



# Cloud Computing

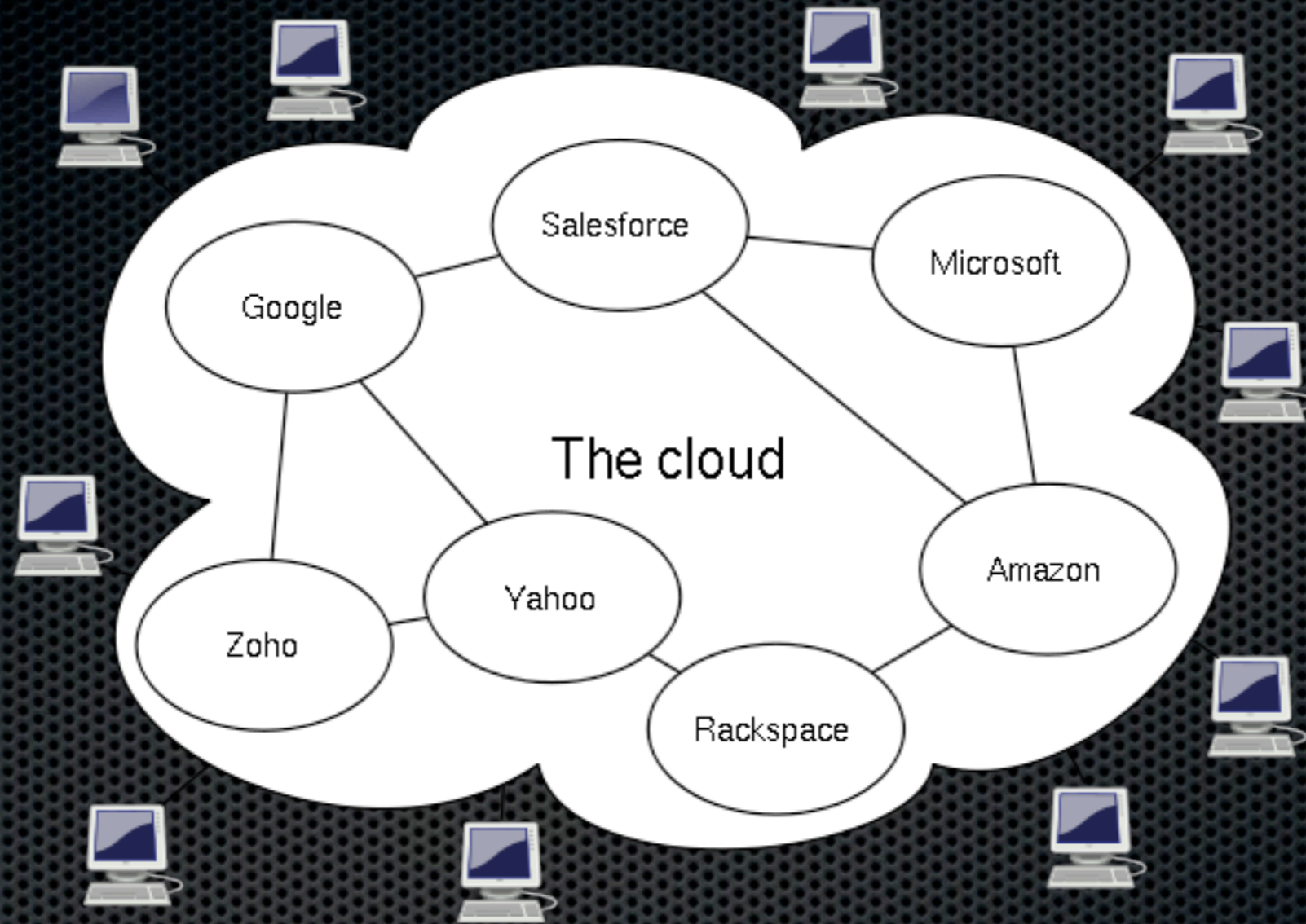
## Use Cases and Considerations

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**Founder, Cincinnati Programmers Guild**  
**Thursday, March 4th, 2010**  
**Max Technical Training, Room E**

# Cloud Computing Basics

No complete consensus definition yet. A few common features are:

- ▶ Rented infrastructure
  - Resources as a service
  - Lowered admin costs
  - Pay as you go
  - Less wasted capacity
- ▶ Simpler functions per cloud service
- ▶ Uses Web protocols to interact via API calls



# There are many clouds,

or just one Cloud, depending on how orthodox you want to be.  
Some clouds are more interconnected than others.  
Some are hybrid private / 3rd party clouds.

