CLOUD FOUNDRY™

DEPLOY & SCALE YOUR APPLICATIONS IN SECONDS

Cloud Foundry Bootcamp

GOTO 2012

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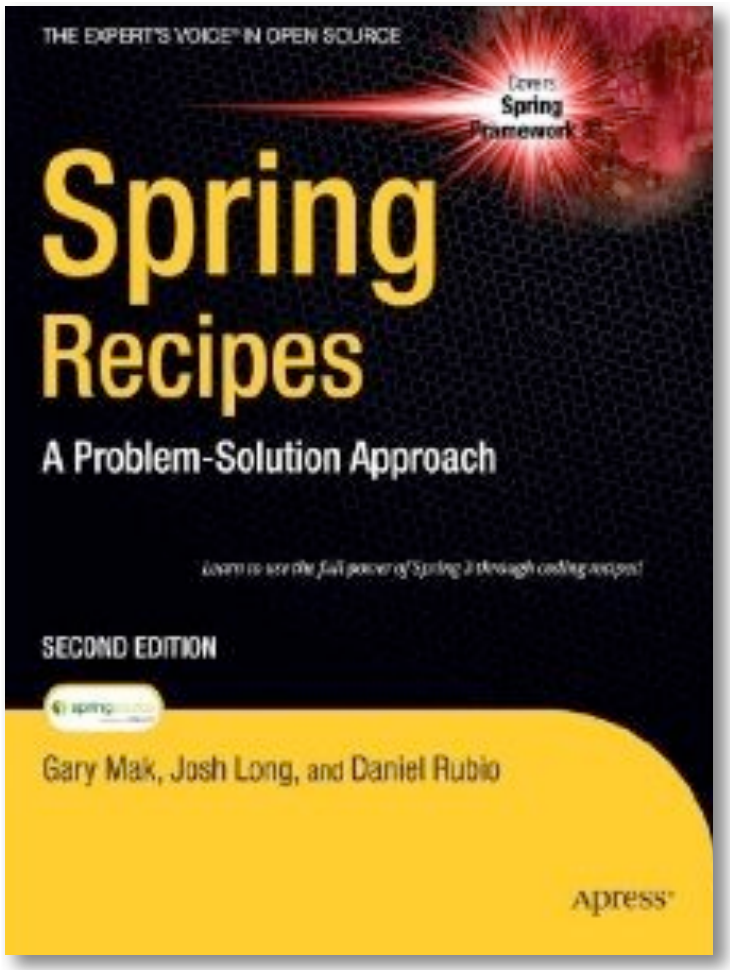
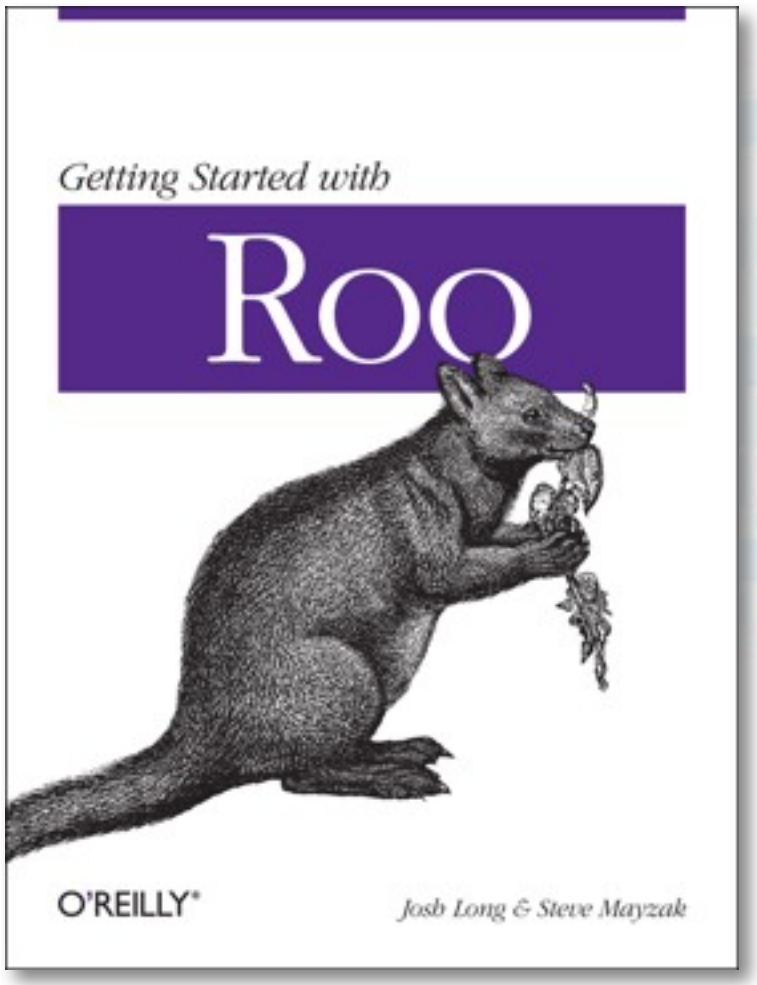
springsource community





About Josh Long

Contributor To:

- Spring Integration
- Spring Batch
- Spring Hadoop
- Activiti Workflow Engine

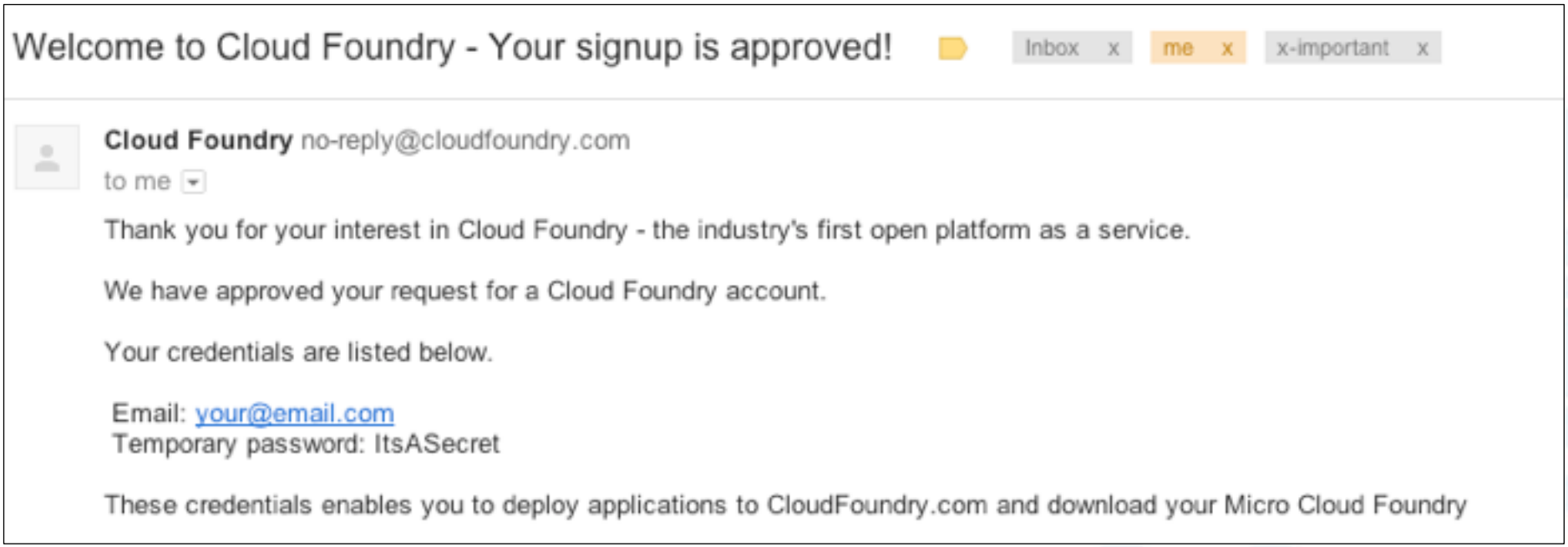
getting started with Cloud Foundry...

Register http://cloudfoundry.com/signup

Use promo code

CFOpenTour2012

Welcome email



Ways to use Cloud Foundry

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Usage: vmc [options] command [<args>] [command_options]
Try 'vmc help [command]' or 'vmc help options' for more information.
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springroo

Installing vmc on Windows

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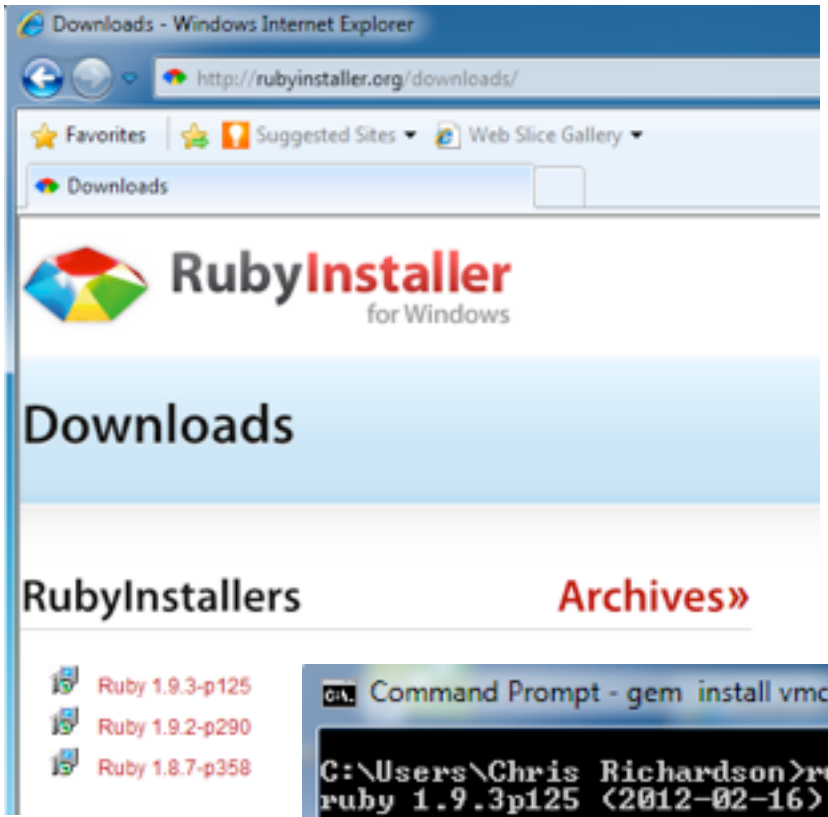
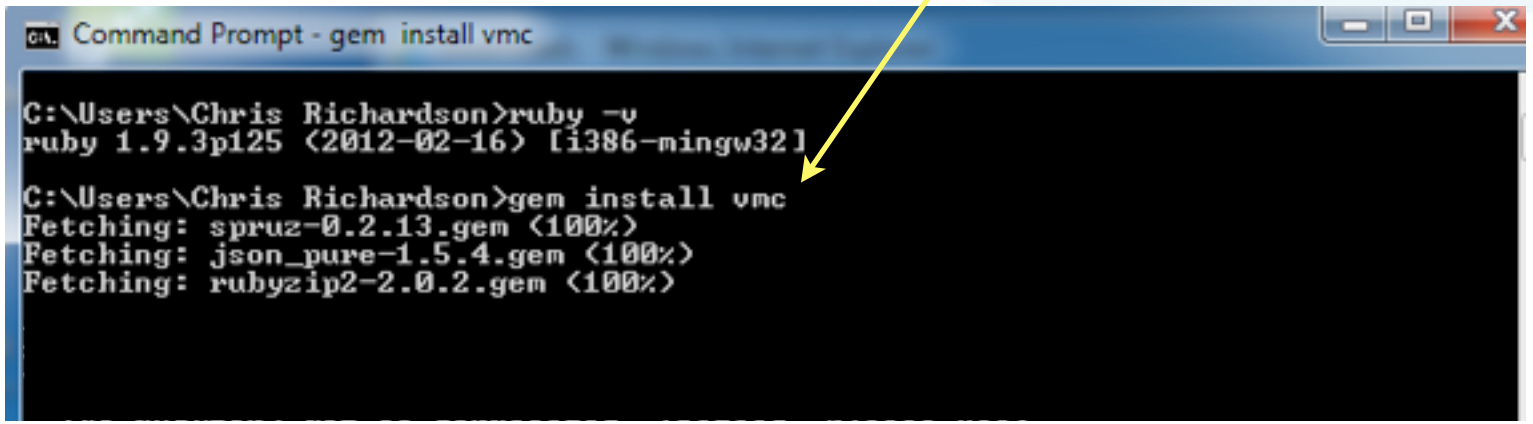


