RubyWorld 2011

Cloud Foundry

Why Ruby, and will it last?

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Agenda

- What is Cloud Foundry?
- Why Ruby?
- The Business of Cloud Foundry
- Challenges and Ruby's future

What is Cloud Foundry?

The Open Platform as a Service

What is PaaS?

Or more specifically,
aPaaS?

aPaaS

- Application Platform as a Service
- Applications and Services
- Not VMs, Memory, Storage, Networks, CPU

What is OpenPaaS?

OpenPaaS

- Multi-Language
- Multi-Framework
- Multi-Services
- Multi-Cloud, Multi-IaaS
- Hybrid - Public or Private or Both
- **OpenSource**

OpenPaaS

- Multi-Language
  - Java, Scala, Ruby, Node, Erlang, Python, PHP..
- Multi-Framework
  - Spring, Grails, Express, Rails, Lift, MochiWeb
- Multi-Services
  - MySQL, Postgres, MongoDB, Redis, RabbitMQ
- Multi-Cloud, Multi-IaaS
  - vSphere, MicroCloud, OpenStack, AWS, Eucalyptus

The Open PaaS

spring GRAILS Java

Scala

RAILS

nodeJS .js

Data Services

Messaging Services

Other Services

Application Service Interface

CLOUD FOUNDRY™

Cloud Provider Interface

Private Clouds

Public Clouds

Micro Clouds

What was our Goal?

- Raise the unit of currency to be the application and its associated services, not the infrastructure
- Best of breed delivery platform for all modern applications and frameworks
- Favor Choice and Openness
- Simplicity and Speed

How was it Built?

- Kernel (CloudFoundry OSS)
  - Core PaaS System
- Kernel and Orchestrator Shells
  - Layered on top of IaaS
- Orchestrator
  - Creation, management and orchestration of IaaS

High Level

Clients (VMC, STS, Browser)

