

Identity Management, Authentication, and Access Control with VyOS



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VyOS is an [open source](#) network operating system based on Debian.

VyOS is built upon the latest community version of [Vyatta](#) Core edition
(Brocade).

VyOS code is maintained by [Sentrinum S.L.](#)





Features:

- **Routing** (BGP, OSPF, MPLS, Multicast, policy based routing)
- **Security** (Stateful L4 Firewall)
- **VPN** (IPSEC, GRE, OPEN-VPN)

How to get it:

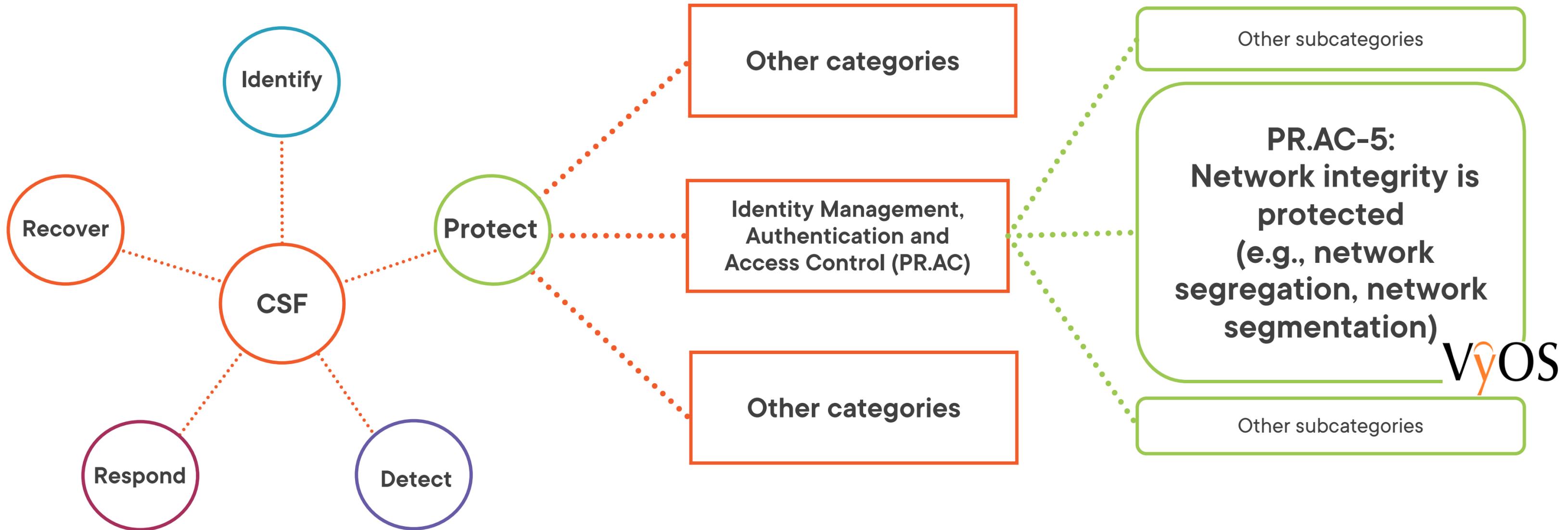
- **Current LTS version Release 1.3 (Equuleus) is a licensed product**
- **Built from code**
- **Download full feature Rolling Release**

Deployment models : bare metal, virtualized, cloud (AWS, Azure, Google cloud)

