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OPS-CSM3045

# How to Run Amazon Web Services Workloads on Your VMware vCloud®

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#vmworldops

# Disclaimer

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- **This session may contain product features that are currently under development.**
- **This session/overview of the new technology represents no commitment from VMware to deliver these features in any generally available product.**
- **Features are subject to change, and must not be included in contracts, purchase orders, or sales agreements of any kind.**
- **Technical feasibility and market demand will affect final delivery.**
- **Pricing and packaging for any new technologies or features discussed or presented have not been determined.**

# What You Will Learn

- How to map AWS concepts to vCloud
- All about Cinderella, an open source toolset to allow AWS applications to run on your vCloud
- Why vCloud is no fun: AWS tricks you no longer need to do
- How to find a vCloud provider

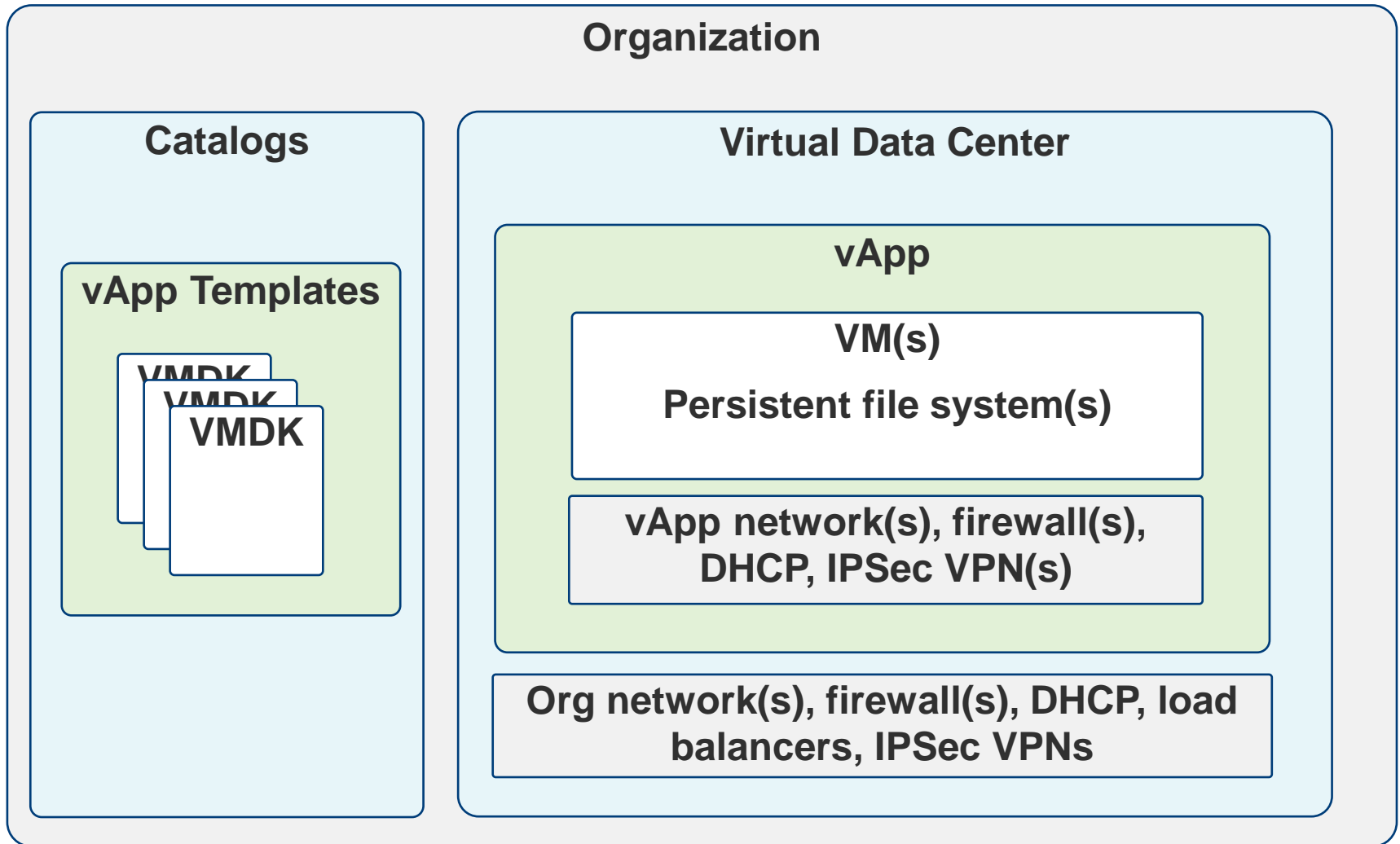
## Adrian Cole

- Founder, jclouds.org
- @jclouds and @adrianfcoble on Twitter

## Mathew Lodge

- VP, Product management & marketing
- Run cloud service provider stuff at VMware
- @mathewlodge on Twitter

# The World of vCloud



# Mapping AWS to vCloud: The Basics

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AMIs



Instances



EBS  
Elastic Block Store



S3  
Simple Storage Service



VMDK or OVA file



VMs



VM boot disk /  
Independent disk (new in vCD 5.1)



vBlob

# vBlob Overview

External API – subset of S3 API

Adapter – Node.js application

Developer applications talk to vBlob host:port via S3 API

Backing Storage Options



Amazon S3

Can be configured with vBlob property file



File System  
Local disk, NFS, etc.