CF Kernel

Orchestrator / IaaS

Hardware - CPU/Memory/Disk/Network

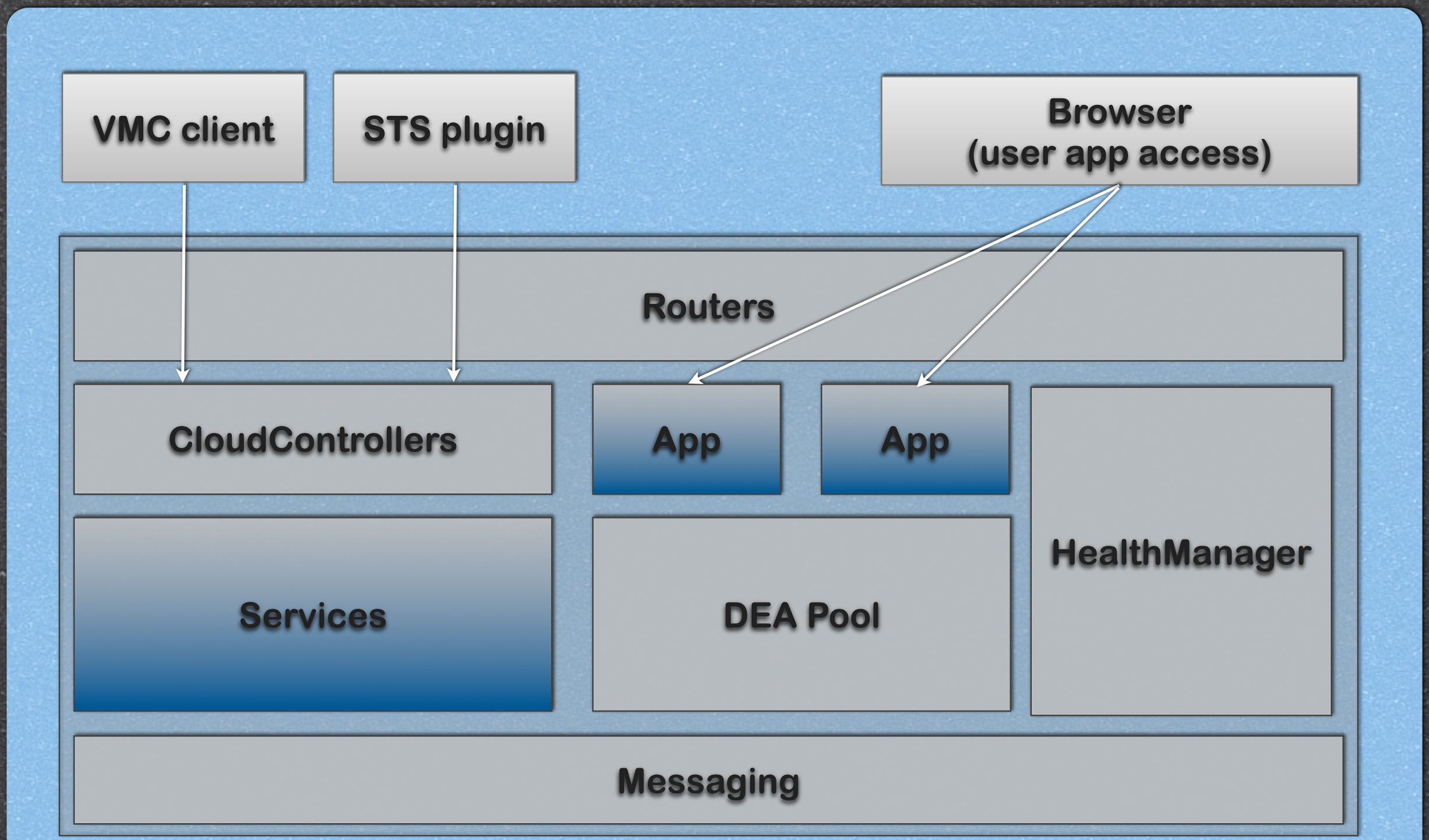
Basic Premises

- Fail Fast
- Self Healing
- Horizontally Scalable Components
- Distributed state, No single point of failure
- Should be as simple as possible

Basic Patterns

- Event-Driven
- Asynchronous
- Non-blocking
- Independent, Idempotent
- Message Passing
- Eventually Consistent

Logical View



All built with Ruby 1.9!

But why Ruby?

Why Ruby?

- Amazing language
- Allows productivity and rapid iteration
- Utilized EventMachine for Async Patterns
- Ruby 1.9 Fibers
- Language performance is not always key
- All components are independent

Kernel and Orchestrator

- Both built using Ruby 1.9
- Kernel does have some performance issues
- Orchestrator, Chef, Puppet
  - Ruby is a great language for cloud management

How do we make Money?

The Business

- Charge for CloudFoundry.com and Services
- Enable the private enterprise PaaS Cloud
- Hybrid clouds, combining service + software

The key is the private cloud..

OpenSource is mandatory..

Many customers don't want to be thrown into the deep end of the pool!

Same Patterns Everytime

- Customers get a CF.com account and try it
- Download source code and try to build
- Try to setup a multi-node installation
- Request information on hybrid capabilities

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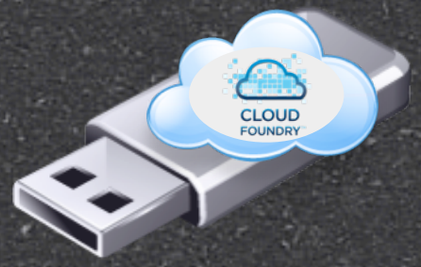
This can be hard..

