Multiply With Beaker

Times Your Way To Happiness

me

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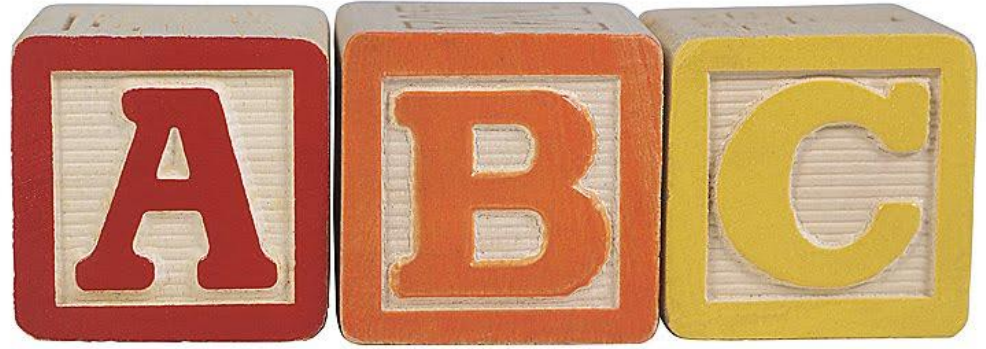anodelman (github)

what I specialize in

ensuring that we keep our promises

what's beaker?

set things on fire so that users don't get burnt

the basics

```ruby
test_name "say hello to all my hosts!"

hellos = 0
@hosts.each do |host|
  step "i'm going to stay hello to #{host}"
  on host, 'echo hello'
  hellos += 1
end

#make sure that i've been polite!
assert_equal(hellos, hosts.length, \
            "#{hellos} <> #{hosts.length}")
```

what you see in the console

```
Begin tests/confirm.rb

say hello to all my hosts!

  * i'm going to stay hello to pe-ubuntu-lucid

pe-ubuntu-lucid 11:09:10$ echo hello
Created ssh connection to pe-ubuntu-lucid, user: root, opts: {:config=>false, :paranoid=>false, :timeout=>300, :auth
_methods=>["publickey"], :port=>22, :forward_agent=>true, :keys=>["/Users/anode/.ssh/id_rsa"], :user_known_hosts_fil
e=>"/Users/anode/.ssh/known_hosts", :user=>"root"}
hello

pe-ubuntu-lucid executed in 0.69 seconds

  * i'm going to stay hello to pe-centos6

pe-centos6 11:09:11$ echo hello
Created ssh connection to pe-centos6, user: root, opts: {:config=>false, :paranoid=>false, :timeout=>300, :auth_meth
ods=>["publickey"], :port=>22, :forward_agent=>true, :keys=>["/Users/anode/.ssh/id_rsa"], :user_known_hosts_file=>"/
Users/anode/.ssh/known_hosts", :user=>"root"}
hello
```

console summary

```
Test Suite: tests @ 2015-01-05 11:09:10 -0800

- Host Configuration Summary -


          - Test Case Summary for suite 'tests' -
  Total Suite Time: 0.83 seconds
 Average Test Time: 0.83 seconds
          Attempted: 1
             Passed: 1
             Failed: 0
            Errored: 0
            Skipped: 0
            Pending: 0
              Total: 1
```

Beaker Puppet Labs Automated Acceptance Testing System

Elapsed Time: 3278.00423 sec

Total: 268   Failed: 0   Skipped: 48   Pendi

pre_suite	Elapsed Time: 86.39030 sec		
	Total: 4	Failed: 0	Skipped: 0	Pending: 0

tests	Elapsed Time: 3191.61392 sec		
	Total: 264	Failed: 0	Skipped: 48	Pending: 1

Properties

agent_disable_lockfile.rb

Path: tests/agent/agent_disable_lockfile.rb   Elapsed Time: 35.45660 sec

what beaker can't do

nobody's perfect

- GUI
- threading
- orchestration

what beaker can do

write once, run everywhere

- multi-node
- multi-platform
- multi-cloud

beaker in CI

- puppet (266 on 3.7.5)
- puppetdb (29 tests on stable)
- PE (45 tests)
- modules! (1399 for supported modules)
- other (1304)

