About Monica

- Developer Advocate @ Cloud Foundry
- 12 years in software development
- Last 5 years on the Social Web: MySpace, Facebook, Socialcast

- Enjoys working with developers and customers

  Loves the web and data portability.

Contact Info

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About Paul

- Founder at 23wide, Senior Developer at LShift
- Worked for companies both large and very small
- Generalist across as many languages as opportunity allows
- Tries to select the right tools for the right job

Contact Info

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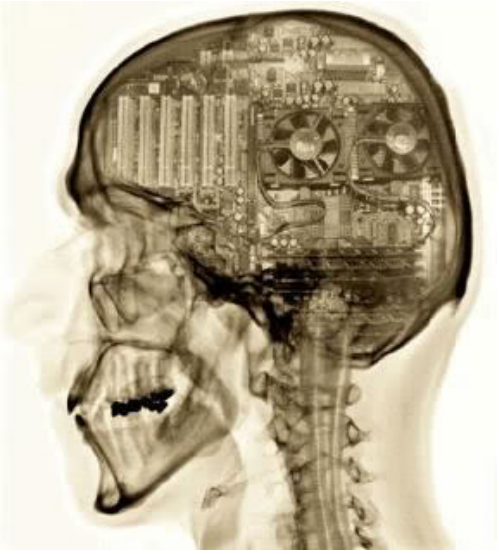
Agenda

- Why do we need a PaaS ?
- What is Cloud Foundry ?
- How to deploy and scale apps on Cloud Foundry
- How to bind application services
- Adding Erlang to Cloud Foundry

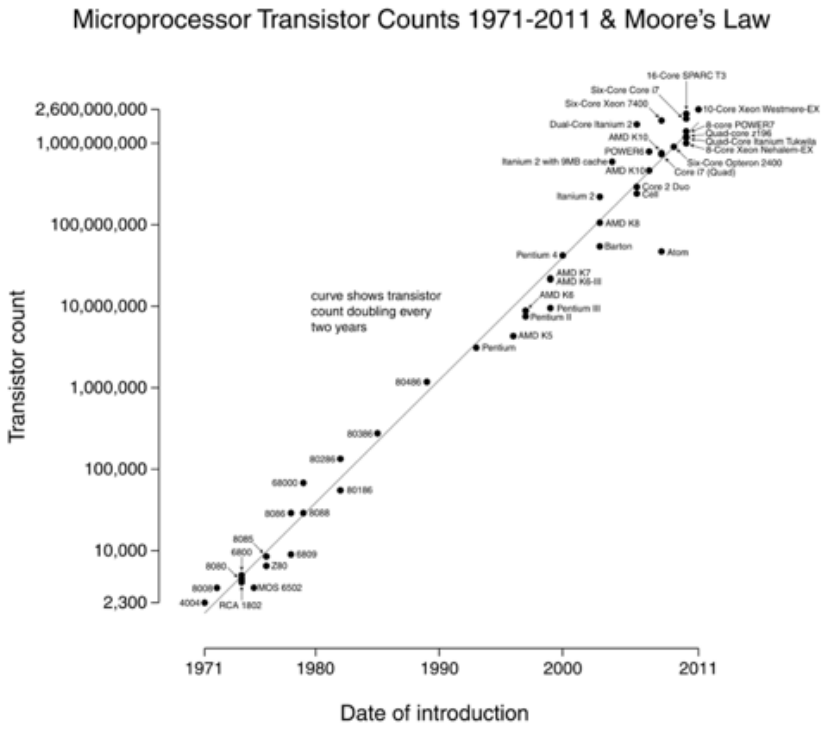
Mobile Dreams

- When I was a CSE student in Columbus, Ohio I always dreamt of having a **computer in my head**
- Not only for the raw computing power but for the ability to harness the power and knowledge of my society via the Internet
- That was in 98’ and 99’ very few people even had laptops



Evolution in Computing

- Moore's Law is for Hardware Only
- Does not apply to software
- Productivity gains not keeping up with hardware and bandwidth
- **Writing software is hard, painful, and still very much a craft**