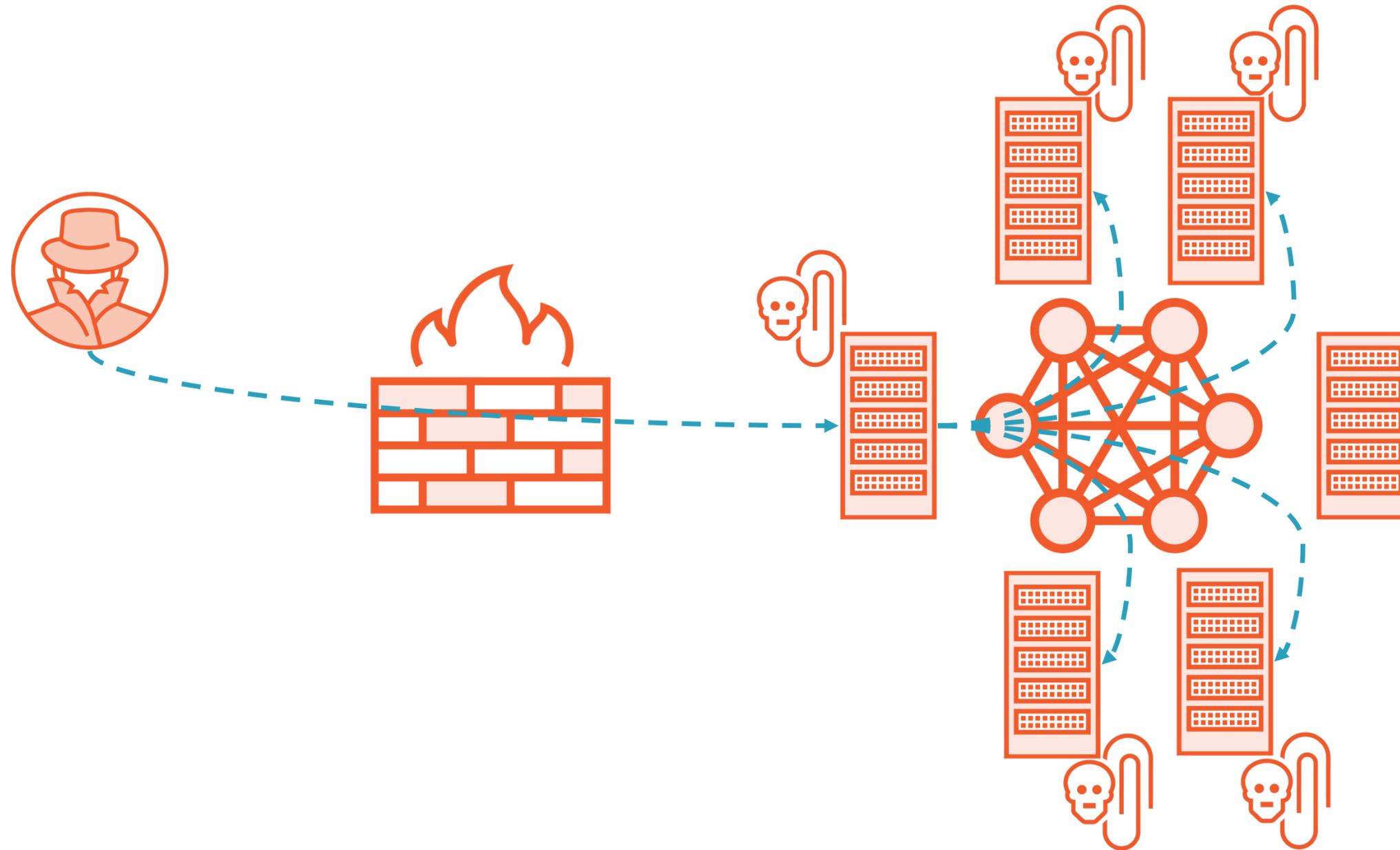
<https://vyos.io/>



NIST Cybersecurity Framework



Lateral Movement Attack Explanation



Network Segmentation and Segregation

Segmentation

Partitioning a network into smaller networks

Reduce the exposed surface

VLAN, VRF, VPN

Segregation

Enforcing a ruleset for controlling the communications between hosts and services.

