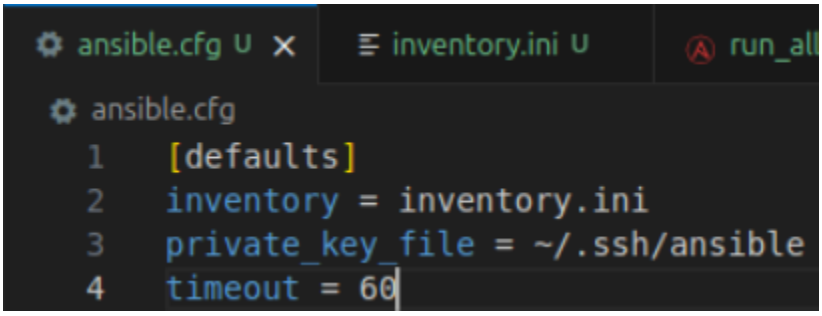
2. Discussion

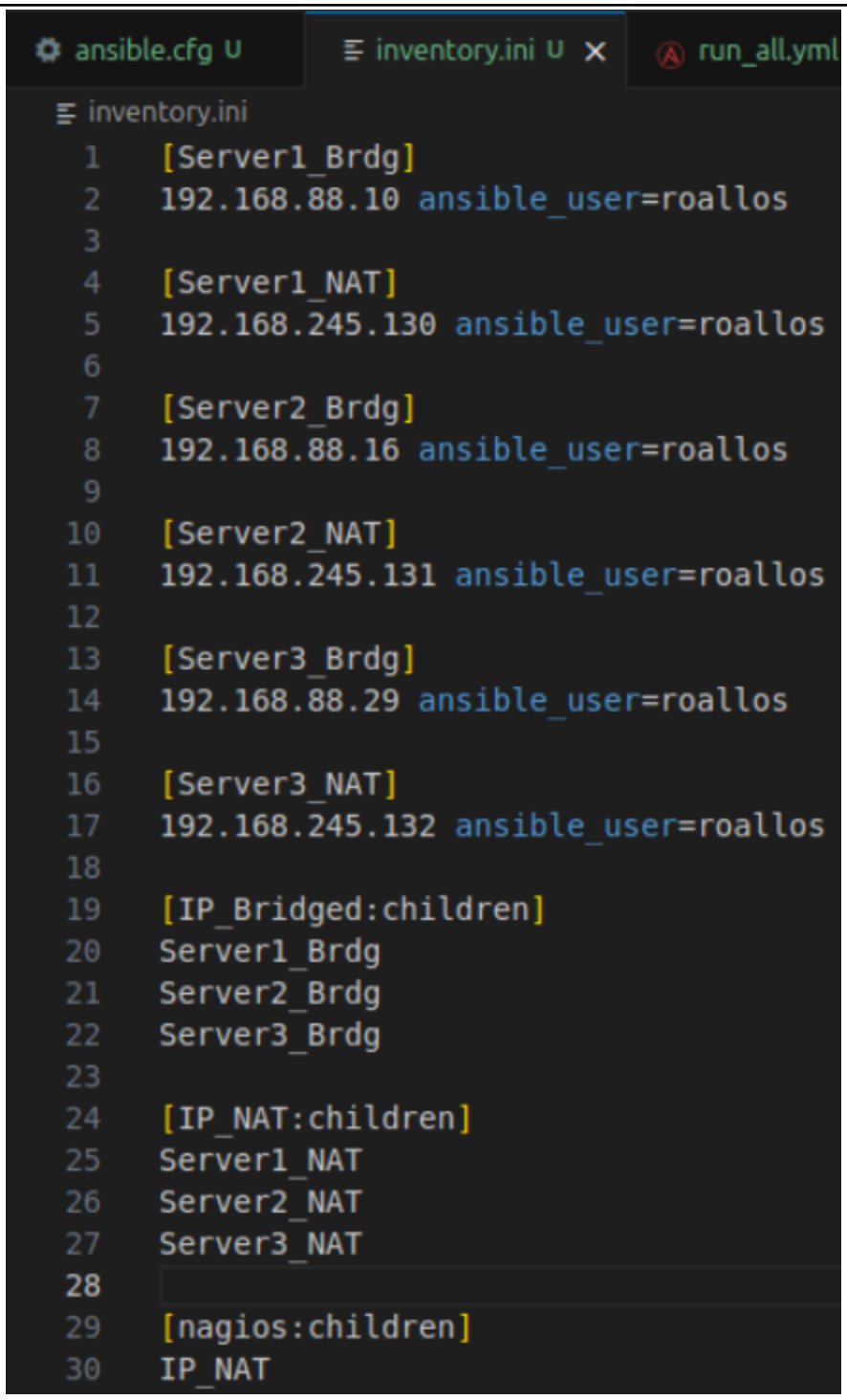
Availability monitoring is a type of monitoring tool that we use if the certain workload is up or reachable on our end. Site downtime can lead to loss of revenue, reputational damage and severe distress. Availability monitoring prevents adverse situations by checking the uptime of infrastructure components such as servers and apps and notifying the webmaster of problems before they impact on business.