# Typical Cloud Components

## ▶ Storage

- many providers, unlimited capacity, no brains

## ▶ Servers

- fewer providers, quickly scalable, no meat

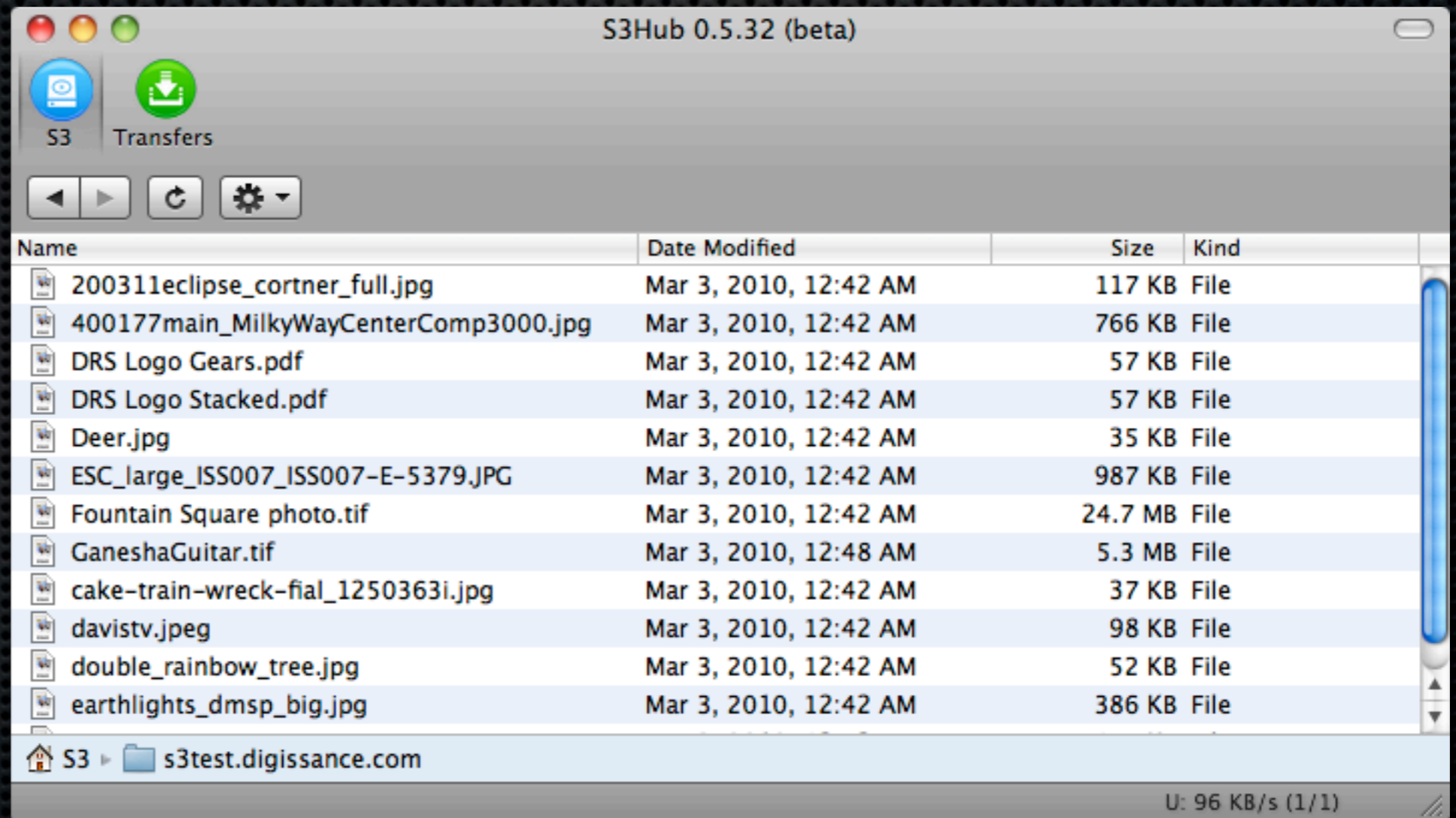
## ▶ Databases

- a few providers, omnipresent, no rhythm

# Storage Clouds

Distributed storage networks, very scalable systems with APIs, gui and web interfaces.

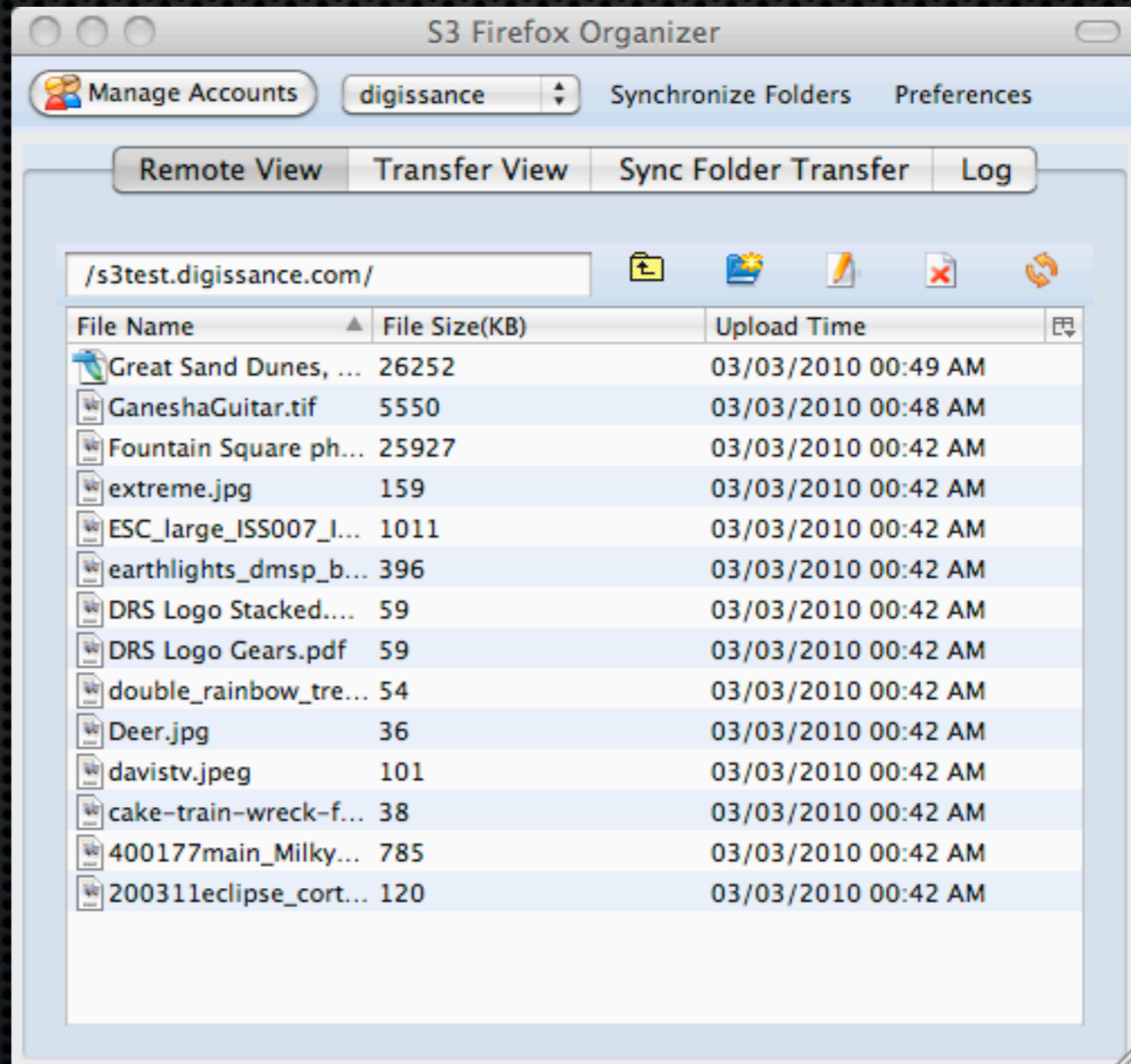
Amazon S3  
(S3Hub)



# Storage Clouds

Most provide geographic redundancy for an extra fee.

Amazon S3  
(S3Fox)



# Storage Clouds

Requires API interaction for most uses.  
Script for counting items in a bucket:

```
require 'rubygems'
require 'right_aws'

AWS_ID='id'
AWS_KEY='mykey'

s3=RightAws::S3Interface.new(AWS_ID, AWS_KEY)
count=0

buckets=s3.list_all_my_buckets.collect{|b| b[:name]}
buckets.each do |bucket_name|
  s3.incrementally_list_bucket(bucket_name) { |k|
    count += k[:contents].size
  }
end
puts count
```

# Storage Clouds

## JungleDisk (permissions)

**MY ACCOUNT**

**Account Management**

- Account/Billing Summary
- Subscriptions/Purchases
- Invoices

**Desktop Edition**

- Purchase Jungle Disk
- Jungle Disk Plus Signup
- Web Access
- Jungle Disk Plus Usage

**Workgroup Edition**

- Workgroup Edition Signup
- Master Account Setup
- Sub-Account Management
- Bucket Management
- Bucket Access Overview
- Usage Reporting

**Current User**

- scottbeta@jungledisk.com
- Logout

**Access Overview for workgroup.myjungledisk.com**

Bucket	Account	Access	Remove
<b>documents</b>			
	johndoe	Read/Write ▾	<input type="button" value="Remove"/>
	janesmith	Read ▾	<input type="button" value="Remove"/>
<b>johndoe</b>			
	johndoe	Read/Write ▾	<input type="button" value="Remove"/>
<b>new</b> (No access configured)			

