Amazon S3, Ruby and Rails

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spatten design
Building web apps and web app teams

Amazon Web Services

- Jeff Bezos wants other people to be able to create web apps without the pain he went through
- No fixed costs
- Your costs scale with your usage and (hopefully!) your profits.

Amazon Web Services

- Simple Storage Service (S3)
- Elastic Compute Cloud (EC2)
- Mechanical Turk
- Flexible Payments Service
- Simple Queue Service
- Alexa Web Services

Simple Storage Service

- on-line storage using Amazon's hardware
- Simple
- Reliable
- Scalable
- Flexible
- Pretty cheap

Costs

Storage

$0.15 per GB-Month of storage used

Data Transfer

$0.10 per GB - all data transfer in
$0.18 per GB - first 10 TB / month data transfer out
$0.16 per GB - next 40 TB / month data transfer out
$0.13 per GB - data transfer out / month over 50 TB

Requests

$0.01 per 1,000 PUT or LIST requests
$0.01 per 10,000 GET and all other requests*
* No charge for delete requests

Use Cases

Backup

Personal
- music
- photos
- documents

Rails application
- databases
- svn repositories
- user generated content

Use Cases

Asset host

- Store the public directory of your Rails app on S3
- make it readable by anyone
- point something like assets.plotomatic.com at it

Use Cases

Streaming large Files

Use Cases

Zunior

- Delivers their MP3s from S3

SmugMug

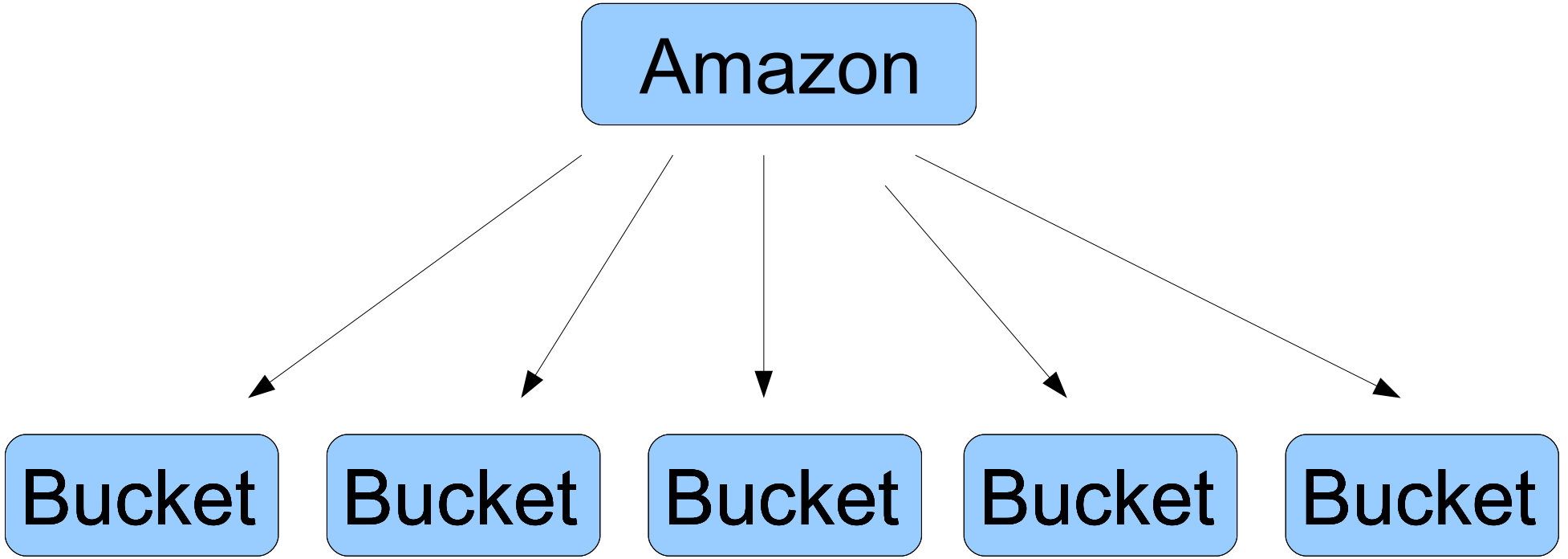
- estimates they save $500k / year
- > 100 TB of data stored

