

# Rails Deployment

Stories from the front line.

# Who am I?

- Ezra Zygmuntowicz
- zig - mun - tuv - itch
- Developing and deploying rails applications for two years.

Just another ruby  
hacker.

# Case Study

- Yakima Herald-Republic Newspaper Online
- <http://yakimaherald.com>
- Launched June 2005



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**yakimaherald.com**  
YAKIMA HERALD REPUBLIC online

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June						
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**SPORTS**

**Grey matters — Hound teammates set to add to memories -**  
 Over a friendship that has lasted more than a decade, each has had his moments. But before Brandon Artz and James Vela were teammates, they were opponents.



**Martin closes in on second straight, eighth overall City crown -**  
 Different course, different day, same result. Pat Martin continues to dominate in the Yakima Ladies City Women's Golf Tournament, building on her first-round lead after Tuesday's round at Apple Tree Golf Course.

**Bears fall again to Vancouver -**  
 VANCOUVER, British Columbia — For a split second, the Bears appeared to be headed for extra innings in their Northwest League game Tuesday night against Vancouver.

**Ex-Davis coach Bush takes over at White Swan -**  
 Andy Bush thought he wanted to spend a year not coaching high school football, but he just couldn't stay away.

**06/21/06 Bears update -**  
 Next game  
 Opponent: Vancouver Canadians.  
 When, where: 1:05 p.m. today, Nat Bailey Stadium, Vancouver, British Columbia.

**Local report — Cousins lifts Peppers -**  
 WALLA WALLA — Billy Cousins went 2-for-5 and pitched a complete game as the Yakima Valley Peppers won the opener of a league doubleheader 7-2 against Walla Walla on Tuesday.

**AP Top Sports News At 1:07 a.m. EDT**

**Reyes' Cycle for Naught As Reds Rally**  
 NEW YORK (AP) — Brandon Phillips didn't know which pitch was coming from Mets closer Billy Wagner. He did know he was going to strike out if it was another high fastball...

**Mexico Advances to 2nd Round Despite Loss**  
 BERLIN (AP) — Mexico will play in the second round of the World Cup for the fourth straight time...

**Gullien Apologizes for Name Calling**  
 CHICAGO (AP) — Outspoken Chicago White Sox manager Ozzie Guillen apologized Wednesday for using a derogatory term in referring to Chicago Sun-Times columnist Jay Mariotti, then kept up his criticism of the writer...

**WEATHER**

**63**  
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**VALLEY SPORTS WEEKLY**

- \* Rac Note — Venom splits with Rattlers
- \* 06/16/06 Bulletin Board
- \* 06/16/06 Valley Sports Results

**RECENT SPORTS NEWS**

- \* NWL — Bears fall in season opener
- \* Local Report — DiPietro, Milden help key Beetle sweep
- \* NWL — Yakima adds third rounder before opener
- \* Senior Legion — Pak get past Beetles to win Hagerl touney
- \* Local Report — Bears finish second in Oregon touney
- \* Northwest League — Bears are safe at home
- \* Local Report — Pak clinches berth in Hagerl title game
- \* Auto Racing — Lewis wins NW Tour race

**NEWSPAPER IN EDUCATION**

\* Click to visit the NIE site to order papers, make donations and order curriculum guides

**World Cup Audio**  
 AP Sports Columnist Jim Litke discusses all-things World Cup in these audio reports.  
  
 Why does the world love soccer so much?

**MULTIMEDIA FEATURE**  
  
**World Cup Preview**

**Sales, specials and deals at stores near you.**

**GRANDVIEW**  
 2005 WATER QUALITY REPORT

**Top Jobs**

- \* Construction  
 Carpenter/Plumber/Electrician/Handyman
  - \* Law enforcement  
 TOPPENISH POLICE OFFICER LATERAL
  - \* Nursing \$1500 Sign on Bonus 1P/T RN needed for our
  - \* Nursing RNs/LPNs/NACs Needed Immediately Every
  - \* Office Customer Service Representative \$10.50/HR
  - \* Professional Weldhs. a leader in the fruit juice
- [More Top Jobs](#)

**Top Homes**

- FOR SALE**
- \* 3 BR, 2.5 bath, great room style, fireplace, double
  - \* 414 S. 14th Avenue Charming 2 bd, 1 ba, central ar
  - \* Buy Now! 3 BR Foreclosure \$26,438! For listings 800
  - \* Cowiche 3 BR, 2bath, 2 car garage, 1,700 sq. ft, fireplace
- [More Top Homes](#)

**FOR RENT**

- \* 2br, 2 car gar, quiet nghtbhd, no pets. Avail. 7/1
  - \* Feature your rental properties on the Yakima Herald
  - \* Naches 3br, 2ba, manuf. hm, clean, tpic. No pets!
  - \* Selah, large 2br, 1ba, all appliances incl., WD.
- [More Top Homes](#)

**Photo Dept.**

**YHR**  
 photo  
 Vote in our Photo of the Week Poll  
  
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**Newspaper Ads**

**Bob Hall Honda - GMC**  
 Central Washington's largest and fastest growing dealer group is expanding again!  
 We are seeking professionals in the following positions:  
 \*Sales Rep  
 \*Service Advisor