Install the vmc gem



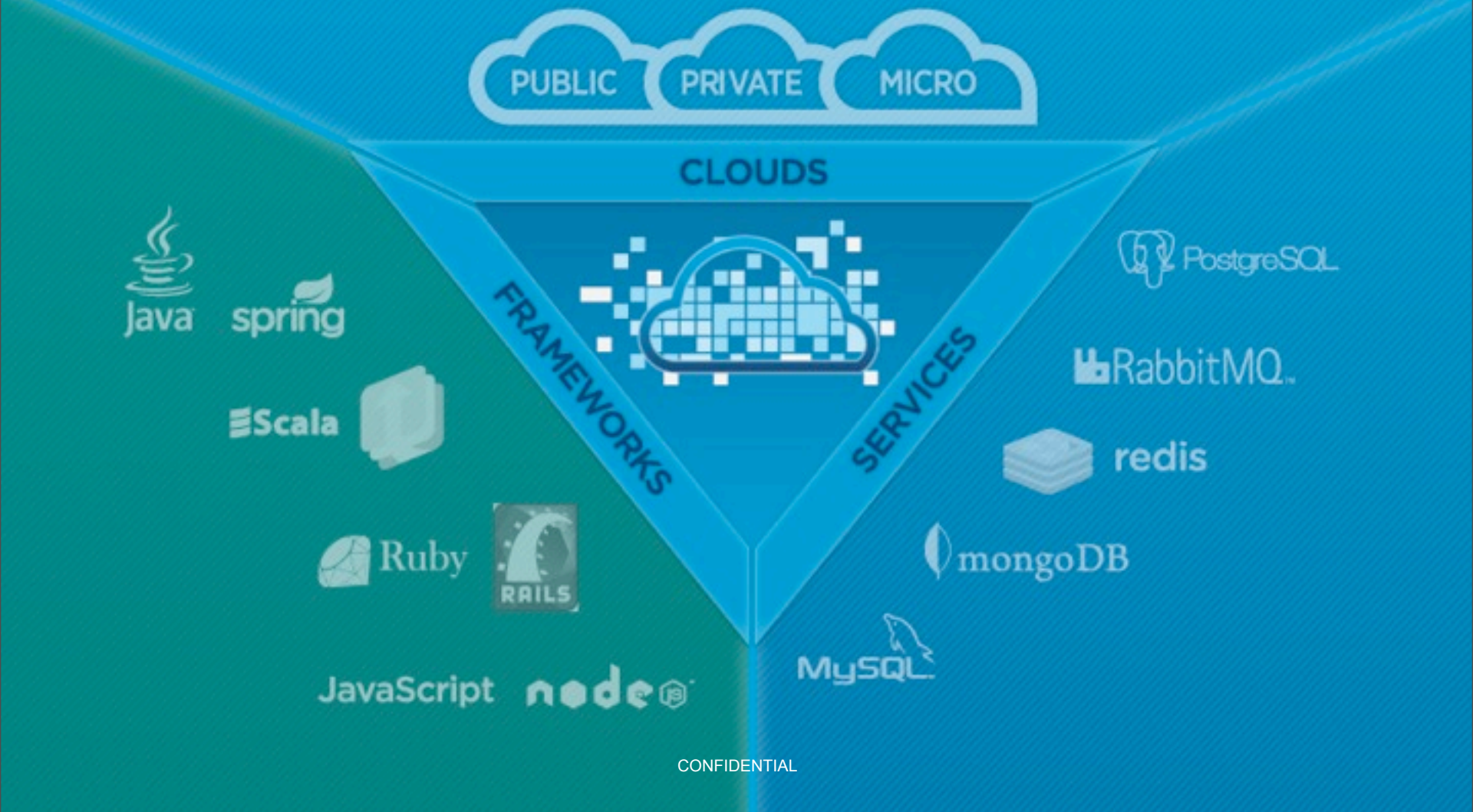
Installing vmc on Mac OSX

Use Ruby Version Manager http://beginrescueend.com/

```
$ bash -s stable <<(curl -s https://raw.github.com/wayneeseguin/rvm/master/binscripts/rvm-installer)
$ rvm install 1.9.2
$ rvm use 1.9.2
$ gem install vmc
```

what does Cloud Foundry offer?

Cloud Foundry: Choice of Runtimes



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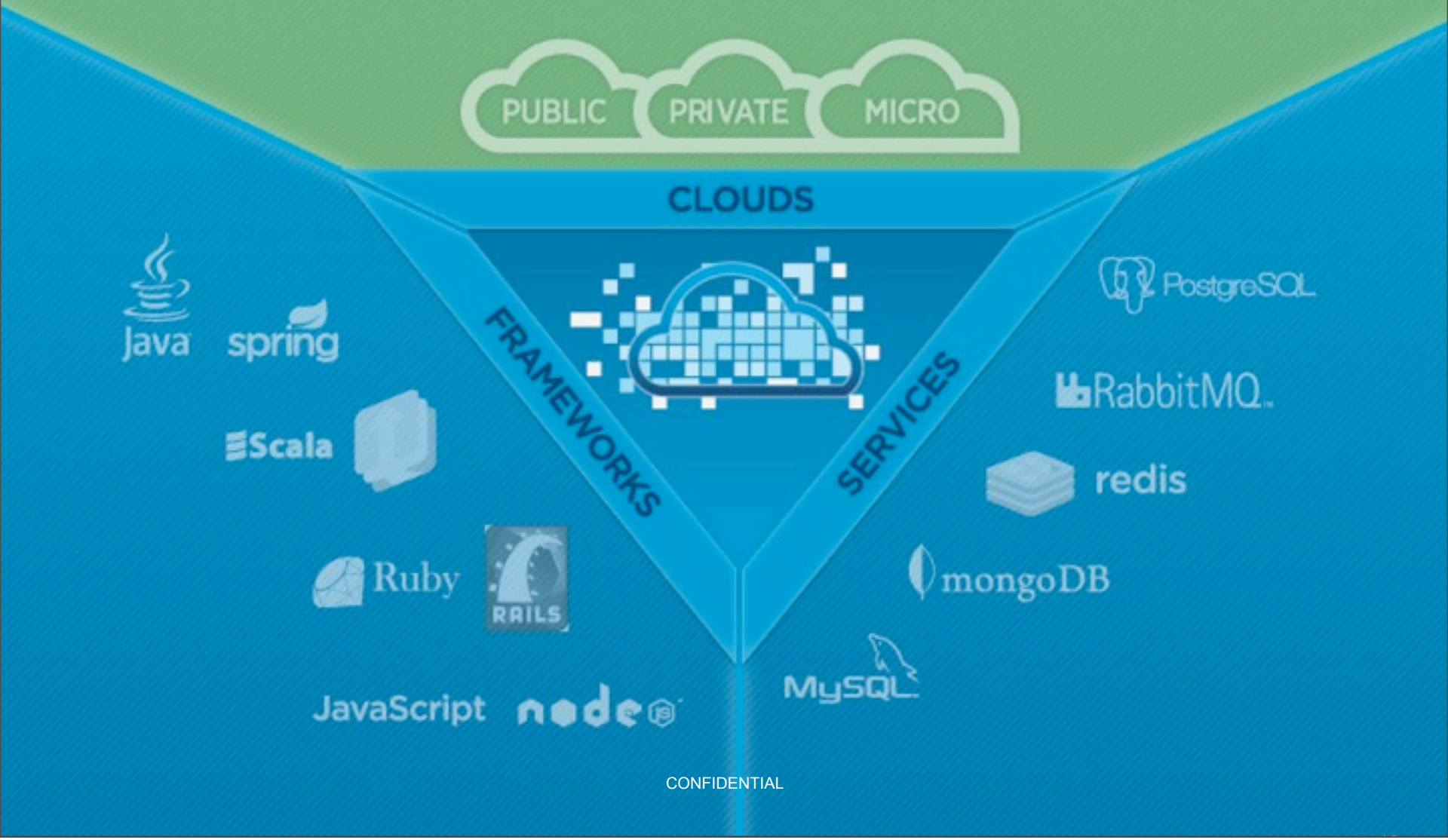
Frameworks and Runtimes Supported

- **Out of the Box**
  - **Java** (.WAR files, on Tomcat. Spring's an ideal choice here, of course..)
  - **Scala** (Lift, Play!)
  - **Ruby** (Rails, Sinatra, etc.)
  - **Node.js**
- **Ecosystem Partners**
  - **.NET (Uhuru, Tier3)**
  - **Python (Stackato)**
  - **PHP (AppFog)**
  - **Haskell (1)**
  - **Erlang (2)**

1) http://www.cakesolutions.net/teamblogs/2011/11/25/haskell-happstack-on-cloudfoundry/

2) https://github.com/cloudfoundry/vcap/pull/20

Cloud Foundry: Choice of Clouds



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Main Risk: Lock In

Welcome to the hotel california

Such a lovely place

Such a lovely face

Plenty of room at the hotel california

Any time of year, you can find it here

Last thing I remember, I was

Running for the door

I had to find the passage back

To the place I was before

'relax,' said the night man,

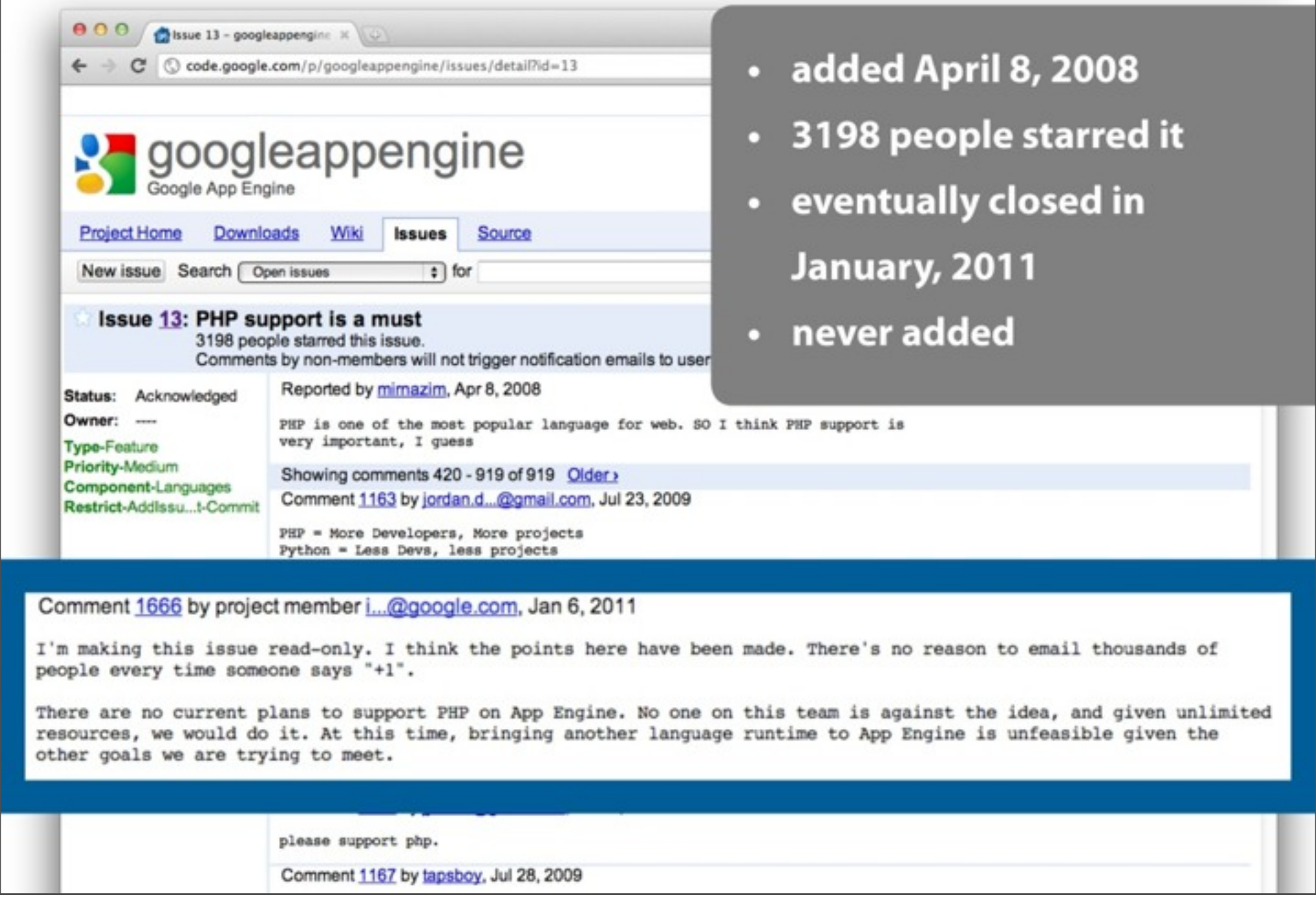
We are programmed to receive.

You can checkout any time you like,

But you can never leave!

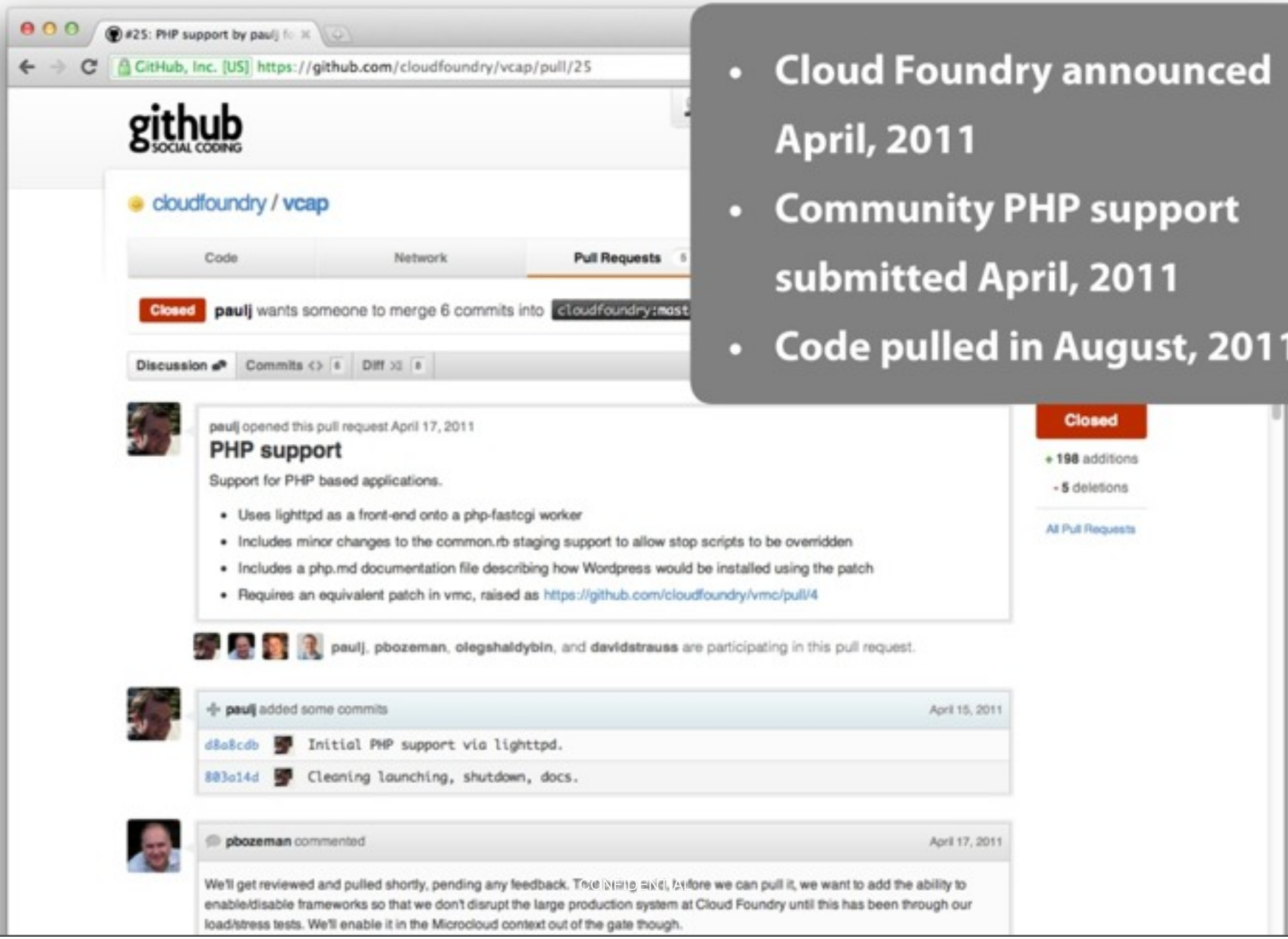
-the Eagles

Open Source Advantage



- added April 8, 2008
- 3198 people starred it
- eventually closed in January, 2011
- never added