dive in!

```ruby
test_name "RCSQE Example Test"

step "Cycling through all test hosts"
hosts.each do |host|
  step "creating tmp file on #{host}"
  my_tmp = host.tmpfile('my_tmp')
  if not host.file_exist?(my_tmp)
    put "Failed to create temporary file on #{host}"
  end
  step "discovering ip on #{host}"
  my_ip = host.ip
  puts "#{host} (#{host[:platform]}) has ip #{my_ip}"
end
step "Completed"
```
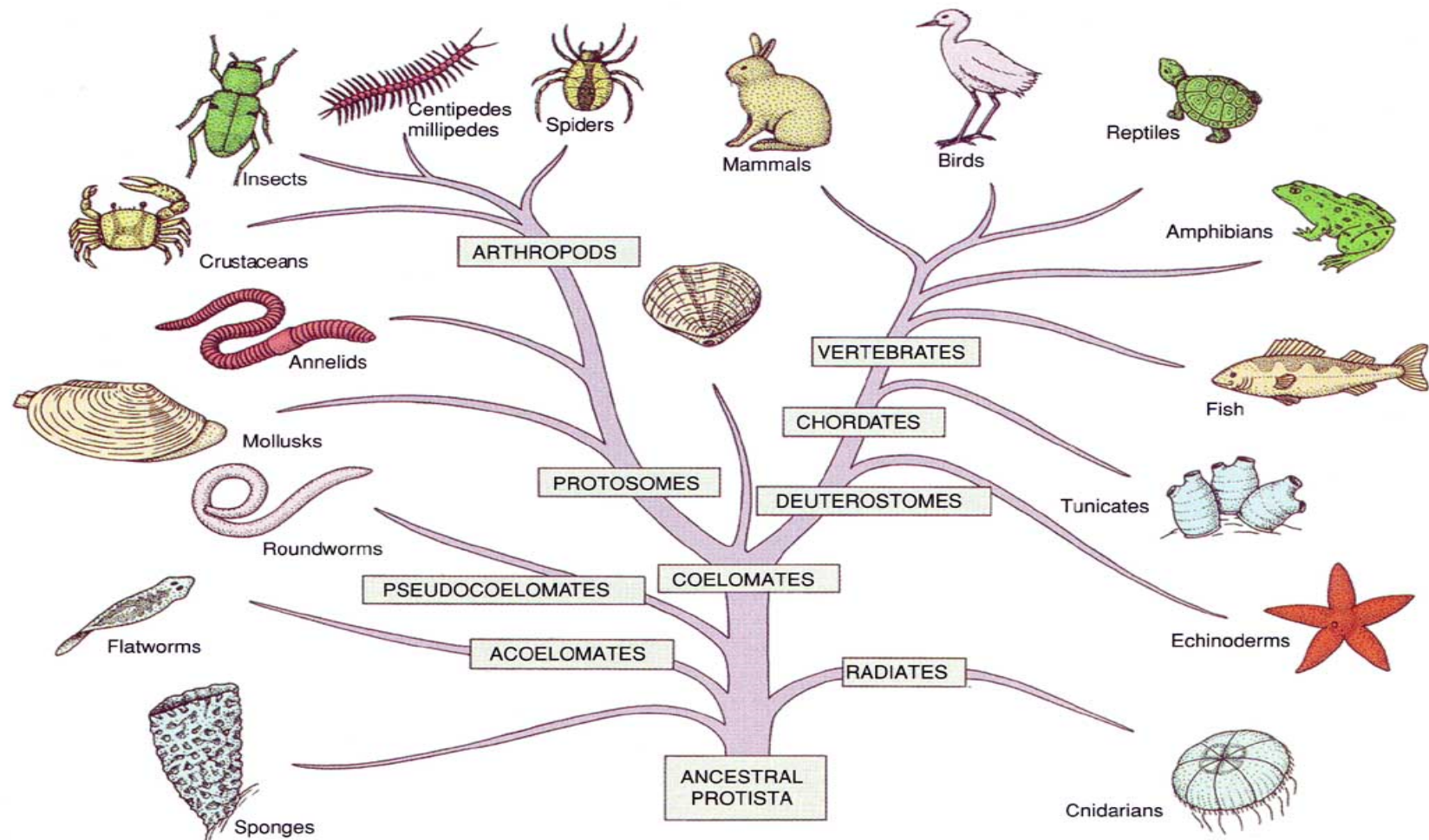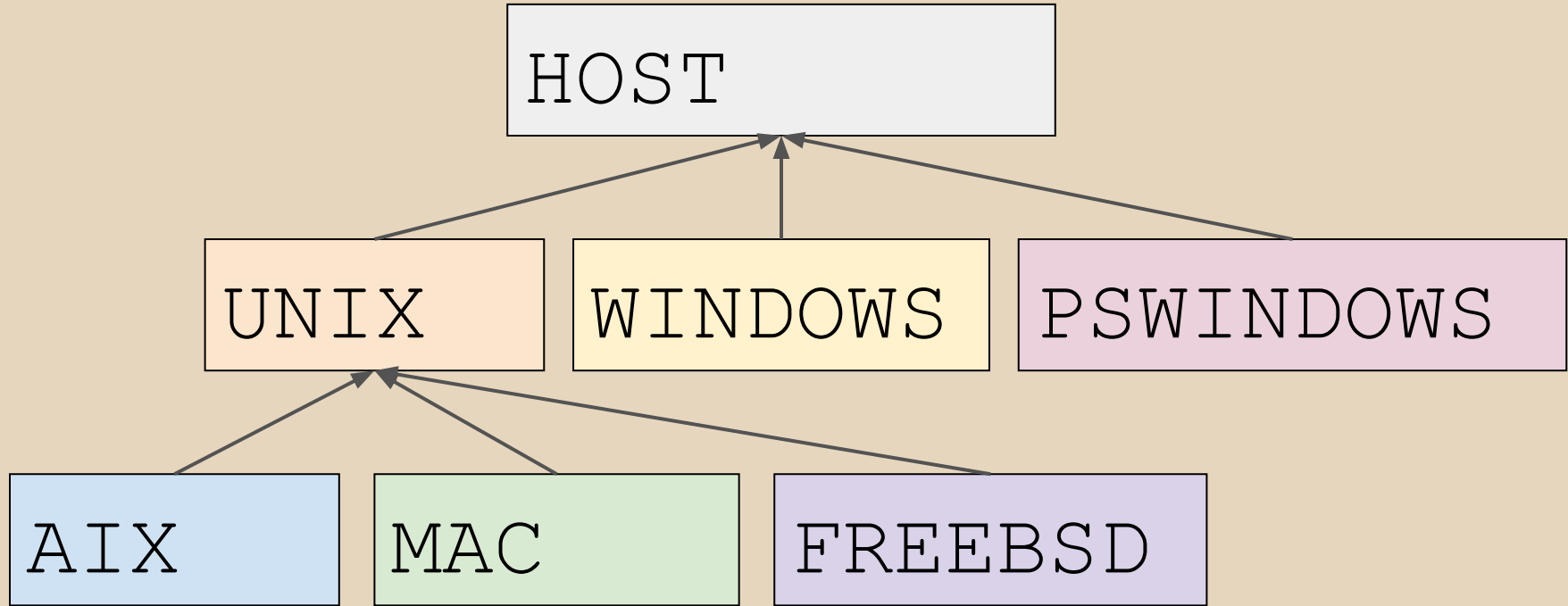
Insects