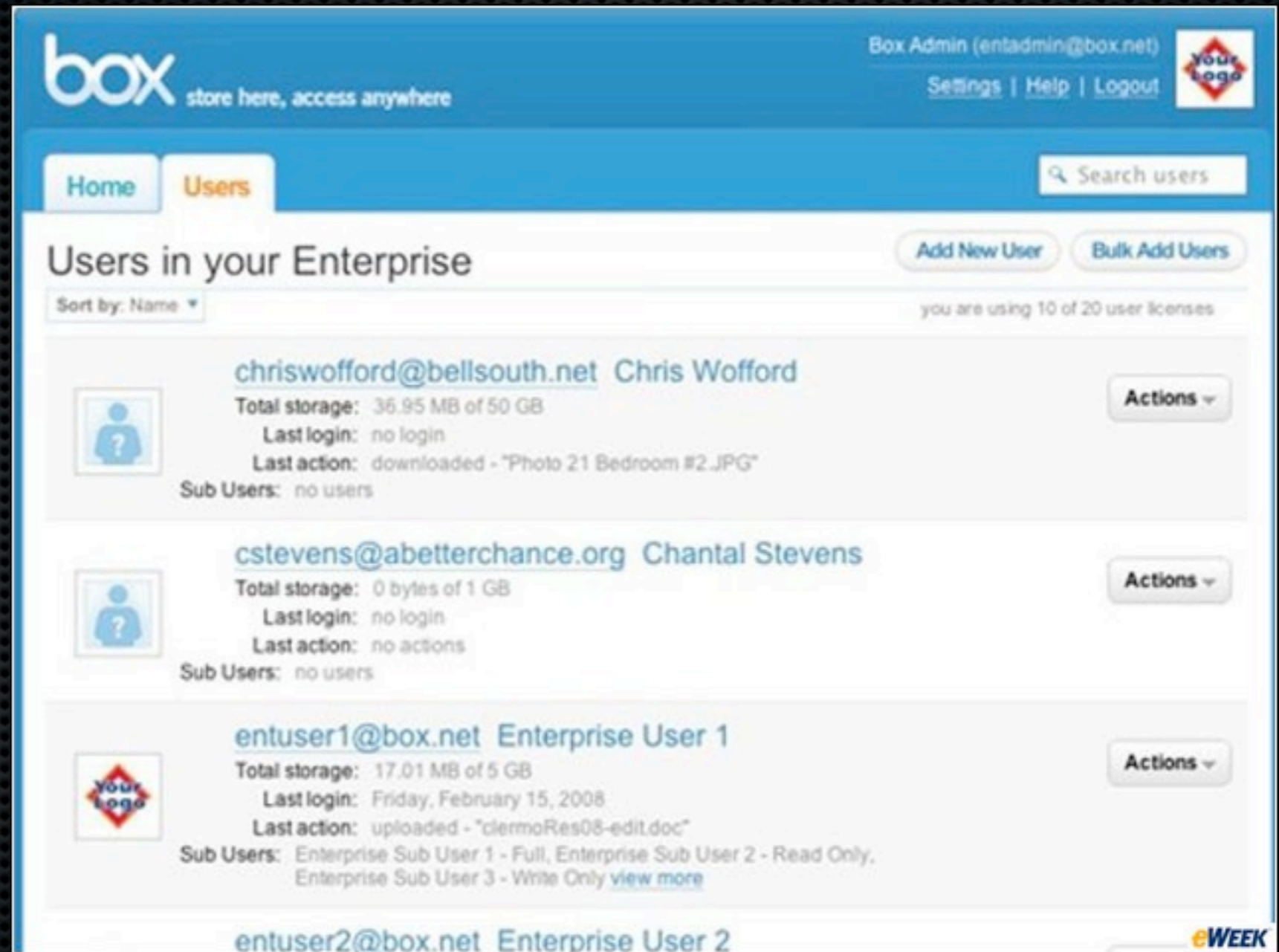
**Grant Access**

bucket:  ▾ User:  ▾ Access:  ▾

eWEEK

# Storage Clouds

box.net  
(users)



The screenshot displays the Box Admin interface for managing users. At the top, the Box logo and tagline "store here, access anywhere" are visible, along with the user "Box Admin (entadmin@box.net)" and navigation links for "Settings", "Help", and "Logout". A "Your logo" placeholder is also present. Below the navigation bar, there are tabs for "Home" and "Users", with "Users" being the active tab. A search bar labeled "Search users" is located on the right. The main heading is "Users in your Enterprise", with buttons for "Add New User" and "Bulk Add Users". A status indicator shows "you are using 10 of 20 user licenses". A dropdown menu for "Sort by: Name" is visible. The user list includes:

- chriswofford@bellsouth.net** Chris Wofford: Total storage: 36.95 MB of 50 GB, Last login: no login, Last action: downloaded - "Photo 21 Bedroom #2.JPG", Sub Users: no users.
- cstevens@abetterchance.org** Chantal Stevens: Total storage: 0 bytes of 1 GB, Last login: no login, Last action: no actions, Sub Users: no users.
- entuser1@box.net** Enterprise User 1: Total storage: 17.01 MB of 5 GB, Last login: Friday, February 15, 2008, Last action: uploaded - "clermoRes08-edit.doc", Sub Users: Enterprise Sub User 1 - Full, Enterprise Sub User 2 - Read Only, Enterprise Sub User 3 - Write Only [view more](#).
- entuser2@box.net** Enterprise User 2

The "eWEEK" logo is visible in the bottom right corner of the interface.

# Storage Clouds

## MozyPro (history)

The screenshot shows the 'History' tab of the MozyPro Remote Backup (1.8.6.2) - Configuration window. The window title is 'MozyPro Remote Backup (1.8.6.2) - Configuration'. The 'History' tab is selected, and the 'Last backup ran 23 minutes ago' message is visible. The main area contains a table with backup history and a detailed view of the selected backup.

Start Time	Type	Duration	Result	F...	Size	Files Enco...	Size Enco...	Files Transfer...	Size Transfer...
10/02/2007 03:02 PM	Manual	00:01:20	Success	48	43.9 MB	1	511.6 KB	0	0 bytes
10/02/2007 02:37 PM	Manual	00:13:14	Success	48	43.9 MB	3	41.4 MB	3	41.4 MB
10/02/2007 01:59 PM	Manual	00:01:24	Success	46	3.0 MB	0	0 bytes	0	0 bytes
10/02/2007 01:57 PM	Manual	00:01:31	Success	46	3.0 MB	1	511.6 KB	0	0 bytes
10/02/2007 01:54 PM	Manual	00:01:31	Success	46	3.0 MB	0	0 bytes	0	0 bytes
10/02/2007 01:35 PM	Manual	00:02:50	Success	46	3.0 MB	46	3.0 MB	6	3.0 MB