37Signals

- All campfire uploads get uploaded to S3
- > 1 TB data stored

S3 Architecture

S3 Architecture



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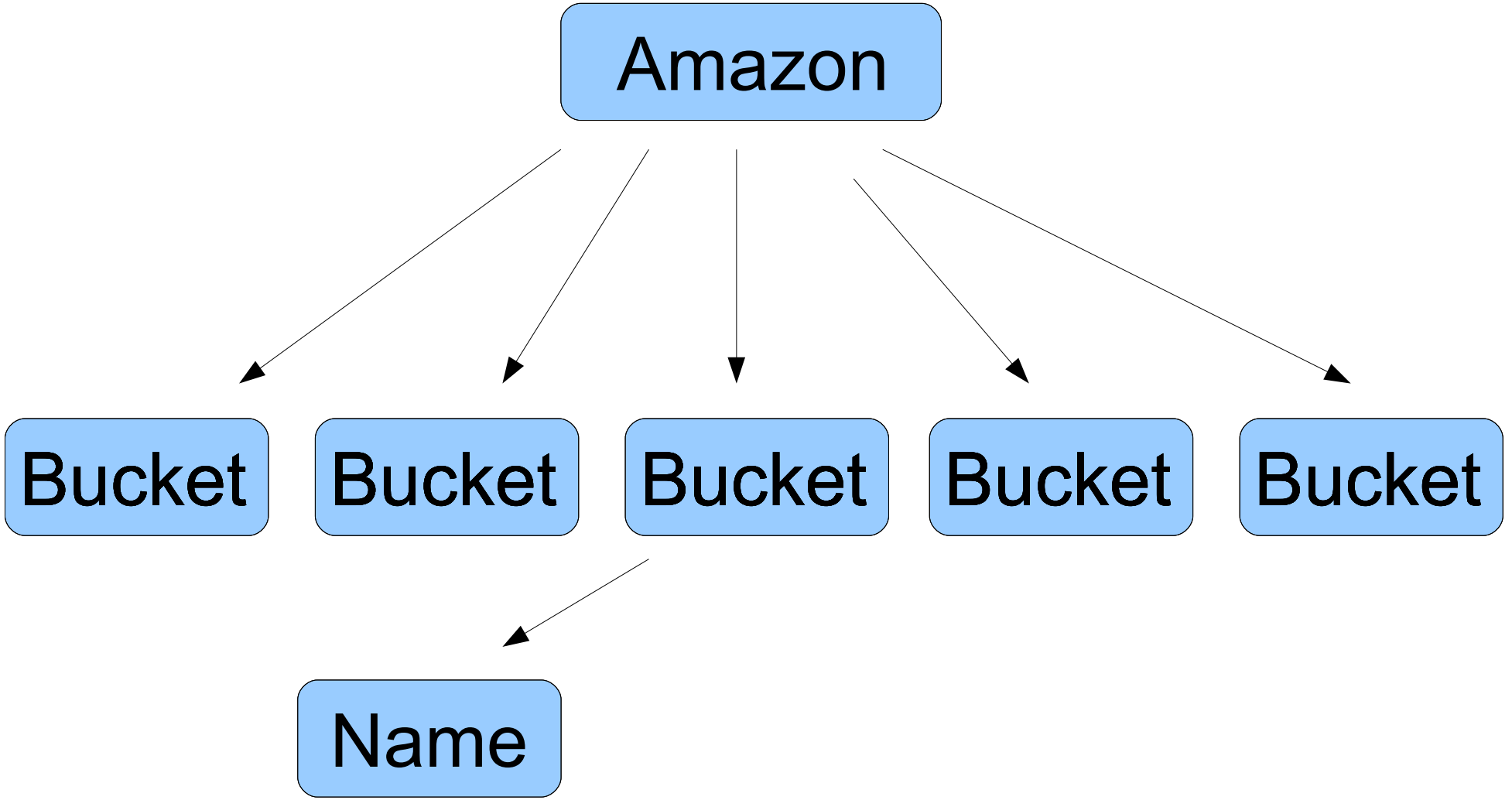