Open Source Advantage



- Cloud Foundry announced April, 2011
- Community PHP support submitted April, 2011
- Code pulled in August, 2011

Cloud Foundry: Clouds

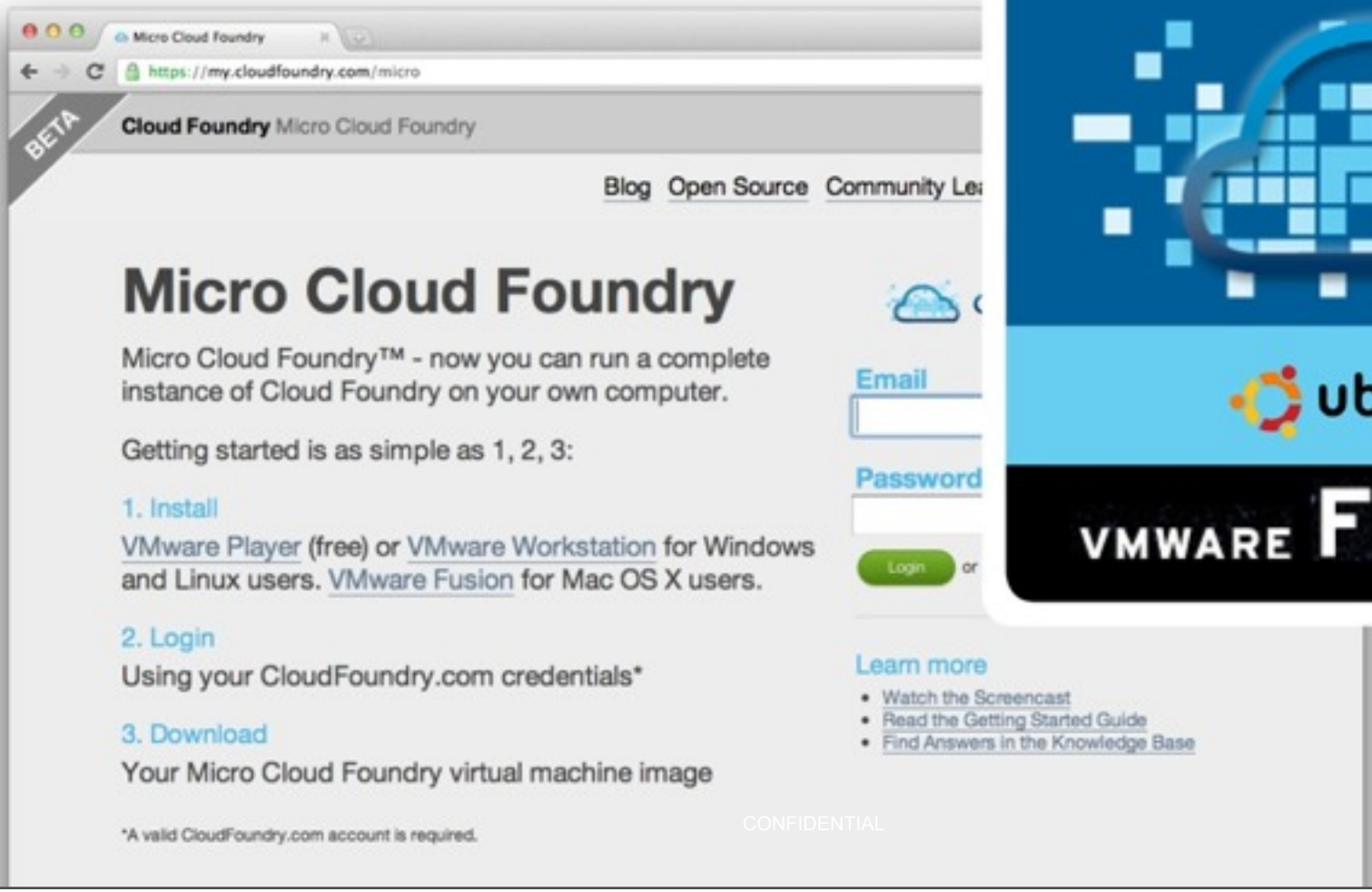
- **AppFog.com**
  - community lead for PHP
  - PaaS for PHP

- **Joyent**
  - community lead for Node.js

- **ActiveState**
  - community lead for Python, Perl
  - Providers of Stackato private PaaS

Micro Cloud Foundry (beta)

- micro.cloudfoundry.com
- works on OS X, Windows, Linux



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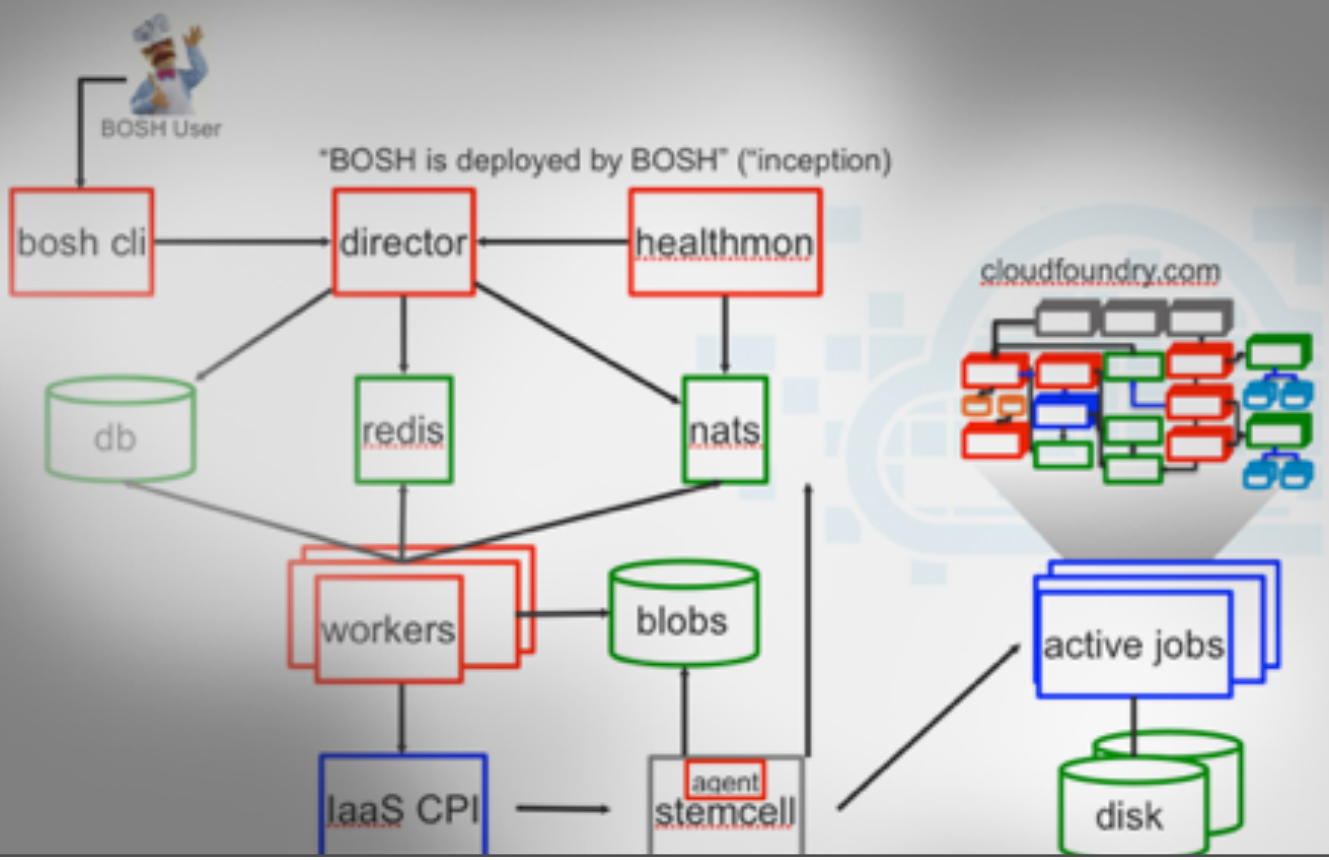
cloudfoundry (The open p

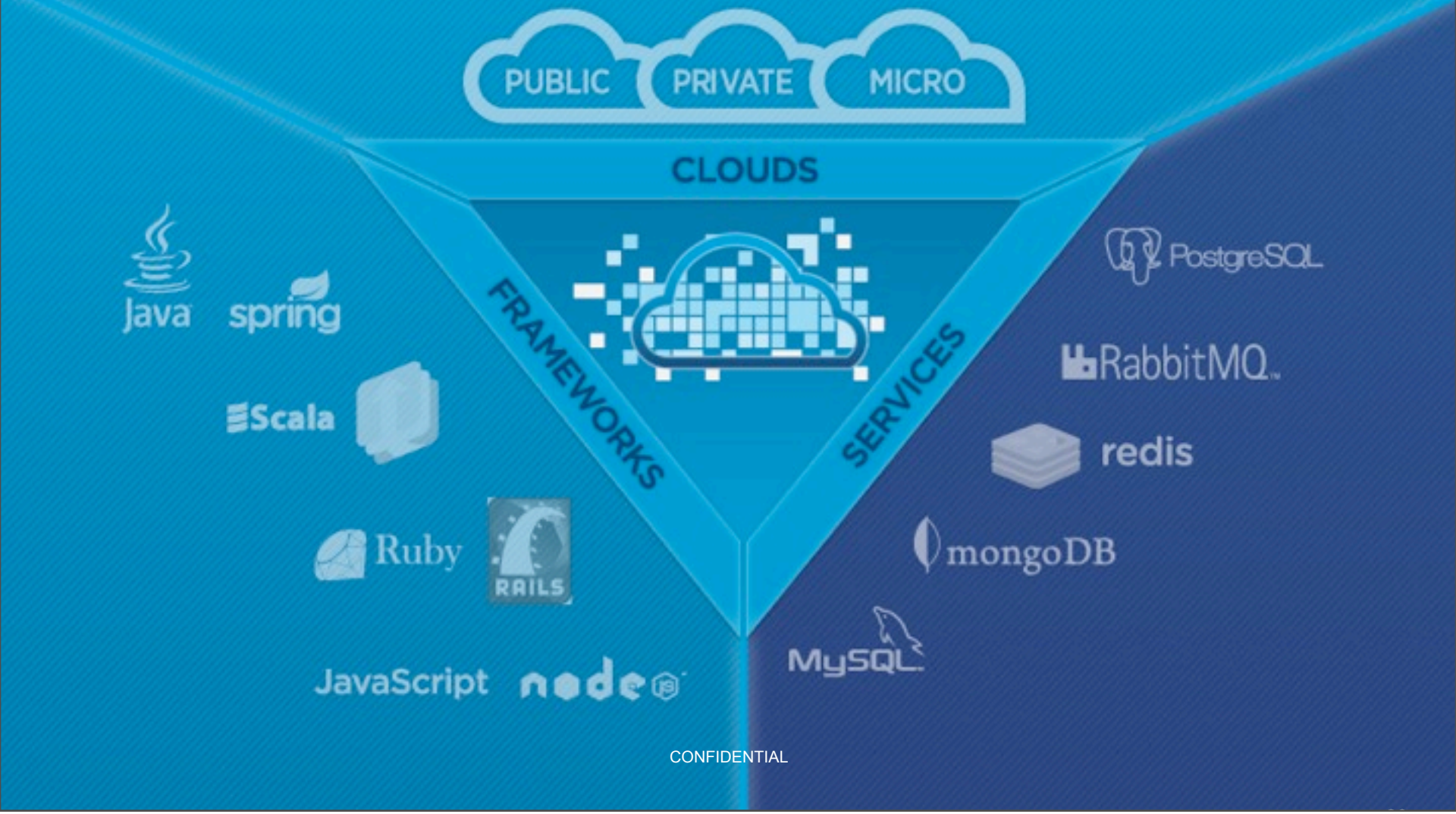
Name	The open platform-as-a-service project
Email	support@cloudfoundry.org
Website/Blog	http://www.cloudfoundry.org
Member Since	Feb 16, 2011

Public Repositories (7)

BOSH



Cloud Foundry: Services



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Cloud Foundry: Services

- **Take Advantage of Services**
  - they cost nothing to setup
  - they deliver value

- **They Encourage Better Architectures**
  - Need a fast read-write cache? Redis is ready to go!
  - Need to store long-tail documents? Give MongoDB a try
  - Need to decouple what applications do from when they do it? Use messaging and RabbitMQ