# Goals

- Content management
- Internet and Intranet
- Automation of Classified and Obituary workflow
- Internal credit card transaction console

# Data Aggregation

- Mysql for CMS and storage of classified and obituary data
- XML feeds from the AP News Wire
- RSS and Atom feeds from parent newspaper The Seattle Times

# Proprietary Database

- Problems:
- Non-SQL BaseView Live-IQ db holds 80% of all content
- Only accessible from poorly implemented Live-IQ Script

# Solution: ruby DSL

```
@front_page = News.fetch :headlines do
  limit {
    national_headlines 5
    local_headlines 8
    special_features 3
  }
end
```

- Emits LivelQ Script
- Sends it down a socket to the LivelQ Script interpreter
- No more LivelQ Script! Ruby all the way baby.

# Deployment Round 1

- Apache with FastCGI
- Acceptable performance
- Industry Standard
- But...

```
class ApacheWithFastCGI < ActiveRecord::Base
  has_many :random_500_errors
end
```

# Apache/fcgi == Unstable

- 500 errors for no apparent reason
- Zombied fcgi procs
- Dropped it like its hot.

# Round 2

- Lighttpd and mod\_fastcgi for teh win!
- Started with 4 static fcgi listeners.
- Very good performance and stability.

# Lighttpd

- Very fast for static files.
- Very lightweight
- Maintained version of mod\_fastcgi

# Still needed work

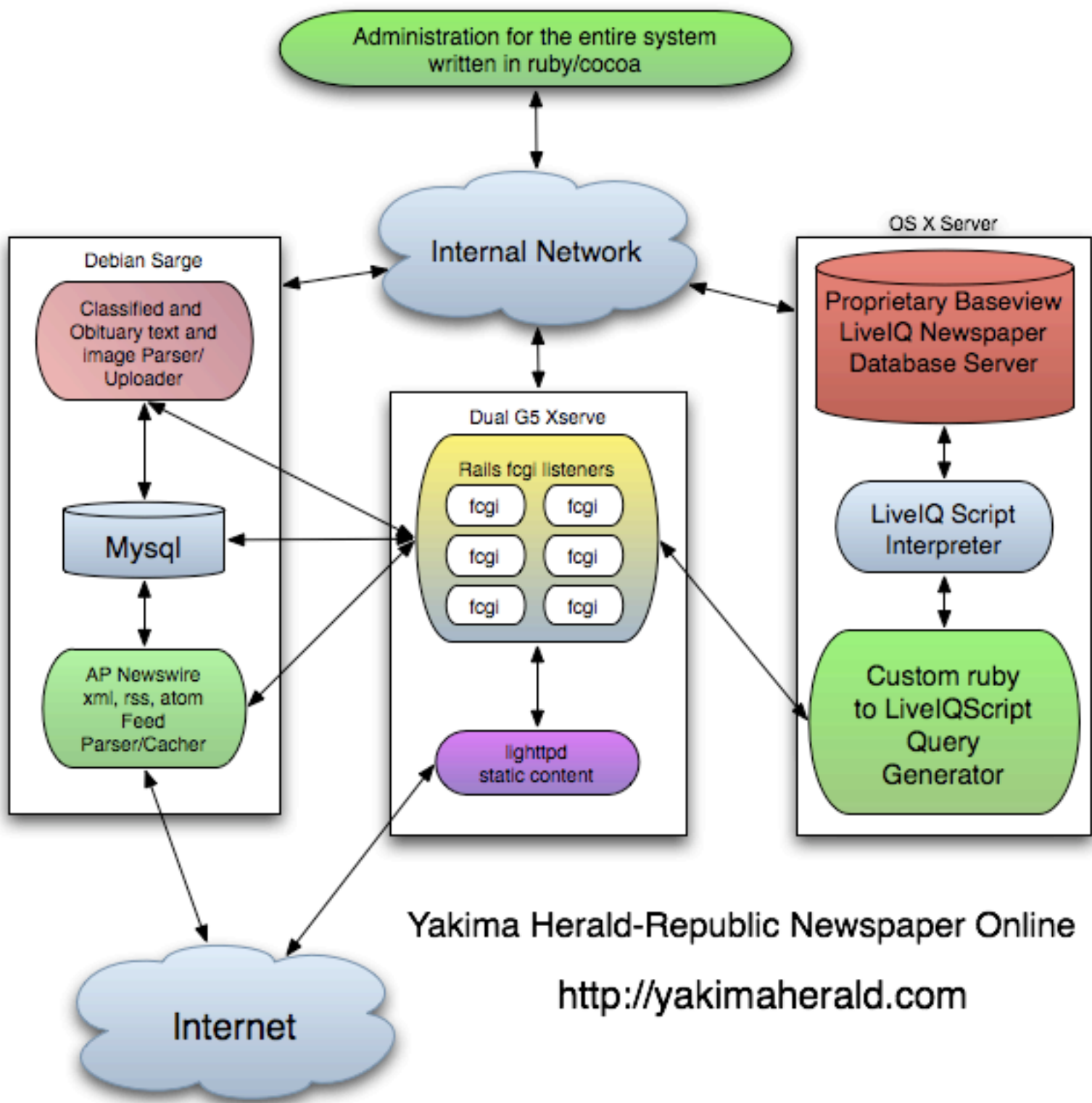
- Still doing deploys by hand
- Still the occasional 500 error :(
- Still had to restart lighty to restart app.