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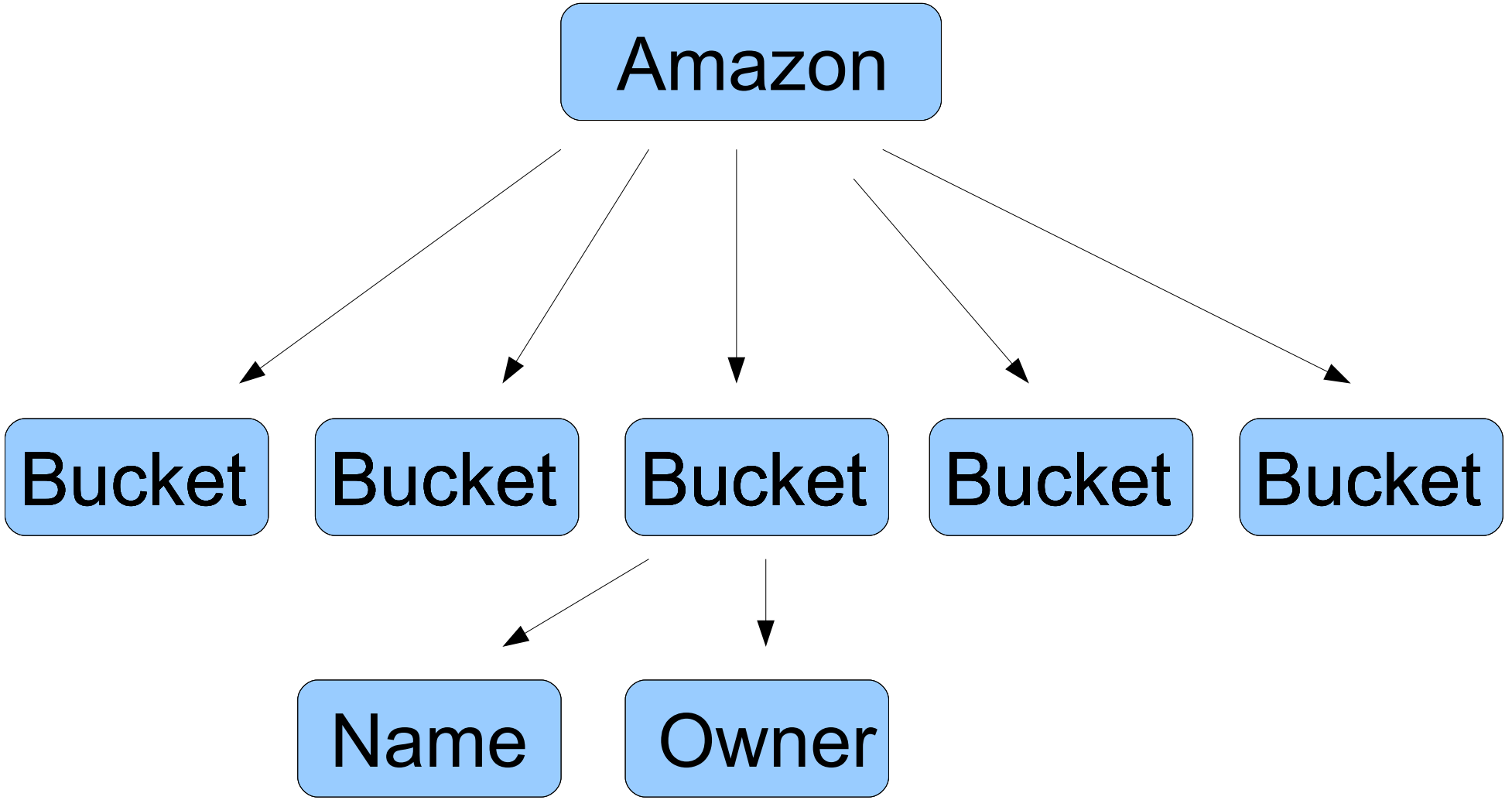

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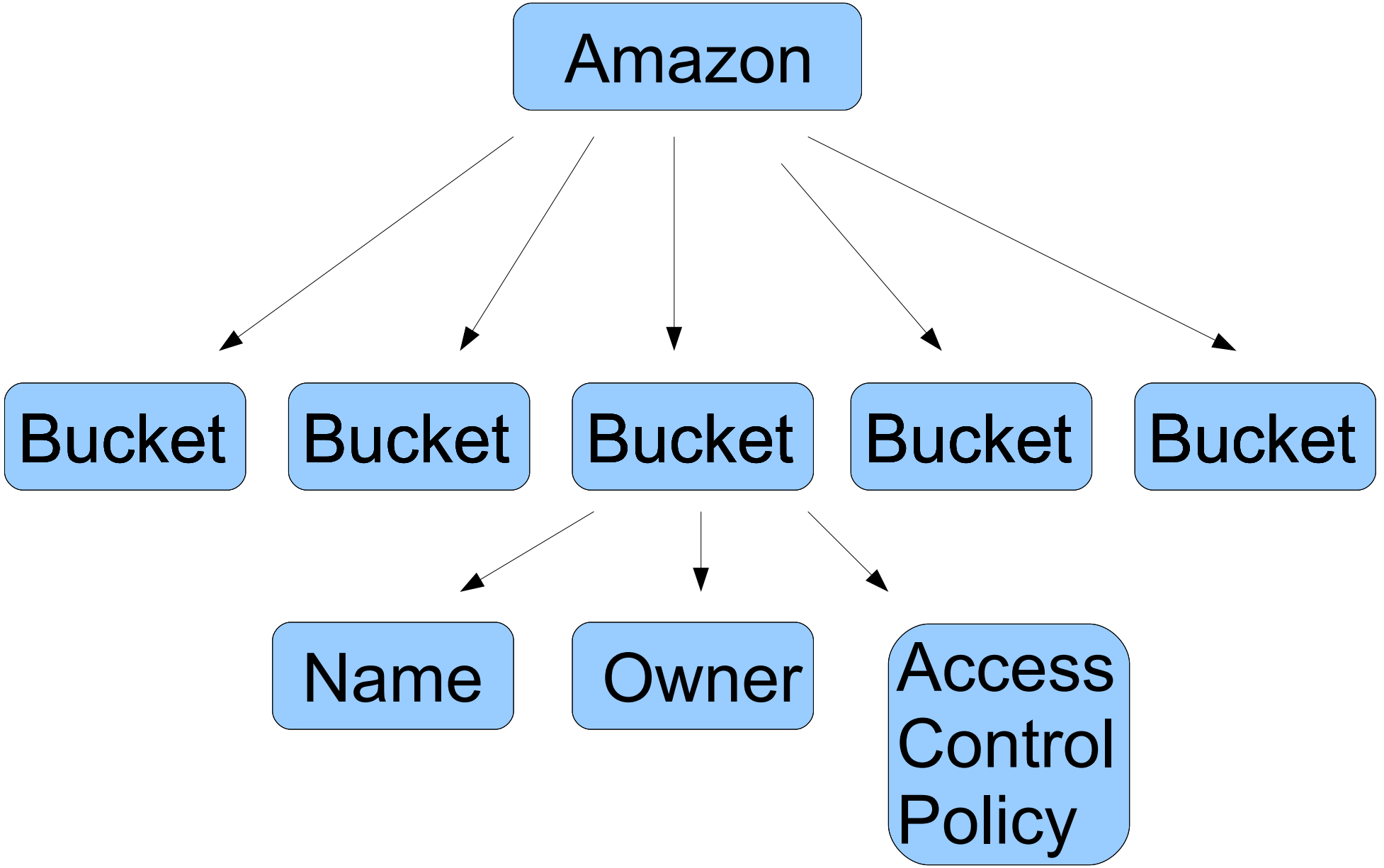

