

Cloud Computing and Virtualization

Practical Lab 1 – Deploy to Type 2 VM

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Practical Lab 1

- Review previous concepts
 - VirtualBox
 - Vagrant
 - Linux configuration
 - Typical application installation and configuration

Practical Lab 1

- Task
 - Deploy a production version of one of the following to an Ubuntu* server
 1. Wordpress
 2. Software Engineering project from past semester
- Goals and challenges
 - Provision it within Vagrant (e.g., using bash scripts)
 - Explore multi-machine environments to split the DB from the Application

VirtualBox + Vagrant

- Vagrant is able to define and control multiple guest machines per Vagrantfile
 - This is known as a "multi-machine" environment
- Why do I want that?
 - Modeling a multi-server production topology, such as separating a web and database server
 - Modeling a distributed system and how they interact with each other
 - Testing an interface, such as an API to a service component
 - Disaster-case testing
 - Machines dying, network partitions, slow networks, inconsistent world views, etc.

VirtualBox + Vagrant

- I want that! How do I use that?
 - <https://www.vagrantup.com/docs/multi-machine/>

```
Vagrant.configure("2") do |config|
  config.vm.provision "shell", inline: "echo Hello"

  config.vm.define "web" do |web|
    web.vm.box = "apache"
  end

  config.vm.define "db" do |db|
    db.vm.box = "mysql"
  end
end
```

```
vagrant [command] [machine-name]
$ vagrant up web
```

```
Vagrant.configure("2") do |config|
  config.vm.provision :shell, inline: "echo A"

  config.vm.define :testing do |test|
    test.vm.provision :shell, inline: "echo B"
  end

  config.vm.provision :shell, inline: "echo C"
end
```

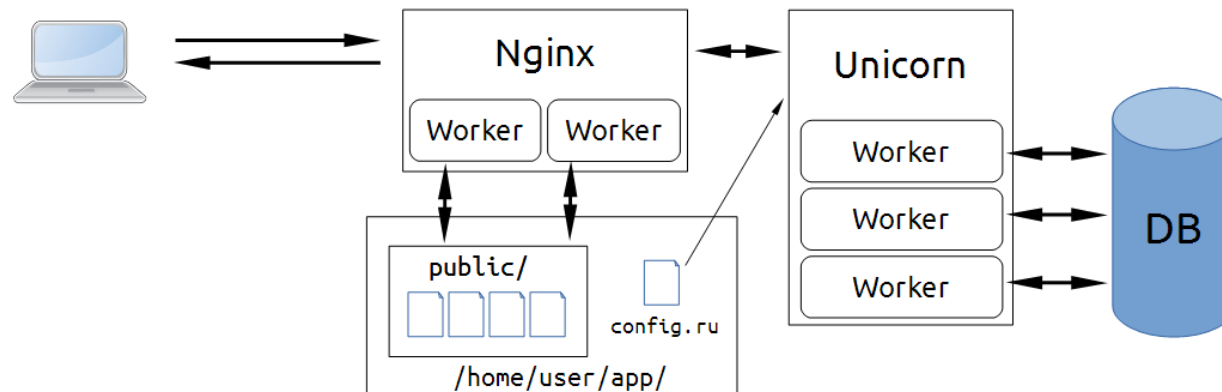
What is the output here?

Wordpress

- Google! 😊
 - <https://ubuntu.com/tutorials/install-and-configure-wordpress>
 - <https://www.digitalocean.com/community/tutorials/how-to-install-wordpress-with-lamp-on-ubuntu-18-04>

Your Software Engineering Project?

- Google!!
 - Several guides exist, most use either Puma or Passenger
 - <https://gorails.com/deploy/ubuntu/18.04>
 - Step1 = your VMs
 - Step5: Ignore Capistrano/mina and do it manually (git clone, etc.)



Practical Lab 1

- General Steps

1. Create VagrantFile

2. Setup server

- Update OS
- Configure Ruby, Node.JS, Nginx, PostgreSQL, firewall...

3. Setup project

- Clone repository, change configurations, run...
 - <https://gist.github.com/rwarbelow/40bd72b2aee8888d6d91>
 - <https://github.com/puma/puma#deployment>