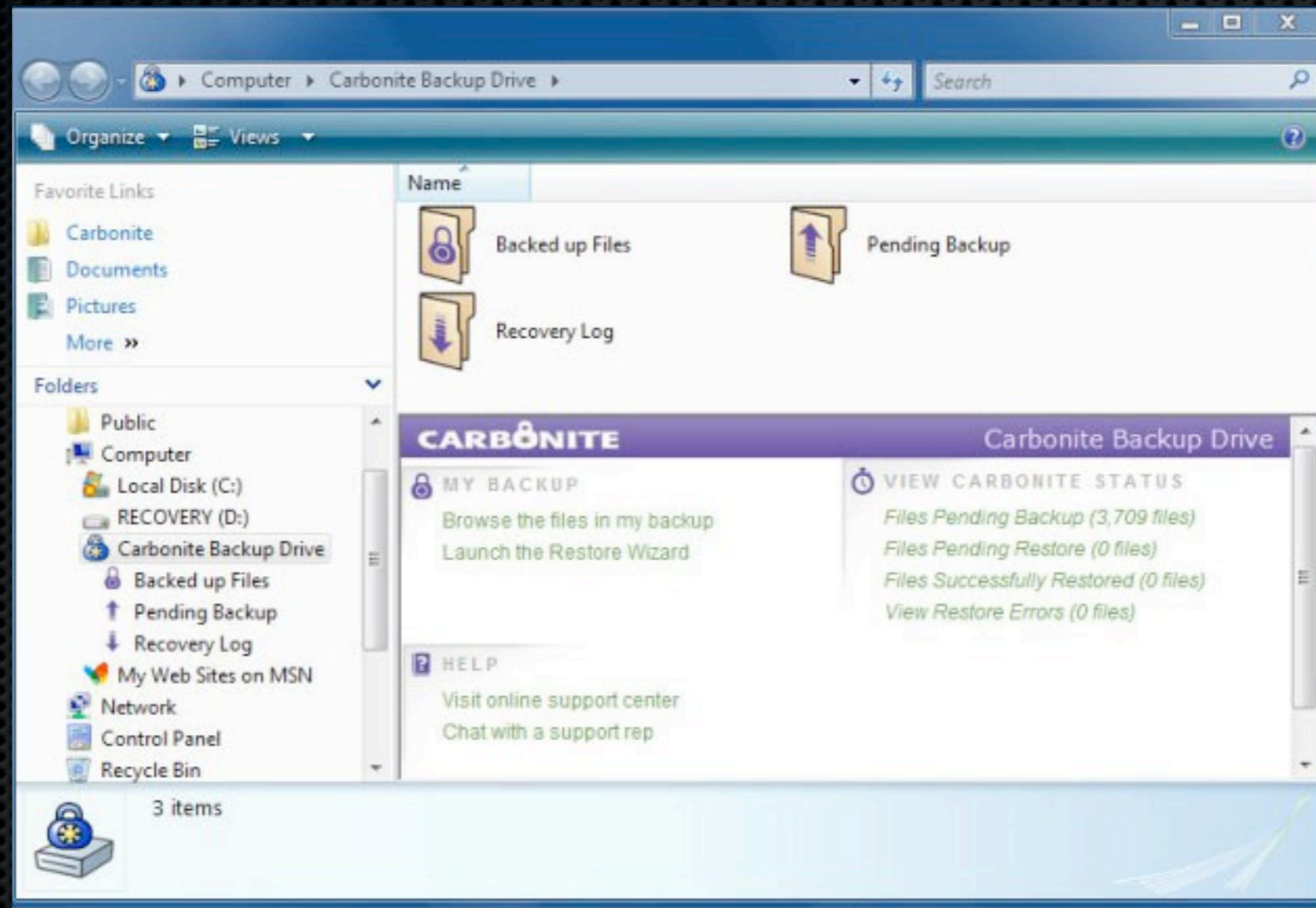
  

File	Path	Patch Size	Encoding T...	Transfer Ti...	Transfer R...	Other Details
Division of Taxation, Indivi...	C:\Documents and Setting...	266 bytes	00:00:00			File already on MozyPro servers
Desktop.ini	C:\Documents and Setting...	122 bytes	00:00:00			File already on MozyPro servers
Google AdSense - Referral ...	C:\Documents and Setting...	232 bytes	00:00:00			File already on MozyPro servers
Netflix Television for Insta...	C:\Documents and Setting...	398 bytes	00:00:00			File already on MozyPro servers
Ramius Timesheets.url	C:\Documents and Setting...	134 bytes	00:00:00			File already on MozyPro servers
Simply Ming Recipes Chile,...	C:\Documents and Setting...	192 bytes	00:00:00			File already on MozyPro servers
Use case - Wikipedia, the f...	C:\Documents and Setting...	209 bytes	00:00:00			File already on MozyPro servers

1.7% of quota used

Quota: 2.5 GB    Used: 43.9 MB    Remaining: 2.5 GB    Files: 48

# Storage Clouds



Carbonite (Explorer interface)

# Storage Clouds

The screenshot shows the Egnyte web interface. At the top left is the 'MY COMPANY' logo. A search bar contains the text 'cost' and a 'Search' button. The top right shows a user profile for 'John Smith' with links for 'Home', 'My Profile', and 'Sign Out'. Below the search bar, the interface is divided into a left sidebar and a main content area. The sidebar includes 'Folders', 'Address Book', and 'Narrow results by' with options for 'My Home', 'By Date' (with 'Start' and 'End' date pickers), and 'By Individuals' (listing 'John Smith (4)' and 'Vijay Kak (1)'). The main content area shows search results for 'cost', displaying 'Results 1 - 3 of 3'. Two results are visible: 'Waterfall Analysis Results.pdf' and 'FGI Analysis.xls'. Each result includes a document icon, a checkbox, the filename, and links for 'Similar', 'Context', and 'History'. The 'Waterfall Analysis Results.pdf' result shows a date of 'Tuesday, December 04, 2007 12:40:32 PM', author 'Vijay Kak', and a folder path. The 'FGI Analysis.xls' result shows a date of 'Tuesday, December 04, 2007 12:32:18 PM', author 'John Smith', and a folder path. A right-hand 'Actions' menu is visible, containing icons for 'Share', 'Export', 'Send', 'Tag', and 'Delete'. The search results text includes the word 'cost' highlighted in yellow.

