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Отчет по практической работе №2:

«Ansible + Caddy»

(«Администрирование сетей»)

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Выполнение работы


Часть 1. Установка и настройка Ansible

Сначала создаем рабочую директорию и базовый конфигурационный файл:

 root@pogrommers: /home/lab2

```
GNU nano 6.2
[defaults]
host_key_checking      = false
inventory              = inventory/hosts
```

Прописываем файл с хостами:

 root@pogrommers: /home/lab2/inventory

```
GNU nano 6.2
[my_servers]
local_server ansible=localhost
```

Делаем проверку, что сервер с Ansible подключился к “клиенту” с помощью команды `ansible my_servers -m ping -c local`

```
(venv) root@pogrommers:/home/lab2# ansible my_servers -m ping -c local
[WARNING]: Platform linux on host local_server is using the discovered Python
change the meaning of that path. See https://docs.ansible.com/ansible-core/2
local_server | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/home/lab2/venv/bin/python3.10"
    },
    "changed": false,
    "ping": "pong"
}
(venv) root@pogrommers:/home/lab2#
(venv) root@pogrommers:/home/lab2#
```

Выполняем ad-нос команду для создания текстового файла:

```
(venv) root@pogrommers:/home/lab2# ansible my_servers -c local -m shell -a 'echo data to send > $HOME/send.txt'
[WARNING]: Platform linux on host local_server is using the discovered Python interpreter at /home/lab2/venv/bin/
change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_
local_server | CHANGED | rc=0 >>

(venv) root@pogrommers:/home/lab2# cd ..
(venv) root@pogrommers:/home# ls -la
. .. lab2
(venv) root@pogrommers:/home# printenv HOME
/root
(venv) root@pogrommers:/home# cat ../root/send.txt
data to send
(venv) root@pogrommers:/home#
```

Далее удаляем send.txt через модуль file:

```
(venv) root@pogrommers:/home/lab2# ansible my_servers -c local -m file -a 'path=$HOME/send.txt state=absent'
[WARNING]: Platform linux on host local_server is using the discovered Python interpreter at /home/lab2/venv/
change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpre
local_server | CHANGED => {
    "ansible_facts": {
        "discovered_interpreter_python": "/home/lab2/venv/bin/python3.10"
    },
    "changed": true,
    "path": "/root/send.txt",
    "state": "absent"
}
(venv) root@pogrommers:/home/lab2# cat ../../root/send.txt
cat: ../../root/send.txt: No such file or directory
(venv) root@pogrommers:/home/lab2#
```

Часть 2. Установка Caddy

Чтобы установить вебсервер Caddy, создадим в рабочей директории папку `roles` и инициализируем исходное дерево через команду `ansible-galaxy init caddy_deploy`

```
(venv) root@pogrommers:/home/lab2# mkdir roles
(venv) root@pogrommers:/home/lab2# cd roles/
(venv) root@pogrommers:/home/lab2/roles# ansible-galaxy init caddy_deploy
- Role caddy_deploy was created successfully
```

Посмотрим содержимое:

```
(venv) root@pogrommers:/home/lab2/roles# tree
.
├── caddy_deploy
│   ├── README.md
│   ├── defaults
│   │   └── main.yml
│   ├── files
│   ├── handlers
│   │   └── main.yml
│   ├── meta
│   │   └── main.yml
│   ├── tasks
│   │   └── main.yml
│   ├── templates
│   ├── tests
│   │   ├── inventory
│   │   └── test.yml
│   └── vars
│       └── main.yml
└── 9 directories, 8 files
```

Наполняем файл main.yml для установки Caddy:

```
GNU nano 6.2 tasks/main.yml *
- name: Install prerequisites
  apt:
    pkg:
      - debian-keyring
      - debian-archive-keyring
      - apt-transport-https
      - curl
- name: Add GPG key for Caddy repo
  apt_key:
    url: https://dl.cloudsmith.io/public/caddy/stable/gpg.key
    state: present
    keyring: /usr/share/keyrings/caddy-stable-archive-keyring.gpg
- name: add Caddy repo
  apt_repository:
    repo: "deb [signed-by=/usr/share/keyrings/caddy-stable-archive-keyring.gpg] https://dl.cloudsmith.io/public/caddy/stable/deb/debian any-version main"
    state: present
    filename: caddy-stable
- name: add Caddy src repo
  apt_repository:
    repo: "deb-src [signed-by=/usr/share/keyrings/caddy-stable-archive-keyring.gpg] https://dl.cloudsmith.io/public/caddy/stable/deb/debian any-version main"
    state: present
    filename: caddy-stable
- name: Install Caddy webserver
  apt:
    name: caddy
    update_cache: yes
    state: present
```

В рабочей директории создаем файл конфигурации плейбука, где указываем хосты и роли:

```
(venv) root@pogrommers:/home/lab2# touch caddy_deploy.yml
(venv) root@pogrommers:/home/lab2#
(venv) root@pogrommers:/home/lab2#
(venv) root@pogrommers:/home/lab2#
(venv) root@pogrommers:/home/lab2#
(venv) root@pogrommers:/home/lab2# nano caddy_deploy.yml
(venv) root@pogrommers:/home/lab2# cat caddy_deploy.yml
---
- name: Install and configure Caddy webserver
  hosts: my_servers
  connection: local
  roles:
    - caddy_deploy
(venv) root@pogrommers:/home/lab2#
```

