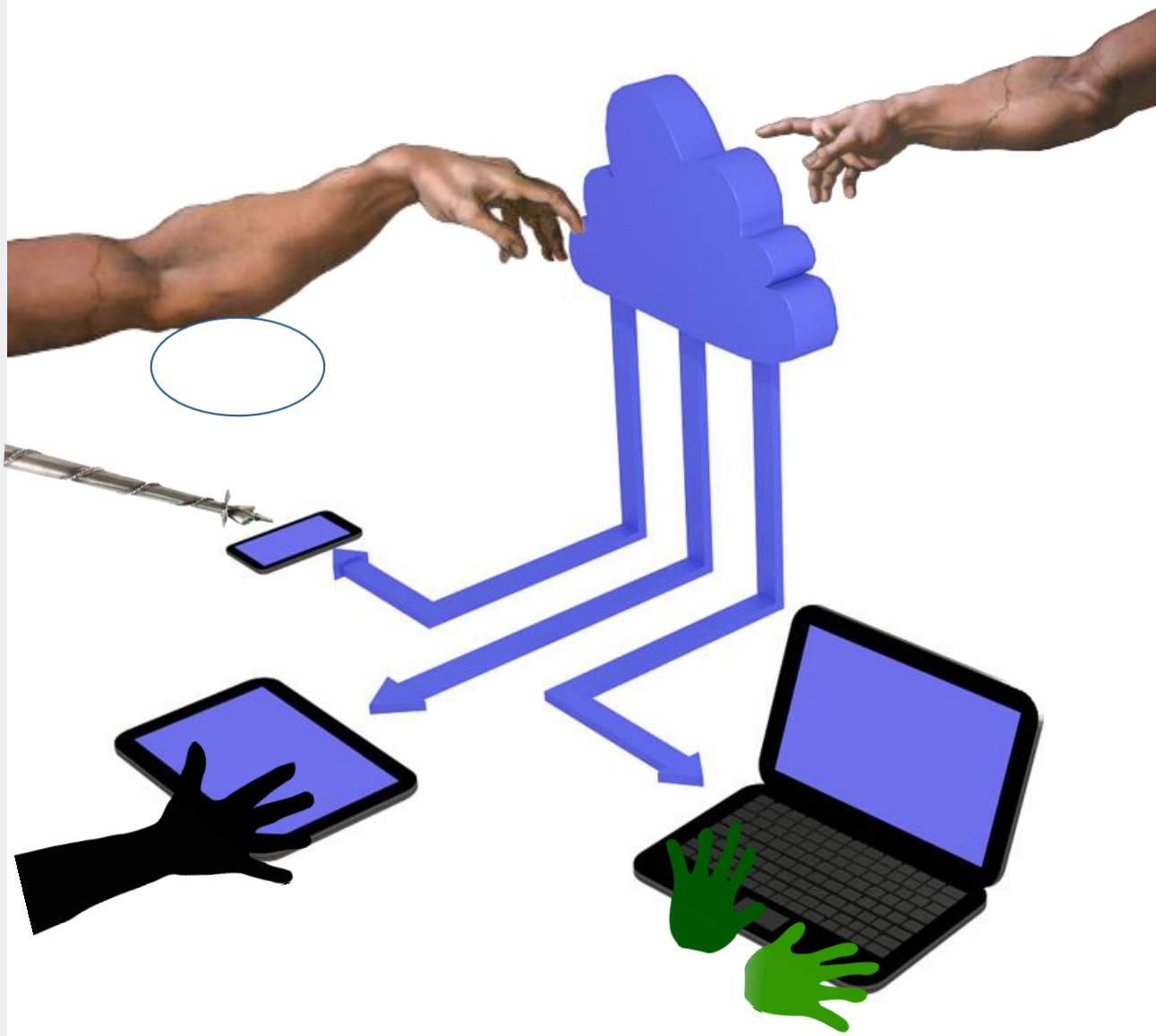
Cloud computing lesson 1 Hands on

Yaron Amir



About Me

Yaron Amir

Oracle DBA since 1999
DBA team leader in RSA
Got in to new-ops and Big Data ~3 years ago
Managed the ops Data Team in Outbrain
opsSchool Manager
Outband manager.
Married to Liron and father to Alma, Itamar and Yael

TODAY'S AGENDA

- Overview of the class
- The pizza analogy
- Infrastructure as code
- VMs and Vagrant
- Linux basics hands-on

COURSE OVERVIEW

- What is devops
- Homework and self learning

SLACK AND OTHER GOOD STUFF

Lets try to use that the business is using…..

Please join us @ cloud-shenkar.slack.com

BEFORE WE BEGIN….