S3 Architecture

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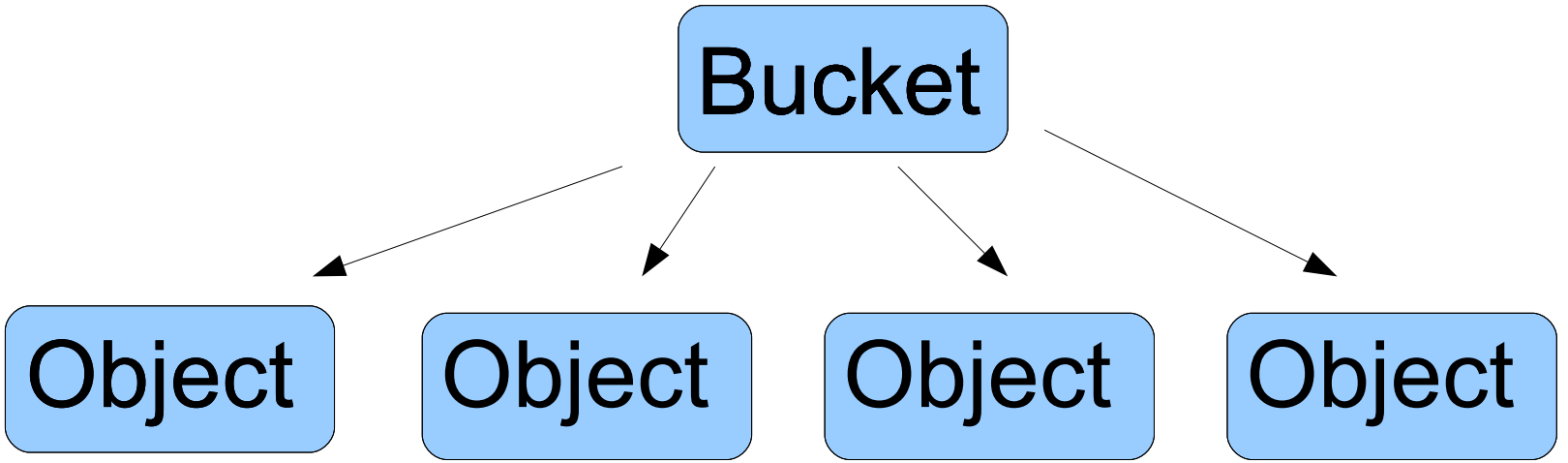