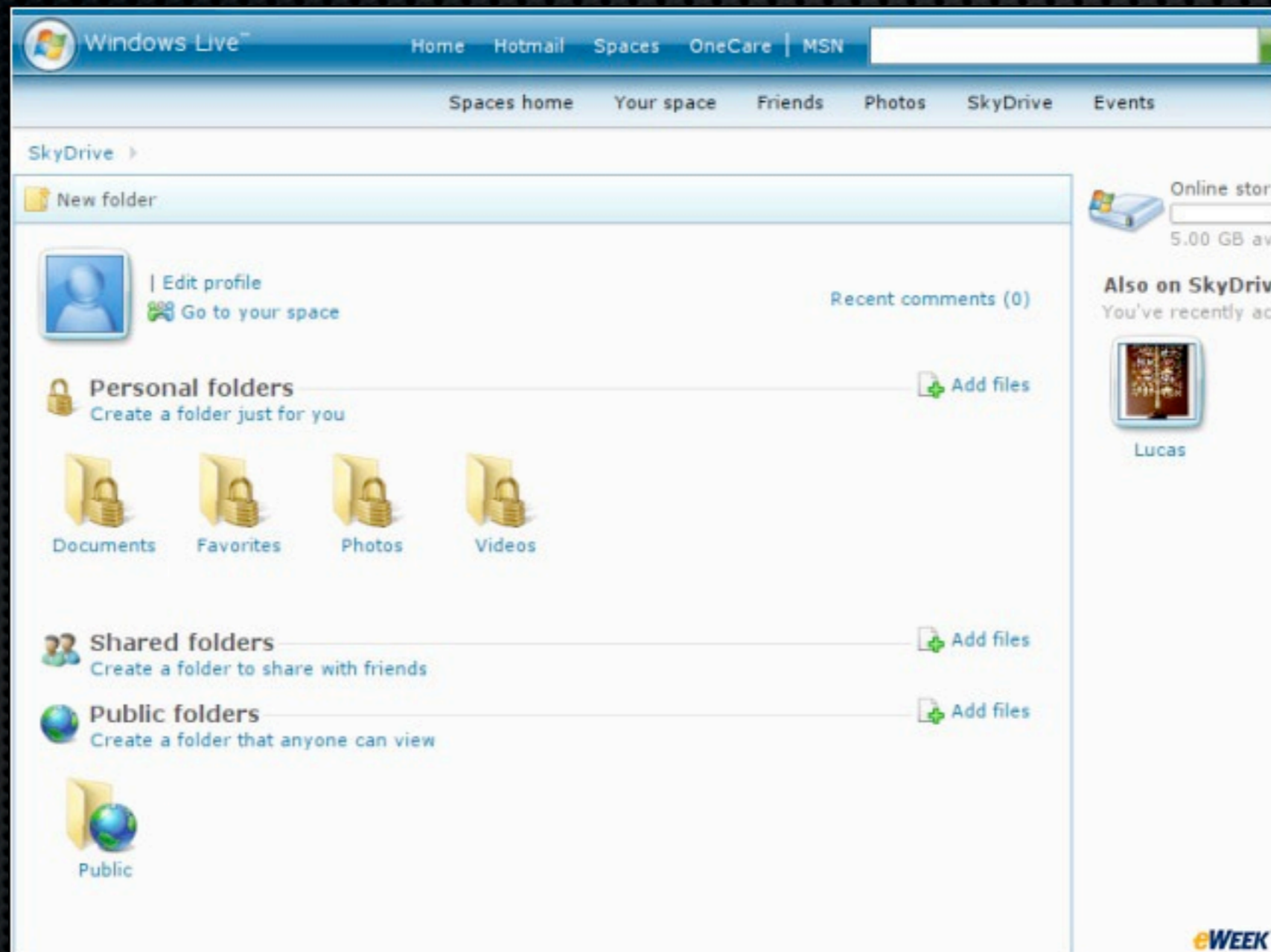
Egnyte (search)

# Storage Clouds

The screenshot displays the Swapdrive web interface. On the left, a sidebar contains the Swapdrive logo and a 'CORPORATE ACCOUNT' menu with links for Home Directory, Address Book, Help, Personal Settings, and Logoff. Below the menu is a 'DOWNLOAD SWAPDRIVE BACKUP' button and a 'POWERED BY SWAPDRIVE' logo. The main content area shows the user's profile: 'User: Eric Martin' and 'Account: emartin' with a progress bar indicating '42.49MB Used'. A link 'click here to see shared drives' is accompanied by a 'Go!' button. Below this is a navigation instruction: 'Click on a folder name to open or click on a file name to... Select a file or folder by checking the box next to the fol...'. The 'Current Directory:' is shown as '\'. A toolbar on the left includes buttons for 'UPLOAD', 'DOWNLOAD', 'DELETE', 'NEW FOLDER', and 'MOVE'. The main area displays a list of folders: 'Backup' and 'EMartin', each with an unchecked checkbox to its left. A mouse cursor is positioned over the 'Backup' folder.

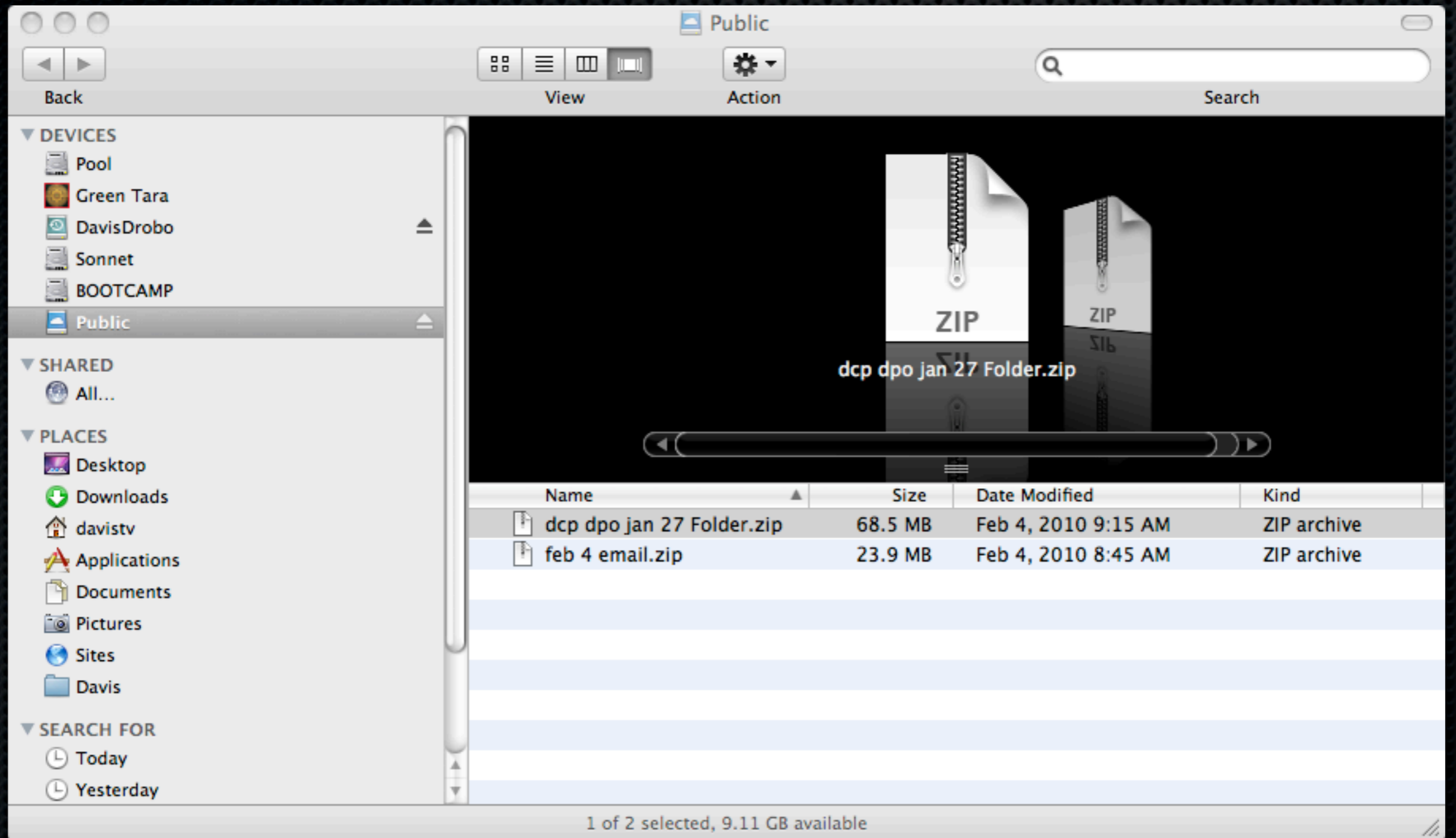
Swapdrive (drive list)

# Storage Clouds



Windows Live SkyDrive looks a lot like...