Centipedes millipedes

Spiders

Mammals

Birds

Reptiles

Crustaceans

ARTHROPODS

Amphibians

Annelids

VERTEBRATES

Mollusks

CHORDATES

Fish

PROTOSOMES

DEUTEROSTOMES

Tunicates

Roundworms

COELOMATES

PSEUDOCOELOMATES

Flatworms

ACOELOMATES

Echinoderms

RADIATES

Sponges

ANCESTRAL PROTISTA

Cnidarians

basics of host object inheritance

HOST	`host.ip`

| WINDOWS | → | `ipconfig` |

| PSWINDOWS | → | `ipconfig` |

| UNIX | → | `ip or ifconfig (oops!)` |

FREEBSD

MAC

| AIX | → | `ifconfig` |
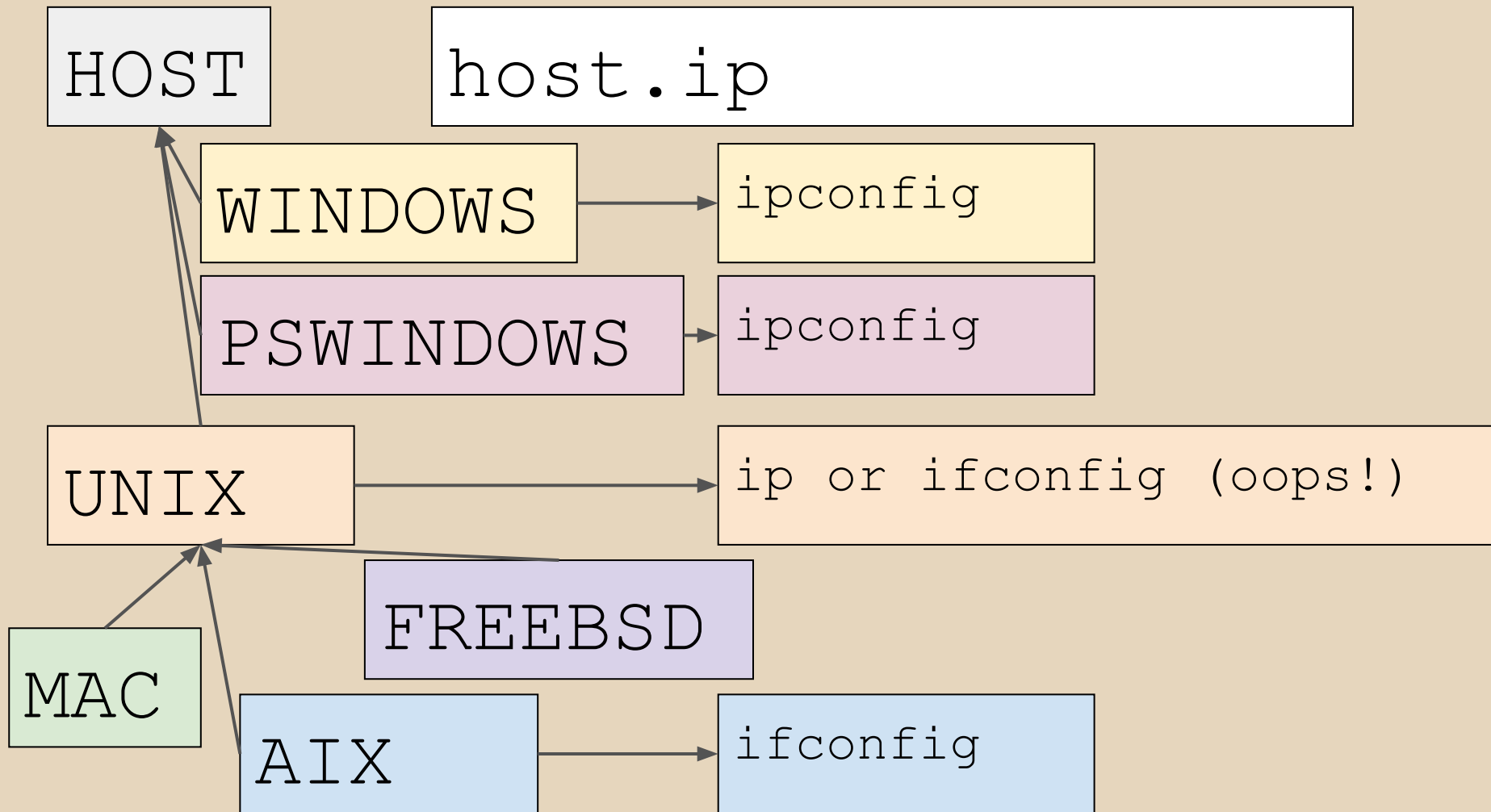
```
HOSTS:
  pe-centos6:
    roles:
      - master
      - agent
      - dashboard
      - database
    platform: el-6-i386
    snapshot : clean-w-keys
    hypervisor : fusion
  w2k8r2:
    roles:
      - agent
    platform: windows-2008r2-x86_64
    snapshot : clean-w-keys
    hypervisor : fusion
```

platform string to object

osx centos fedora debian oracle redhat
scientific sles ubuntu windows solaris aix
el eos cumulus

```ruby
def self.create name, options
  case options['HOSTS'][name]['platform']
  when /windows/
    cygwin = options['HOSTS'][name]['is_cygwin']
    if cygwin.nil? or cygwin == true
      Windows::Host.new name, options
    else
      PSWindows::Host.new name, options
    end
  when /aix/
    Aix::Host.new name, options
  when /osx/
    Mac::Host.new name, options
  else
    Unix::Host.new name, options
  end
end
```

```
test_name "RCSQE Example Test"

step "Cycling through all test hosts"
hosts.each do |host|
  step "creating tmp file on #{host}"
  my_tmp = host.tmpfile('my_tmp')
  if not host.file_exist?(my_tmp)
    put "Failed to create temporary file on #{host}"
  end
  step "discovering ip on #{host}"
  my_ip = host.ip
  puts "#{host} (#{host[:platform]}) has ip #{my_ip}"
end
step "Completed"
```

```
    * discovering ip on w2k3r2

w2k3r2 13:36:42$ ipconfig | grep -i 'IP Address' | cut -d: -f2 | head -1
 172.16.146.129

w2k3r2 executed in 0.16 seconds
w2k3r2 (windows-2003r2-x86_64) has ip 172.16.146.129

    * creating tmp file on pe-ubuntu-lucid

pe-ubuntu-lucid 13:36:42$ mktemp -t my_tmp.XXXXXX
/tmp/my_tmp.955RTW

pe-ubuntu-lucid executed in 0.01 seconds

pe-ubuntu-lucid 13:36:42$ test -e /tmp/my_tmp.955RTW

pe-ubuntu-lucid executed in 0.00 seconds

    * discovering ip on pe-ubuntu-lucid

pe-ubuntu-lucid 13:36:42$ ip a|awk '/global/{print$2}' | cut -d/ -f1 | head -1
172.16.146.130
```