Software development speed needs to increase to keep

up with demands

Agility as a survival skill

- Consumer software is becoming like fashion
- Phone apps, social apps, short lifetime, fast lifecycles
- A/B testing
- Clay shirky situational apps
- Kent Beck, Usenix 2011 Talk, “Software G-Forces”change in software process when frequency grows

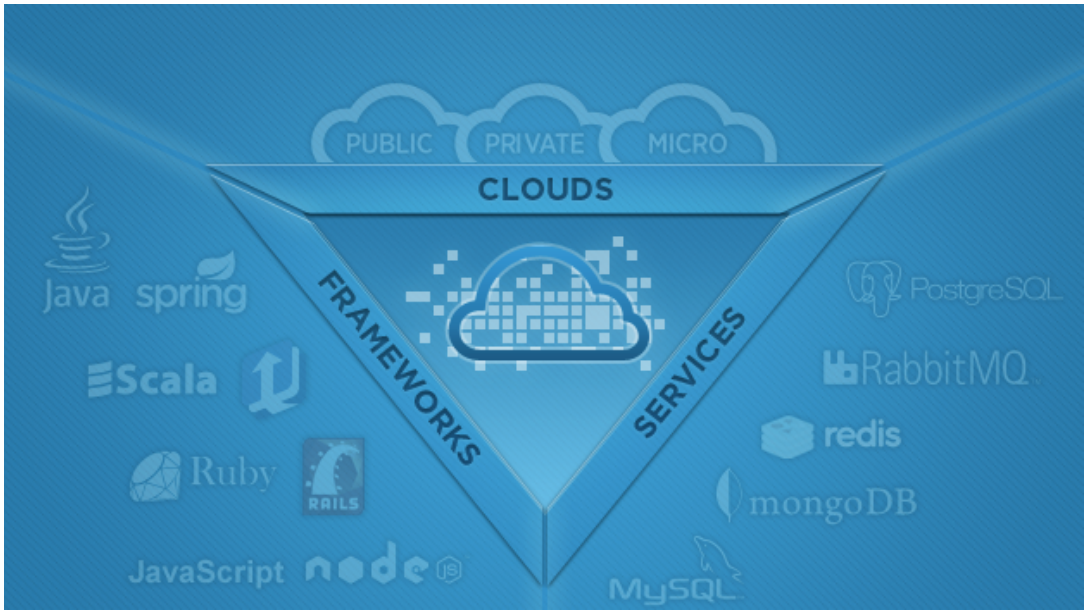
Solution

- Cloud Platforms enables an Agile culture, driver for innovation
- Scalability is built in the platforms
- Can iterate faster
- Focus on design
- Cloud Platforms lets developers focus on driving business value

Cloud Platforms

- Raise the Unit of currency to be application & services instead of infrastructure
- Google App Engine, Cloud Foundry, Joyent, Heroku, Stax (Cloudbees), Amazon elastic beanstalk, Microsoft Azure, AppFog
- Single or a few languages, services
- Start of Multi language Polyglot platforms
- Enabler for Agile Developers -> Create Business value faster
- Lack of standards: risk, vendor lock-in
- Enterprise needs:
  - Control, customizability
  - Private/Hybrid Cloud
  - Avoid lock-in