# Work in progress

- Switch from static fcgi procs to separately spawned setup
- Each fcgi on its own IP:PORT
- Switched to spinner/spawner/reaper
- Started using Capistrano (switchtower back in the good old days)

# Stable... finally.

- External fcgi's much more stable
- Easier to restart app when pushing releases without restarting lighty



Yakima Herald-Republic Newspaper Online

<http://yakimaherald.com>

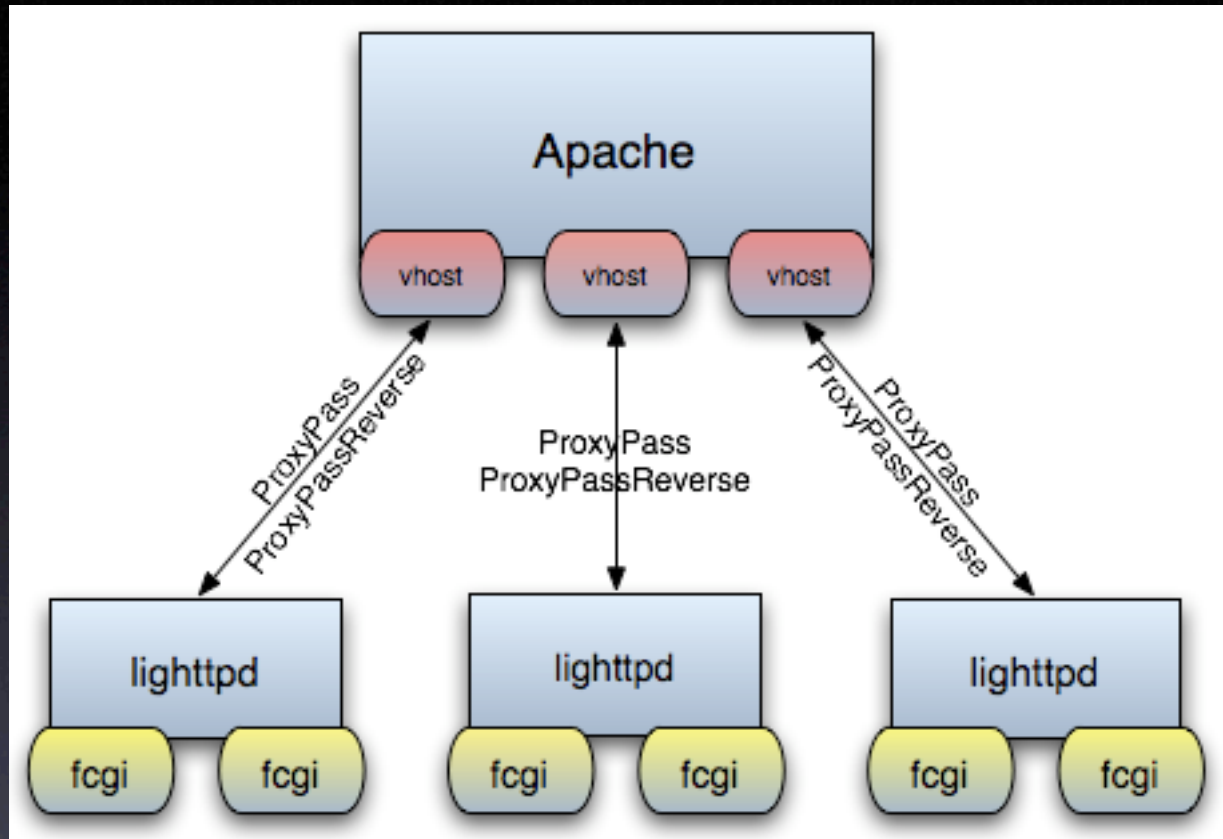
# Tuning and tweaking

- Cache as much as you can
- Get as much RAM as you can
- Find hot spots and externalize them
- Don't guess measure.
- httpperf not ab.
- [http://zedshaw.com/blog/philosophy/it\\_analysis\\_rubric.html](http://zedshaw.com/blog/philosophy/it_analysis_rubric.html)

# Stats

- 4 months start to finish
- One developer one designer
- 150,000+ page views/day
- 40% page cached
- 60% dynamic
- Running great for 12 months now

# Shared hosting setup



- + Each app gets its own port with an instance of lighty.
- + Users can restart their apps without restarting apache
- - Performance hit from too much indirection
- Decent trade offs for shared environment.