so where are the hosts?

the hypervisor object

"A hypervisor or virtual machine monitor (VMM) is a piece of computer software, firmware or hardware that creates and runs virtual machines."

HYPERVISOR

HOSTS

WINDOWS

UNIX

UNIX

MAC

HYPERVISOR

OPENSTACK

VCLOUD

VPOOLER

DOCKER

FUSION

EC2

GOOGLE

AIX

VSPHERE

SOLARIS

NONE

VAGRANT

VAGRANTLIBVIRT

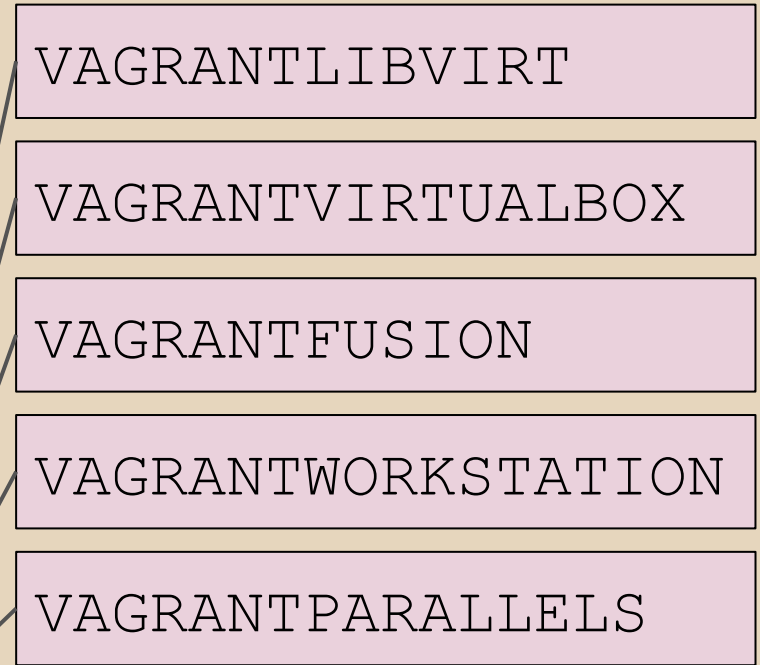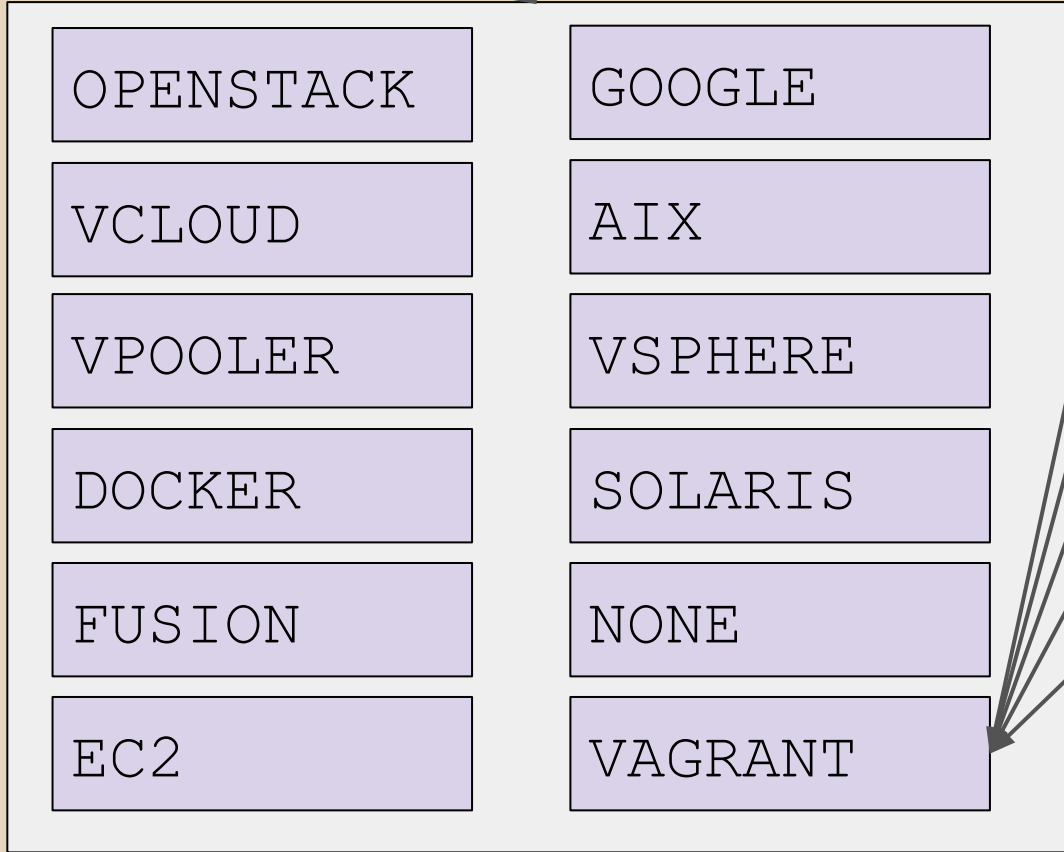VAGRANTVIRTUALBOX