# Storage Clouds



Apple's iDisk (mobile me service)

# Storage Clouds

**Symantec Protection Network** My Profile | Support | Help | Logout  
Demouser@SPNlight

Home My Services **Users** Alerts Reports

Online Backup Online Storage for Backup Exec™

**Online Backup**

Usage Plan: Unknown  
Storage Capacity: 50.0 GB  
Used: 26.9 GB  
Available: 23.1 GB  
Computers Subscribed: 10

Computers Users

Type computer name

**Add a Computer**

Name	Hostname	Capacity Used	Status	Last Completed Backup (GMT)	Actions
<a href="#">BillsDT</a>	enterprise.veritas.com-D-071945-B	0 GB	Unavailable		<a href="#">Backup</a>   <a href="#">Restore</a>   <a href="#">Cleanup</a>   <a href="#">Remove</a>
<a href="#">bills.T</a>	enterprise.veritas.com-L-071945-A	0 GB	Backup Agent Online	9/1/2008 4:12:06 PM	<a href="#">Backup</a>   <a href="#">Restore</a>   <a href="#">Cleanup</a>   <a href="#">Remove</a>
<a href="#">Boris_DT</a>	enterprise.veritas.com-D-072036-A	470.0 MB	Backup Agent Online	8/22/2008 1:21:13 PM	<a href="#">Backup</a>   <a href="#">Restore</a>   <a href="#">Cleanup</a>   <a href="#">Remove</a>
<a href="#">Boris_IT</a>	enterprise.veritas.com-L-072036-A	4.1 MB	Unavailable	8/19/2008 3:15:44 PM	<a href="#">Backup</a>   <a href="#">Restore</a>   <a href="#">Cleanup</a>   <a href="#">Remove</a>
<a href="#">dee laptop</a>	enterprise.veritas.com-L-072120-A	15.6 MB	Unavailable	8/30/2008 8:31:54 PM	<a href="#">Backup</a>   <a href="#">Restore</a>   <a href="#">Cleanup</a>   <a href="#">Remove</a>
<a href="#">Dee's Office</a>	enterprise.veritas.com-D-072120-A1	273.2 MB	Backup Agent Online	9/8/2008 12:22:22 PM	<a href="#">Backup</a>   <a href="#">Restore</a>   <a href="#">Cleanup</a>   <a href="#">Remove</a>
<a href="#">Ike_IT</a>	enterprise.veritas.com-L-072124-A	1.4 GB	Backup Agent Online	9/7/2008 1:19:09 PM	<a href="#">Backup</a>   <a href="#">Restore</a>   <a href="#">Cleanup</a>   <a href="#">Remove</a>
<a href="#">Ike_PC_Work</a>	enterprise.veritas.com-D-072124-A	24.4 GB	Backup Agent Online	9/6/2008 8:07:47 AM	<a href="#">Backup</a>   <a href="#">Restore</a>   <a href="#">Cleanup</a>   <a href="#">Remove</a>
<a href="#">YREEP_D</a>	enterprise.veritas.com-D-030873-A	243.0 MB	Unavailable	9/7/2008 4:17:54 PM	<a href="#">Backup</a>   <a href="#">Restore</a>   <a href="#">Cleanup</a>   <a href="#">Remove</a>
<a href="#">YREEP_L</a>	enterprise.veritas.com-L-030873-A	53.3 MB	Unavailable	8/22/2008 8:19:27 AM	<a href="#">Backup</a>   <a href="#">Restore</a>   <a href="#">Cleanup</a>   <a href="#">Remove</a>

**IMPORTANT:** If you have not yet done so, please use the following link to sign up for (or update) your free HCC Group Escrow account. HCC Group can securely store your encryption passphrase so that you can recover it. ([Signup or Login to HCC Group](#) | [Learn More](#))

Symantec online backup

# Servers / Hosting

More like fast-scaling automated virtualization than the cloud storage model.

Not as compelling in terms of cost savings unless you need:

- ▶ Fast scalability for large surges in traffic
- ▶ Lots of computing power over a short timeline
- ▶ Less expensive transfer costs with a cloud storage service
- ▶ Lots and lots of hardware if you do it yourself

# Servers / Hosting

A few of the Community AMIs (Amazon Machine Images) available for EC2

**Launch Instances** Cancel X

CHOOSE AN AMI CREATE KEY PAIR CONFIGURE FIREWALL LAUNCH

Choose an Amazon Machine Image (AMI) from one of the tabbed lists below by clicking its **Select** button.

Quick Start My AMIs **Community AMIs**

Viewing: All Images All Platforms 1 to 50 of 1672 AMIs

AMI ID	Manifest	Platform	
ami-0022c769	level22-ec2-images/ubuntu-7.04-feisty-base-20071225a.manifest.xml	Ubuntu	Select
ami-005db969	alestic-64/ubuntu-8.04-hardy-base-64-20081222.manifest.xml	Ubuntu	Select
ami-005eba69	kaavo-ntier-db/imod-ntier-32bit-FC-DB.manifest.xml	Other Linux	Select
ami-0129cc68	cer-64-centos5_10-1/image.manifest.xml	Cent OS	Select
ami-014da868	ami.alurium.com/image_bundles/Fedora6_Jetty_OpenBD/image.manifest.xml	Fedora	Select
ami-015db968	alestic-64/ubuntu-8.04-hardy-rightscale-64-20081222.manifest.xml	Ubuntu	Select
ami-01789d68	thamtech-ami-images/gimapsync/image.manifest.xml	Other Linux	Select
ami-018e6b68	rbuilder-online/phonehome-1.5.6-x86_10132.img.manifest.xml	Other Linux	Select
ami-01c92d68	rbuilder-online/blt-0.01-x86_17328.img.manifest.xml	Other Linux	Select
ami-01ca2e68	scalr-images/www_x64-2008-09-19-0931/image.manifest.xml	Other Linux	Select
ami-01e10468	RunBlast/runblast.manifest.xml	Other Linux	Select
ami-0171368	jumpbox-amis/drupal-1.1.4.manifest.xml	Other Linux	Select
ami-0244a16b	awsworld/image.manifest.xml	Other Linux	Select

# Servers / Hosting

A few of the Microsoft Windows AMIs available for EC2

The screenshot shows the 'Launch Instances' wizard in the AWS Management Console. The 'CHOOSE AN AMI' step is active. The 'Community AMIs' tab is selected, and the view is filtered to 'Public Images' and 'Windows'. A table lists 15 AMIs, with the entry 'ami-acf9d1d8' circled in red.