Accessing Your Services

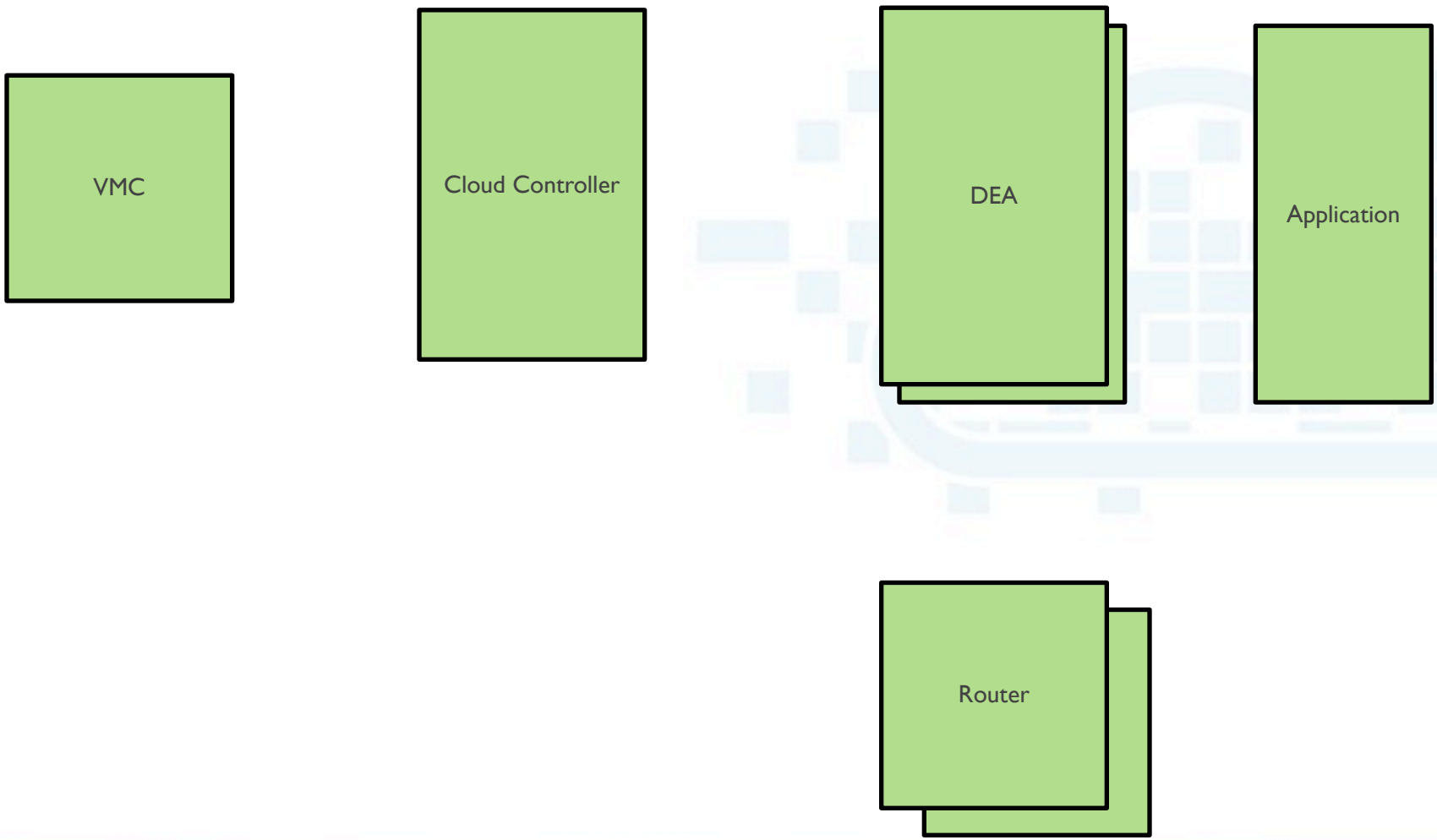
- **Debugging and accessing the data locally**
  - Caldecott --> Service tunneling. Access your Cloud Foundry service as if it was local.

Demo: **logging in,**
asking questions, &
deploying from the CLI

Demo: **Using the tunnel to talk to your services**

Demo: **developing with Eclipse & STS**

Application Deployment Flow



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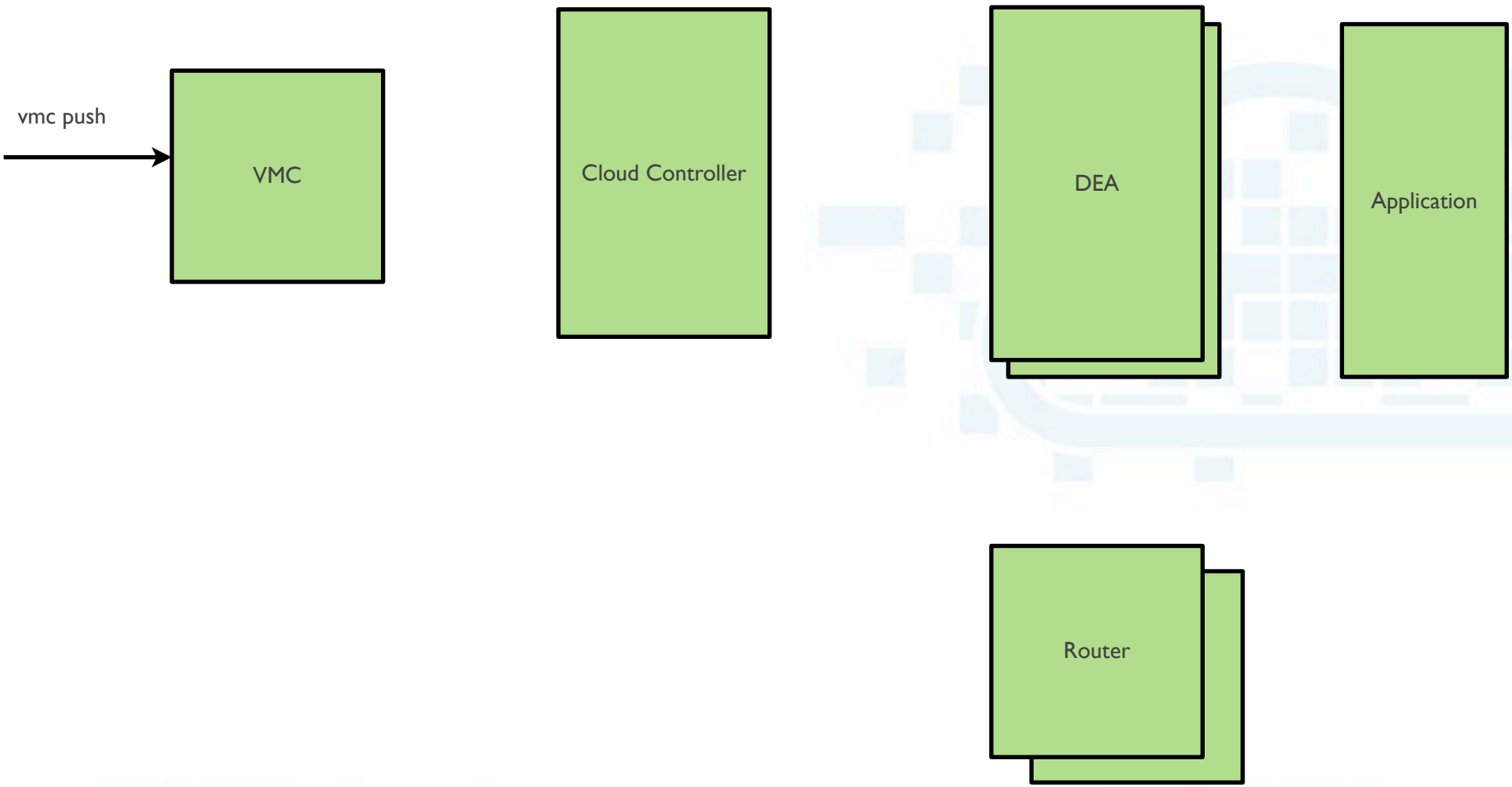

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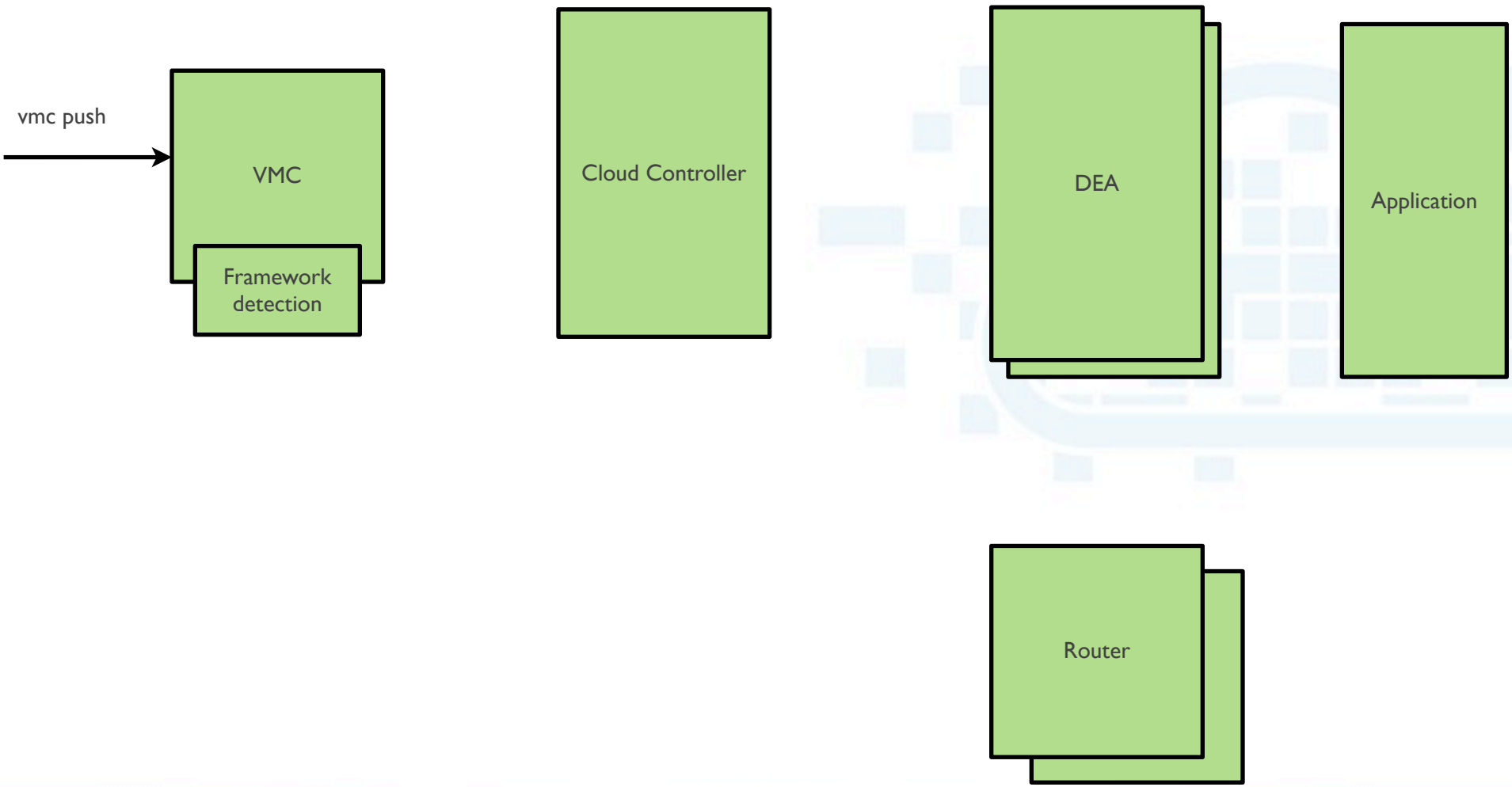

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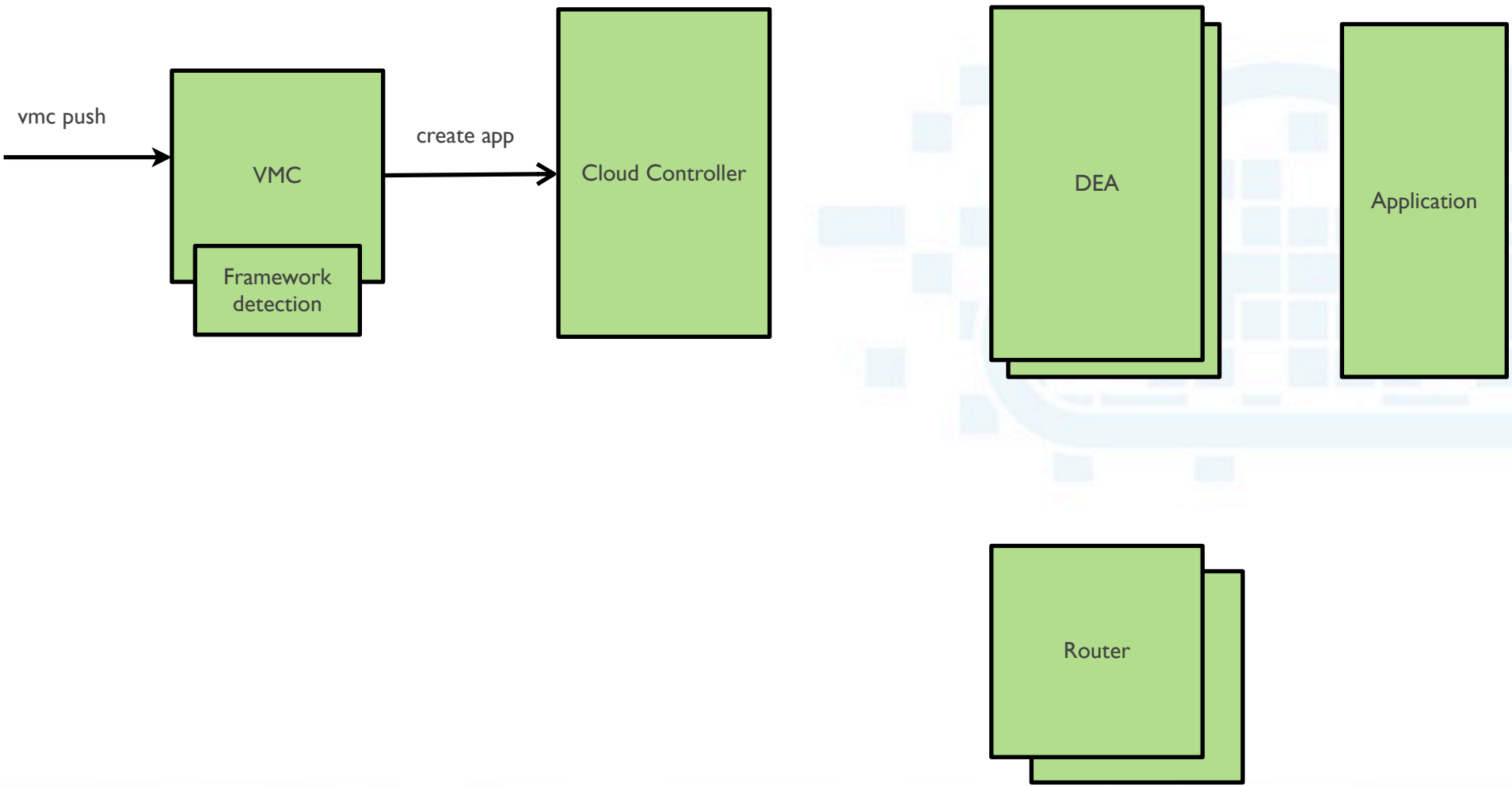