3. Tasks

1. Create a playbook that installs Nagios 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 Nagios for both Ubuntu and CentOS.
4. Make sure to create a new repository in GitHub for this activity.

4. Output (screenshots and explanations)




ansible.cfg U
inventory.ini U
run_all.yml
inventory.ini
[Server1_Brdg]
192.168.88.10 ansible_user=roallos
[Server1_NAT]
192.168.245.130 ansible_user=roallos
[Server2_Brdg]
192.168.88.16 ansible_user=roallos
[Server2_NAT]
192.168.245.131 ansible_user=roallos
[Server3_Brdg]
192.168.88.29 ansible_user=roallos
[Server3_NAT]
192.168.245.132 ansible_user=roallos
[IP_Bridged:children]
Server1_Brdg
Server2_Brdg
Server3_Brdg
[IP_NAT:children]
Server1_NAT
Server2_NAT
Server3_NAT
[nagios:children]
IP_NAT

```
roallos@Workstation:~/HOA-8.1$ ansible nagios -m ping
192.168.245.131 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
192.168.245.130 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
192.168.245.132 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
```

```
roallos@Workstation:~/HOA-8.1$ mkdir -p roles/nagios/tasks
roallos@Workstation:~/HOA-8.1$ ls
ansible.cfg  install_nagios.yml  inventory.ini  README.md  roles  run_all.yml
roallos@Workstation:~/HOA-8.1$ ls roles
nagios
roallos@Workstation:~/HOA-8.1$ ls roles/nagios
tasks
roallos@Workstation:~/HOA-8.1$ touch roles/nagios/tasks/main.yml
roallos@Workstation:~/HOA-8.1$ ls roles/nagios/tasks
main.yml
roallos@Workstation:~/HOA-8.1$
```

install_nagios.yml / main.yml:

install_nagios.yml

```yaml
---
- name: Add EPEL Repository (CentOS)
  tags: centos,nagios
  package:
    name: epel-release
    state: present
  when: ansible_distribution == "CentOS"

- name: Install Nagios (CentOS)
  tags: centos,nagios
  package:
    name:
      - nagios
      - nagios-plugins
      - nagios-plugins-disk
      - nagios-plugins-http
      - nagios-plugins-load
      - nagios-plugins-ping
      - nagios-plugins-procs
      - nagios-plugins-users
    state: present
  when: ansible_distribution == "CentOS"

- name: Install Nagios (Ubuntu)
  tags: ubuntu,nagios
  apt:
    name: nagios4
    state: present
    update_cache: yes
  when: ansible_distribution == "Ubuntu"
```