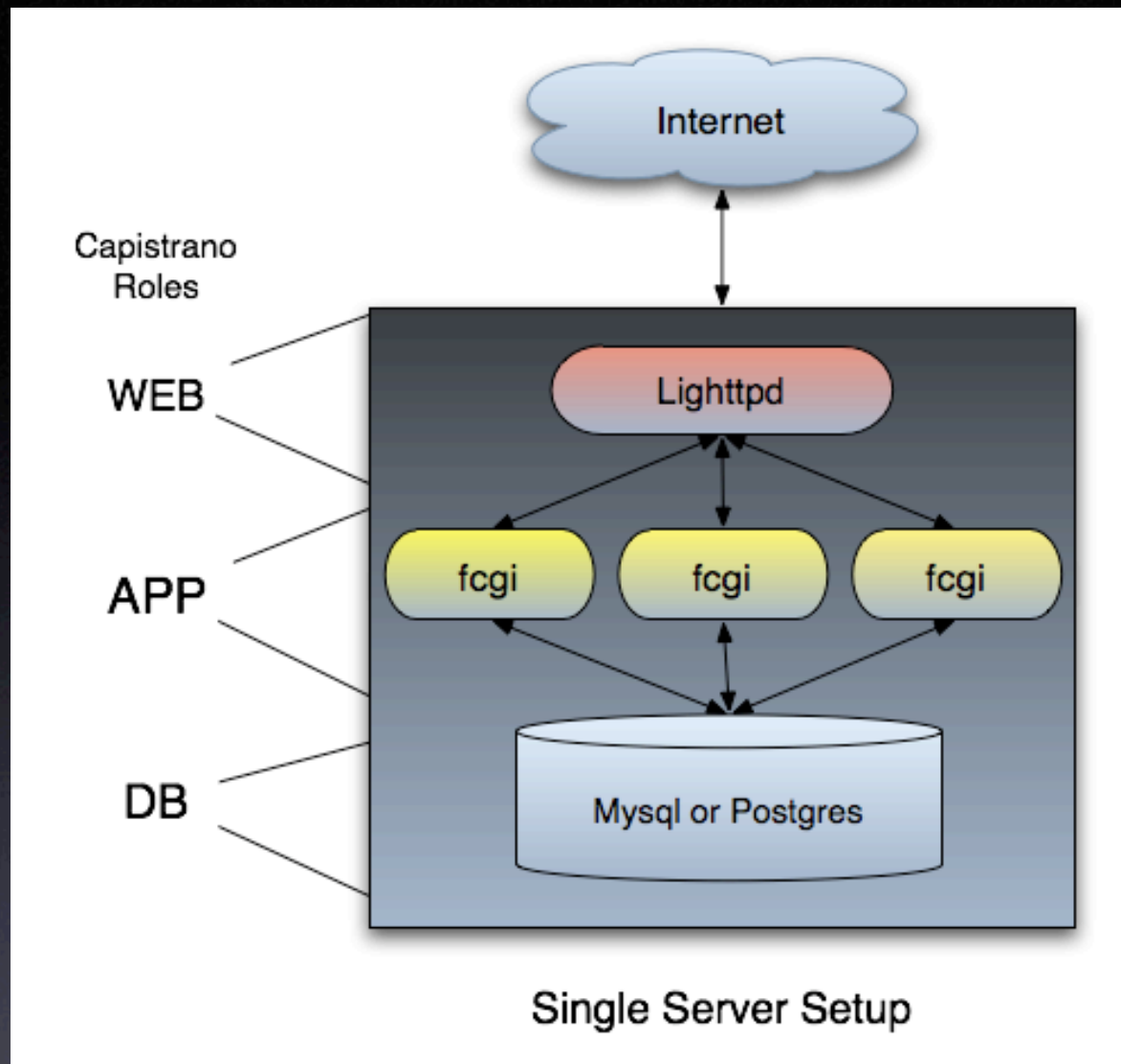
Face it...

Shared hosting + Rails == Suck.