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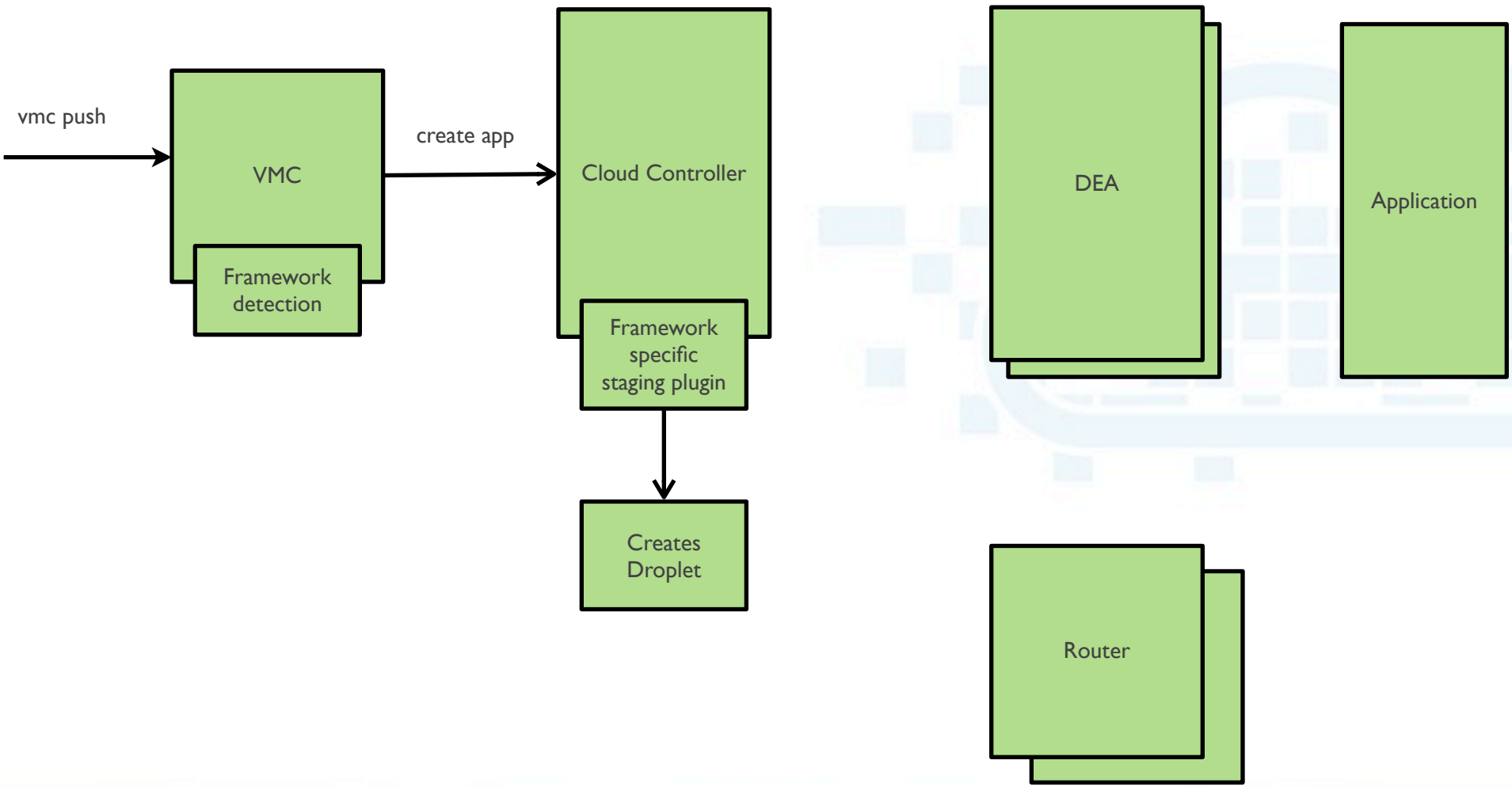

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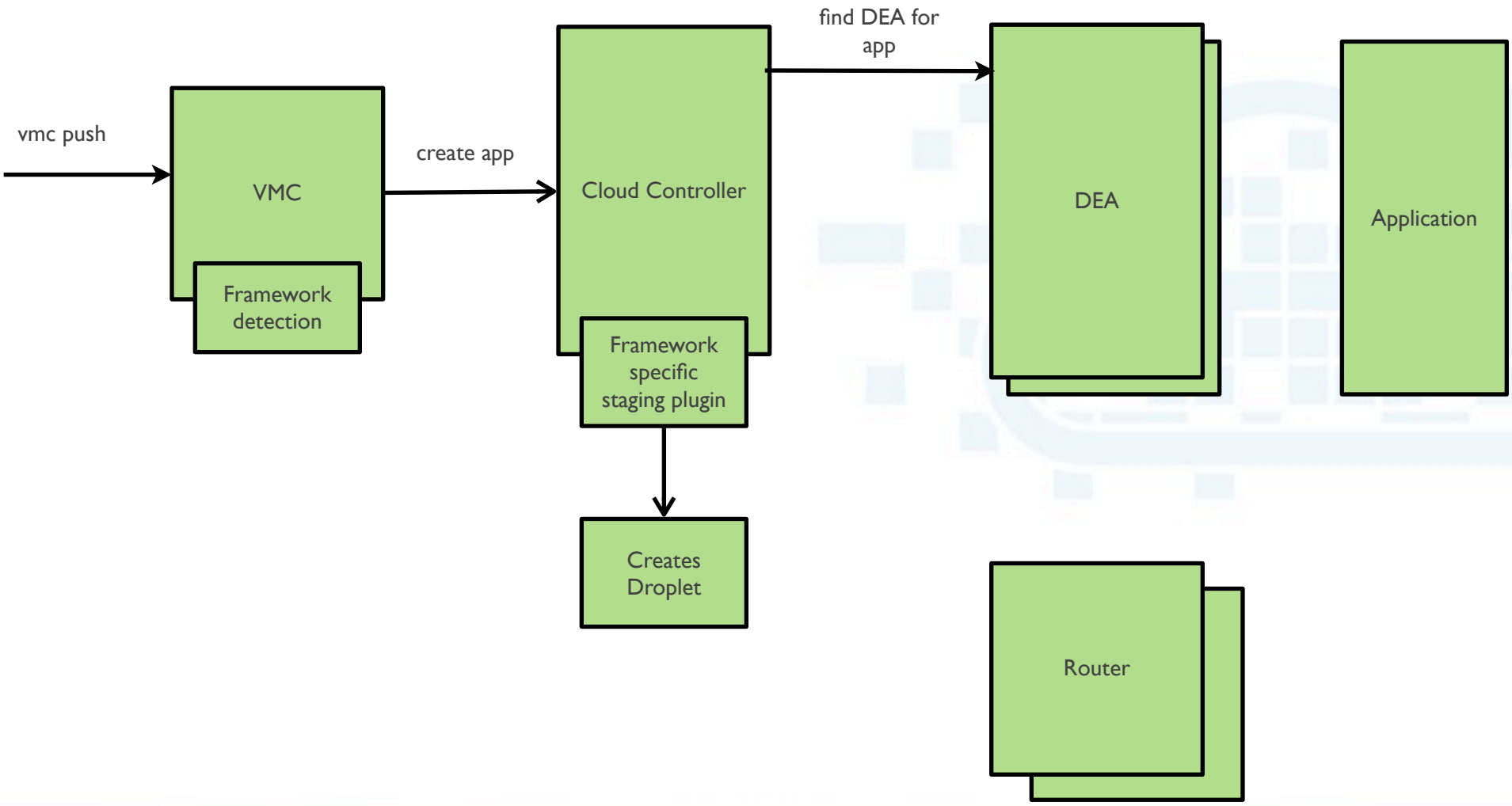

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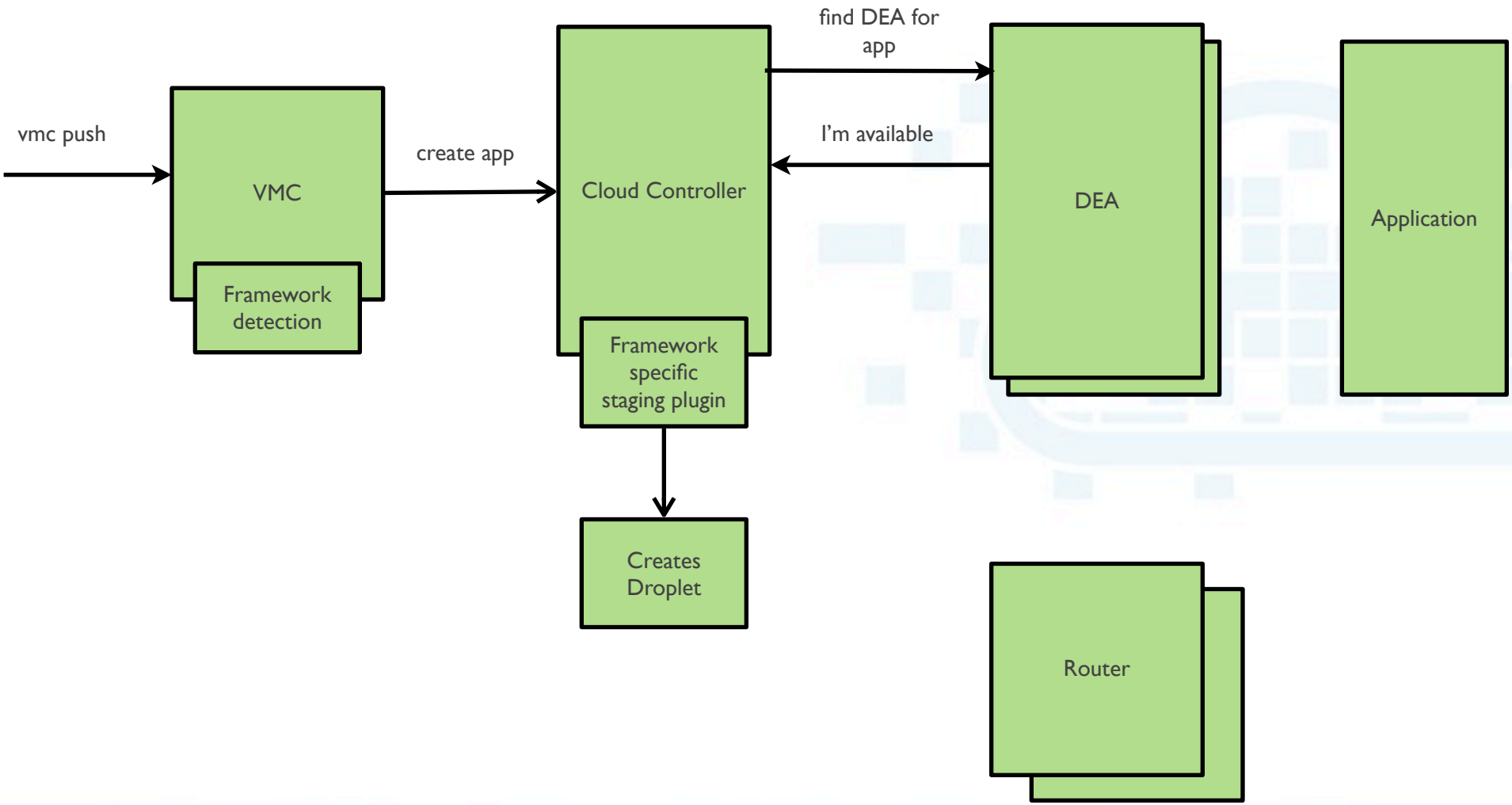

