ANSIBLE

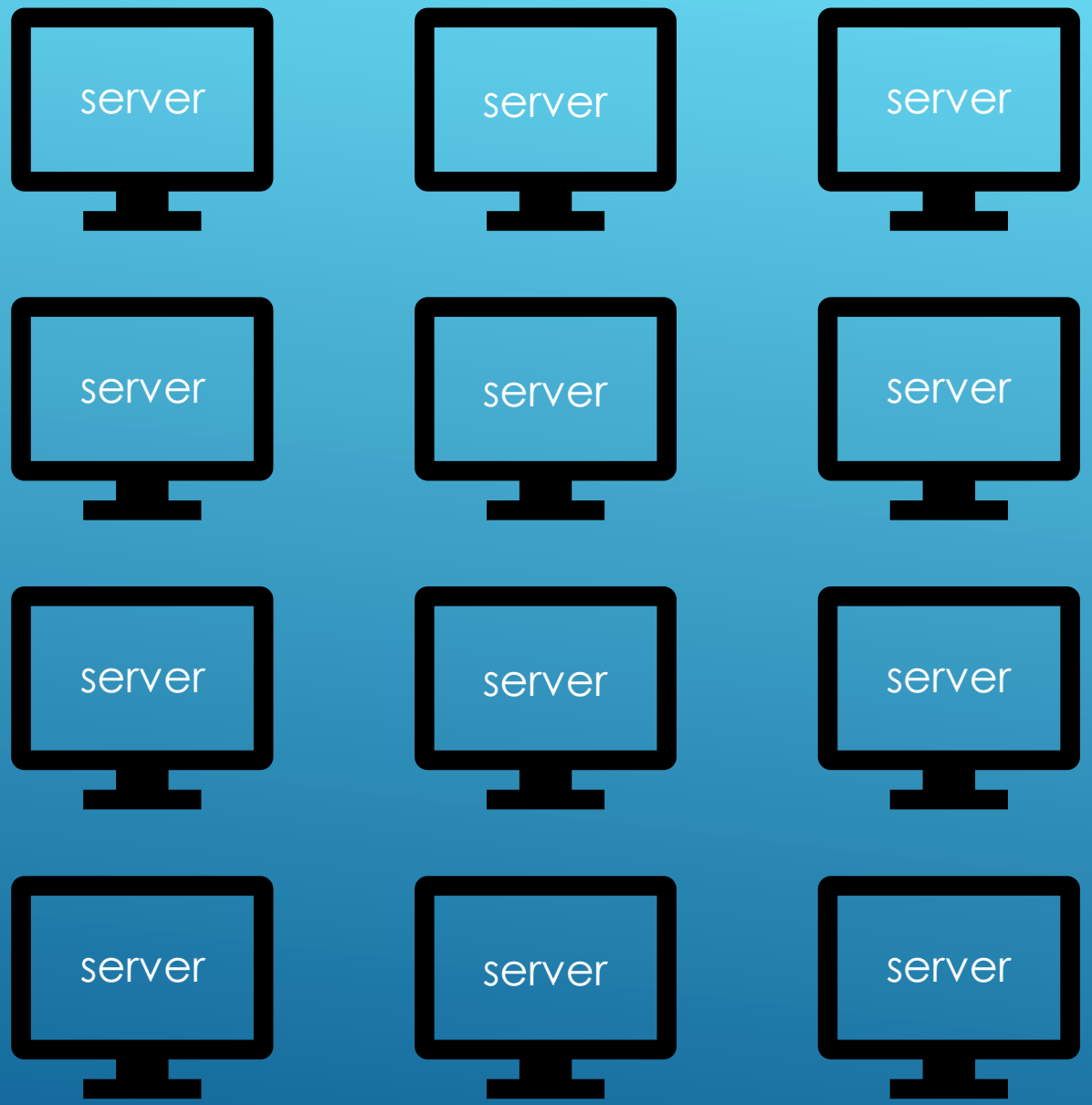
By Mostafa Yehia

DAY 1 AGENDA

- What is Ansible
- Why Ansible
- SSH overview
- Ansible & SSH
- Installing Ansible & preparing SSH
- Ad-hoc commands
- Inventory file
- Ansible.cfg file
- Ad-hoc commands escalation

WHAT IS ANSIBLE ?

- Ansible is a software tool that provides simple but powerful automation for cross-platform computer support.
- It is used for updates on workstations and servers, cloud provisioning, configuration management, and nearly anything a systems administrator does on a daily basis.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WHY ANSIBLE ?

- Idempotent: An operation is idempotent if the result of performing it once is exactly the same as the result of performing it repeatedly without any intervening actions.
- Agentless: Other tools like (Puppet & Chef) require an agent to be installed on the target device. Ansible only requires an SSH connection to the target device.
- Open-source: Ansible is an open-source community project sponsored by Red Hat.

SSH OVERVIEW

- OpenSSH is the premier connectivity tool for remote login with the SSH protocol.
- It encrypts all traffic to eliminate connection hijacking and other attacks.