Setting up virtual box

- Go to https://www.virtualbox.org/ (download the one fits your OS)
- Install virtual box

Setting up git (needed for ssh)

- Go to https://git-scm.com/
- Download git (for your os)

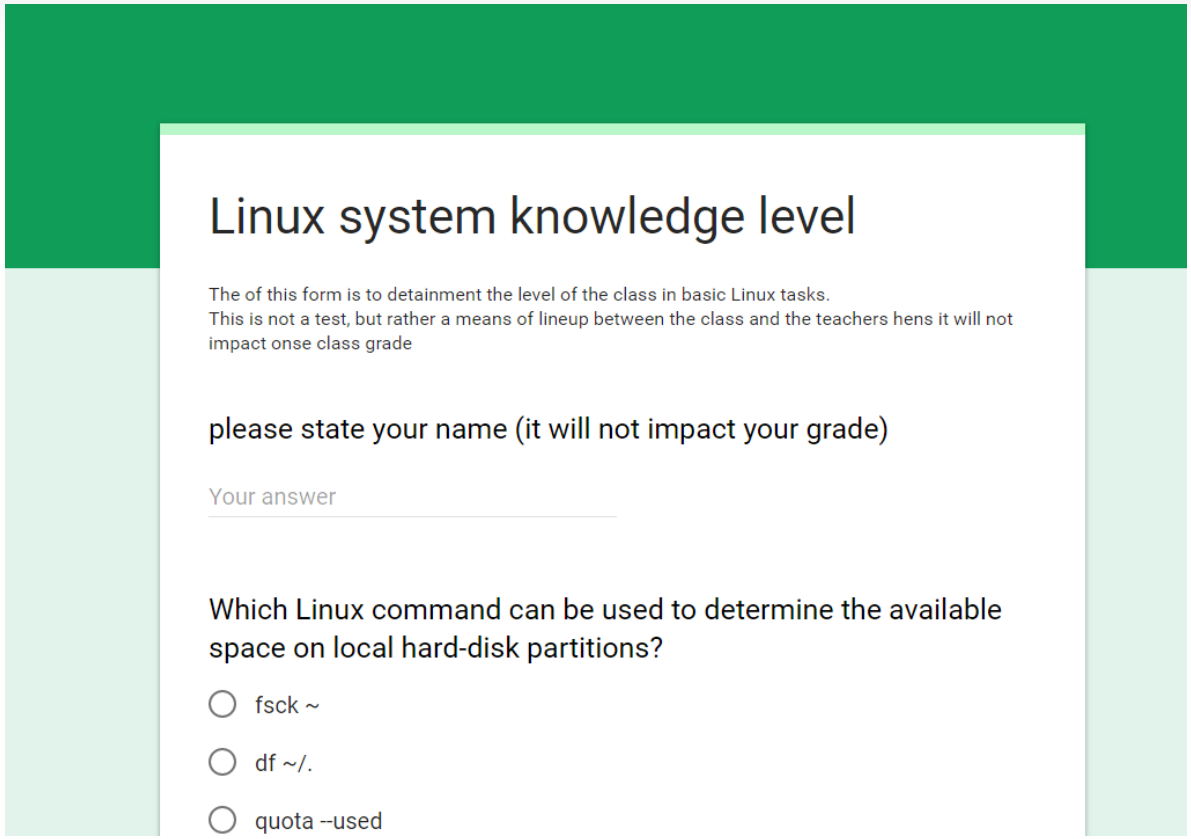
Setting up Vagrant

- Go to https://www.vagrantup.com/
- Press download
- Install vagrant

ותוציאו עטים, יש מבחן!

LIKE, FOR REAL…..

- **Go to: https://goo.gl/forms/7WGCITrGcLiDA6u12**



Linux system knowledge level

The of this form is to detainment the level of the class in basic Linux tasks.
This is not a test, but rather a means of lineup between the class and the teachers hens it will not impact onse class grade

please state your name (it will not impact your grade)

Your answer

Which Linux command can be used to determine the available space on local hard-disk partitions?

- fsck ~
- df ~/.
- quota --used

THE PIZZA ANALOGY

VS

INFRASTRUCTURE AS CODE

- **Infrastructure as Code** (IaC) is the process of managing and provisioning computing **infrastructure** (processes, bare-metal servers, virtual servers, etc.) and their configuration through machine-processable definition files, rather than physical hardware configuration or the use of interactive configuration tools

VAGRANT | ˈVĀGRƏNT

a person without a settled home or regular work who wanders from place to place and lives by begging

WHAT IS IT?

Disclaimer - this is not a Vagrant lesson

Ruby-powered command line interface to VirtualBox

Deployment environment for local virtual environments

According to those who know:

"Create and configure lightweight, reproducible and portable environments."