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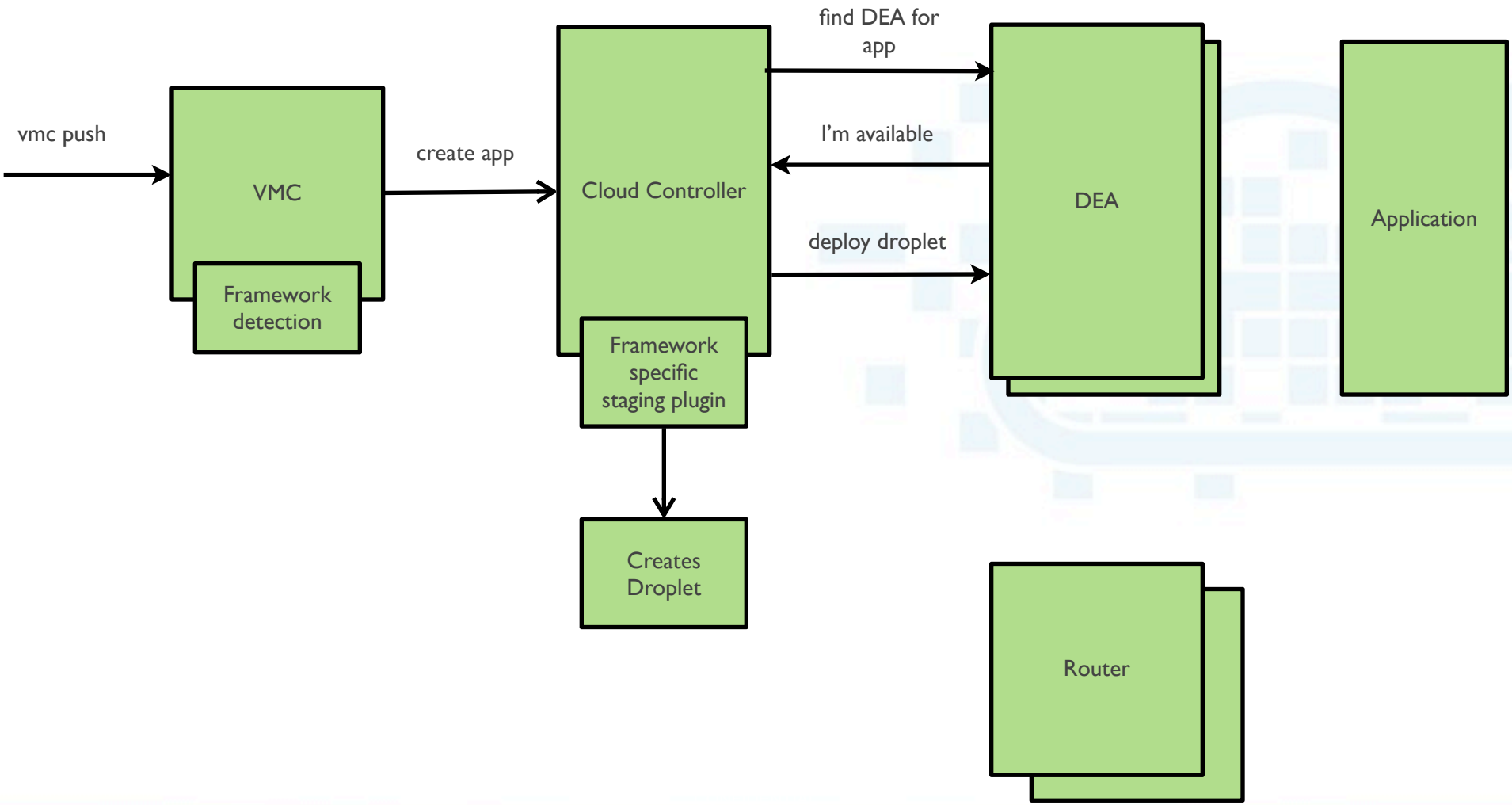

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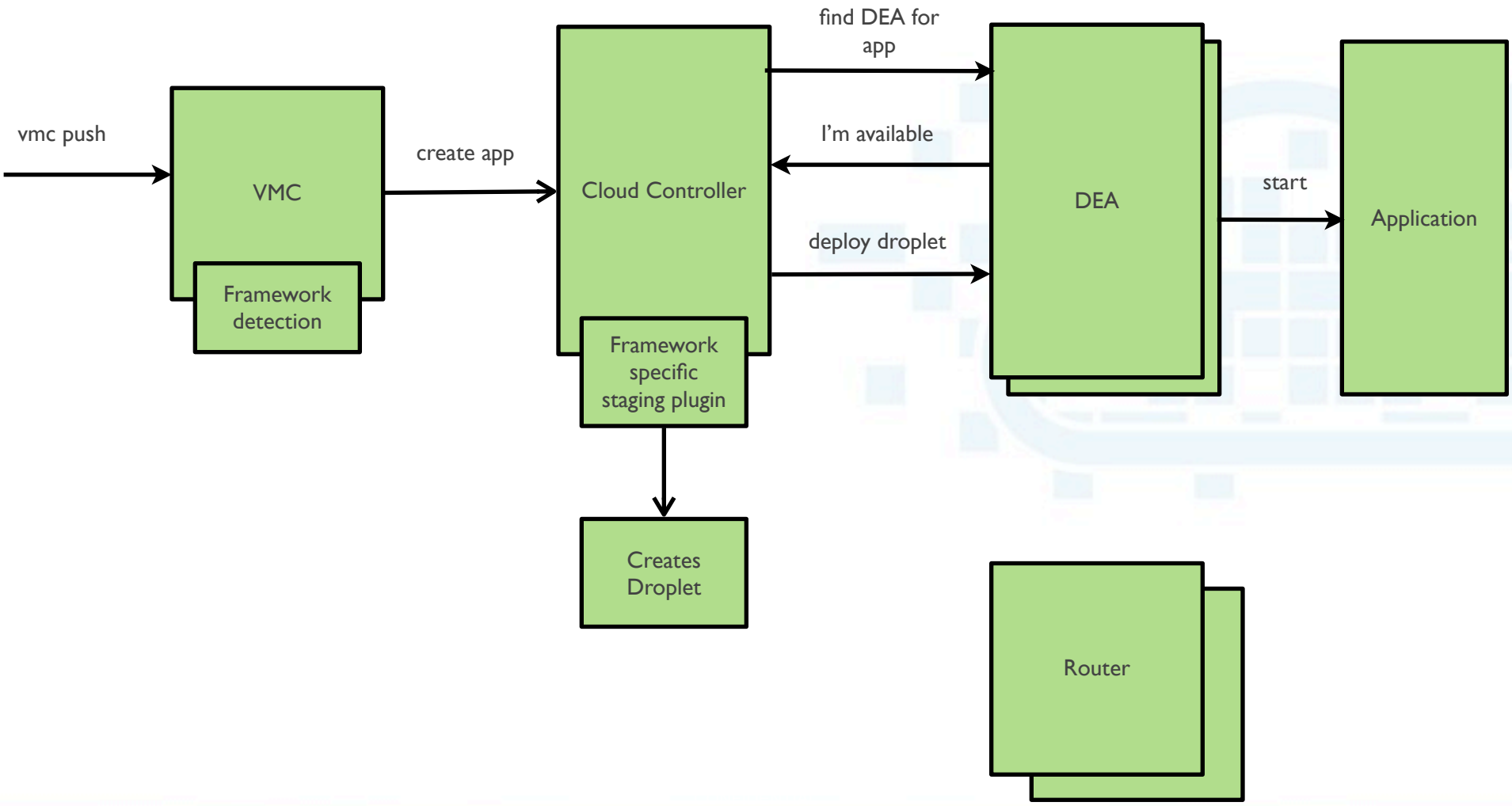

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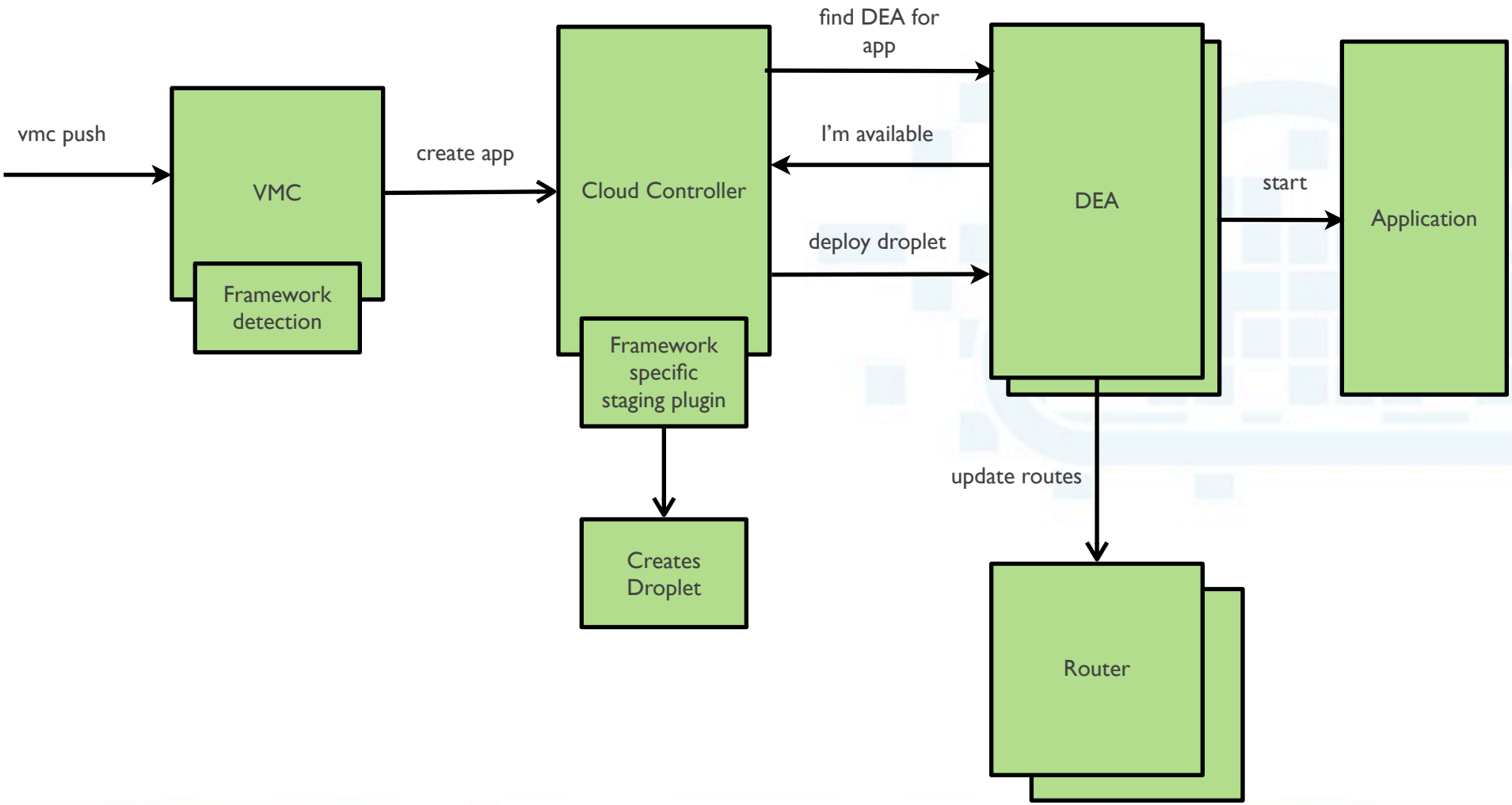


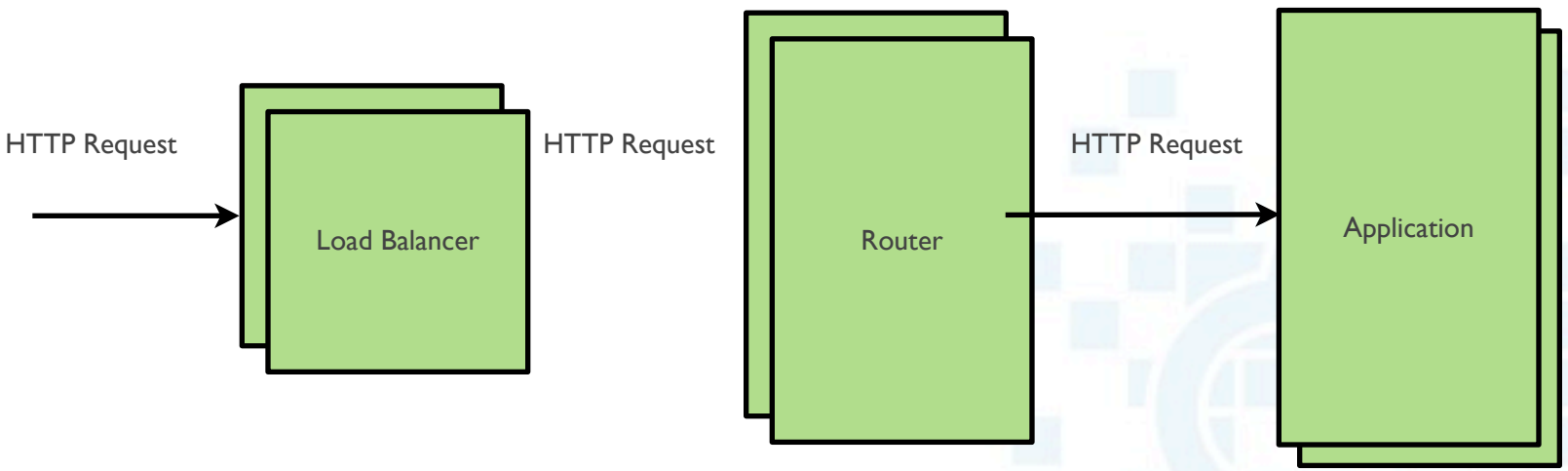
About the staging plugin

- **Framework specific**
- **Creates a zip file = black box**
  - Contains everything necessary for DEA to run the application
  - Two scripts: start.sh, stop.sh

Staging plugin for the Spring framework

- **Adds CloudAutoStagingBeanFactoryPostProcessor bean:**
  - Modifies bean definitions
  - Implements auto-reconfiguration
- **Defines CloudApplicationContextInitializer in web.xml**
  - Activates cloud profile
  - Defines PropertySource for CloudEnvironment properties

Request handling flow



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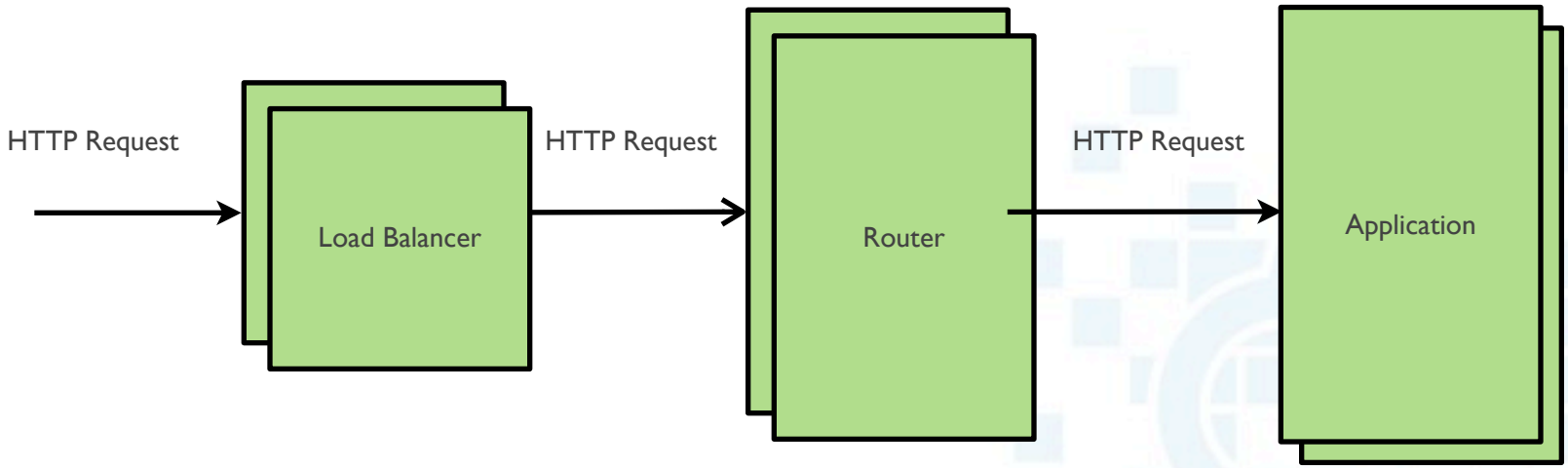


Self Healing Infrastructure

- **If an application instance crashes**
  - DEA detects unexpected exit => DEA broadcasts message
  - Routers remove instance from routing
  - Health manager notifies Cloud Controller
  - Cloud Controller re-launches instance
- **If an DEA VM crashes**
  - Application instances become unavailable
  - Health Manager notices the missing instances and notifies the Cloud Controller
  - Cloud Controller requests application instances to be started
  - Existing DEA will reply and start the applications

But where are the VMs?!?