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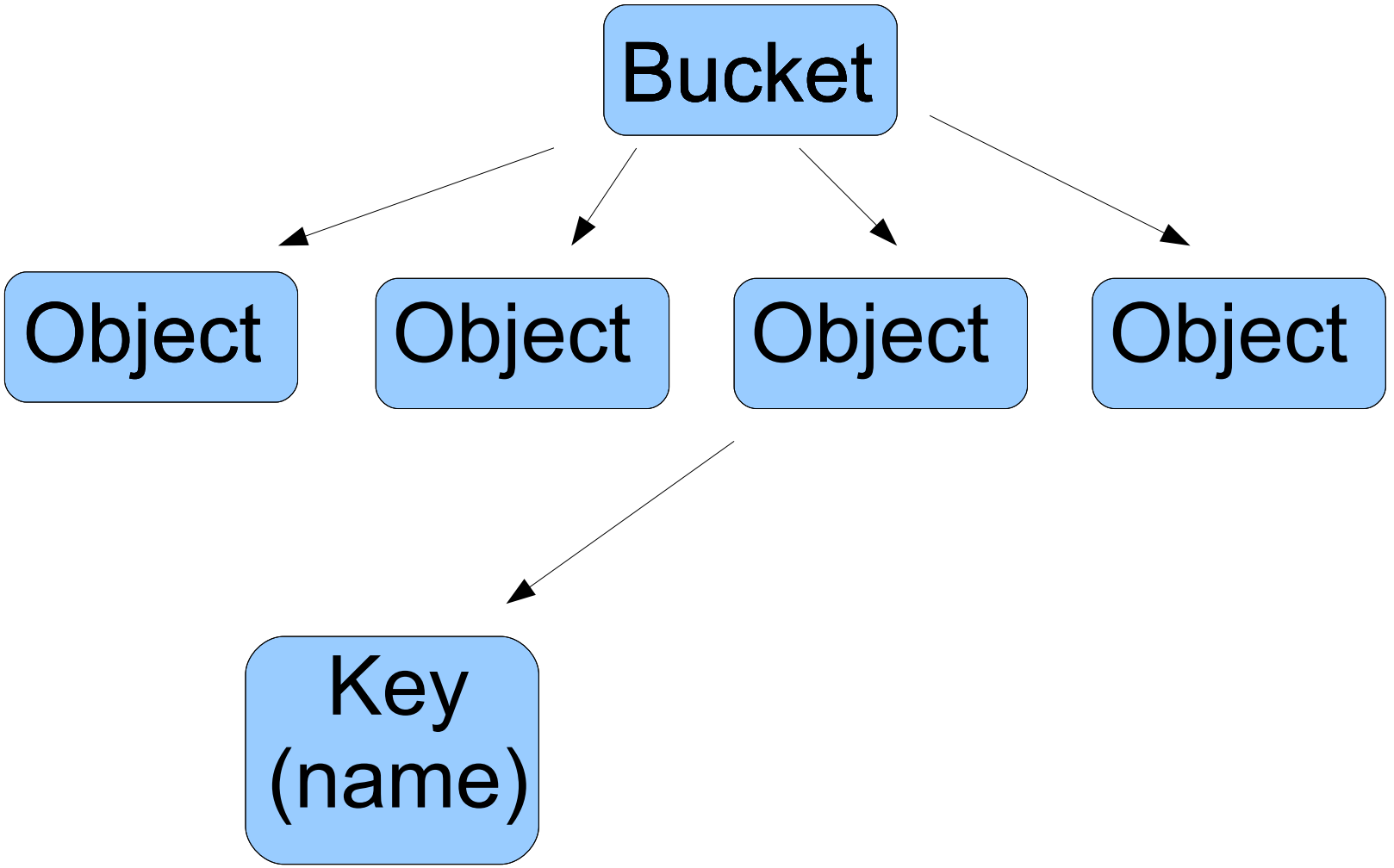

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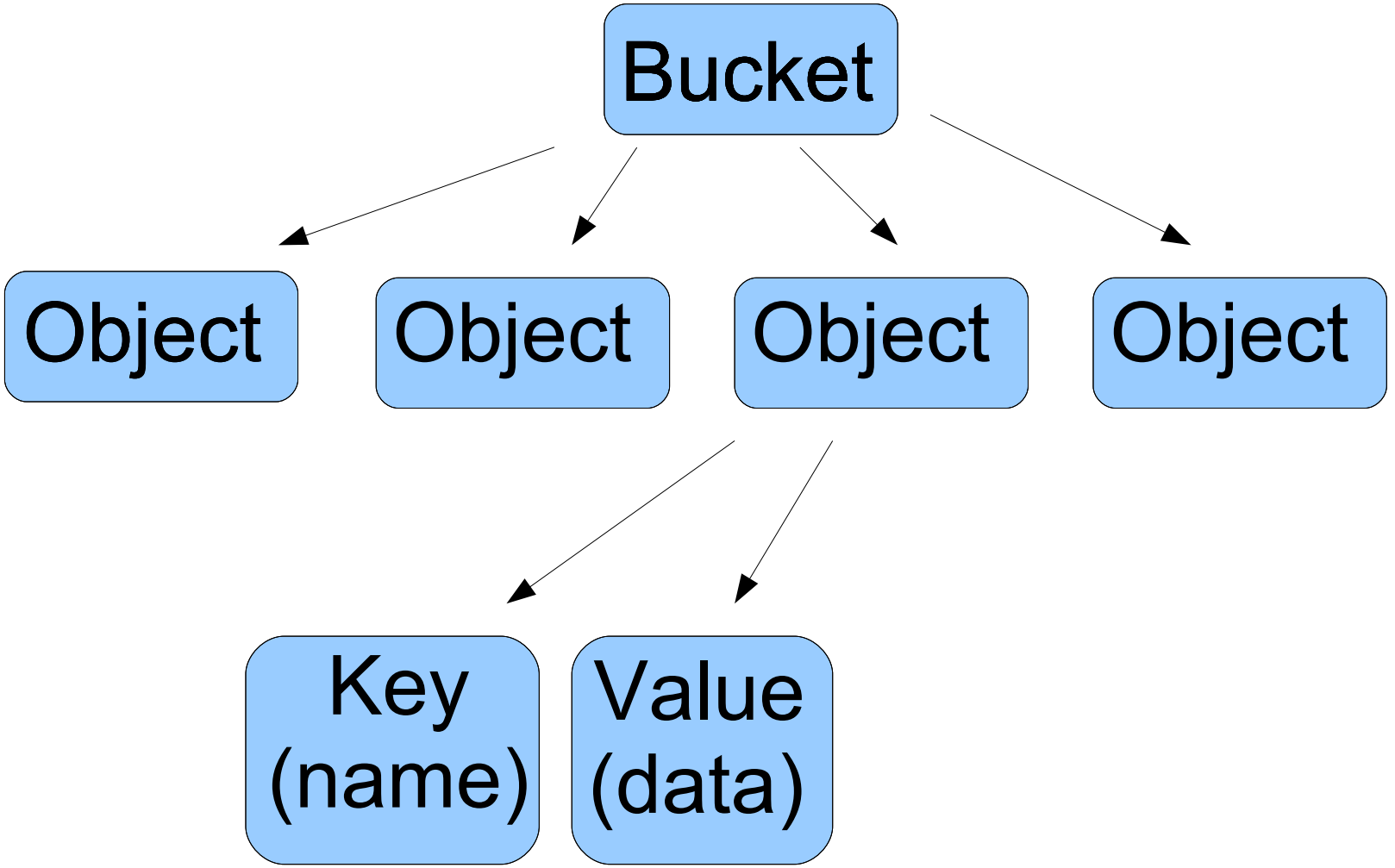