Default storage mechanism expected for most vBlob users

Pluggable Storage Driver layer could support other backend storage options

# Mapping AWS to vCloud: Locations and Credentials



Amazon EC2 (US West - Oregon)

AWS Region



VDC

Virtual Data Center



us-west-2a

Availability Zone

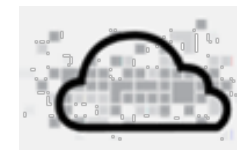


VDC

Virtual Data Center



Key pairs



Stored in vBlob



# Mapping AWS to vCloud: Networking



Elastic IP addresses



IP address pool and  
Static NAT



ELB  
Elastic Load Balancer



Load balancer  
(Part of Edge Gateway in 5.1)



VPC  
(Virtual Private Cloud)



IPSec VPN Service  
(Part of Edge Gateway)



Security Groups



VDC NAT routed networks  
with Firewall service

# Storage Differences

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## EBS-backed EC2 instances

- All vCloud VMs are backed by persistent storage

## EC2 instances with ephemeral storage

- No ephemeral storage in vCloud
- Just use VMs with persistent storage

## Detachable storage

- New in VMware vCloud® Director® 5.1

# Fixed Instance Sizes Not Required In vCloud

## Small Instance – default++

1.7 GB memory  
1 EC2 Compute Unit (1 virtual core with 1 EC2 Compute Unit)  
160 GB instance storage  
32-bit or 64-bit platform  
I/O Performance: Moderate  
EBS-Optimized Available: No  
API name: m1.small

## Medium Instance

3.75 GB memory  
2 EC2 Compute Unit (1 virtual core with 2 EC2 Compute Unit)  
410 GB instance storage  
32-bit or 64-bit platform  
I/O Performance: Moderate  
EBS-Optimized Available: No  
API name: m1.medium

### AWS

- Fixed size images
- When “create instance” fails, you’ve reached quota

### vCloud

- Any size within the limits of quota and the cloud itself
- You can see and check your quota

# vCloud Is No Fun: Medieval Things You Don't Need To Do



## I/O Infanticide

Start a bunch of instances and find out which ones have good I/O performance; kill the rest