Answer:MicroCloud

Full single instance CF as a downloadable VM

Available now

Micro Cloud Foundry
Cloud Foundry on a USB



Available at RubyWorld

Same Patterns Everytime

- Customers get a CF.com account and try it
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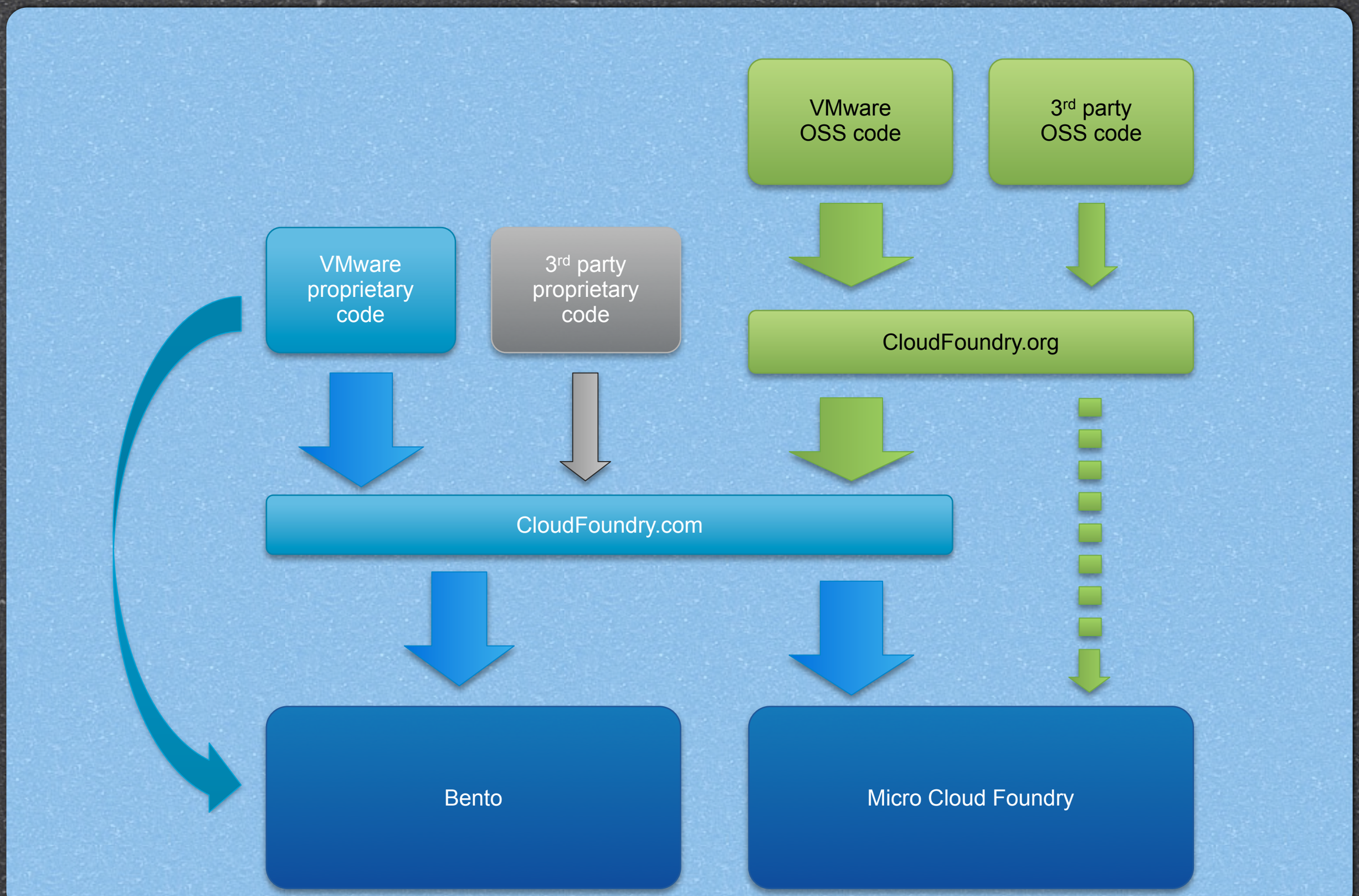
This can be even harder..

Answer: Project Bento

Fully supported private cloud version of CF

Available 2012

Cloud Foundry EcoSystem



Challenges we faced..

Did we make the right decision?

Ruby VM, Gil, GC issues

EventMachine Problems (1.9, IO skew)

Evented IO

- Event-driven programming
- Fundamental shift in thinkining, e.g. Node.js
- Does this require deeper language integration for Ruby?

Packaging
(Bundler, Gems)

Gem vs VM Choice compatibility (MRI/Yarv, JRuby, RBX)

Did we make the right decision?

YES!

But…

What does Ruby want to be when it grows up?

What is Ruby?

- Great scripting language
  - Cloud Management and Tools
- Modern Application Language
  - Mobile, Data-Centric, Web
- Cloud Systems Language

What would need to Change?

Summary

Summary

- Ruby can power large distributed systems
- Ruby can power your business
- What does Ruby want to be?
- What needs to evolve and improve?

ありがとう
Thank You!

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