install_nagios.yml

```yaml
- name: Install Nagios (Ubuntu)
  tags: ubuntu,nagios
  apt:
    name: nagios4
    state: present
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: Nagios Restart/Enable (Ubuntu)
  service:
    name: nagios4
    state: restarted
    enabled: true
  when: ansible_distribution == "Ubuntu"

- name: Nagios Restart/Enable (CentOS)
  service:
    name: nagios
    state: restarted
    enabled: true
  when: ansible_distribution == "CentOS"
```

run_all.yml:

run_all.yml

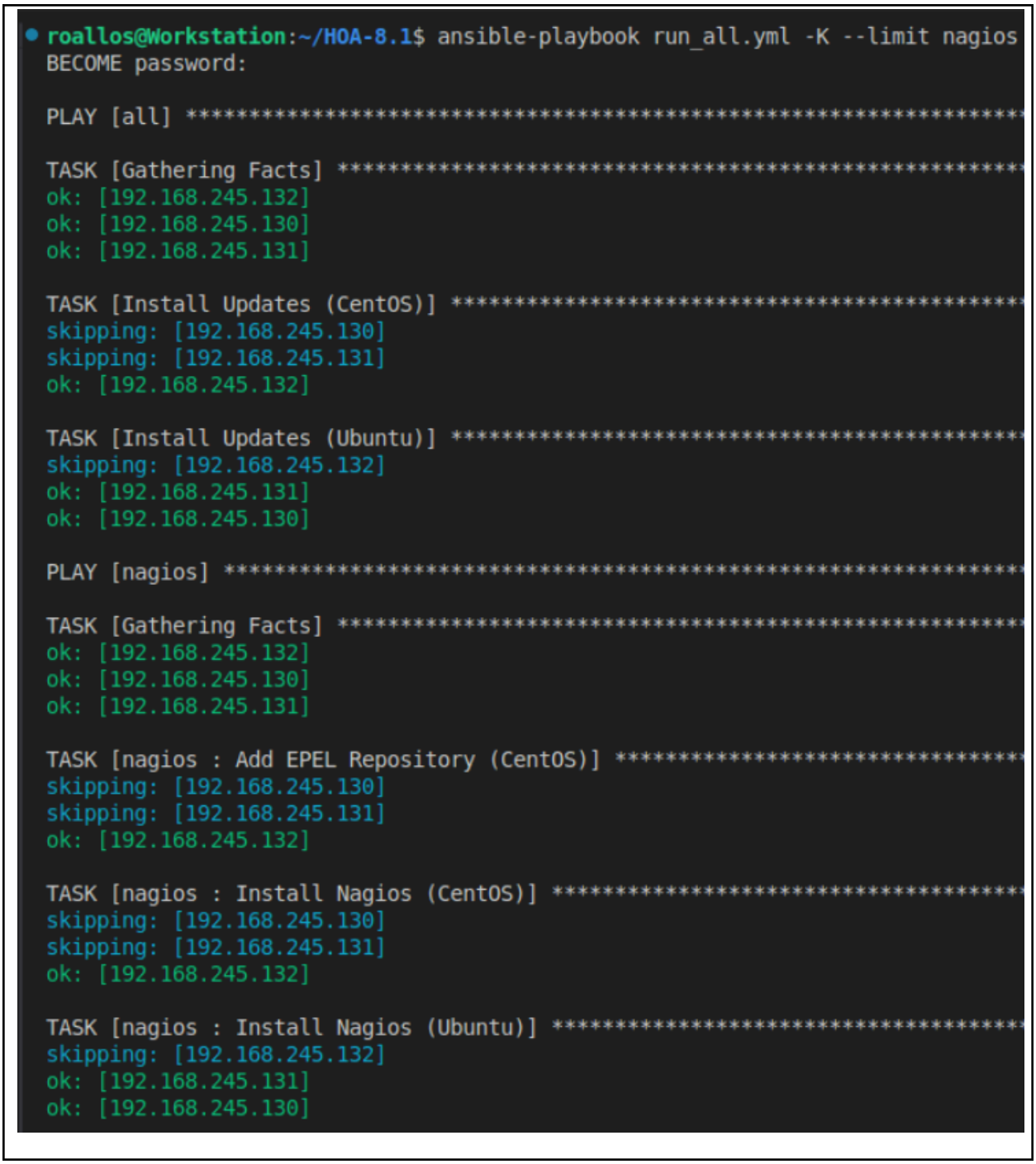
```yaml
---
- hosts: all
  become: true
  pre_tasks:

  - name: Install Updates (CentOS)
    tags: always
    dnf:
      update_only: yes
      # update_cache: yes
    changed_when: false
    when: ansible_distribution == "CentOS"

  - name: Install Updates (Ubuntu)
    tags: always
    apt:
      # upgrade: dist
      update_cache: yes
    changed_when: false
    when: ansible_distribution == "Ubuntu"

- hosts: nagios
  become: true
  roles:
    - nagios
```