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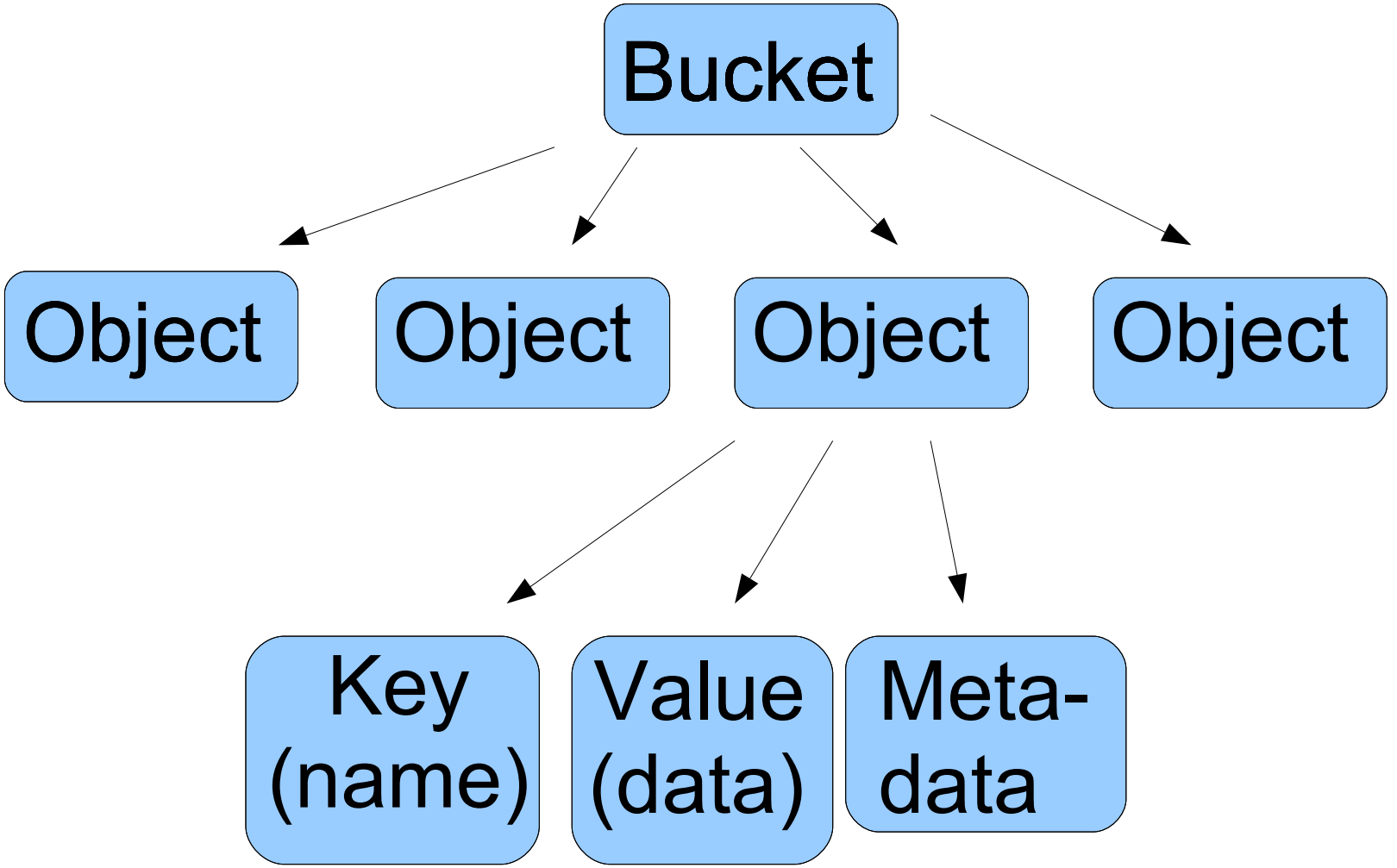