Implement security policy

Firewall, ACL



Demo

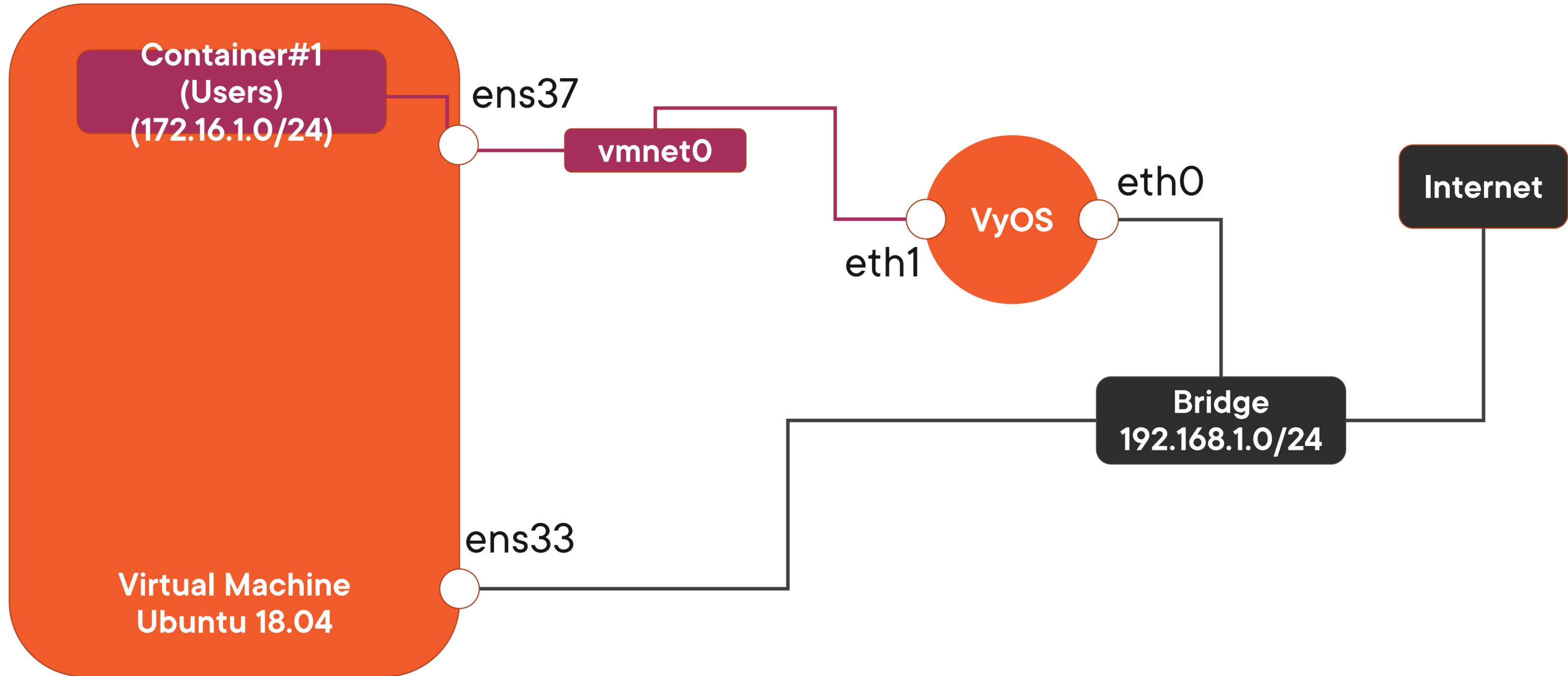


In this demo you will learn the following:

- **Download and install VyOS router**
- **Basic configuration for remote management**
- **Basic routing and NAT commands**



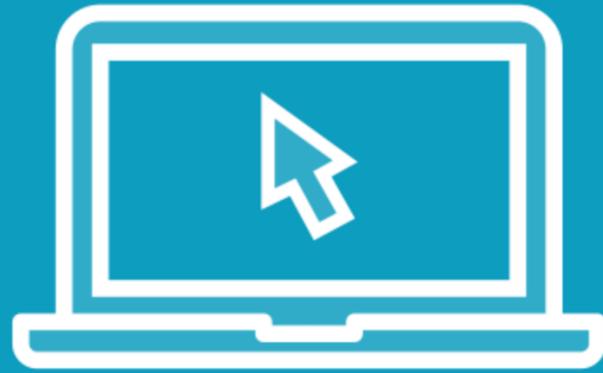
VyOS Installation and Basic Configuration



VMware workstation player 16



Demo



In this demo you will learn:

- **How to configure VyOS API to enable programmatic access**
- **Basic VyOS API call with simple python scripts**