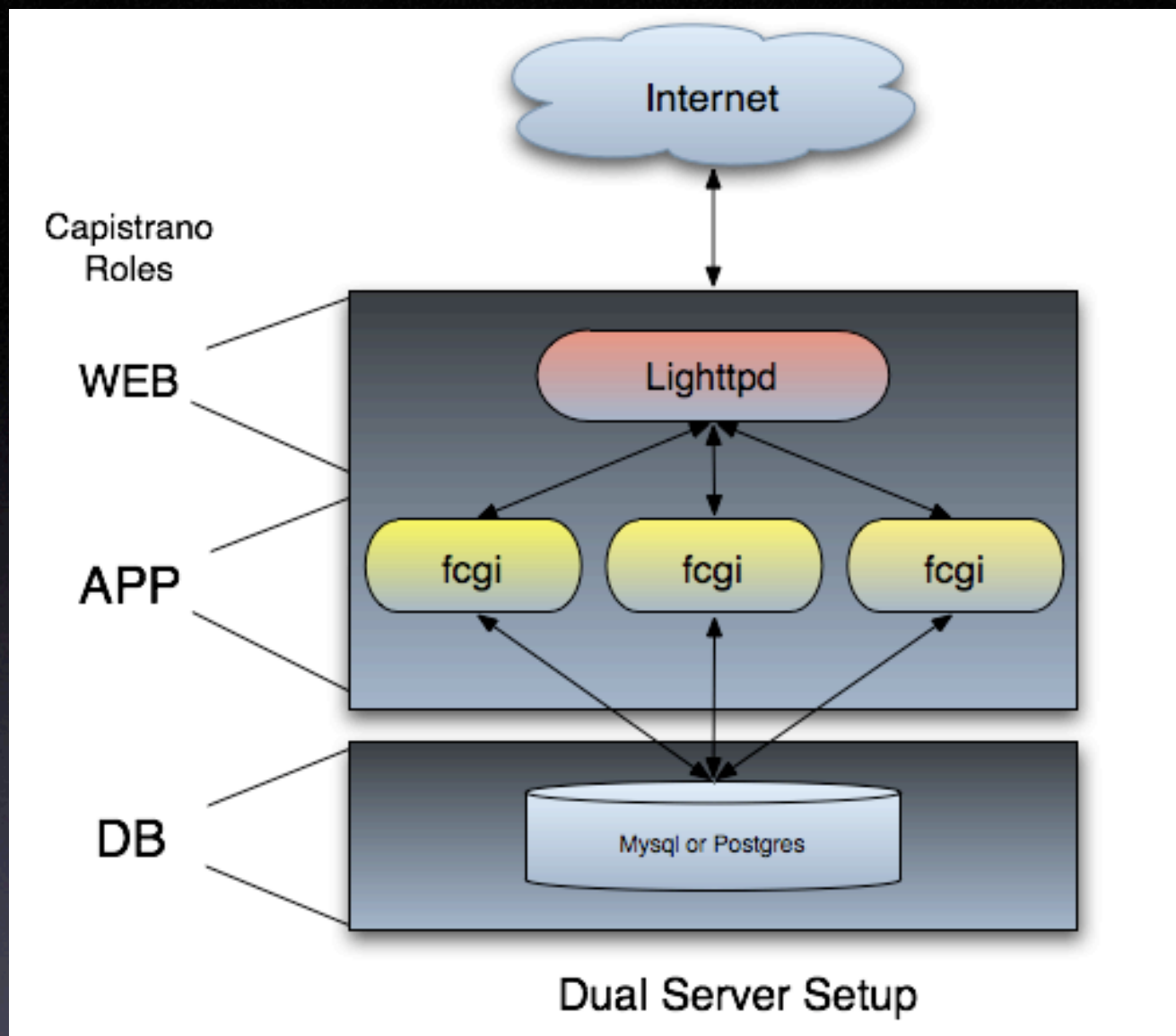
- Only as reliable as the worst app on the box.
- Not everyone is a good neighbor
- Constraints on resources
- Each man for himself

# Get a VPS

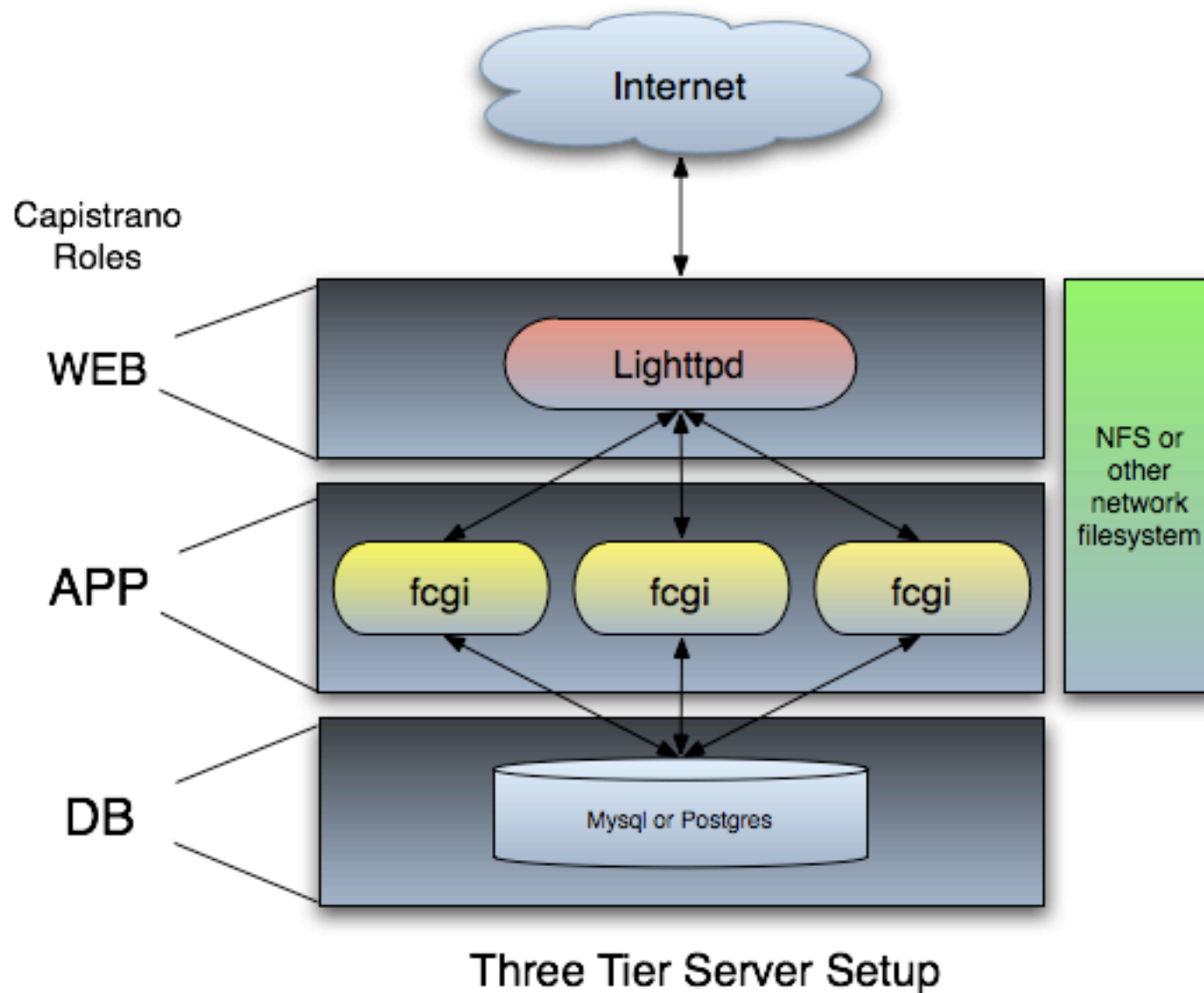
- Rails really thrives when you have your own guaranteed resources.
- Get a host that uses Xen
- Start with a minimum of 128Mb - 192+ RAM
- [http://brainspl.at/rails\\_stack.html](http://brainspl.at/rails_stack.html)