## Kick Out The Neighbors

Only provision instances that fill the entire physical server



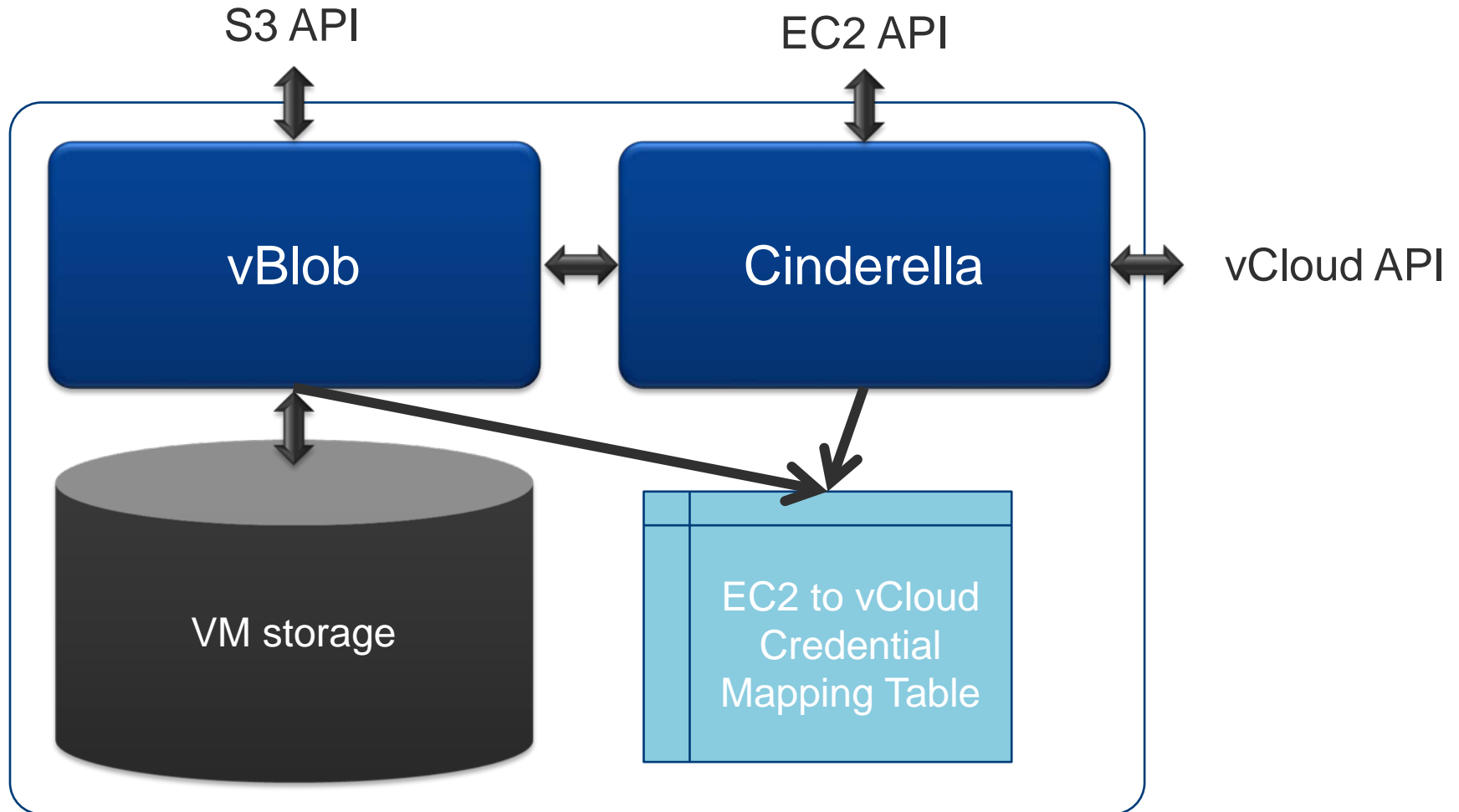
## Raise An Army

Run more instances than you need because some of them will randomly hang / die

## Magic EBS Tricks

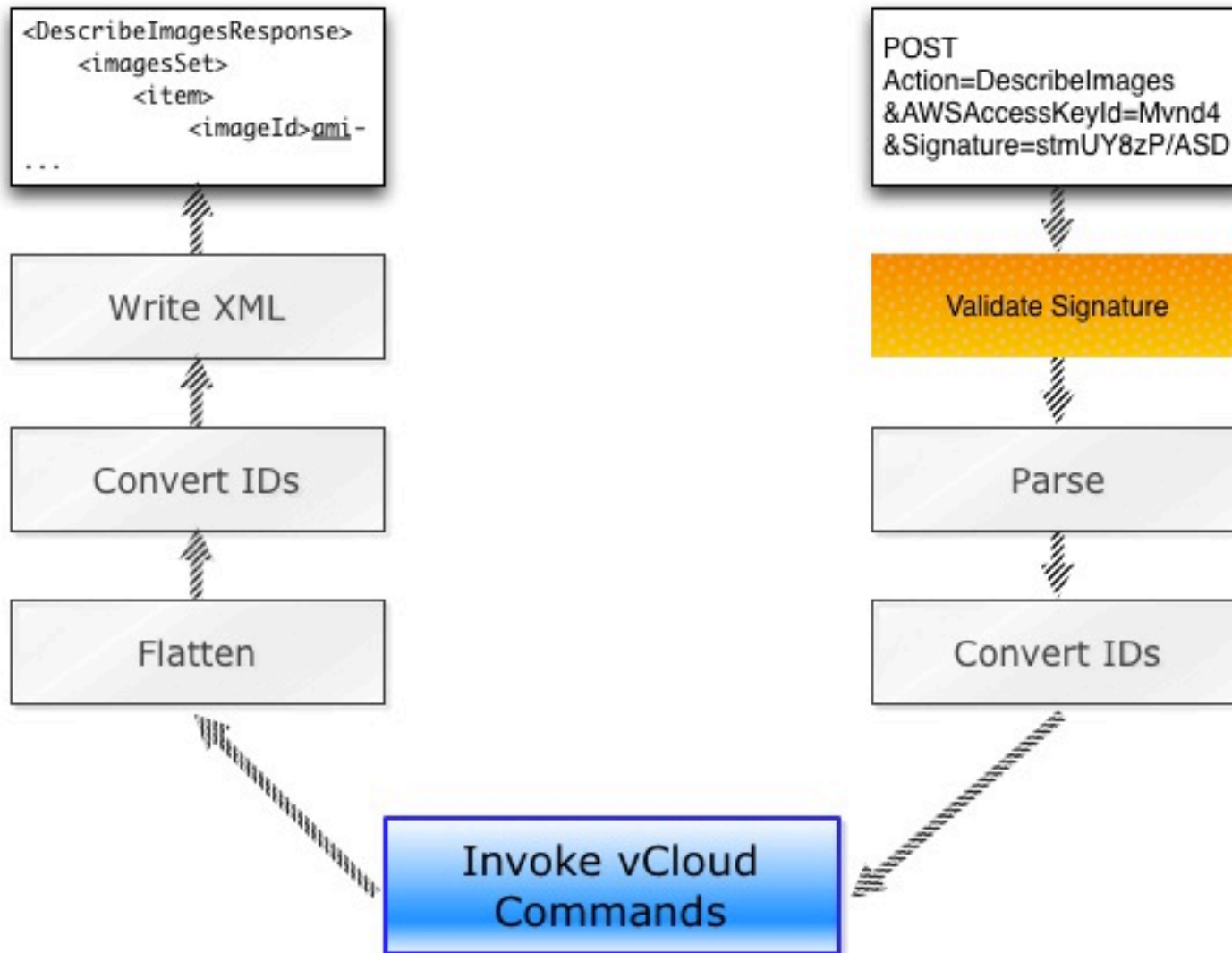
RAID 10 to improve performance; allocate 10% more than you need; or don't use at all