VyOS configuration

Legacy CLI-based approach

Manual configuration

Error prone

All Devices must be configured separately

Time consuming

API based approach

Programmatic configuration

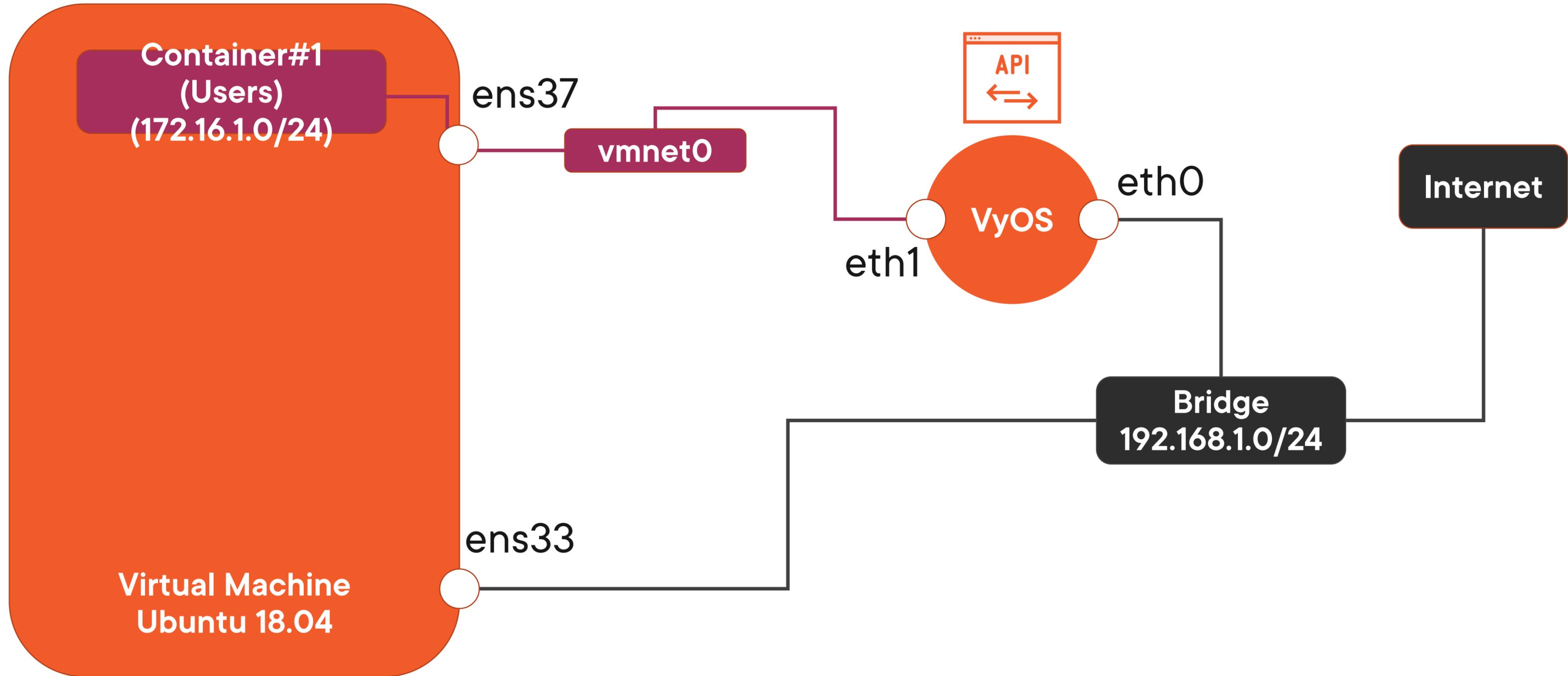
Templating capabilities

Entire infrastructure can be configured at the same time