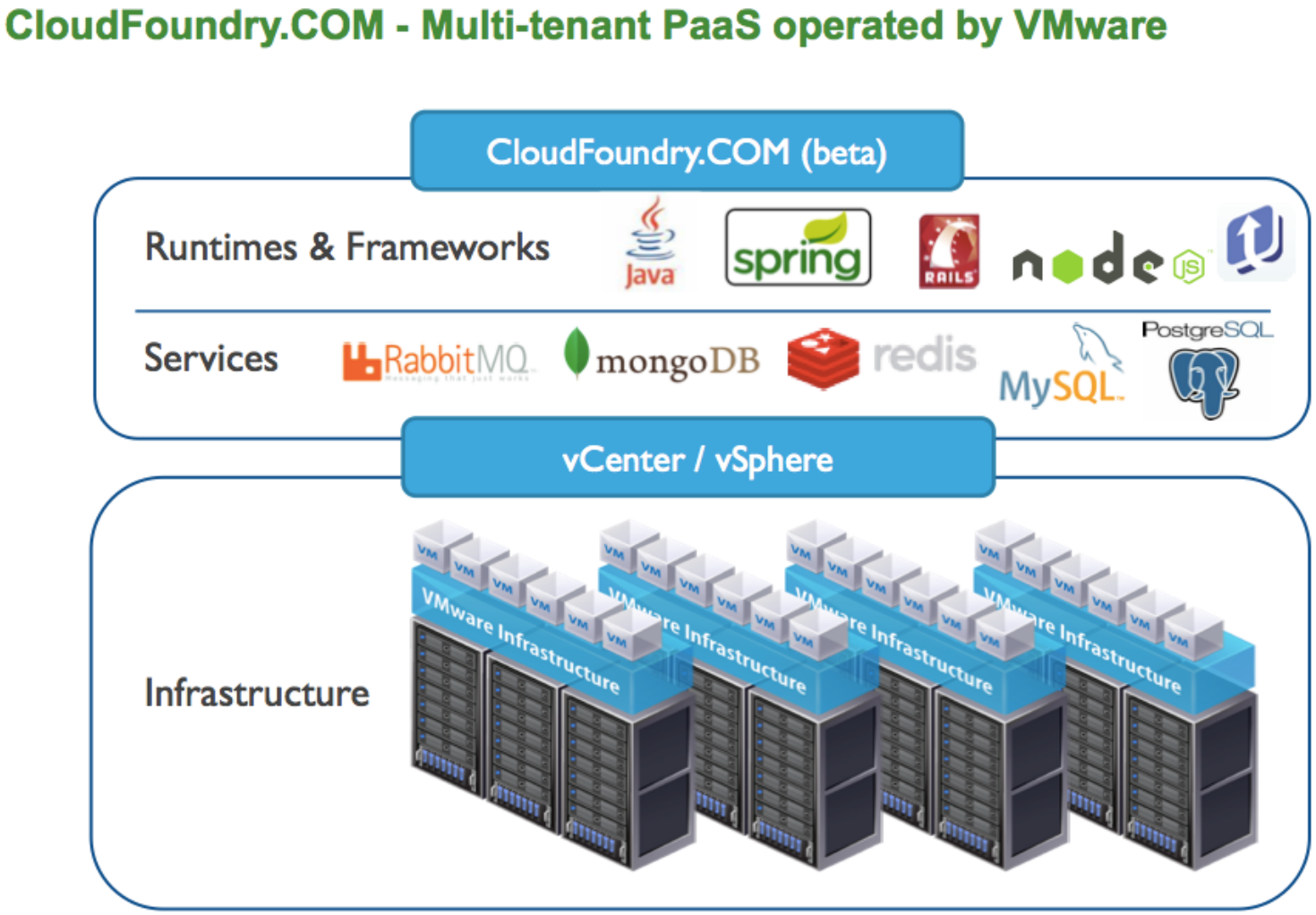
About Cloud Foundry



- Open Platform As a Service built by VMWARE
- Multi Languages: Ruby, PHP, Python, Java, Javascript, Scala
- Multi Frameworks: Rails, Sinatra, NodeJS, Spring, Grails, Lift
- Multi Services: MongoDB, Redis, RabbitMQ, MySQL, PostreSQL
- Multi Clouds: Infrastructure Independent
- Open Source: http://github.com/cloudfoundry