- Rails uses a 3 tier architecture
- Web: static images and assets, cached pages
- App: rails application processes
- DB: database daemon



- Move database to it's own machine
- Use most powerful box for db
- Spawn fcgi procs on db box as needed



- Typical Lighttpd Three Tier Cluster
- Proven scalable setup

But things always  
change...

```
class FutureOfRailsDeployment < ActiveRecord::Base
  belongs_to :mongrel
end
```



# Mongrel is a good dog

- Mongrel is a Ruby/C webserver written by my hero Zedas Shaw
- Simple, fast and reliable.
- Easily extensibly via gem plugins

# Advantages

- Mongrel speaks plain old HTTP
- Can take advantage of the wealth of tools available for HTTP load-balancing and proxying.
- Opens up many more possibilities for front ends.

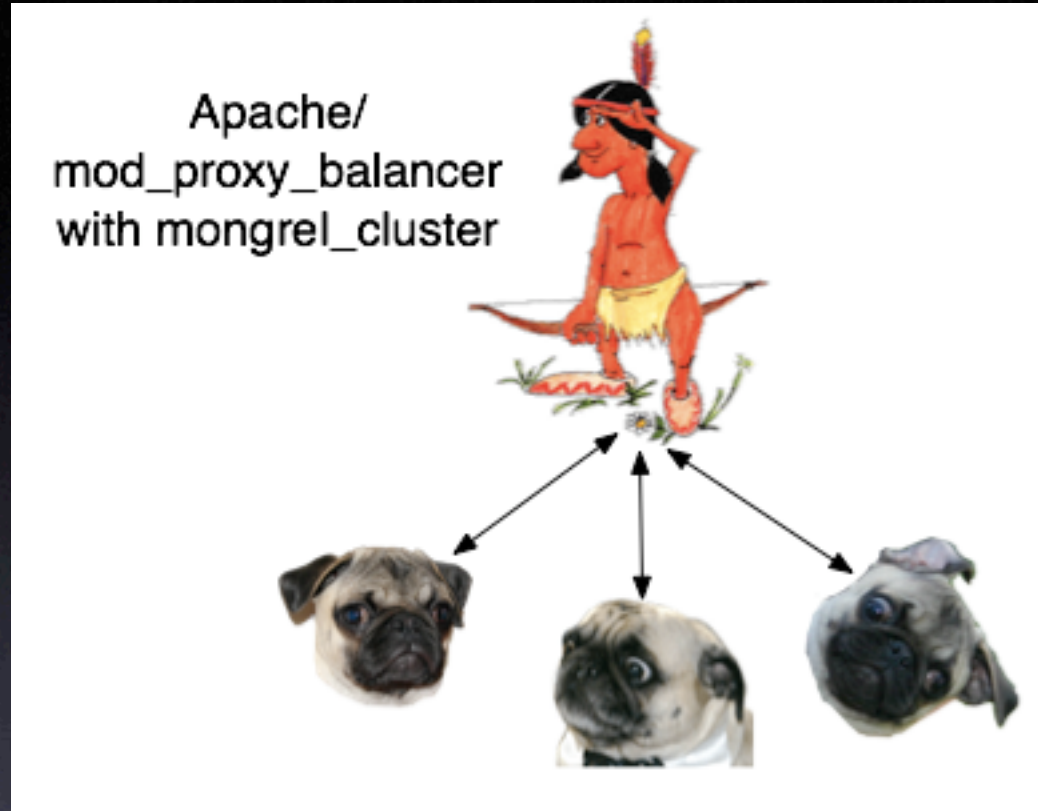
# Front end

- Pound, Pen, Balance, Haproxy or even hardware load balancers
- Lighttpd(although mod\_proxy needs to be fixed)
- Apache2.2 mod\_proxy\_balancer