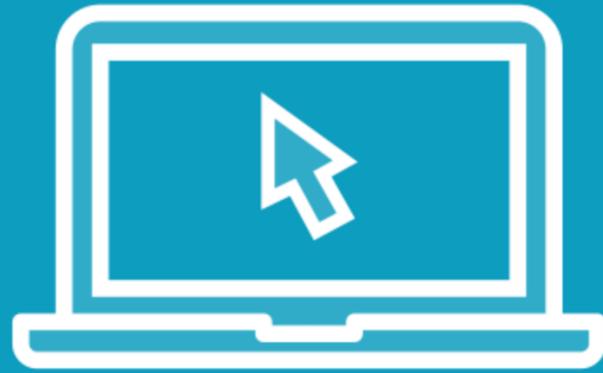
Real-time configuration



VyOS Installation and Basic Configuration



Demo

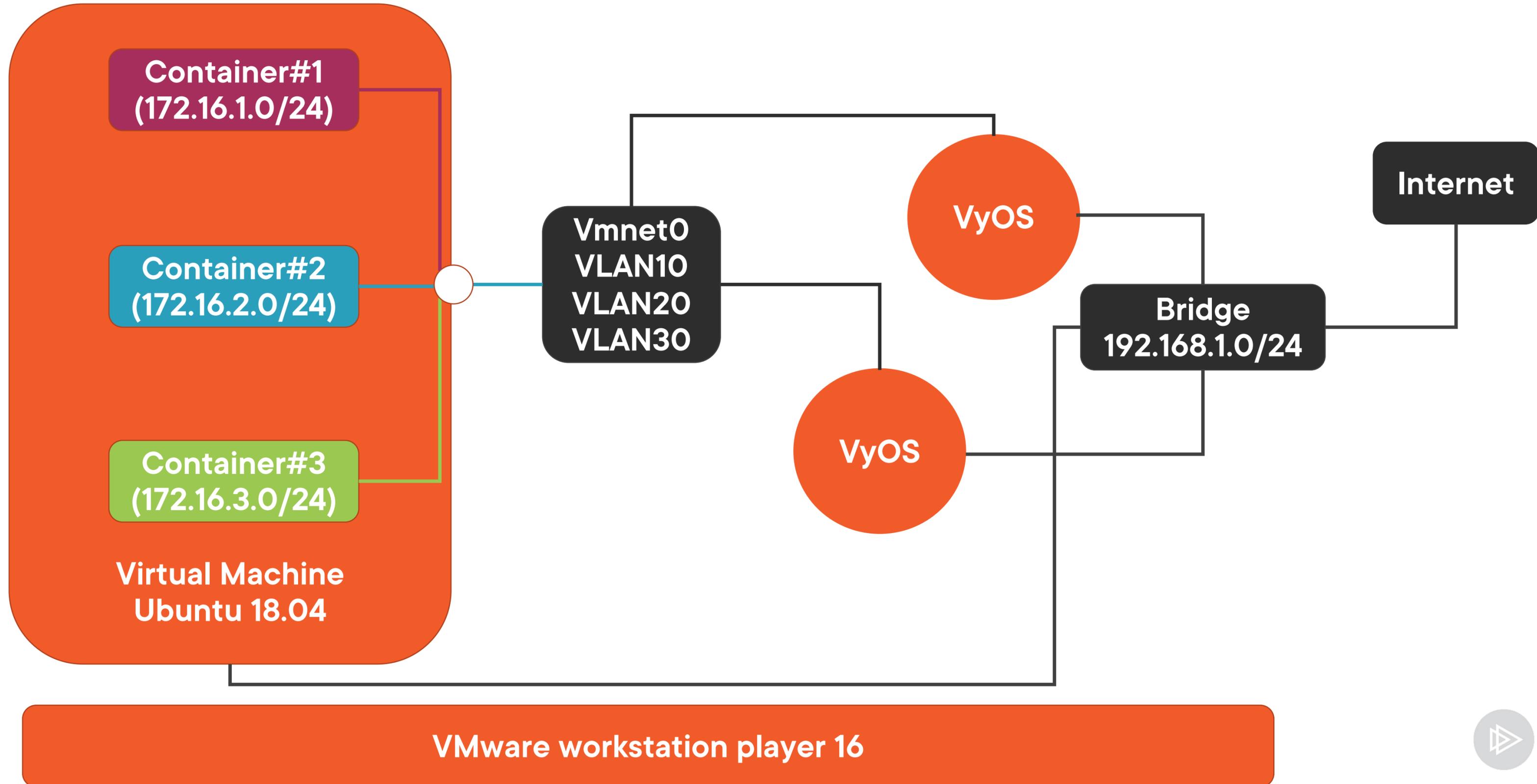


In this demo you will learn:

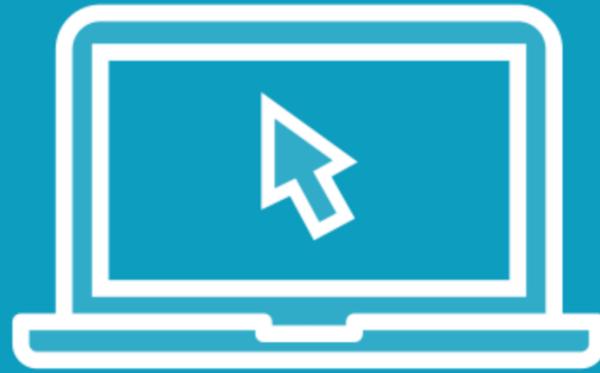
- How to set up network segmentation and segregation with VyOS configured with VLAN and Firewall policy**