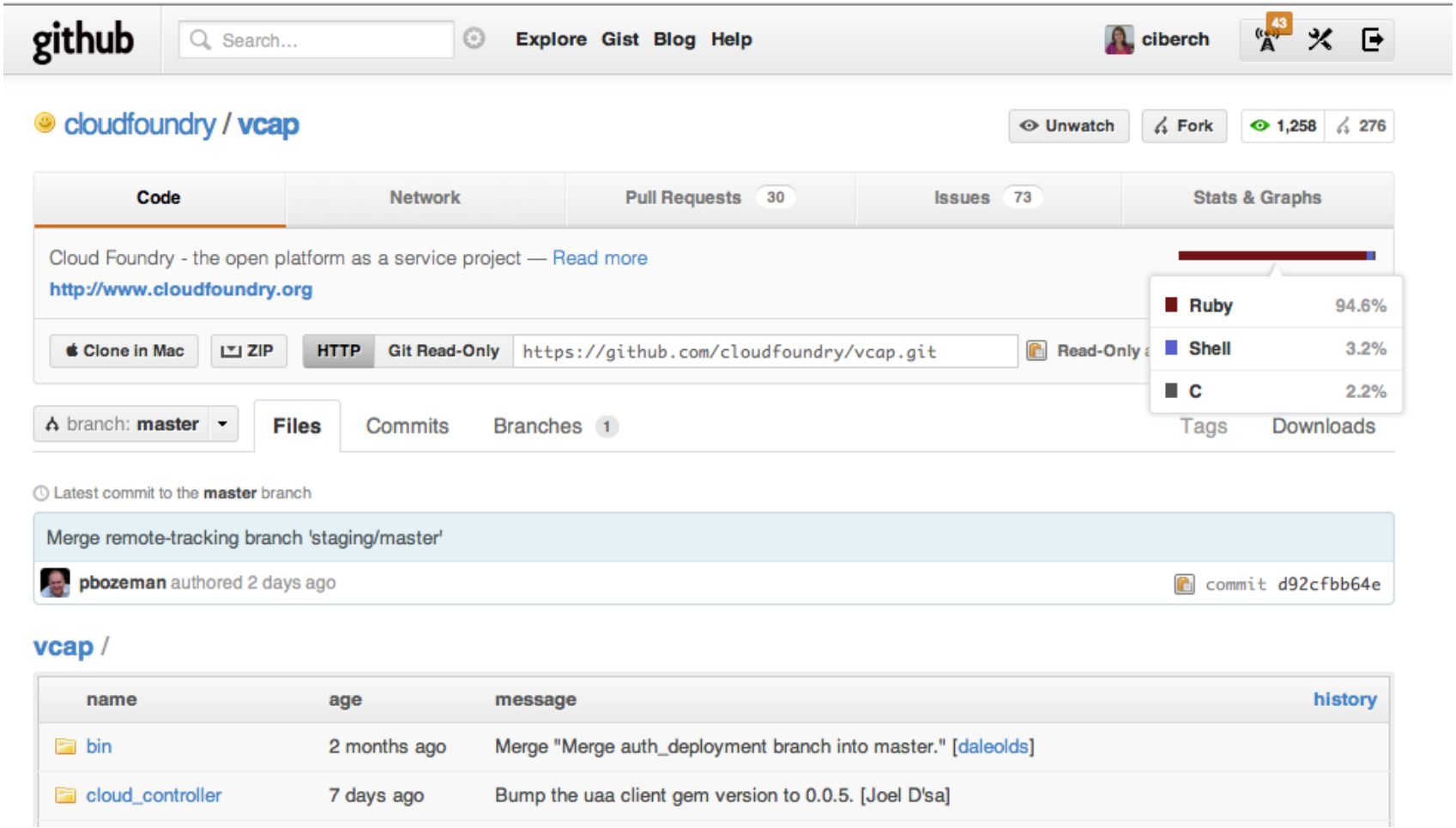
Cloud Foundry Service

- Operated by vmware
- Runs on http://cloudfoundry.com



Open Source

- Cloud Foundry is Open Sourced under Apache License
- Browse or Fork the code. Over 1000 forks already
- More than 90% is written in Ruby
- On Github https://github.com/cloudfoundry/vcap