# Apache2.2

- Apache is an industry standard and many sysadmins are intimately familiar with it
- Very well tooled

# Apache2.2 mod\_proxy\_balancer



## Mongrel Cluster

- Written by Bradley Taylor
- Allows for easy management of clusters of mongrel processes
- Very easy to script with capistrano

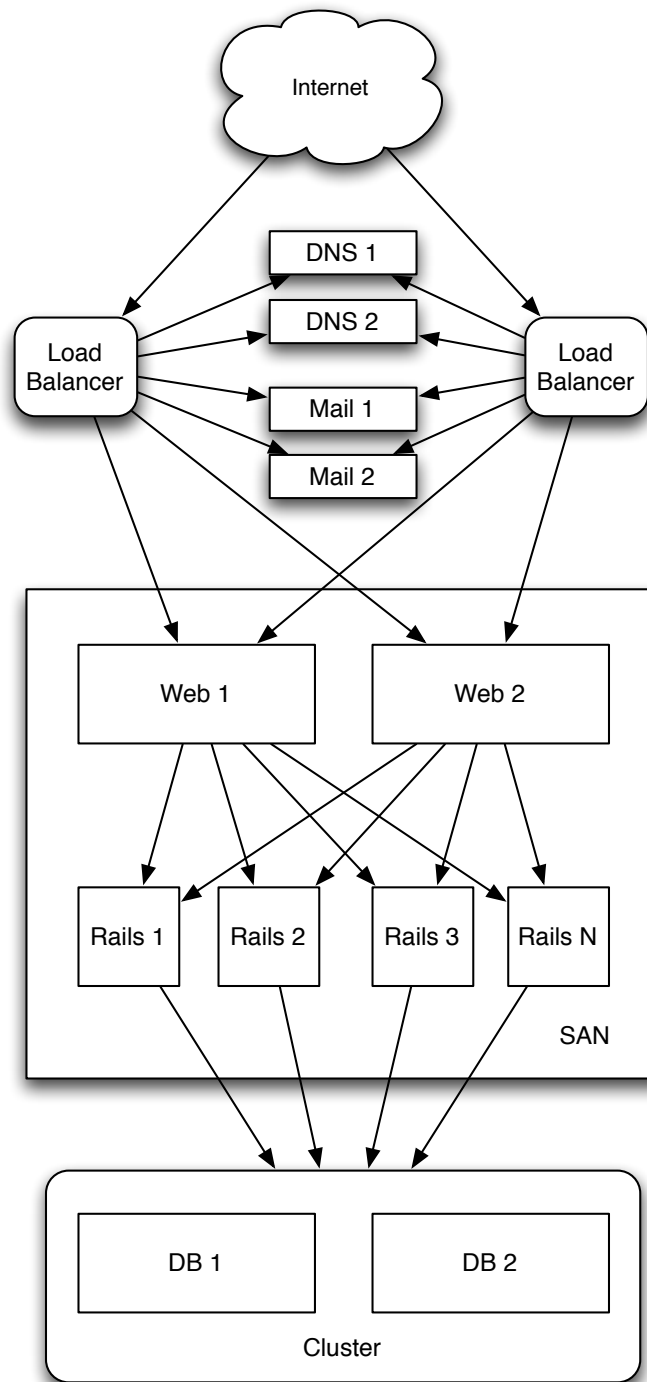
# \$ sudo gem install railsmachine

- Also by Bradley Taylor
- Capistrano task library
- Creates svn repo and imports your app
- Configures Apache virtual hosts with support for mod\_proxy\_balancer, ssl, mod\_deflate, Rails page caching, static file serving, and enable\_web.
- Configures mongrel\_cluster.
- Creates MySQL database and user from reading database.yml. Adds a "execute" command for remotely executing mysql commands.
- Creates symlinks for items in /public for use with file\_column plugin, etc.
- Generates capistrano deploy.rb