AMI ID	Manifest	Platform	Actions
ami-60e40c14	ec2-public-windows-image-eu/FR-Server2003r2-i386-WinAuth-v1.01.manifest.xml	Windows	Select
ami-64e2ca10	ec2-public-windows-image-eu/FR-Server2003r2-i386-WinAuth-v1.01.manifest.xml	Windows	Select
ami-66e2ca12	ec2-public-windows-image-eu/FR-SqlSvrStd2003r2-x86_64-WinAuth-v1.01.manifest.xml	Windows	Select
ami-70e2ca04	ec2-public-windows-image-eu/FR-SqlSvrExp2003r2-i386-Win-v1.01.manifest.xml	Windows	Select
ami-72e2ca06	ec2-public-windows-image-eu/FR-SqlSvrExp2003r2-i386-WinAuth-v1.01.manifest.xml	Windows	Select
ami-74e2ca00	ec2-public-windows-image-eu/FR-SqlSvrExp2003r2-x86_64-Win-v1.01.manifest.xml	Windows	Select
ami-76e2ca02	ec2-public-windows-image-eu/FR-SqlSvrExp2003r2-x86_64-WinAuth-v1.01.manifest.xml	Windows	Select
ami-78e2ca0c	ec2-public-windows-image-eu/FR-Server2003r2-x86_64-WinAuth-v1.01.manifest.xml	Windows	Select
ami-7ae2ca0e	ec2-public-windows-image-eu/FR-Server2003r2-i386-Win-v1.01.manifest.xml	Windows	Select
ami-7ce2ca08	ec2-public-windows-image-eu/FR-SqlSvrStd2003r2-x86_64-Win-v1.01.manifest.xml	Windows	Select
ami-7ee2ca0a	ec2-public-windows-image-eu/FR-Server2003r2-x86_64-Win-v1.01.manifest.xml	Windows	Select
<b>ami-acf9d1d8</b>	qlikview-eu/QV85SR4_Public_AMI.manifest.xml	Windows	Select
ami-d4e1c9e0	ec2-public-windows-image-eu/IT-Server2003r2-i386-WinAuth-v1.01.manifest.xml	Windows	Select

# Servers / Hosting

eApps servers use Parallels virtualization, cheaper than EC2, a few limitations.

The screenshot displays the Parallels Business Automation Control Panel interface. The browser address bar shows the URL <https://cp.eapps.com/cp/>. The page title is "Parallels Business Automation - Control Panel". The interface includes a navigation menu on the left with options like "Current Site", "Website Management", "Mail Management", and "Other". The main content area is titled "Select Another Site" and contains a table of hosted sites. A copyright notice at the bottom left reads "© Copyright 1999-2008, Parallels All rights reserved".

Site	System	IP Address
<a href="http://bugaboo.virtual.vps-host.net">bugaboo.virtual.vps-host.net</a>	bugaboohomedesign.com	69.89.10.250
<a href="http://caa.virtual.vps-host.net">caa.virtual.vps-host.net</a>	caa.virtual.vps-host.net	69.89.8.188
<a href="http://cincinnatiport.virtual.vps-host.net">cincinnatiport.virtual.vps-host.net</a>	cincinnatiport.virtual.vps-host.net	216.154.209.113
<a href="http://editspot-ns1.virtual.vps-host.net">editspot-ns1.virtual.vps-host.net</a>	editspot-ns1.virtual.vps-host.net	69.89.5.196
<a href="http://editspotsrc.virtual.vps-host.net">editspotsrc.virtual.vps-host.net</a>	source.editspot.com	69.89.8.72
<a href="http://hodc.virtual.vps-host.net">hodc.virtual.vps-host.net</a>	hodc.virtual.vps-host.net	69.89.10.107
<a href="http://infidelitytalk.virtual.vps-host.net">infidelitytalk.virtual.vps-host.net</a>	infidelitytalk.virtual.vps-host.net	69.89.9.224
<a href="http://mycityliving.virtual.vps-host.net">mycityliving.virtual.vps-host.net</a>	mycityliving.virtual.vps-host.net	216.154.223.44
<a href="http://petsuites.virtual.vps-host.net">petsuites.virtual.vps-host.net</a>	petsuites.virtual.vps-host.net	216.154.212.10
<a href="http://spotlets.com">spotlets.com</a>	my.spotlets.com	69.89.9.87
<a href="http://theplx.virtual.vps-host.net">theplx.virtual.vps-host.net</a>	theplx.virtual.vps-host.net	216.154.208.145

# Databases

Beware of Eventual Consistency.  
Great for large datasets without client sync.

Amazon  
SimpleDB  
(SDB Tool  
in Firefox)

The screenshot shows the Amazon SimpleDB Tool (SDB Tool) interface in a browser. The browser address bar shows the URL `chrome://sdbizo/content/sdbizo_window.xul`. The page title is "Simple DB Tool".

**Select**

Select Expression

```
select * from panda_videos where status = 'error' or status = 'processing'
```

Documentation

Run Select

**Domains**

Domains

- panda\_profiles
- panda\_users
- panda\_videos

Reload Domains Show Metadata Delete Domain...

e.g. mydomain Create Domain

**Results**

Items	Attribute Names	Attribute Values
▶ 28e4d970-a9fe-012c-9e75-123139016cf3		
▶ 292a0ee0-a9fe-012c-9e75-123139016cf3		
▶ 29639ce0-a9fe-012c-9e75-123139016cf3		
▼ cd8dcf40-e210-012c-9ea1-123139016cf3	player	flash
	last_notification_at	2010-02-19T17:47:46+00:00
	status	processing
▶	audio_bitrate	
▶	fps	
▶	width	
▶	parent	
▶	original_filename	
▶	audio_order	

Next Results

**Add/Replace Attributes**

Domain: panda\_videos

Item: cd8dcf40-e210-012c-9ea1-123139016cf3

Name:

Values: [one value per line]

replace existing values

Log

<Executing action[runSelect]>

Done

# Databases

Beware of Eventual Consistency.

Great for large datasets without client sync.

Simple DB  
Tool  
(Java app,  
cross-  
platform)

The screenshot shows the SimpleDB Query Tool interface. At the top, there are controls for 'run', 'Sponsored...', 'Region: US', 'Domain: panda\_profiles', 'Get Metadata', and 'New Domain'. The main query input field contains: `select count(*) from panda_videos where status = 'queued'`. Below this, three query results are displayed in separate panes, each with 'reload' and 'export' buttons and performance metrics.

**Query 1: `select count(*) from panda_videos where status = 'original'`**

itemName()	Count
Domain	4719
Total	4719

Box Usage: 5.98508E-5 Items: 2 Time To Run: 0.213 secs

**Query 2: `select count(*) from panda_videos where status = 'success'`**

itemName()	Count
Domain	14021
Total	14021

Box Usage: 1.327784E- Items: 2 Time To Run: 0.353 secs

**Query 3: `select count(*) from panda_videos where status = 'queued'`**

itemName()	Count
Domain	0
Total	0

Box Usage: 2.28538E-5 Items: 2 Time To Run: 15.085 secs

# Databases

## Other providers:

### Google App's Bigtable

- ▶ cheaper than SDB, mostly Python-oriented right now)

### EnterpriseDB's Postgres+ Advanced Server

- ▶ Oracle compatibility, newer and not as developed yet.

### Microsoft SQL Server Data Services (SDDS)

- ▶ It's there if you'll lose your job for choosing anything else.

### MySQL and Oracle

- ▶ Really just database clusters setup on virtualized servers in the cloud, not cloud databases in some senses.

# A few use cases

- ▶ Community Video Site
- ▶ Offsite Incremental MySQL Backup
- ▶ Homebrew iTunes
- ▶ Static Database

Go Big Recruiting » Recruiting Made Easy




http://gobigrecruiting.com/ Google

**GOBIG RECRUITING**  
Recruiting Made Easy

troy\_student Password Login  
[Forgot Your Password?](#)  Remember Me

Home Students Coaches Recruiting 101 Buzz About Blog

Submit your game film to college coaches online. **No more sending TAPES and DVDs through the mail!**  
Go Big Recruiting will save you time and money!