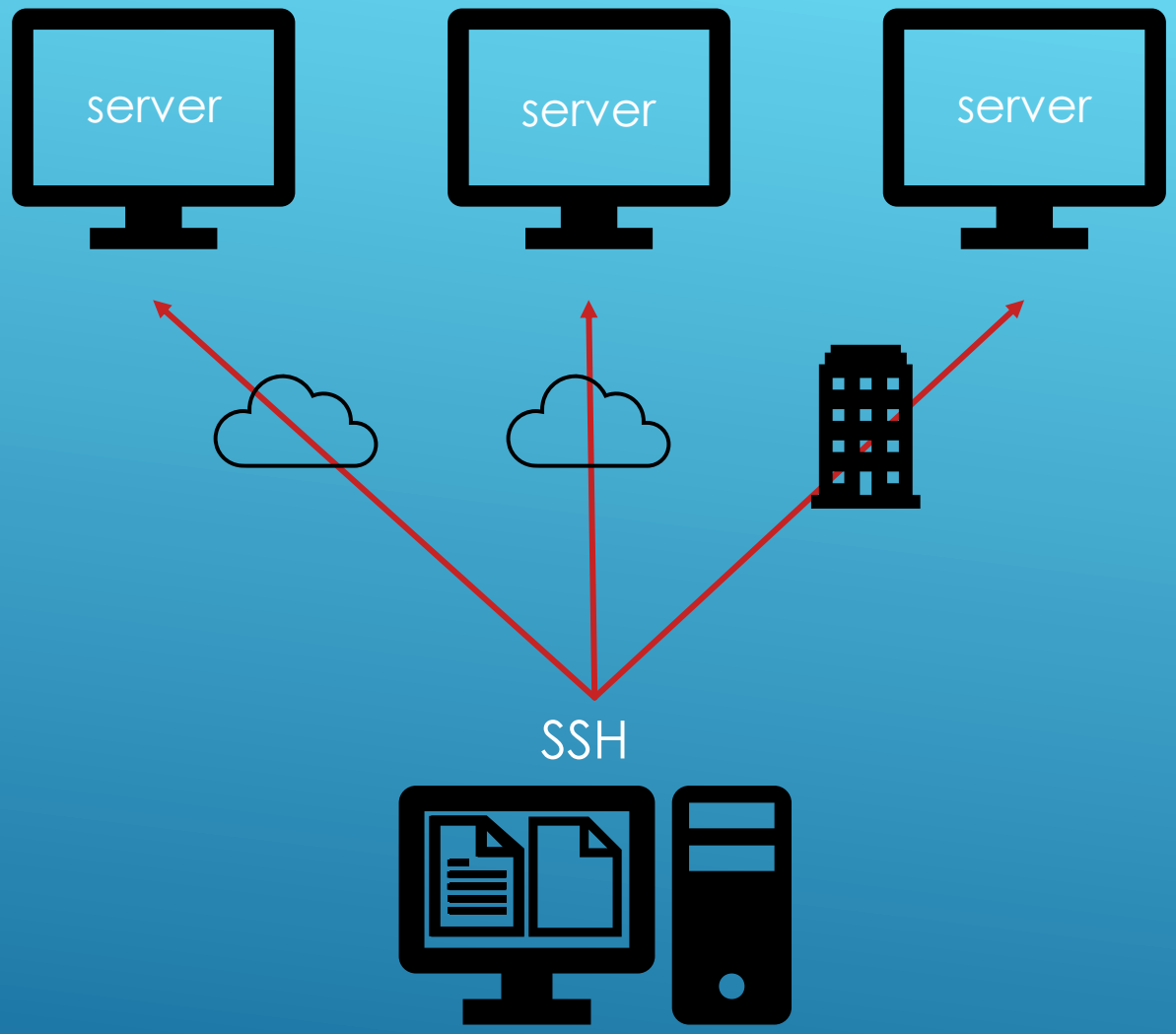
PC 2

SSH

PC 1

ANSIBLE & SSH

How Ansible connects to servers ?



Ansible control machine

INSTALLING ANSIBLE & PREPARING SSH

- Install ansible
- Create a new user on control machine and new user on host 1
- Make sure you can ssh into host 1 (using password)
- Generate SSH key pair on control machine
- Copy the public key to host 1
- Make sure you can ssh into host 1 (using prv/pub)

AD-HOC COMMANDS

Ad-hoc: Running Ansible to perform some quick command.

An example of an ad hoc command might be rebooting 50 machines in your infrastructure.

Structure:

ansible [pattern] -i [inventory] --private-key [/path/to/private/key] -u [remote_user] -m [module_name]

Example:

ansible all -i 3.87.24.251, --private-key ~/.ssh/devops -u ubuntu -m ping

SSH equivalent:

ssh ubuntu@3.87.24.251 -i ~/.ssh/devops -o 'RemoteCommand echo pong;' -t

INVENTORY FILE

inventory file: A file that describes Hosts and Groups in Ansible.

Examples:

[web_servers]

3.87.24.251

[database_servers]

3.87.24.252

3.87.24.253

INVENTORY FILE

- Create the inventory file
- Put the IP of host 1 in the inventory file
- Use the inventory file path in your ad-hoc command instead of using the IP hard-coded
- Example:
  ansible all -i inventory --private-key ~/.ssh/devops -u ubuntu -m ping

CONFIGURATION FILE

ansible.cfg file: This is the brain and the heart of Ansible.

The file that governs the behavior of all interactions performed by the control machine.

Locations:

ANSIBLE_CONFIG (environment variable if set)

ansible.cfg (in the current directory)

~/.ansible.cfg (in the home directory)

/etc/ansible/ansible.cfg

Example:

```
[defaults]
inventory = ./inventory
private_key_file = ~/.ssh/devops
remote_user = ubuntu
```

CONFIGURATION FILE

- Create the configuration file
- Insert some values in the configuration file
- Run the minimized ad-hoc command
- Example: ansible all -m ping

AD-HOC COMMANDS ESCALATION

Ad-hoc: Running Ansible to perform some quick command with SUDO permissions.

Structure:

ansible [pattern] -m [module_name] --become

Example:

ansible all -m command -a "whoami" --become

Example ansible.cfg:

```
[privilege_escalation]
become = true
```

AD-HOC COMMAND ESCALATION USING ROOT USER

- Insert the correct values in the configuration file
- Example: ansible all -m command -a "whoami"
- What is the output of the command ?