

# Production-grade VMs Deployment

Using KVM/QEMU, Libvirt, Terraform, Ansible and Testinfra

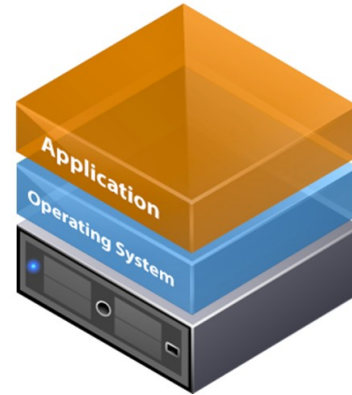
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# Overview

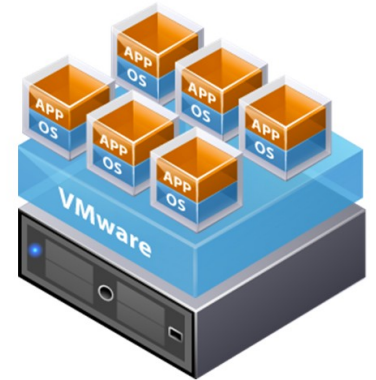
- 1) Why virtualization?
- 2) Deploy VMs with Terraform
- 3) Configure with Ansible
- 4) Test configuration with Testinfra
- 5) Increase and decrease scale quickly

# Why virtualization?

- 1) Dependency isolation
- 2) Compute resource efficiency
- 3) Reduced operational costs
- 4) Reduce energy footprint
- 5) Reproducible environments



Traditional Architecture



Virtual Architecture

# Dependencies

- 1) GNU/Linux host machine
- 2) KVM
- 3) QEMU
- 4) Libvirt
- 5) Terraform
- 6) Python 3
- 7) Ansible
- 8) Testinfra
- 9) Debian 11 Bullseye qcow2 bootable

Deploy VMs with terraform

# Deploy load-balanced web application with Ansible

# Test Deployment

Scale up and scale down  
web application



# Resources

- Libvirt: <https://libvirt.org>
- Terraform: <https://terraform.io>
- Ansible: <https://ansible.com>
- Testinfra: <https://testinfra.readthedocs.io/en/latest/>
- Debian 11 “Bullseye” bootable: <https://testinfra.readthedocs.io/en/latest/>
- Source code: <https://git.batsense.net/realaravinth/libreddit-loadbalance-demo>