Теперь проверяем, успешно ли запустился плейбук

```
(venv) root@pogrommers:/home/lab2# ansible-playbook caddy_deploy.yml

PLAY [Install and configure Caddy webserver] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host local_server is using the discovered Python interpreter at /home/lab2/venv/bin/python3.10
change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.
ok: [local_server]

TASK [caddy_deploy : Inatall prerequisites] *****
changed: [local_server]

TASK [caddy_deploy : Add GPG key for Caddy repo] *****
changed: [local_server]

TASK [caddy_deploy : add Caddy repo] *****
changed: [local_server]

TASK [caddy_deploy : add Caddy src repo] *****
changed: [local_server]

TASK [caddy_deploy : Install Caddy webserver] *****
changed: [local_server]

PLAY RECAP *****
local_server          : ok=6   changed=5   unreachable=0   failed=0   skipped=0   rescued=0   ignored=0
```

Часть 3. Домен и настройка Caddyfile

Создаем `Caddyfile.j2` и шаблон для конфигурации Caddy:

```
(venv) root@pogrommers:/home/lab2/roles/caddy_deploy# touch templates/caddyfile.j2
(venv) root@pogrommers:/home/lab2/roles/caddy_deploy# nano vars/main.yml
(venv) root@pogrommers:/home/lab2/roles/caddy_deploy# cat vars/main.yml
---
# vars file for caddy_deploy
domain_name: cnlab2
log:
  file: /var/log/caddy_access.log
  level: "INFO"
(venv) root@pogrommers:/home/lab2/roles/caddy_deploy# nano templates/caddyfile.j2
(venv) root@pogrommers:/home/lab2/roles/caddy_deploy# nano tasks/main.yml
(venv) root@pogrommers:/home/lab2/roles/caddy_deploy# ansible-playbook caddy_deploy.yml
```

Запускаем плейбук, и убеждаемся, что тестовая страничка Caddy автоматически поднялась на подписанном сертификате с http:

```
PLAY [Install and configure Caddy webserver] *****
TASK [Gathering Facts] *****
[WARNING]: Platform linux on host local_server is using the discovered Python interpreter at /home/lab2/venv/bin/python3.10.1;
change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html
ok: [local_server]
TASK [caddy_deploy : Install prerequisites] *****
ok: [local_server]
TASK [caddy_deploy : Add GPG key for Caddy repo] *****
ok: [local_server]
TASK [caddy_deploy : add Caddy repo] *****
ok: [local_server]
TASK [caddy_deploy : add Caddy src repo] *****
ok: [local_server]
TASK [caddy_deploy : Install Caddy webserver] *****
ok: [local_server]
TASK [caddy_deploy : Create config file] *****
changed: [local_server]
TASK [caddy_deploy : Reload with new config] *****
changed: [local_server]
PLAY RECAP *****
local_server : ok=8 changed=2 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
```



Переписываем ad-hoc команды в формат плейбука:

```
(venv) root@pogrommers:/home/lab2# cat filetask.yml
---
- name: Create and delete file with ansible
  hosts: my_servers
  connections: local

  tasks:
    - name: create taskfile
      shell: echo taskfile_content > $HOME/taskfile.txt
      args:
        creates: $HOME/taskfile.txt
    - name: change and delete taskfile
      shell: echo new_taskfile_content > $HOME/taskfile.txt
      args:
        removes: $HOME/taskfile.txt

(venv) root@pogrommers:/home/lab2#
```

Снова запускаем плейбук:

```
(venv) root@pogrommers:/home/lab2# ansible-playbook filetask.yml

PLAY [Create and delete file with ansible] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host local_server is using the discovered Python interpreter
change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_
ok: [local_server]

TASK [create taskfile] *****
changed: [local_server]

TASK [change and delete taskfile] *****
changed: [local_server]

PLAY RECAP *****
local_server                : ok=3    changed=2    unreachable=0    failed=0    skipped=0
```

Расширяем конфигурации Caddy, добавляем новый шаблон:

```
GNU nano 6.2
[1]{ domain_name }} {
    root * /usr/share/caddy
    file_server
    log {
        output file {{ log.file }}
        format json
        level {{ log.level }}
    }
    reverse_proxy localhost:4242
}
```

Изменяем файл **index.html**, добавляем кастомное содержимое:

```
root@pogrommers: /usr/share/caddy
GNU nano 6.2                                     index.html
</g>
<g id="R" transform="matrix(0.497016,0,0,0.497016,2390.38
  <g transform="matrix(1,0,0,1,-0.10786,0.450801)">
    <g transform="matrix(12.1247,0,0,12.1247,
      <path
        d="M0.073,-0L0.073,-0.710
        style="fill:rgb(46,46,46)
      </g>
    </g>
  <g transform="matrix(1,0,0,1,0.278569,0.101881)">
    <circle cx="3866.43" cy="1926.14" r="8.92
    style="fill:none;stroke:rgb(46,46,46)
  </g>
</g>
</g>
</g>
</a>
</svg>
</h1>
<span>If you see this text, then it is a custom index.html by pogrommers team!</>
<span class="emoji">👨👩👧👦</span>
</h1>
```

После запуска проверяем, что веб-сервер работает по адресу домена с обновленным функционалом.