OUTPUT:


roallos@Workstation:~/HOA-8.1$ ansible-playbook run_all.yml -K --limit nagios
BECOME password:
PLAY [all] ****
TASK [Gathering Facts] ****
ok: [192.168.245.132]
ok: [192.168.245.130]
ok: [192.168.245.131]
TASK [Install Updates (CentOS)] ****
skipping: [192.168.245.130]
skipping: [192.168.245.131]
ok: [192.168.245.132]
TASK [Install Updates (Ubuntu)] ****
skipping: [192.168.245.132]
ok: [192.168.245.131]
ok: [192.168.245.130]
PLAY [nagios] ****
TASK [Gathering Facts] ****
ok: [192.168.245.132]
ok: [192.168.245.130]
ok: [192.168.245.131]
TASK [nagios : Add EPEL Repository (CentOS)] ****
skipping: [192.168.245.130]
skipping: [192.168.245.131]
ok: [192.168.245.132]
TASK [nagios : Install Nagios (CentOS)] ****
skipping: [192.168.245.130]
skipping: [192.168.245.131]
ok: [192.168.245.132]
TASK [nagios : Install Nagios (Ubuntu)] ****
skipping: [192.168.245.132]
ok: [192.168.245.131]
ok: [192.168.245.130]

```
roallos@Workstation:~/HOA-8.1$ ansible-playbook run all.yml -K --limit nagios
TASK [Install Updates (Ubuntu)] ***********************************************************************
skipping: [192.168.245.132]
ok: [192.168.245.131]
ok: [192.168.245.130]

PLAY [nagios] *****************************************************************************************

TASK [Gathering Facts] ********************************************************************************
ok: [192.168.245.132]
ok: [192.168.245.130]
ok: [192.168.245.131]

TASK [nagios : Add EPEL Repository (CentOS)] **********************************************************
skipping: [192.168.245.130]
skipping: [192.168.245.131]
ok: [192.168.245.132]

TASK [nagios : Install Nagios (CentOS)] ***************************************************************
skipping: [192.168.245.130]
skipping: [192.168.245.131]
ok: [192.168.245.132]

TASK [nagios : Install Nagios (Ubuntu)] ***************************************************************
skipping: [192.168.245.132]
ok: [192.168.245.131]
ok: [192.168.245.130]

TASK [nagios : Nagios Restart/Enable (Ubuntu)] ********************************************************
skipping: [192.168.245.132]
changed: [192.168.245.131]
changed: [192.168.245.130]

TASK [nagios : Nagios Restart/Enable (CentOS)] ********************************************************
skipping: [192.168.245.130]
skipping: [192.168.245.131]
changed: [192.168.245.132]

PLAY RECAP ********************************************************************************************
192.168.245.130            : ok=5    changed=1    unreachable=0    failed=0    skipped=4    rescued=0    ignored=0
192.168.245.131            : ok=5    changed=1    unreachable=0    failed=0    skipped=4    rescued=0    ignored=0
192.168.245.132            : ok=6    changed=1    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0
```