Network Segmentation and Segregation with VLAN



Demo

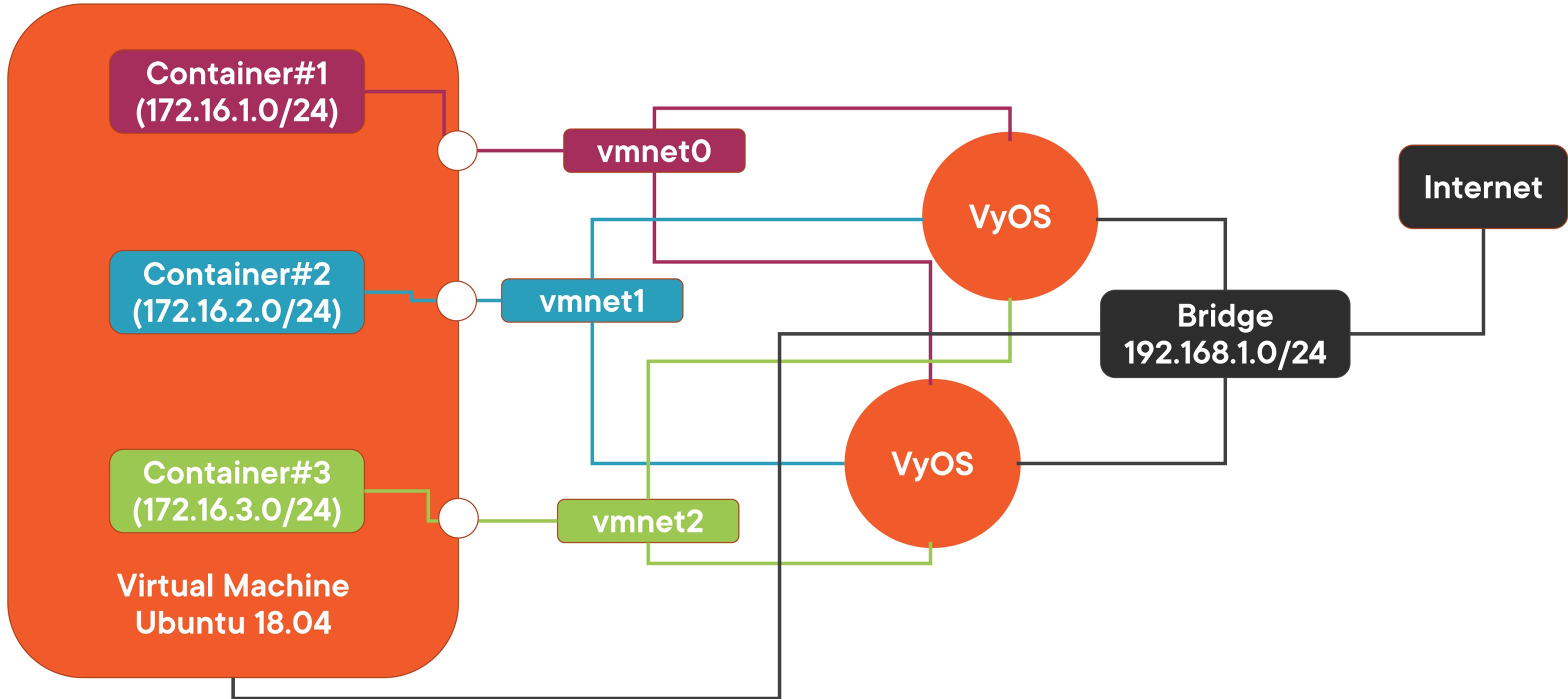


In this demo you will learn:

- How to set up network segmentation and segregation with VyOS configured with VRFs**



Network Segmentation and Segregation with VRF



Resources



More Information

Capabilities not covered

Automated configuration with Ansible

<https://docs.vyos.io/en/equuleus/automation/index.html>

VyOS API fine tuning

<https://docs.vyos.io/en/equuleus/configuration/service/https.html#http-api>

Roadmap

Release 1.4 (Sagitta) under development

<https://docs.vyos.io/en/latest/introducing/about.html>

New features (Public Key Infrastructure)

<https://docs.vyos.io/en/latest/configuration/pki/index.html>



Thank you



Overview/ Summary



VyOS API configuration

VyOS API calls with simple python scripts

VyOS features (VLAN, VRF, Firewall) for network segmentation and segregation