- **Cloud Foundry has a layered architecture**
  - Cloud Controller, DEA, … layer = processes
  - VM management layer
- **Benefits: decoupling, simplicity, ….**
- **CloudFoundry.com creates vSphere VMs running different Cloud Foundry components**

What is in Micro Cloud Foundry?

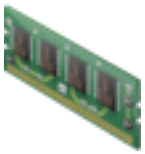
A cloud packaged as a VMware Virtual Machine

Use as a developer sandbox

- Use the services from Junit integration tests
- Deploy your application for functional testing
- Remote debugging from STS

Pre-requisites for using Micro Cloud Foundry

Minimum 1 GB



RAM

Minimum 8 GB

Disk

Internet Connectivity

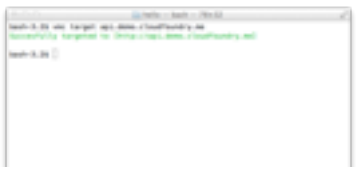
(w/DHCP is ideal)

VMware Fusion

VMware Workstation

VMware Player

VMC

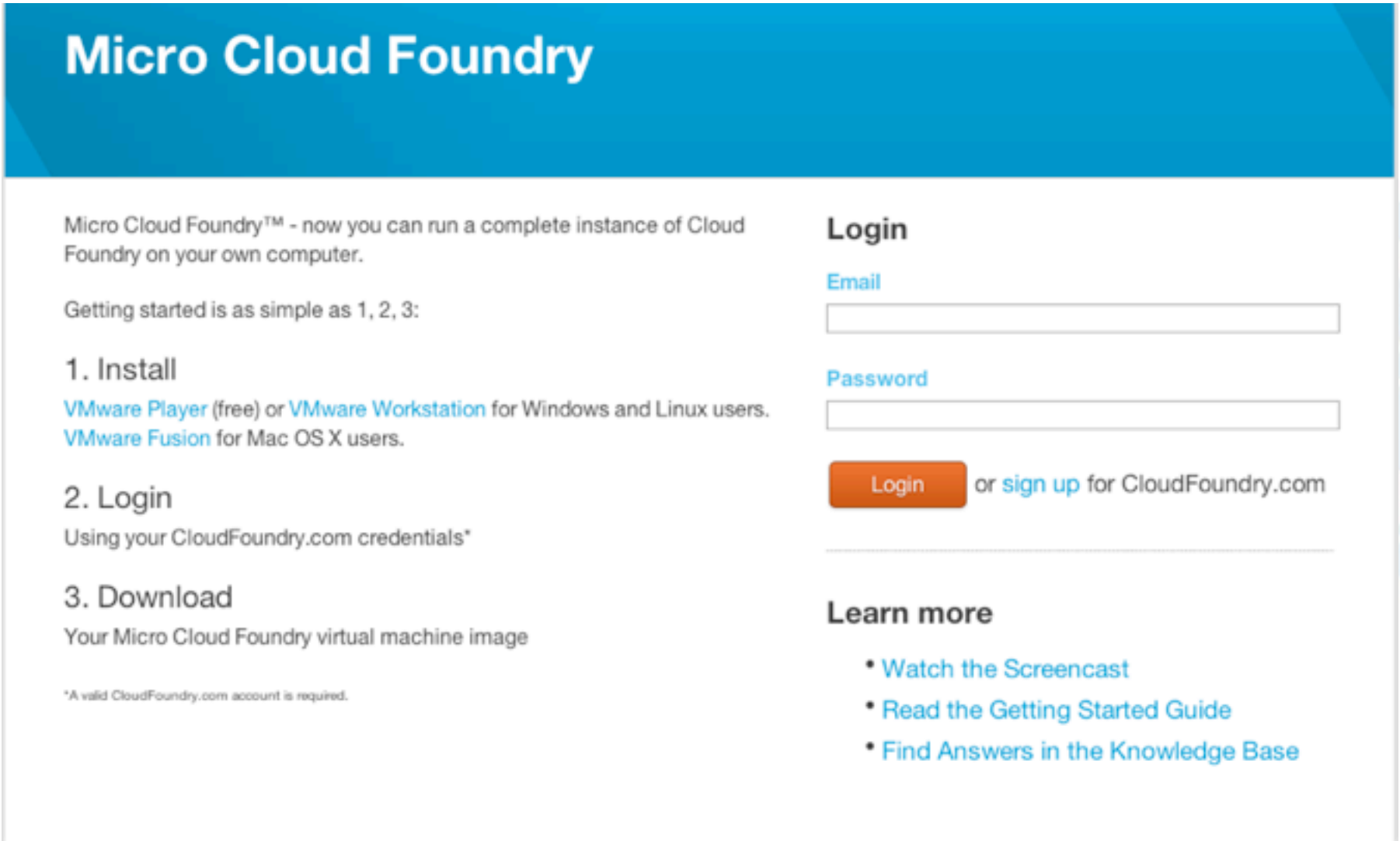


Command line

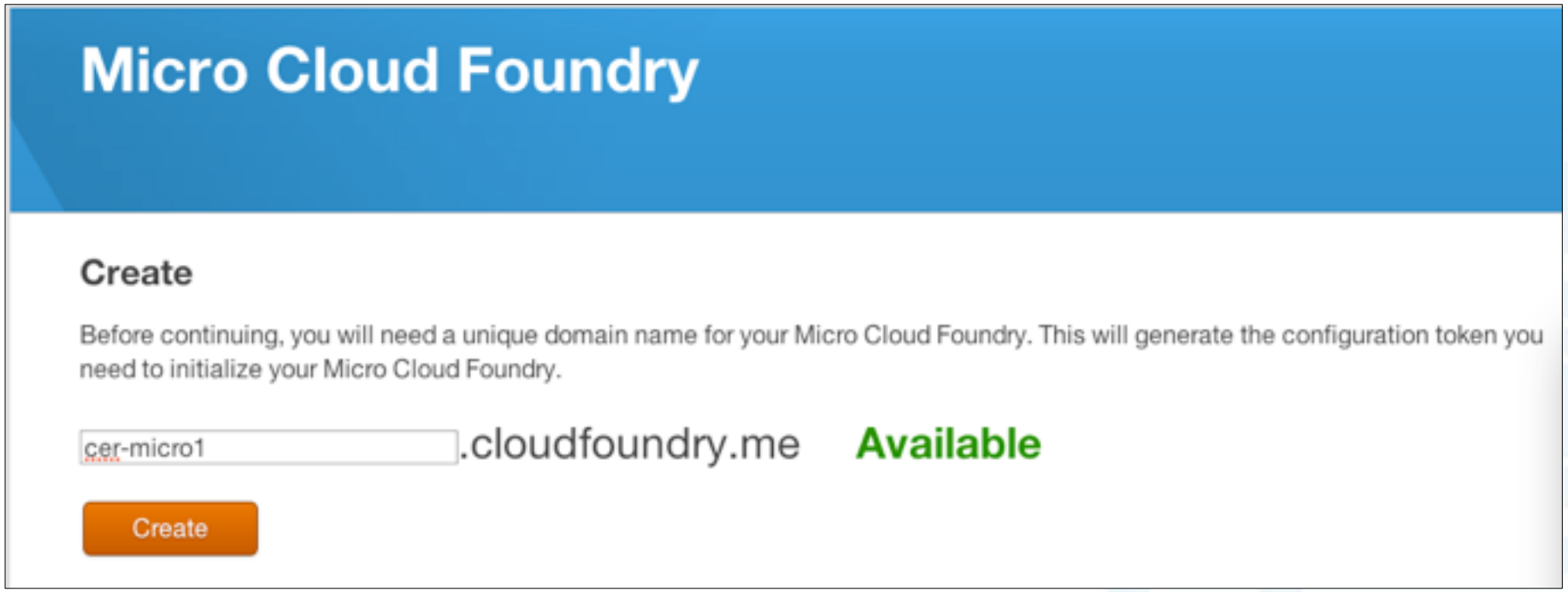
STS

GUI

Register and login to CloudFoundry.com

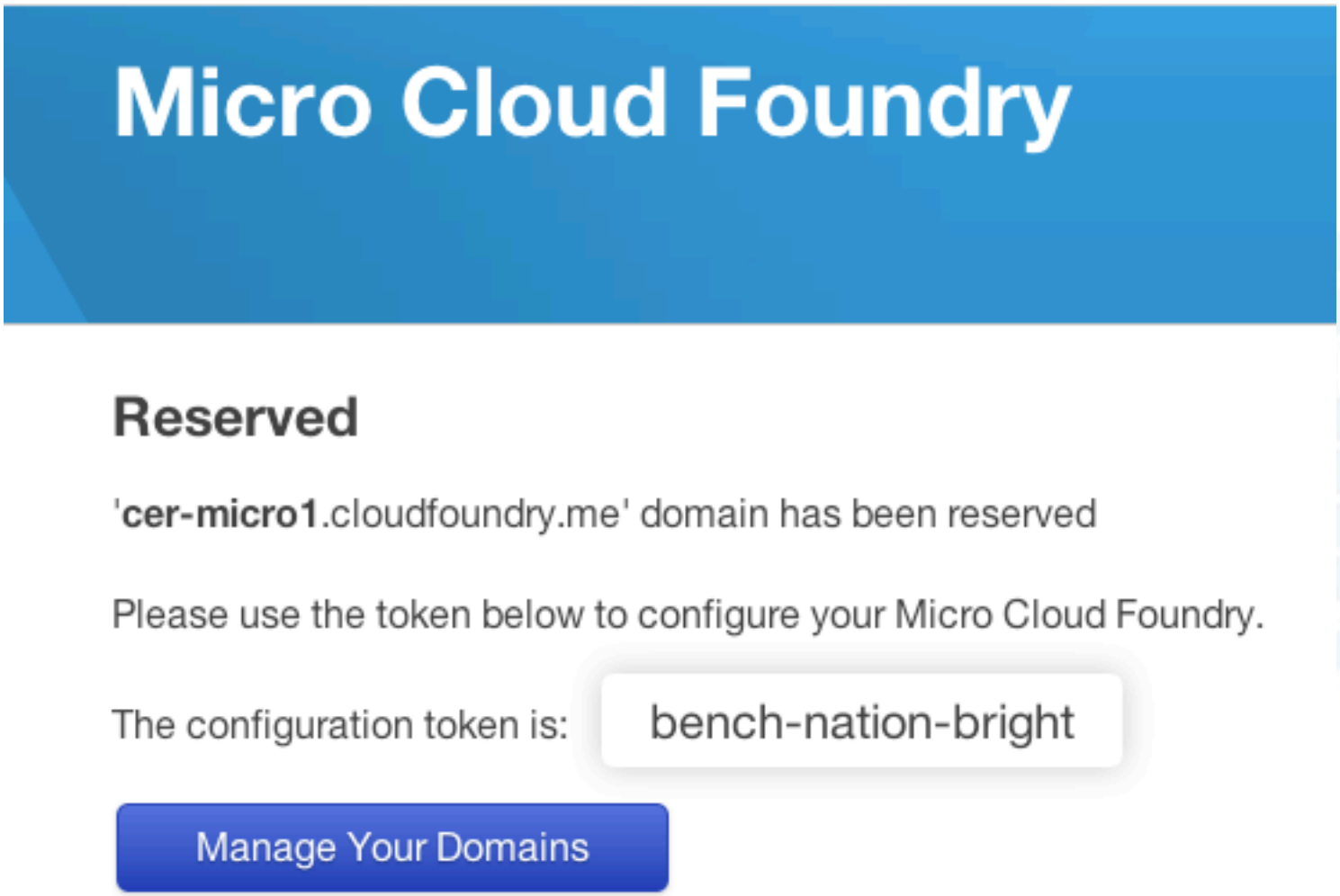


Select a domain name



*.cloudfoundry.me => IP address of your machine where Micro Cloud Foundry is running