VAGRANTFUSION

VAGRANTWORKSTATION

VAGRANTPARALLELS

```ruby
module Beaker
  class New < Beaker::Hypervisor

    def initialize(new_hosts, options)
      @options = options
      @logger = options[:logger]
      @hosts = new_hosts
    end


    def provision
      # create your hosts here, once this is complete
      # it assumed that you can log in by hostname or vmname or ip
    end

    # OPTIONAL - override if you have special actions here
    #def configure
    #end

    # OPTIONAL - override if you have special actions here
    #def validate
    #end

    def cleanup
      # cleanup hosts here
    end

  end
end
```

FUSION

HOSTS

- WINDOWS
- UNIX
- UNIX
- MAC

VAGRANT

HOSTS

- UNIX
- UNIX

NetworkManager object

manages your hypervisor objects

NETWORKMANAGER

FUSION

HOSTS

WINDOWS

UNIX

UNIX

MAC

VAGRANT

HOSTS

UNIX

UNIX

hypervisor string to object

it's in the hosts file!

ec2

```
HOSTS:
  centos-5-64-1:
    roles:
      - master
      - dashboard
      - database
      - agent
    vmname: centos-5-x86-64-west
    platform: el-5-x86_64
    hypervisor: ec2
    amisize: c1.medium
    snapshot: pe
```

GCE

```
HOSTS:
    centos-6-master:
        roles:
            - master
            - agent
            - database
            - dashboard
        image: centos-6-x86_64
        platform: el-6-x86_64
        hypervisor: google
```

vagrant

```
HOSTS:
  centos-65-x64:
    roles:
      - master
    platform: el-6-x86_64
    box: puppetlabs/centos-6.5-64-nocm
    box_url: https://vagrantcloud.com/puppetlabs/boxes/centos-6.5-64-nocm
    hypervisor: vagrant
```

fusion

```
HOSTS:
  pe-centos6:
    roles:
      - master
      - agent
      - dashboard
      - database
      - myrole
    platform: el-6-x86_64
    snapshot : clean-w-keys
    hypervisor : fusion
```

secrets

~/.fog

example execution

```
$ beaker --hosts rcsqe.yaml --tests tests/rcsqe.rb
```

```ruby
test_name "RCSQE Example Test"

step "Cycling through all test hosts"
hosts.each do |host|
  step "creating tmp file on #{host}"
  my_tmp = host.tmpfile('my_tmp')
  if not host.file_exist?(my_tmp)
    put "Failed to create temporary file on #{host}"
  end
  step "discovering ip on #{host}"
  my_ip = host.ip
  puts "#{host} (#{host[:platform]}) has ip #{my_ip}"
end
step "Completed"
```

write once, run everywhere

tests have **no** reference to platform

tests have **no** reference to virtualization

Resources

[Beaker Code](#)

[Beaker Wiki](#)

[Beaker DSL](#)

[Pretty Beaker Junit Output](#)

[Beaker Google Group](#)

[Beaker JIRA Bugs](#)