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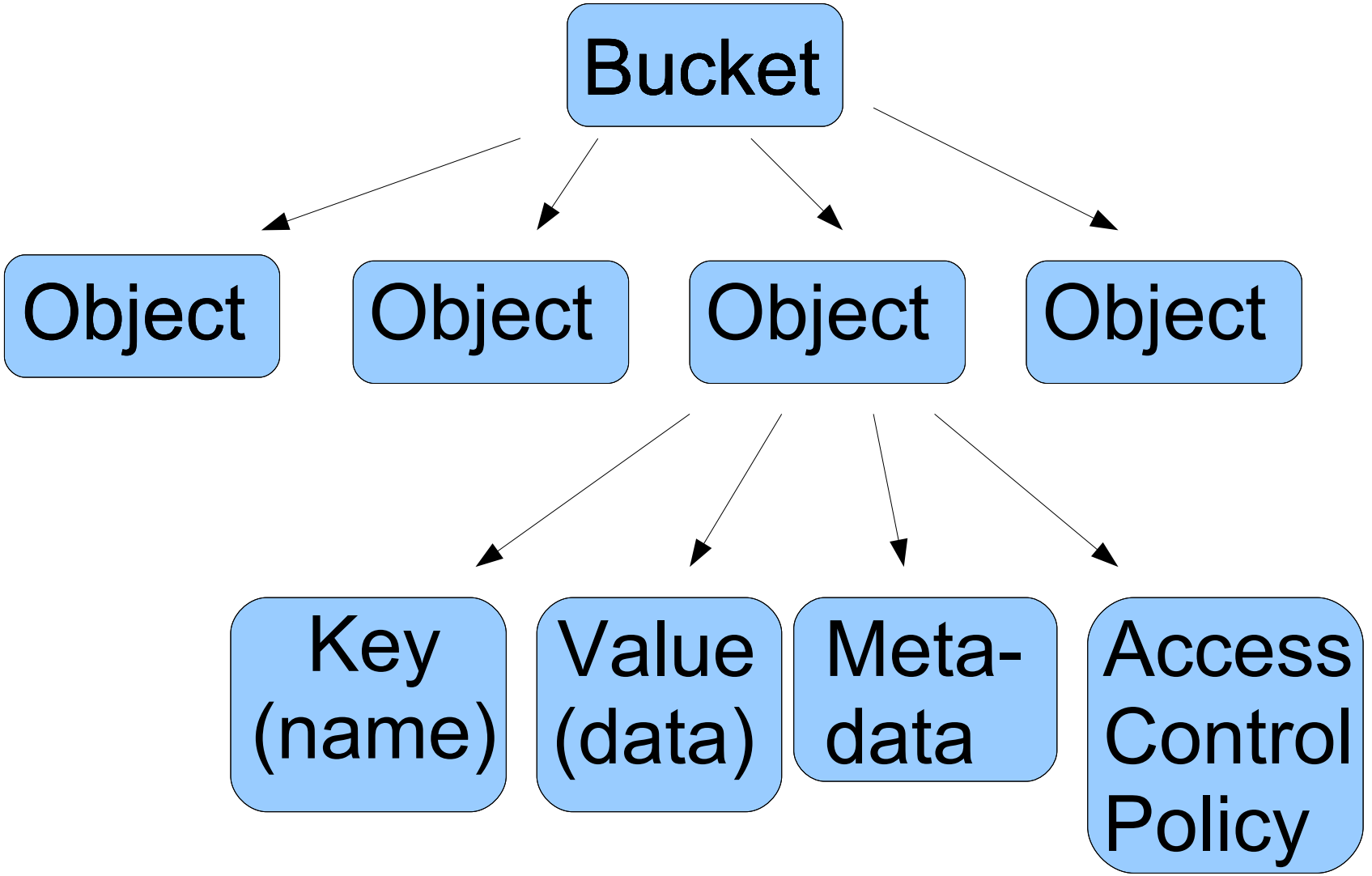
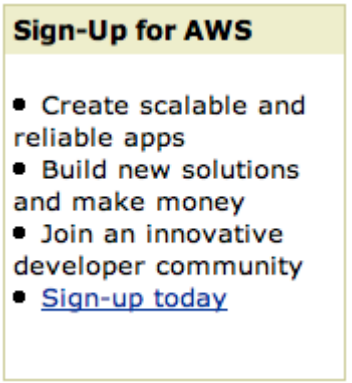