Remember the configuration token

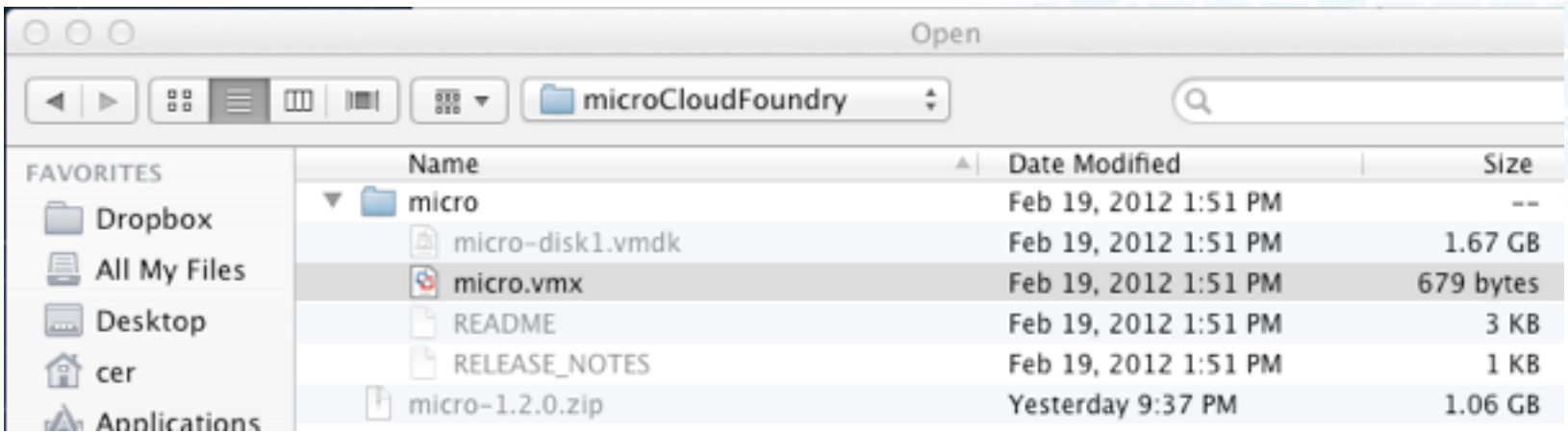


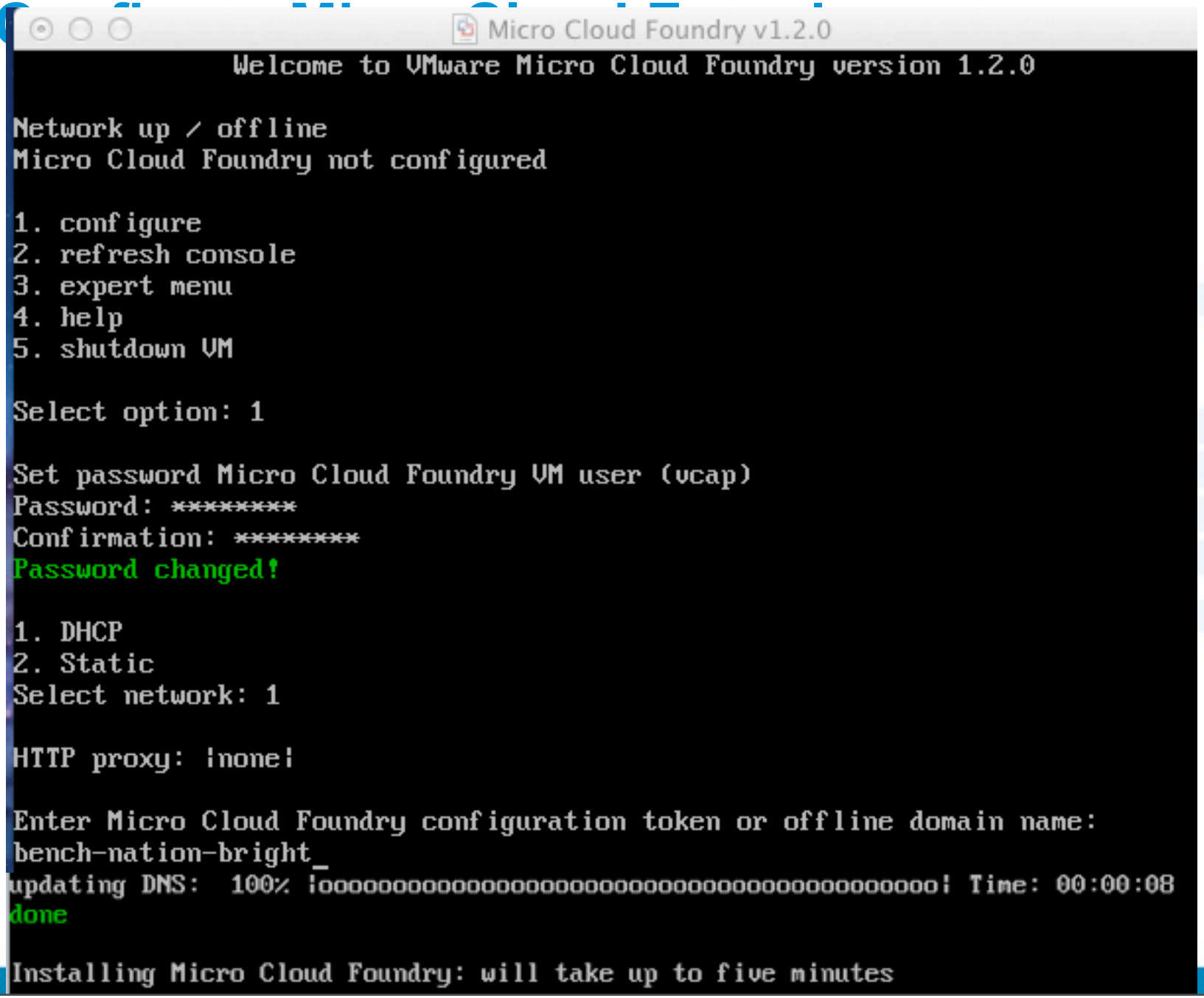
Download, unzip and open micro.vmx

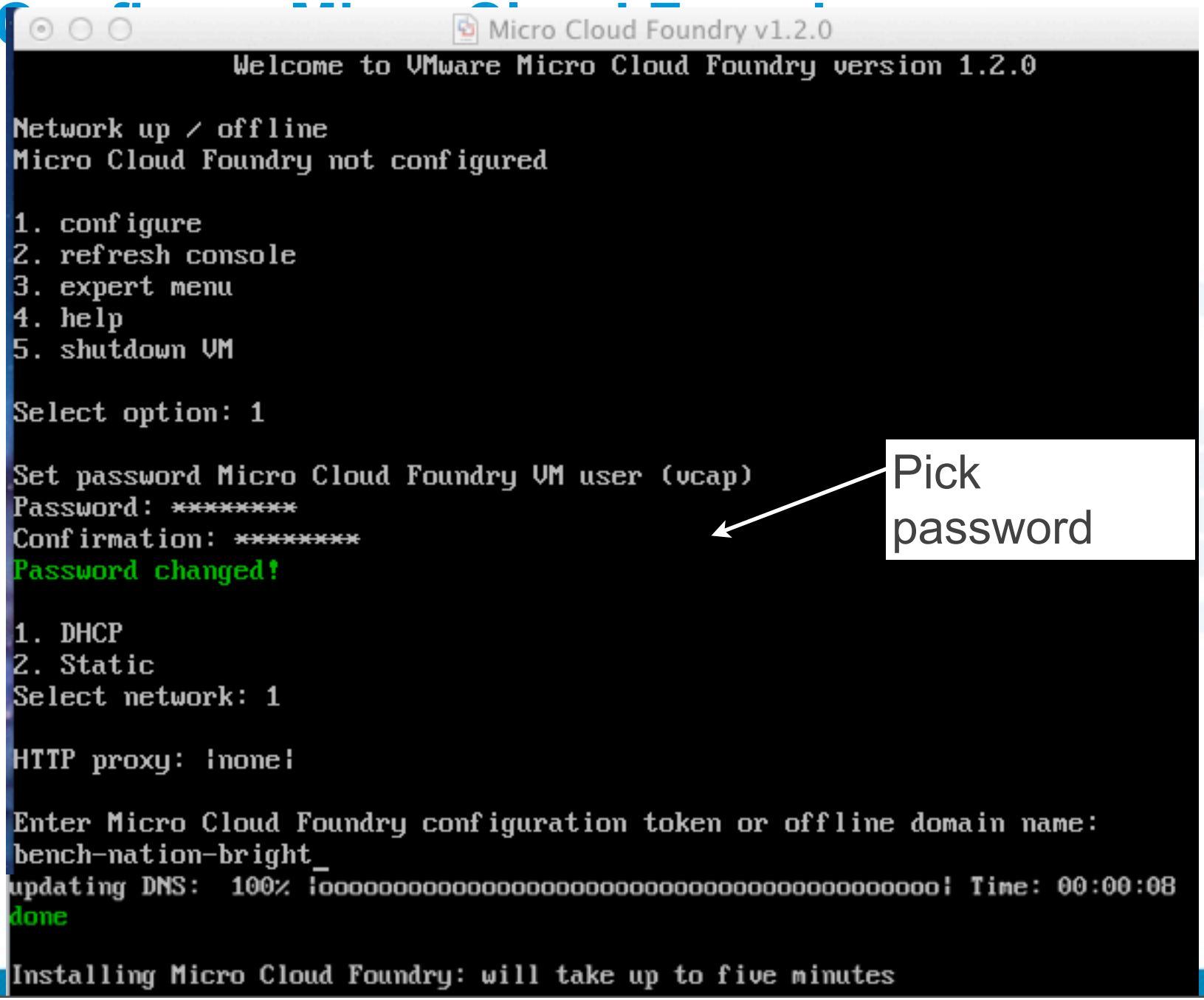
Downloads

You will need to have either VMware Workstation, VMware Fusion or VMware Player installed to run the Micro Cloud Foundry VM.

Download Micro Cloud Foundry VM




Micro Cloud Foundry v1.2.0
Welcome to VMware Micro Cloud Foundry version 1.2.0
Network up / offline
Micro Cloud Foundry not configured
1. configure
2. refresh console
3. expert menu
4. help
5. shutdown VM
Select option: 1
Set password Micro Cloud Foundry VM user (vcap)
Password: *********
Confirmation: *********
Password changed!
1. DHCP
2. Static
Select network: 1
HTTP proxy: |none|
Enter Micro Cloud Foundry configuration token or offline domain name:
bench-nation-bright
updating DNS: 100% |oooooooooooooooooooooooooooooooooooooooooo| Time: 00:00:08
done
Installing Micro Cloud Foundry: will take up to five minutes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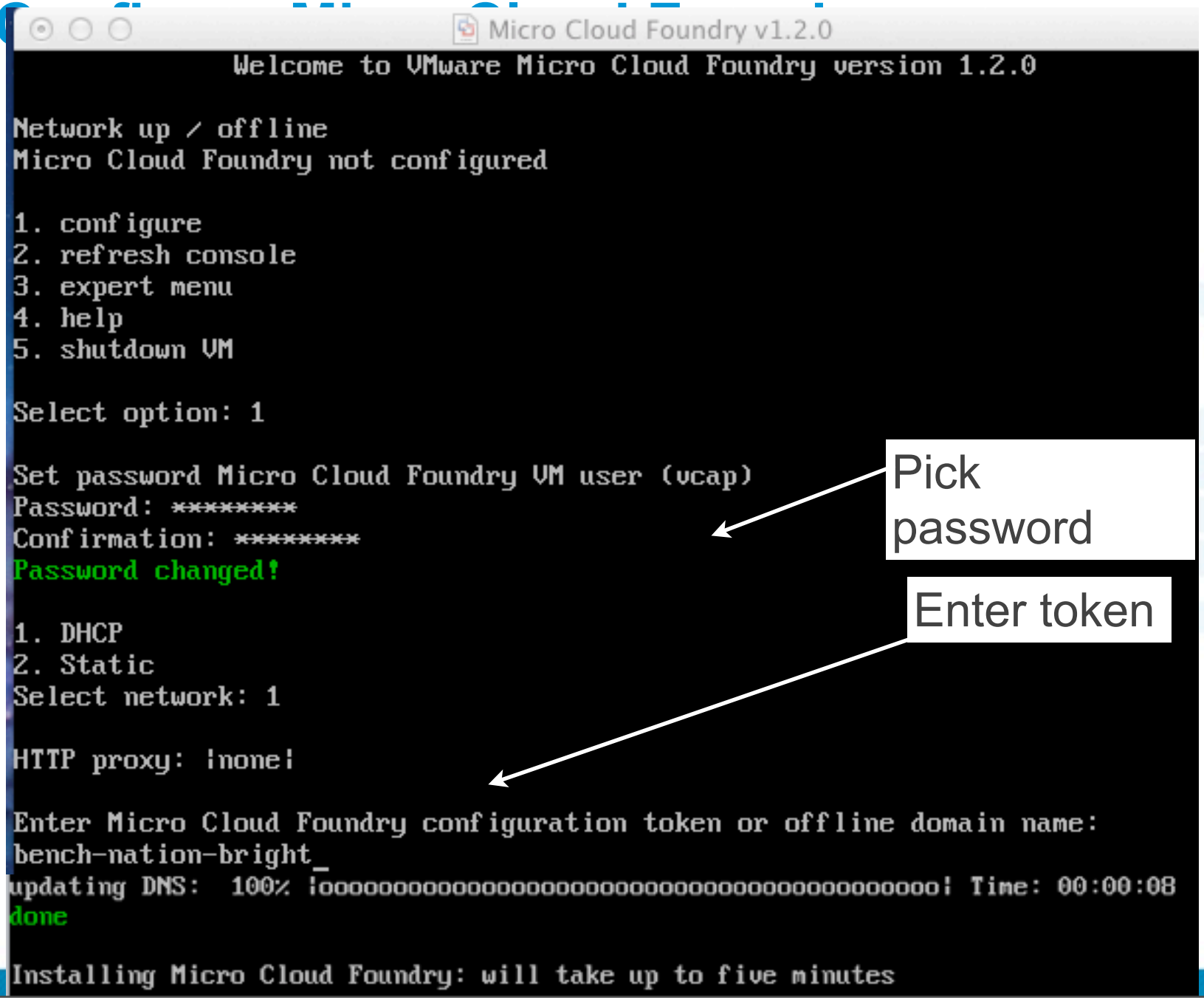
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done
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Pick password
Enter token

Logging into Micro Cloud Foundry

Logging into Micro Cloud Foundry

```
$ vmc target api.cer-micro1.cloudfoundry.me
Successfully targeted to [http://api.cer-micro1.cloudfoundry.me]
```

Logging into Micro Cloud Foundry

```
$ vmc target api.cer-micro1.cloudfoundry.me
Successfully targeted to [http://api.cer-micro1.cloudfoundry.me]


$ vmc register
Email: crichardson@vmware.com
Password: ********
Verify Password: ********
Creating New User: OK
Attempting login to [http://api.cer-micro1.cloudfoundry.me]
Successfully logged into [http://api.cer-micro1.cloudfoundry.me]
```

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twitter: @starbuxman