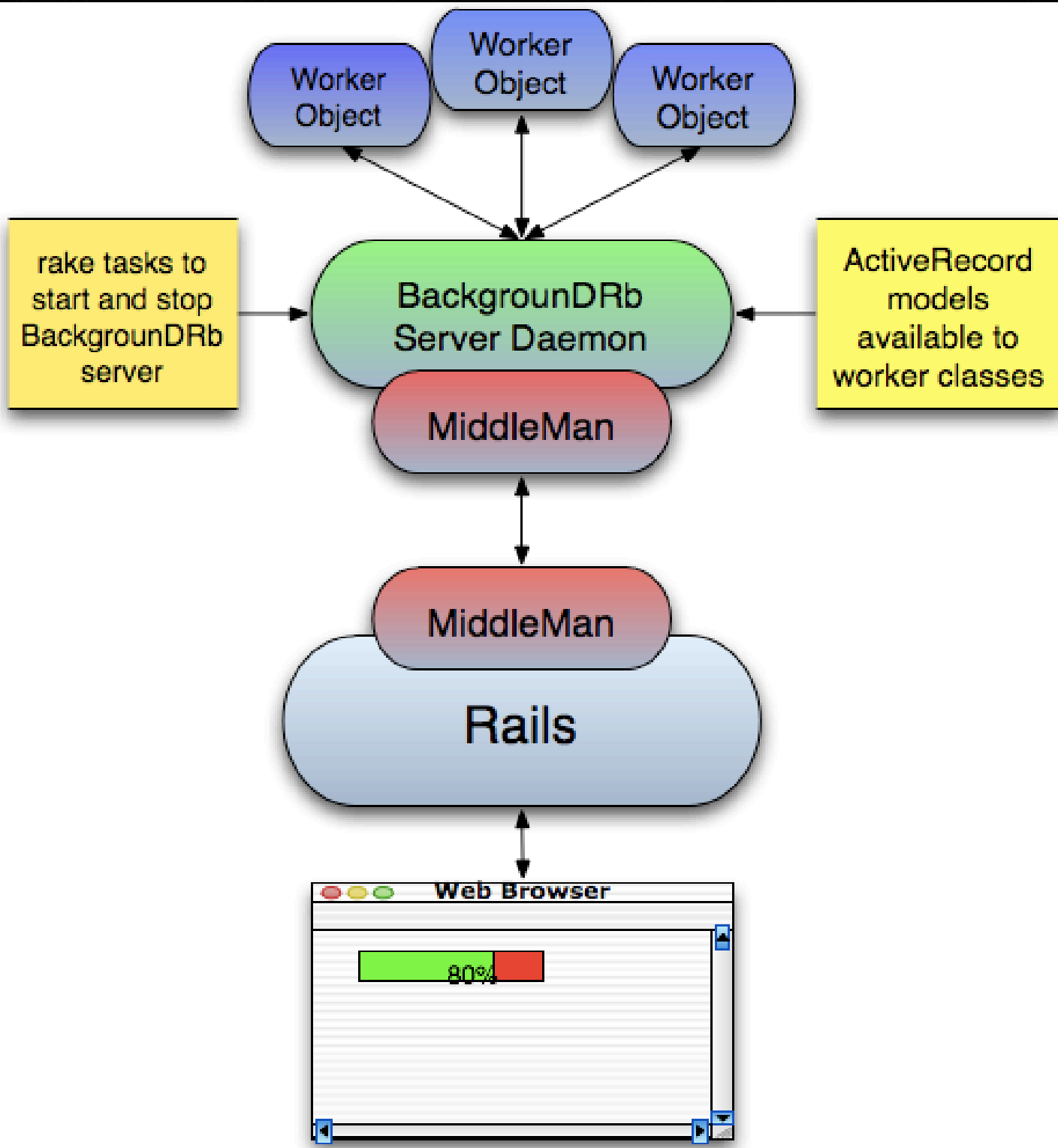
# Clustered Rails Deployment

- Easy push button deployment through a web interface
- Each application runs on two Xen VPS's each on a separate physical box
- Redundant load balanced for failover
- Add and remove cluster nodes at will
- Configure 'packages' that consist of an svn revision or tag of your app and frozen, versioned gem dependencies.
- Drag & drop to deploy your packaged app from Stage to QA to Production



# BackgroundDRb

- Distributed ruby server for managing long running background tasks
- Available as a rails plugin
- MiddleMan object for use in rails to control tasks
- Hooks for ajax progress bars or status updates while task runs



# Simple email queue worker

```
class EmailWorker < BackgroundDRb::Rails  
  
  attr_reader :progress  
  
  def do_work(args)  
    @progress = 0  
    args.each do |email|  
      Mailer.deliver_notification(email)  
      @progress += 1  
    end  
  end  
end  
  
end
```

Kick off our EmailWorker class and use `periodically_call_remote` to fetch the progress of our task.

```
def start_email_queue
  session[:mail_q] =
    MiddleMan.new_worker :class => :email_worker,
                        :args  => Users.find(:all).map &:email
end

def get_progress
  progress = MiddleMan.get_worker(session[:mail_q]).progress
  render :update do |page|
    page.update_progress_bar(progress)
  end
end
```

# Use MiddleMan as a centralized cache for large result sets

```
#fill_cache
```

```
@posts = Post.find(:all, :include => :comments)  
MiddleMan.cache_as(:post_cache, @posts)
```

```
#OR
```

```
@posts = MiddleMan.cache_as :post_cache do  
  Post.find(:all, :include => :comments)  
end
```

```
#retrieve_cache
```

```
@posts = MiddleMan.cache_get :post_cache do  
  Post.find(:all, :include => :comments)  
end
```

# One last plug

- Rails Deployment Book
- Pragmatic Programmers
- Beta Real Soon Now™

Questions?