VERIFICATION:

```
roallos@Server1:~$ which nagios4
/usr/sbin/nagios4
roallos@Server1:~$ systemctl status nagios4
● nagios4.service - nagios4
     Loaded: loaded (/usr/lib/systemd/system/nagios4.service; enabled; preset: enabled)
     Active: active (running) since Fri 2025-10-17 17:03:23 PST; 5min ago
       Docs: man:nagios4
    Process: 13983 ExecStartPre=sh -c nagiospipe=$$(sed -n "s/^command_file=\(.*\)/\1/p" ${NAGIOSCFG}); [ -z "$${nagiosp>
   Main PID: 13985 (nagios4)
      Tasks: 6 (limit: 2208)
     Memory: 2.2M (peak: 4.1M)
        CPU: 484ms
     CGroup: /system.slice/nagios4.service
             ├─13985 /usr/sbin/nagios4 /etc/nagios4/nagios.cfg
             ├─13987 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─13988 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─13989 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─13990 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             └─13991 /usr/sbin/nagios4 /etc/nagios4/nagios.cfg

Oct 17 17:03:23 Server1 nagios4[13985]: qh: help for the query handler registered
Oct 17 17:03:23 Server1 nagios4[13985]: wproc: Successfully registered manager as @wproc with query handler
Oct 17 17:03:23 Server1 nagios4[13985]: wproc: Registry request: name=Core Worker 13988;pid=13988
Oct 17 17:03:23 Server1 nagios4[13985]: wproc: Registry request: name=Core Worker 13989;pid=13989
Oct 17 17:03:23 Server1 nagios4[13985]: wproc: Registry request: name=Core Worker 13990;pid=13990
Oct 17 17:03:23 Server1 nagios4[13985]: wproc: Registry request: name=Core Worker 13990;pid=13990
Oct 17 17:03:23 Server1 nagios4[13985]: wproc: Registry request: name=Core Worker 13987;pid=13987
Oct 17 17:03:23 Server1 nagios4[13985]: wproc: Registry request: name=Core Worker 13987;pid=13987
Oct 17 17:03:23 Server1 nagios4[13985]: Successfully launched command file worker with pid 13991
Oct 17 17:03:23 Server1 nagios4[13985]: Successfully launched command file worker with pid 13991
```

```
roallos@Server2:~$ which nagios4
/usr/sbin/nagios4
roallos@Server2:~$ systemctl status nagios4
● nagios4.service - nagios4
     Loaded: loaded (/usr/lib/systemd/system/nagios4.service; enabled; preset: enabled)
     Active: active (running) since Fri 2025-10-17 17:03:23 PST; 5min ago
       Docs: man:nagios4
    Process: 13580 ExecStartPre=sh -c nagiospipe=$$(sed -n "s/^command_file=\(.*\)/\1/p" ${NAGIOSCFG}); [ -z "$${nagiosp>
   Main PID: 13583 (nagios4)
      Tasks: 6 (limit: 2208)
     Memory: 2.2M (peak: 4.1M)
        CPU: 455ms
     CGroup: /system.slice/nagios4.service
             ├─13583 /usr/sbin/nagios4 /etc/nagios4/nagios.cfg
             ├─13584 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─13585 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─13586 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             ├─13587 /usr/sbin/nagios4 --worker /var/lib/nagios4/rw/nagios.qh
             └─13588 /usr/sbin/nagios4 /etc/nagios4/nagios.cfg

Oct 17 17:03:23 Server2 nagios4[13583]: wproc: Registry request: name=Core Worker 13584;pid=13584
Oct 17 17:03:23 Server2 nagios4[13583]: wproc: Registry request: name=Core Worker 13584;pid=13584
Oct 17 17:03:23 Server2 nagios4[13583]: wproc: Registry request: name=Core Worker 13587;pid=13587