S3 Architecture

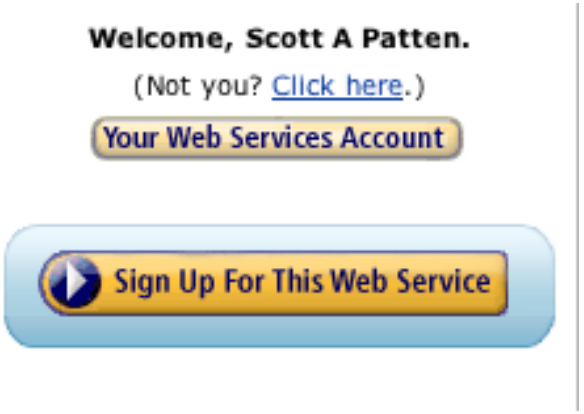
No Directory Structure

Getting started with S3

Sign up at http://aws.amazon.com



Sign up for S3

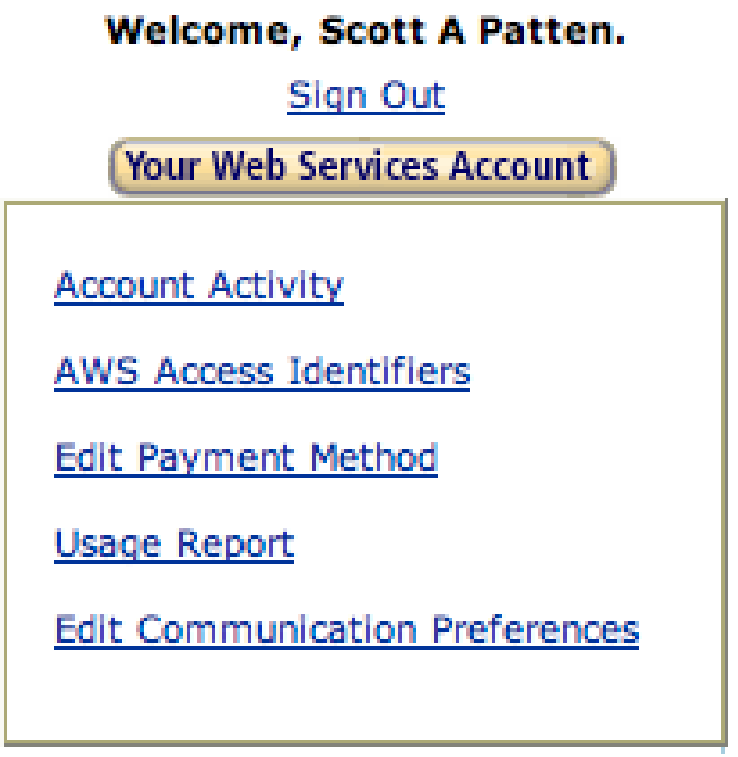


Getting started with S3

Get your keys

Hover over the 'web services account' button
Click on 'AWS Access Identifiers'

You need two keys:
Access key
Secret access key



Getting started with S3

Install the AWS-S3 gem

sudo gem install aws-s3

http://amazon.rubyforge.org

Getting started with S3

Set up your environment variables

```
export AMAZON_ACCESS_KEY_ID='abcdefghijklmnop'

export AMAZON_SECRET_ACCESS_KEY='12367891012345'
```

S3SH Demo

Accessing your files

Normal method

key vampire.jpg

bucket spatten_s3demo

URL http://s3.amazonaws.com/spatten_s3demo/vampire.jpg

Accessing your files

Bucket First

key vampire.jpg

bucket spatten_s3demo

URL http://spatten_s3demo.s3.amazonaws.com/vampire.jpg

Accessing your files

CNAME Method

key vampire.jpg

bucket photos.spattendesign.com

URL http://photos.spattendesign.com/vampire.jpg

For this to work, you need to create a CNAME entry that points photos.spattendesign.com to s3.amazonaws.com

Cool, how did they make irb do that?

s3sh

```ruby
#!/usr/bin/env ruby
s3_lib   = File.dirname(__FILE__) + '/../lib/aws/s3'
setup    = File.dirname(__FILE__) + '/setup'
irb_name = RUBY_PLATFORM =~ /mswin32/ ? 'irb.bat' : 'irb'

exec "#{irb_name} -r #{s3_lib} -r #{setup} --simple-prompt"
```

setup.rb

```ruby
#!/usr/bin/env ruby
if ENV['AMAZON_ACCESS_KEY_ID'] &&
   ENV['AMAZON_SECRET_ACCESS_KEY']
  AWS::S3::Base.establish_connection!(
    :access_key_id     => ENV['AMAZON_ACCESS_KEY_ID'],
    :secret_access_key => ENV['AMAZON_SECRET_ACCESS_KEY']
  )
end

require File.dirname(__FILE__) + '/../test/fixtures'
include AWS::S3
```

Example: S3Syncer

A script that
synchronizes a local directory
with an S3 bucket

S3, Rails and Asset Hosting

S3 setup

- Create a bucket called assets.example.com
- Point the bucket at s3.amazonaws.com
- Put everything in /public in the bucket

S3, Rails and Asset Hosting

Rails setup

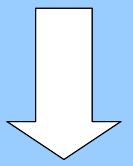
add the following line to RAILS_ROOT/config/environments/production.rb:

```
config.action_controller.asset_host = "http://assets.example.com"
```

S3, Rails and Asset Hosting

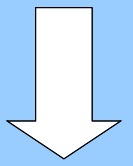
Rails setup

```
<%= image_tag("image.png") -%>
```



```
<img src="http://assets.example.com/images/image.png" alt="image" />
```

```
<%= javascript_include_tag  'prototype' %>
```



```
<script src="http://assets.example.com/javascripts/prototype.js"
 type="text/javascript"></script>
```

S3, Rails and Asset Hosting

Rails setup

Install the synch_s3_asset_host plugin

http://spattendesign.com/2007/11/6/synching-your-amazon-s3-asset-host-using-capistrano

One more cool thing

You can generate a Bit Torrent file
for any S3 Object by accessing it like this:

http://s3.amazonaws.com/bucket/file?torrent

This will automatically generate the torrent

You only pay when the bit torrent clients
download directly from Amazon

The end

any questions?