SETUP

Setting up virtual box

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WHY? (USE CASES)

Virtualized development environment

- aka Stop installing client crap on your local machine

Built-in dev environment sandboxing

- Client A stops messing with Client B
- Client A's hipster retro version of Varnish 1.2.x doesn't trump Client B's awesome future branch of Varnish 4.x

Multi-VM Host Environment

- aka Run a full production stack on your local machine for testing

Package Virtual Environments

- aka Sick of troubleshooting a fellow dev's environment– WHY DOESN'T SOLR WORK!@$@!#-- just give them the entire environment

MY FIRST VAGRANT

```
$ mkdir mymachine
$ cd mymachine
$ vagrant init precise64
```

Creates a general Vagrantfile

```
$ vagrant up
```

Create/spin up virtual machine instance

```
$ vagrant ssh
```

Connect to virtual machine instance

BASIC

config.vm.box = "precise64"

- Base image your server built on.
- This association only exists on first spin-up, then this instance becomes its own standalone

config.vm.network :hostonly, "192.168.100.10"

- Specify an IP address that can be used by other Virtual Machines in this VirtualBox environment
- http://vagrantup.com/v1/docs/host_only_networking.html
- No Security built-in. All ports open!

config.vm.network :bridged

- Make VM appear as a physical device on your current network
- http://vagrantup.com/v1/docs/bridged_networking.html

config.vm.forward_port 80,8080

- Forward port from VM to localhost, e.g. I go to localhost:8080 in my browser to see VM-hosted website

I'M DONE WITH THIS VAGRANT BOX

vagrant suspend

- Save the current running state of VM and then stop it!
- Resume working with resume

Vagrant halt

- Graceful shutdown of machine
- Resume working with vagrant up

Vagrant destroy

- I hate this machine. I will destroy it.
- Resume working (from scratch) with vagrant up

LETS START TWO MACHINES

Create new environment

```
Make sure you destroy old vagrant

$ Vagrant destroy


$ mkdir passLessTest

$ cd passLessTest

$ vi Vagrantfile
```

LETS START TWO MACHINES

```
servers=[
    {
      :hostname => "server1",
      :ip => "192.168.100.10",
      :box => "hashicorp/precise64",
      :ram => 1024,
      :cpu => 2
    },
    {
      :hostname => "server2",
      :ip => "192.168.100.11",
      :box => "hashicorp/precise64",
      :ram => 1024,
      :cpu => 1
    }
  ]
```

LETS START TWO MACHINES

```
Vagrant.configure(2) do |config|
   servers.each do |machine|
       config.vm.define machine[:hostname] do |node|
           node.vm.box = machine[:box]
           node.vm.hostname = machine[:hostname]
           node.vm.network "private_network", ip: machine[:ip]
           node.vm.provider "virtualbox" do |vb|
               vb.customize ["modifyvm", :id, "--memory", machine[:ram]]
           end
       end
   end
end
```

LETS START TWO MACHINES

Lets start the machines

```
$ vagrant up
$ vagrant ssh server1

What is my hostname?
$ hostname

What is the IP address?
$ ifconfig -a

Lets connect to server2?
$ ssh server2
Why did it fail?

$ ssh 192.168.100.11
```

PASSFREE EXERSIZE

IP IS HARD, NAMES ARE EAZY

Lets add server2 to /etc/hosts of server1

```
$ sudo vi /etc/hosts

Add the line to the end of the file

192.168.100.11 server2

$ ssh server2
```

PASSFREE EXERSIZE

LETS SETUP PASSWORD-LESS SSH

Generate key

```
$ cd .ssh
$ ssh-keygenvagrant ssh server1

What are these files files created?
  id_rsa
  id_rsa.pub

$ cp id_rsa.pub id_rsa.pub_server1
$ scp id_rsa.pub_server1 server2:.ssh

$ ssh server2
$ Cd .ssh
$ cat id_rsa.pub_server1  >> authorized_keys

$ exit
```

LETS SETUP PASSWORD-LESS SSH

Lets try it

```
$ ssh server2

Should go with out requesting password
```

HOMEWORK

AWESOME LINKS

Basic Tutorial:

http://vagrantup.com/v1/docs/getting-started/index.html

General Docs:

http://vagrantup.com/v1/docs/index.html

Some great use cases and advanced tutorial

http://devops.me/2011/10/05/vagrant/

http://beacon.wharton.upenn.edu/404/2011/12/keeping-your-machine-clean-with-vagrant-chef/

http://lumberjaph.net/misc/2010/11/22/vagrant-rocks.html


Q&A

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