common	18 days ago	[common] Fix content-length issue w/ VCAP::Component [mpage]
dea	3 days ago	[fix] Preserve HOME env var for version checks [d]
dev_setup	3 days ago	Use correct executable for Rack on ruby18/19 in dev_setup [ramnivas]
docs	7 months ago	Squashed merge of the final phpfog pull request [cardmagic]
em-warden-client	a month ago	Initial commit of EM bindings for Warden [mpage]
git	7 months ago	Added tracked hooks to vcap repo [vadims]
health_manager	7 days ago	Bump the uaa client gem version to 0.0.5. [Joel D'sa]
package_cache	16 days ago	Merge "more descriptive error message for invalid runtime." [talg]
package_cache_client	2 months ago	Merge branch 'services-r7' [kushmerick]
rakelib	2 months ago	Merge auth_deployment branch into master. [daleolds]
router	14 days ago	[router] Router spec clean up [d]
stager	18 days ago	Ruby auto-reconfiguration for Rack [Jennifer Hickey]
staging	10 days ago	[python] Update stock configs [d]
warden-client	2 months ago	warden: Extract warden client to a separate gem [pietern]
warden	8 days ago	Merge "warden: Sanitize config to CREATE before using it" [pietern]
.gitignore	10 months ago	Add pid files to gitignore [Michael Latta]
.gitmodules	16 days ago	Merge remote-tracking branch 'staging/master' [pbozeman]

Erlang in Cloud Foundry

From Here - the Language Support deep-dive:

- What does CloudFoundry provide to tenant languages?
- What must a language do to fit into CloudFoundry?
- How does Erlang work as a part of CloudFoundry?

What can the platform do for me?

Platform Features

HTTP Routing

Platform Features

Application Distribution

Platform Features

Service Binding

Platform Features

Management

What can I do for the platform?

Tenant Requirements

Run as a process

Tenant Requirements

Respond to HTTP requests

Tenant Requirements

Die when I’m dead

Tenant Requirements

Handle being terminated abruptly

Tenant Requirements

Keep the binary small

That’s all good. But what about Erlang?

Erlang as a Tenant

Assumes OTP & Rebar

Erlang as a Tenant

Startup script in `bin/`

Erlang as a Tenant

Configuration file in `etc/`

Erlang as a Tenant

Compiled application code in `lib/`

Erlang as a Tenant

VMC_APP_PORT & VCAP_SERVICES

Cloud Foundry In Action

Follow Along

http://studios.cloudfoundry.com/erlang

Getting Started

- Signup for account https://my.cloudfoundry.com/signup
- Find a good project to push. Checkout http://github.com/cloudfoundry-samples

Register / Sign In
search
CLOUD FOUNDRY BETA
DEPLOY & SCALE YOUR APPLICATIONS IN SECONDS
Get Started
Get Involved
Partners
Blog
About
Sign up for Cloud Foundry
Email
Promo Code (optional)
Register for a free CloudFoundry.com account. CloudFoundry.com is a public instance of Cloud Foundry operated by VMware.
With a few simple steps you will be able to deploy and scale Spring/Java, Grails, Ruby on Rails, Sinatra, Scala and Node.js applications while leveraging a variety of services including vFabric Postgres, vFabric RabbitMQ, MongoDB, MySQL and Redis. Visit our Getting Started section to learn more.
VMware Cloud Foundry Terms of Service
Thank you for using Cloud Foundry. By using the Cloud Foundry service and any related software (collectively the "Service"), you ("You") accept and agree to be bound by the following terms and conditions (the "Agreement"). IF YOU ARE ENTERING INTO THIS AGREEMENT ON BEHALF OF A COMPANY OR OTHER LEGAL ENTITY, YOU REPRESENT THAT YOU HAVE THE AUTHORITY TO BIND SUCH ENTITY TO THESE TERMS AND CONDITIONS, IN WHICH CASE THE TERMS "YOU" OR "YOUR" SHALL REFER TO SUCH ENTITY. IF YOU DO NOT HAVE SUCH AUTHORITY, OR IF YOU DO NOT AGREE WITH THESE TERMS AND CONDITIONS, YOU MUST NOT ACCEPT THIS AGREEMENT AND MAY NOT USE THE SERVICE.
I have read and agree to the Terms of Service