# Cinderella High Level Block Diagram



<http://cinderella.io>

## In More Detail



# Cinderella Demo

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1. Log into vCloud Service Evaluation
2. Show how to get Cinderella up and running
3. Compare concepts
4. Run EC2 command
5. Demonstrate S3-compatible storage

# Options To Get Your VM Onto A vCloud

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## ■ Using the Amazon VM export API

- Only works for Windows AMIs
- Only works for VMs previously imported into AWS from a VMDK

## ■ Manual export

- Linux: Copy file system, use qemu to convert to VMDK
  - <http://smashingboxes.com/convert-ec2-ami-to-vmdk-for-use-with-vagrant/>
- Windows: Run vCenter Converter on EC2 (see VMware KB 1018015)

## ■ Rebuild the VM on vCloud

- Start with Linux or Windows template
- Re-build your app on vCloud with Chef, Puppet, App Director etc.



# Project Status And Roadmap

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- **2009-10-31 EC2 API target**
  - 20 out of 50 commands mapped
- **Roadmap – next 3 months**
  - Complete other 30 commands
  - VPC – EC2 virtual private cloud
  - ELB – Elastic Load Balancer
- **Longer term**
  - Multi-tenant Cinderella
  - Improve S3 API vBlob coverage
  - Tagging
  - Placement groups
- **Items currently not in plan**
  - Cloud Formation

# How You Can Get Involved

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- Start here: <http://Cinderella.io>
- Cinderella developer mailing list:  
<https://groups.google.com/group/cinderella-dev>
- vBlob is part of Cloud Foundry developer mailing list:  
<https://groups.google.com/a/cloudfoundry.org/group/vcap-dev>

# How To Find A vCloud: vcloud.vmware.com

The screenshot shows the vcloud.vmware.com website with a modal titled "Datacenters Located in North America" open. The modal lists various service providers and their vCloud capabilities. A "TEST DRIVE" button is visible next to Bluelock. The background shows a world map and a sidebar with navigation links.

**Find a vCloud**

Choose a vCloud Service Provider from the world's largest enterprise cloud providers, providing "test drives" to scale your private and public workloads, templates, and applications.

**Datacenters Located in North America**

AT&T	vCloud Datacenter
Ayera Technologies, Inc.	vCloud Powered
Bluelock	vCloud Datacenter
Bluemile	vCloud Powered
CDW	vCloud Powered
CGI	vCloud Powered
CoreVault	vCloud Powered
CSC	vCloud Datacenter
CSC	vCloud Datacenter

[See List View](#)

Apply for a public cloud evaluation from participating vCloud Service Providers  
[Test Drive Offers](#)

VMware's valued service providers are responsible for the service provider details displayed on vcloud.vmware.com.

# Summary

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- **Core EC2 concepts have vCloud equivalents**
- **Cinderella open source project (Cinderella.io)**
  - Toolkit to translate EC2 and S3 APIs to vCloud
  - Allows a vCloud tenant to run AWS apps
- **Fundamentally an “EC2 view” of your cloud resources**
  - Quick start for those comfortable with EC2 model
  - With all the advantages that a vCloud offers
- **Get started quickly at [vcloud.vmware.com](https://vcloud.vmware.com)**
  - vCloud Service Evaluation – get started in minutes
  - Find a production vCloud service



# FILL OUT A SURVEY

**EVERY COMPLETE SURVEY  
IS ENTERED INTO  
DRAWING FOR A  
\$25 VMWARE COMPANY  
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