- 1 CREATE**  
  
Enter your information into your online profile.
- 2 UPLOAD**  
  
Add your game film, highlight film, or both.
- 3 CHOOSE**  
  
Choose the schools that can review your film and profile.  
**Get notified once they do!**

[Get Started Now](#)  
[Learn More »](#)

# Community Video Site

Old system: Upload videos to web server, tied up CPU, always running out of storage.

Go Big » Video

http://gobigrecruiting.com/student/video/video.php?svid=9857

Go Big » Video


**GoBIG RECRUITING**  
Recruiting Made Easy

You are logged in as troy\_student   FAQ   My Account   Logout

HOME   PROFILE   VIDEO   SCHOOLS

[« Back to Videos](#)

## test 6



00:23 / 03:34

Add marker at  called

**Tips**

To add chapters to your video:

1. Pause the video at the position you would like to mark.
2. Enter a title for your chapter in the text field below the video player.
3. Click "Add" and your chapter will appear in this box.

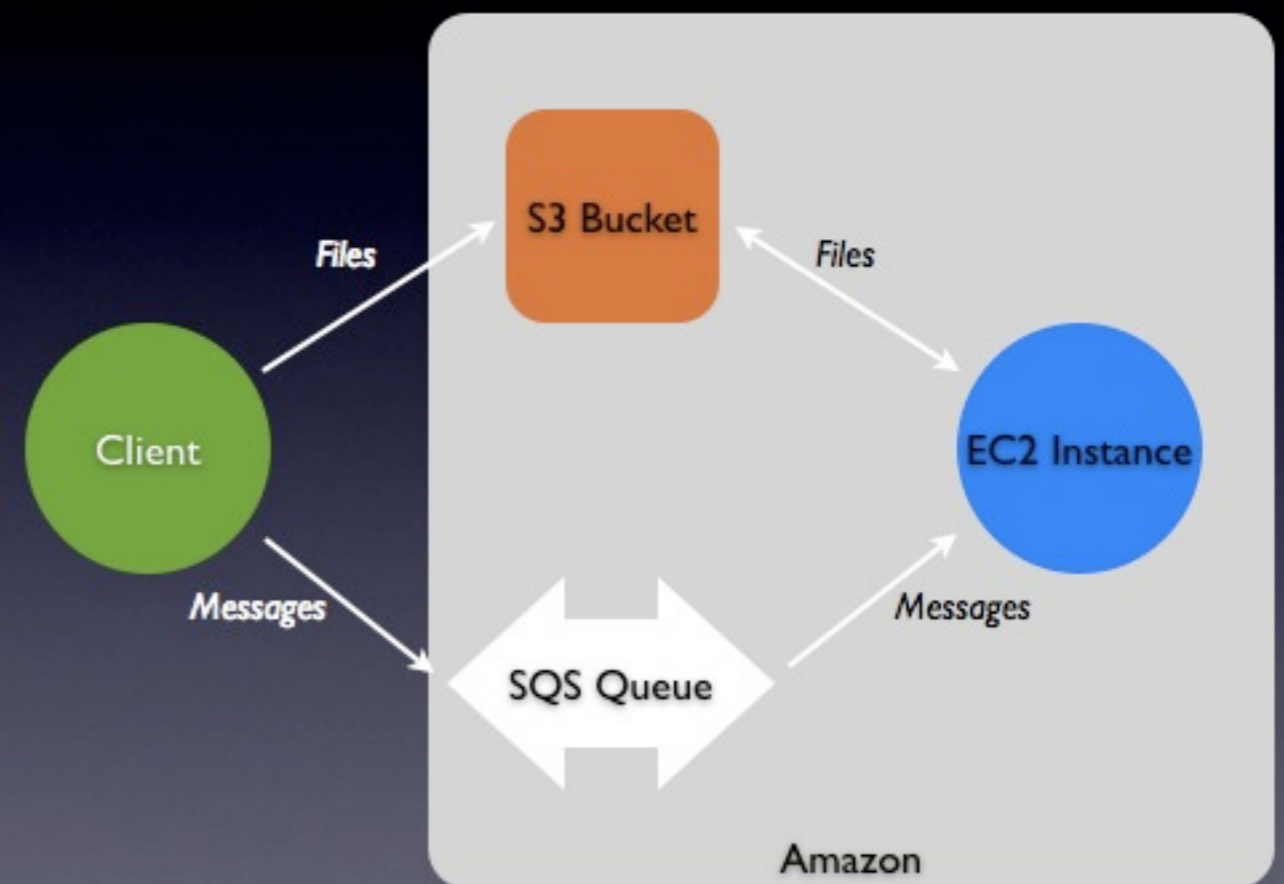
# Community Video Site

New system: Upload videos to EC2 transcoding server, web server freed.

# Community Video Site

- ▶ S3 for large video file storage and server
- ▶ Doesn't support resume yet
- ▶ SimpleDB for encoding queue
- ▶ Would rather use SQS now instead
- ▶ EC2 for web hosting
- ▶ Had to use paid SMTP delivery service

## Basic Architecture of A Scalable Service



# Offsite Incremental MySQL Backup

- ▶ MMORPG server: Frequent, small updates and inserts.
- ▶ Uses scripts based on:  
<http://pauldownman.com/2009/02/08/mysql-s3-backup/>
- ▶ Ruby scripts using `AWS::S3` gem
- ▶ Full export, compress, upload, then binary log files are uploaded and rotated for incremental restores.

# Homebrew iTunes

- ▶ Small area symphony orchestra with its own recordings, doesn't like iTunes' cut of sales
- ▶ S3 storage and delivery of audio files
- ▶ Expiring URLs to limit link sharing
- ▶ Low cost to implement, scales up with sales well

# Homebrew iTunes

## Expiring Links in PHP from Carson McDonald, IONCANNON

```
<?php
require_once('Crypt/HMAC.php');
echo getS3Redirect("/test.jpg") . "\n";

function getS3Redirect($objectName) {
    $S3_URL = "http://s3.amazonaws.com";
    $keyId = "your key";
    $secretKey = "your secret";
    $expires = time() + 60;
    $bucketName = "/your bucket";
    $stringToSign = "GET\n\n\n$expires\n$bucketName$objectName";
    $hasher =& new Crypt_HMAC($secretKey, "sha1");
    $sig = urlencode(hex2b64($hasher->hash($stringToSign)));
    return "$S3_URL$bucketName$objectName?AWSAccessKeyId=$keyId&Expires=$expires&Signature=$sig";
}

function hex2b64($str) {
    $raw = "";
    for ($i=0; $i < strlen($str); $i+=2) {
        $raw .= chr(hexdec(substr($str, $i, 2)));
    }
    return base64_encode($raw);
}
?>
```

# Static Database

- ▶ Large, static data set, lots of simultaneous clients
- ▶ Bad case for database, used S3 instead
- ▶ Generated static files from database records, scrambled naming convention
- ▶ Increased application response time dramatically
- ▶ Took a week to process and upload data to S3
- ▶ Another team involved in the project pushed back hard, made client sign a waiver even though they were never liable.

# Cloud Gotchas

- ▶ **Storage services aren't programmable other than permissions**
- ▶ **Databases exhibit strange time effects, don't use for applications where sync is important**
- ▶ **You still need backups, these services can and do fail**
- ▶ **Management applications are growing up, but still immature compared to pre-cloud infrastructure tools**
- ▶ **API libraries for different languages are spotty, do your research before you bid**



**Thank You**