Promo code: HACK

VMC Basics

Install the CLI for Cloud Foundry called VMC. Its packaged as a Ruby gem.

```
sudo gem install vmc --pre
```

Log into cloudfoundry.com or any other cloudfoundry instance

```
vmc target api.cloudfoundry.com
vmc login [username]
```

Push the code to the cloud

```
vmc push
```

It is very easy to learn vmc. To get a list of all functions

```
vmc help
```

Try VMC now

Fork the sinatra-cloudfoundry-basic-website repo on GitHub

Clone it to your machine

```
git clone git@github.com:<your_name>/sinatra-cloudfoundry-basic-website.git mycf
```

Package the gems

```
cd mycf
bundle install;bundle package
```

Push the application

```
vmc push --runtime=ruby19
```

Simple Push

Pushing without binding any services. In this example the app name picked is my name

```
Would you like to deploy from the current directory? [Yn]: Y
Application Name: monicawilkinson
Detected a Sinatra Application, is this correct? [Yn]:
Application Deployed URL [monicawilkinson.cloudfoundry.com]:
Memory reservation (128M, 256M, 512M, 1G, 2G) [128M]:
How many instances? [1]:
Bind existing services to 'monicawilkinson'? [yN]:
Create services to bind to 'monicawilkinson'? [yN]:
Would you like to save this configuration? [yN]:
Creating Application: OK
Uploading Application:
  Checking for available resources: OK
  Processing resources: OK
  Packing application: OK
  Uploading (1K): OK

Push Status: OK
Staging Application 'monicawilkinson': OK
Starting Application 'monicawilkinson': OK
```

Runtimes

To list all the runtimes supported on your Cloud Foundry Instance do

```
vmc runtimes
```

CloudFoundry.com currently supports

- Ruby 1.8.7 (default)
- Ruby 1.9.2
- Java 6 1.6
- Node 0.4.12 (default)
- Node 0.6.8

It is easy to target a different runtime on Cloud Foundry

Just do

```
vmc push --runtime=ruby19
```

OR

```
vmc push --runtime=node06
```

Frameworks

Sinatra

Rails 3

Rack

Scala/Lift

NodeJS

Grails

Spring

Java Web

App Management using VMC

List, Push, Update and Delete Applications

```
vmc apps
vmc push
vmc update <app_name>
vmc delete <app_name>
```

Start/Restart/Stop Applications

```
vmc start <app_name>
vmc restart <app_name>
vmc stop <app_name>
```

View logs and crashlogs for applications

```
vmc logs <app_name>
```

Updating Apps with VMC

Update the source code

```
vmc update <app_name>
```

Change the memory allocation for the app

```
vmc mem <app_name> 128M
```

Increase/Decrease the running instances

```
vmc instances <app_name> 3
vmc instances <app_name> -1
```

Map/Unmap urls

```
vmc map <app_name> <url>
```

List/Add/Remove environment variables

```
vmc env <app_name>
vmc env-add <app_name> name=val
```

VMC Tips

- Use Ruby Version Manager (RVM)
- You can do `vmc -v` to see which version of vmc you have installed
- To get the latest version of vmc `sudo gem install vmc --pre`
- When pushing an app specify `--runtime` to use `ruby19`

- To see what each command does you can pass the flag `-t` and see the HTTP requests including pretty print JSON

```
$ vmc stats monicawilkinson -t

REQUEST: get http://api.cloudfoundry.com/apps/monicawilkinson/stats
RESPONSE_HEADERS:
server : nginx
date : Wed, 28 Mar 2012 21:30:17 GMT
content_type : application/json; charset=utf-8
transfer_encoding : chunked
connection : keep-alive
keep_alive : timeout=20
etag : "ba258b4f34fc46bb01fa2dfc83a1abbe"
cache_control : max-age=0, private, must-revalidate
x_ua_compatible : IE=Edge,chrome=1
x_vcap_backend : 172.30.49.6:9022
x_vcap_router : 172.30.49.23
RESPONSE: [200]
{
"0": {
"state": "RUNNING",
"stats": {
  "name": "monicawilkinson",
```

```
      "host": "172.30.50.1",
      "port": 46307,
      "uris": [
        "monicawilkinson.cloudfoundry.com"
      ],
      "uptime": 464.546387075,
      "mem_quota": 134217728,
      "disk_quota": 2147483648,
      "fds_quota": 256,
      "cores": 4,
      "usage": {
        "time": "2012-03-28 21:30:15 +0000",
        "cpu": 0.0,
        "mem": 22228.0,
        "disk": 11444224
      }
    }
    },
    "2": {
    "state": "RUNNING",
    "stats": {
      "name": "monicawilkinson",
      "host": "172.30.49.90",
      "port": 1133,
      "uris": [
        "monicawilkinson.cloudfoundry.com"
      ],
      "uptime": 9.664442174,
      "mem_quota": 134217728,
      "disk_quota": 2147483648,
      "fds_quota": 256,
      "cores": 4,
      "usage": {
        "time": "2012-03-28 21:30:16 +0000",
        "cpu": 3.9000000000000004,
        "mem": 22256.0,
        "disk": 11444224
      }
```

```
}
},
"1": {
"state": "RUNNING",
"stats": {
  "name": "monicawilkinson",
  "host": "172.30.50.23",
  "port": 11363,
  "uris": [
    "monicawilkinson.cloudfoundry.com"
  ],
  "uptime": 9.737121975,
  "mem_quota": 134217728,
  "disk_quota": 2147483648,
  "fds_quota": 256,
  "cores": 4,
  "usage": {
    "time": "2012-03-28 21:30:16 +0000",
    "cpu": 4.1000000000000005,
    "mem": 22248.0,
    "disk": 11444224
  }
}
}
}
```

Micro Cloud Foundry

- Cloud on a stick. Alternative to local environment
- Miniature version of platform running cloudfoundry.com
- Supports offline mode

Steps

```
vmc target api.[name].cloudfoundry.me

vmc register [email]

vmc login [email]
```

Offline requires 0.3.16.beta.4 or higher

About our Cloud Foundry Services

On CloudFoundry.com and Micro Cloud Foundry

- MySQL
- PostrgeSQL
- Redis
- MongoDB
- RabbitMQ

Community contributed

- neo4j

MySQL

- World's most used RDBMS
- Open source
- Used by Flickr, Nokia.com, YouTube, Wikipedia, Google, Facebook and Twitter
- *Cloud Foundry supports version 5.1*

Learn more at: http://www.mysql.com/

PostgreSQL

- PostgreSQL is ORDBMS
- SQL:2008 standard
- ACID-compliant
- Fully transactional (including all DDL statements)
- Extensible data types, operators, and indexes
- Large number of extensions written by third parties.
- *Cloud Foundry supports version 9.0*

MongoDB

- No-SQL database
- Stores JSON-style documents
- Horizontally scalable
- Full Indexing Support
- Open Source
- Great Community
- *Cloud Foundry Supports version 1.8*

Learn more at: http://www.mongodb.org/

Redis

- Redis is an open source, advanced key-value store
- Redis has support for Pub/Sub
- Keys can contain strings, hashes, lists, sets and sorted sets
- Redis is Open Source
- *Cloud Foundry Supports version 2.2*

Learn more at: http://redis.io/

RabbitMQ

- Open source message broker software
- Uses the standard Advanced Message Queuing Protocol (AMQP).
- The RabbitMQ server is written in Erlang and is built on the Open Telecom Platform framework for clustering and failover.
- *Cloud Foundry Supports version2.4*

Erlang Demo

Slides

http://studios.cloudfoundry.com/erlang

Questions ?