Oct 17 17:03:23 Server2 nagios4[13583]: wproc: Registry request: name=Core Worker 13587;pid=13587
Oct 17 17:03:23 Server2 nagios4[13583]: wproc: Registry request: name=Core Worker 13585;pid=13585
Oct 17 17:03:23 Server2 nagios4[13583]: wproc: Registry request: name=Core Worker 13585;pid=13585
Oct 17 17:03:23 Server2 nagios4[13583]: wproc: Registry request: name=Core Worker 13586;pid=13586
Oct 17 17:03:23 Server2 nagios4[13583]: wproc: Registry request: name=Core Worker 13586;pid=13586
Oct 17 17:03:23 Server2 nagios4[13583]: Successfully launched command file worker with pid 13588
Oct 17 17:03:23 Server2 nagios4[13583]: Successfully launched command file worker with pid 13588
```

```
[roallos@Server3 ~]$ which nagios
/usr/sbin/nagios
[roallos@Server3 ~]$ systemctl status nagios
● nagios.service - Nagios Core 4.4.14
     Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; preset: disabled)
     Active: active (running) since Fri 2025-10-17 17:03:25 PST; 7min ago
       Docs: https://www.nagios.org/documentation
    Process: 42684 ExecStartPre=/usr/sbin/nagios -v /etc/nagios/nagios.cfg (code=exited, status=0/SUCCESS)
    Process: 42685 ExecStart=/usr/sbin/nagios -d /etc/nagios/nagios.cfg (code=exited, status=0/SUCCESS)
   Main PID: 42686 (nagios)
      Tasks: 8 (limit: 10308)
     Memory: 30.7M (peak: 32.7M)
        CPU: 552ms
     CGroup: /system.slice/nagios.service
             ├─42686 /usr/sbin/nagios -d /etc/nagios/nagios.cfg
             ├─42687 /usr/sbin/nagios --worker /var/spool/nagios/cmd/nagios.qh
             ├─42688 /usr/sbin/nagios --worker /var/spool/nagios/cmd/nagios.qh
             ├─42689 /usr/sbin/nagios --worker /var/spool/nagios/cmd/nagios.qh
             ├─42690 /usr/sbin/nagios --worker /var/spool/nagios/cmd/nagios.qh
             ├─42691 /usr/sbin/nagios --worker /var/spool/nagios/cmd/nagios.qh
             ├─42692 /usr/sbin/nagios --worker /var/spool/nagios/cmd/nagios.qh
             └─42693 /usr/sbin/nagios -d /etc/nagios/nagios.cfg

Oct 17 17:03:25 Server3 nagios[42686]: qh: echo service query handler registered
Oct 17 17:03:25 Server3 nagios[42686]: qh: help for the query handler registered
Oct 17 17:03:25 Server3 nagios[42686]: wproc: Successfully registered manager as @wproc with query handler
Oct 17 17:03:25 Server3 nagios[42686]: wproc: Registry request: name=Core Worker 42687;pid=42687
Oct 17 17:03:25 Server3 nagios[42686]: wproc: Registry request: name=Core Worker 42692;pid=42692
Oct 17 17:03:25 Server3 nagios[42686]: wproc: Registry request: name=Core Worker 42689;pid=42689
Oct 17 17:03:25 Server3 nagios[42686]: wproc: Registry request: name=Core Worker 42688;pid=42688
Oct 17 17:03:25 Server3 nagios[42686]: wproc: Registry request: name=Core Worker 42690;pid=42690
Oct 17 17:03:25 Server3 nagios[42686]: wproc: Registry request: name=Core Worker 42691;pid=42691
Oct 17 17:03:25 Server3 nagios[42686]: Successfully launched command file worker with pid 42693
```

Reflections:

Answer the following:

1. What are the benefits of having an availability monitoring tool?
    - An availability monitoring tool is a software application that tracks uptime and performance of servers and services within a network.

Conclusions: