

Real Life Web Development

Joseph Paul Cohen
joe-cohen@cs.umb.edu

Index

201 - The code

404 - How to run it?

500 - Your code is broken?

200 - Someone broke into your server?

400 - How are people using your site?

502 - You need to scale?

What is a webserver?

browser->dns->ip->port80->listening socket->

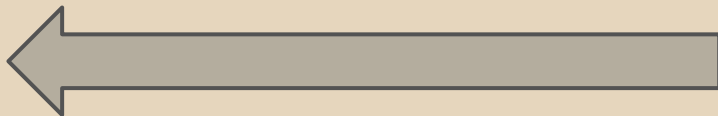
<-socket replies with text



GET / HTTP/1.1
Host: defcon.org



HTTP/1.1 200 OK
Server: lighttpd
Cache-Control: public, max-age=600
Content-Language: en
Connection: keep-alive
Date: Mon, 15 Jul 2013 02:53:06 GMT
Last-Modified: Mon, 15 Jul 2013 01:36:50 GMT
Content-Type: text/html



<html>

....

201 - The code



201 - The code

Write it yourself? Why?

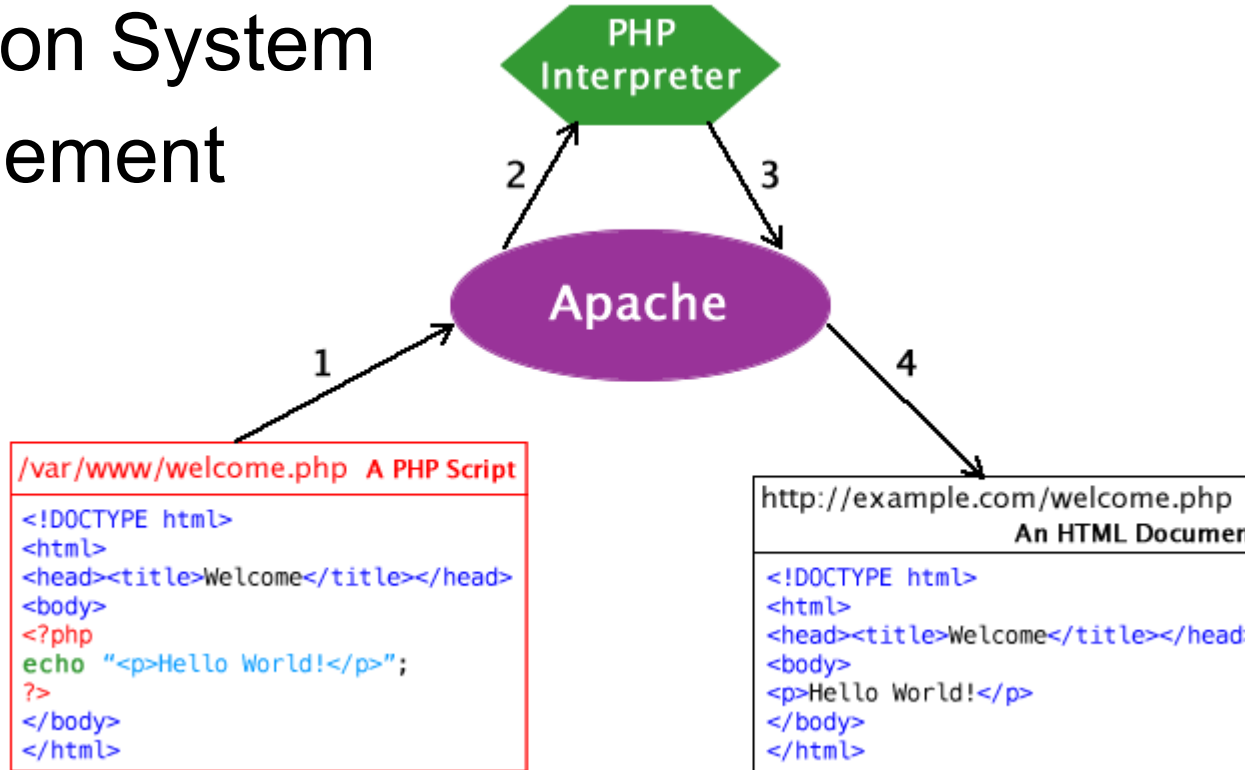
Frameworks vs Solutions

PHP Framework

+HTML Generation System
+Session Management

Many Libraries

Image, File, pdf,
geo, crypto,
database, ...





[Home](#) [About](#) [Cameras](#)

Blog Archives

Canon 60D

Posted on [September 6, 2010](#) by [jchristopher](#)

With the new EOS 60D DSLR, Canon gives the photo enthusiast a powerful tool fostering creativity, with better image quality, more advanced features and automatic and in-camera technologies for ease-of-use. [Continue reading →](#)

[Leave a comment](#)

Canon 5DmkII

Posted on [September 6, 2010](#) by [jchristopher](#)

Canon's update to the wildly popular full frame EOS 5D is here, and it's better than ever. [Continue reading →](#)

[Leave a comment](#)

Canon 7D

Posted on [September 6, 2010](#) by [jchristopher](#)

With a host of brand new features designed to enhance every facet of the photographic process, from still images to video, the new EOS 7D represents a whole new class of camera. [Continue reading →](#)

Comments Off

Recent Posts

- [Hello world!](#)

Recent Comments

- [Mr WordPress](#) on [Hello world!](#)

Archives

- [September 2010](#)

Categories

- [Uncategorized](#)

Meta

- [Log in](#)
- [Entries RSS](#)
- [Comments RSS](#)
- [WordPress.org](#)

Wordpress Blog Solution

- +Plugins can modify everything
- +Themes modify public view
- +Multiple privilege levels
- +Console to manage content
- +Tons of plugins (security risks)
- +Automatic security updates

Themes make all the difference

KNOWLEDGE DISCOVERY LAB

CURRENT RESEARCH DATASETS EVENTS PEOPLE PUBLICATIONS RESOURCES



Subscribe via RSS

Shipping Address

S-3-75 Science Building
University of Massachusetts
Boston
100 Morrissey Blvd.
Boston, MA 02125-3399

Contact Us

PI: Dr. Wei Ding
www.cs.umb.edu/~wding
KDLab Phone: 617.287.6433
Fax: 617.287.6433

Meta

[Log in](#)

[Entries RSS](#)

[Comments RSS](#)

[WordPress.org](#)

Blucat

[About](#) [Commands](#) [Devices](#) [Presentations](#) [Download](#) [Support](#)

Blucat (netcat for Bluetooth)

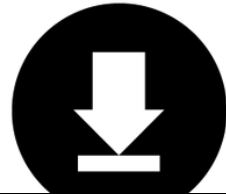
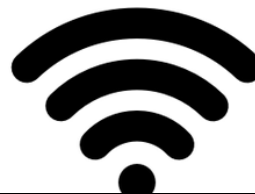
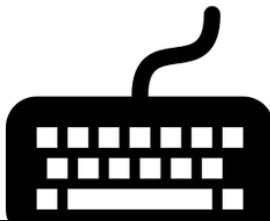
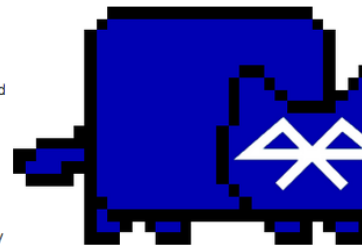
TCP/IP has tools such as nmap and netcat to explore devices and create socket connections. Bluetooth has sockets but doesn't have the same tools. Blucat fills this need for the Bluetooth realm. Blucat can be thought of as a:

1. debugging tool for bluetooth applications
2. device exploration tool
3. a component in building other applications

Blucat is designed to run on many different platforms (including Raspberry Pi) by abstracting core logic from native code using the Bluecove library to interact with a variety of Bluetooth stacks. This talk will go over the objectives, designs, and current results of the project.

This project was started in October of 2012 by Joseph Paul Cohen (Website: <http://josephpcohen.com> Email: joeccohen@at.ieee.org). Joseph Paul Cohen is a Ph.D. student at the University of Massachusetts Boston. He has worked for large finance, IT consulting, and startup software companies. He now focuses on computer science research in areas of machine learning and cyber security education.

Find the old blucat sourceforge page here: <http://blucat.sourceforge.net/index-old.htm>



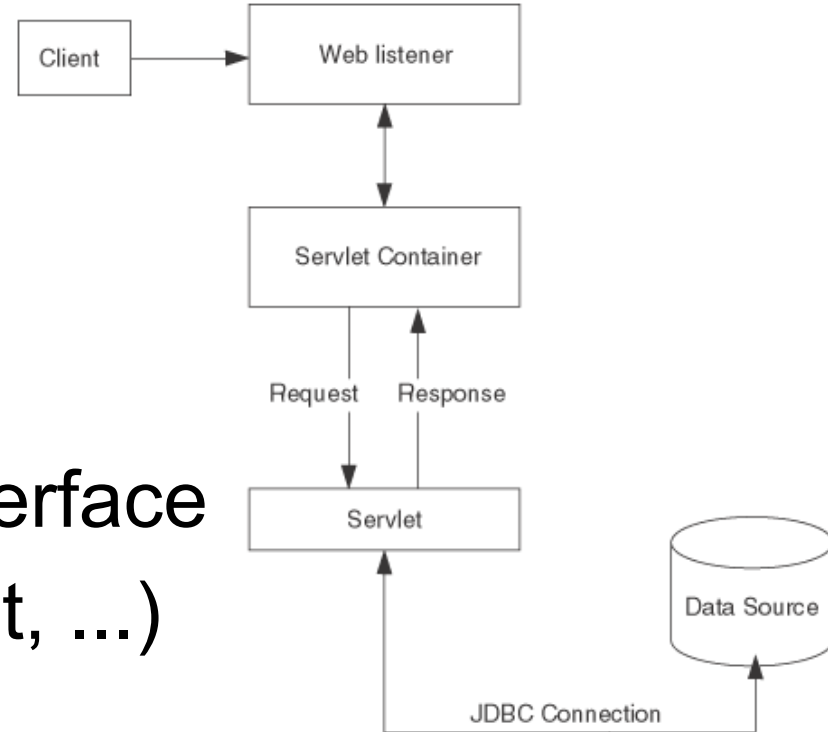
Java Servlet

WebSphere[®] software

RED HAT JBOSS



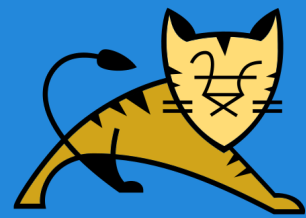
- +Web Framework
- +HTTP Verb Router
- +Listens to socket directly
- +Built-In Session System
- +JSP (~PHP) or Stream Interface
- +Many “containers” (Tomcat, ...)
- +Can use Java Libraries



Java Servlet

WebSphere[®] software

RED HAT JBOSS



- +Can have service threads running at all times
- +Thread and session can both store data
- +Single deployable “war” file contains entire site
- +Containers can seamlessly scale website
- +Can statically analyse code
- +Good for large projects

Django



+Model / View / Template Framework

+Model:

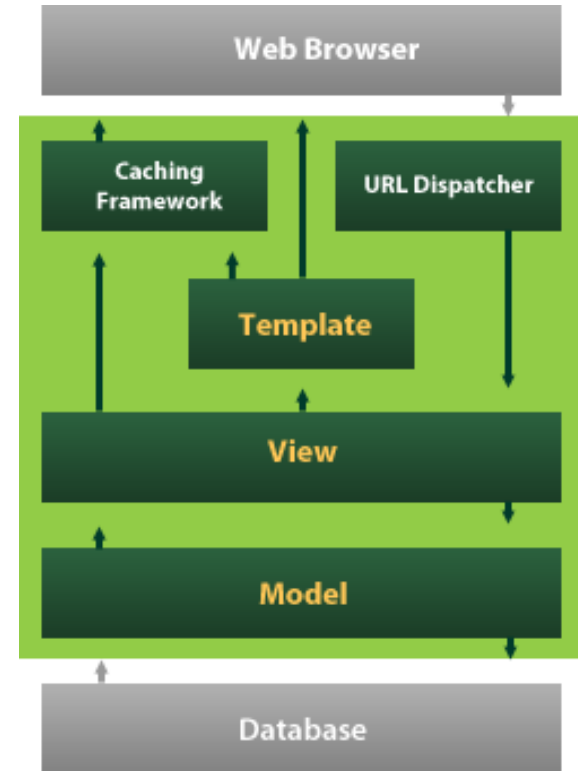
- +Database Abstraction
- +Entity Relational Mapping
- +Lazy Queries

+View:

- +Application Code

+Template:

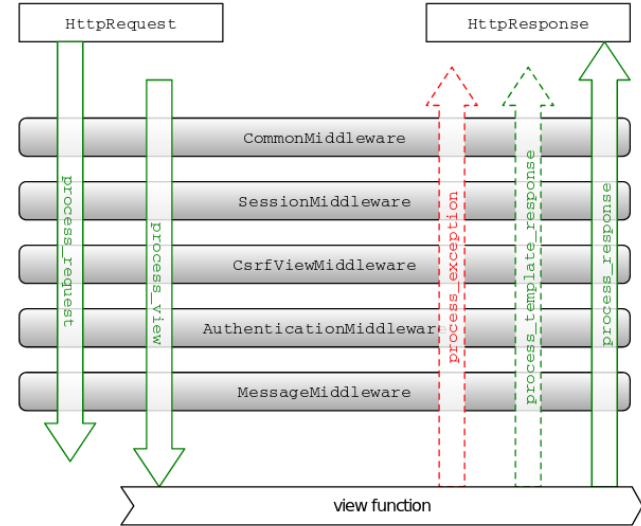
- +Templating Engine
- +Generic CRUD Templates



Django



- +Administration Interface
- +Schema Migrations (South)
- +Middleware



Django



django[®]

The Web framework for perfectionists with deadlines.

Django makes it easier to build better Web apps more quickly and with less code.

+Lots of “Out Of The Box” Utility

+Easy CRUD

+Database Agnostic

+Entity-Relational Mapping

+Many Packages e.g. South

+Program In Python

+Develop Big Websites **Fast**

+May Be Overwhelming

+Many Pieces

+May Encounter Edge Cases

+Less Control / Simplified

- Henry Lo

Django Wizard

PHP Slim

Slim

Web Framework

- +HTTP verb & path router
- +Parses path as variables
- +Perfect for AJAX interfaces
- +Error handling and debugging
- +Database abstraction

Slim is a **PHP micro framework** that helps you quickly write simple yet powerful web applications and APIs.

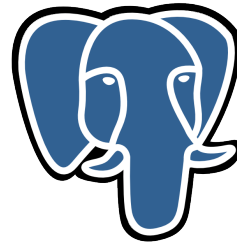
```
<?php
$app = new \Slim\Slim();
$app->get('/hello/:name', function ($name) {
    echo "Hello, $name";
});
$app->run();
```

Database Tools

Most frameworks/solutions support only a few databases

Complication vs Speed

SQLite > (Postgres || MySQL)



PostgreSQL



SQLite



Operates on flat file in same thread
Backup is simple (just copy a file)
Data can be in same folder as code
Supports all standard SQL
Command line debugging tool
No indexing

MySQL



MySQL and MariaDB are daemons

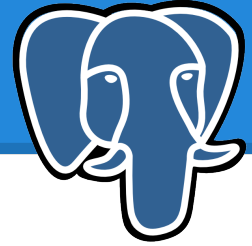
Built in authentication. Listens on socket or port.

Provides indexing, fulltext search, and clustering

Deployed everywhere, many Linux packages.

Easy to connect to from any language

PostgreSQL



PostgreSQL

Similar to MySQL

- MySQL is an open-source PRODUCT.
- Postgres is an open-source PROJECT.

When should you write it yourself?

When should you write it yourself?

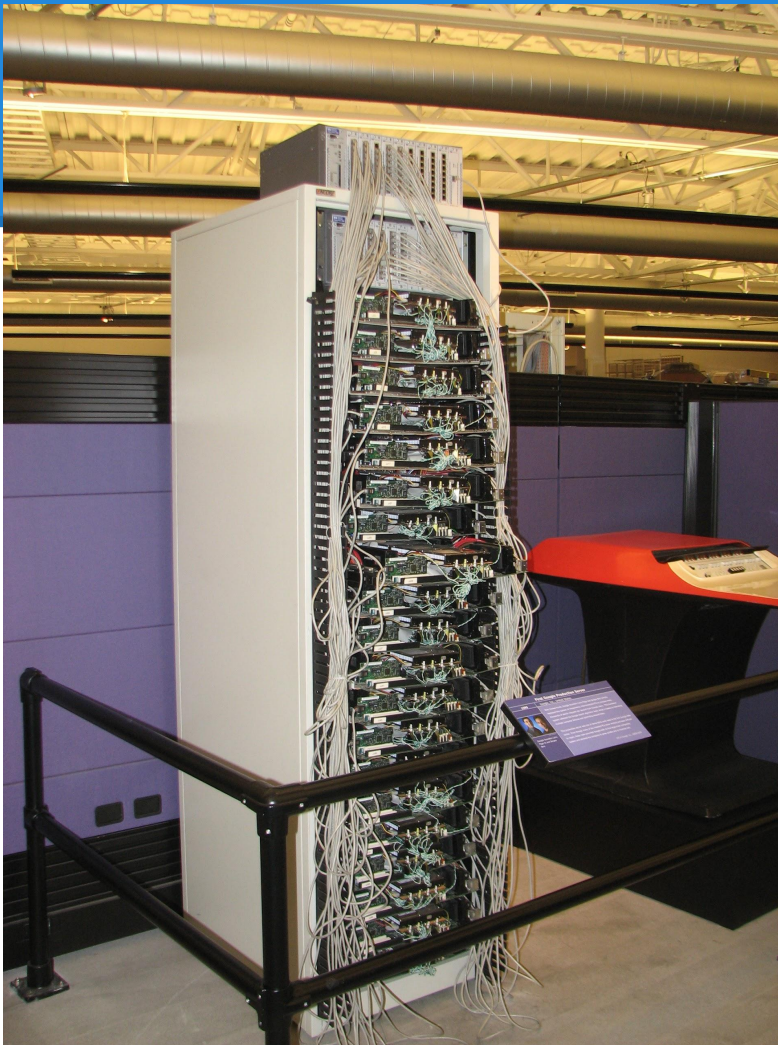
Nothing else solves the problem

Can you change the problem?

Existing solutions are bad

You want to learn the problems faced

404 - How to run it?



Google needed this

200Mhz Sun Microsystems Ultra II

300 MHz dual Pentium II

F50 IBM RS/6000

~300GB Storage

~2GB or RAM

What do you need?

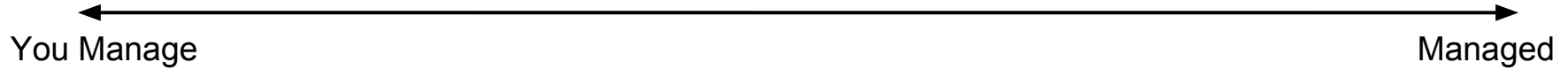
Only buy that!

404 - How to run it?

Lower costs means you can run it longer

Do you really want to configure your httpd?

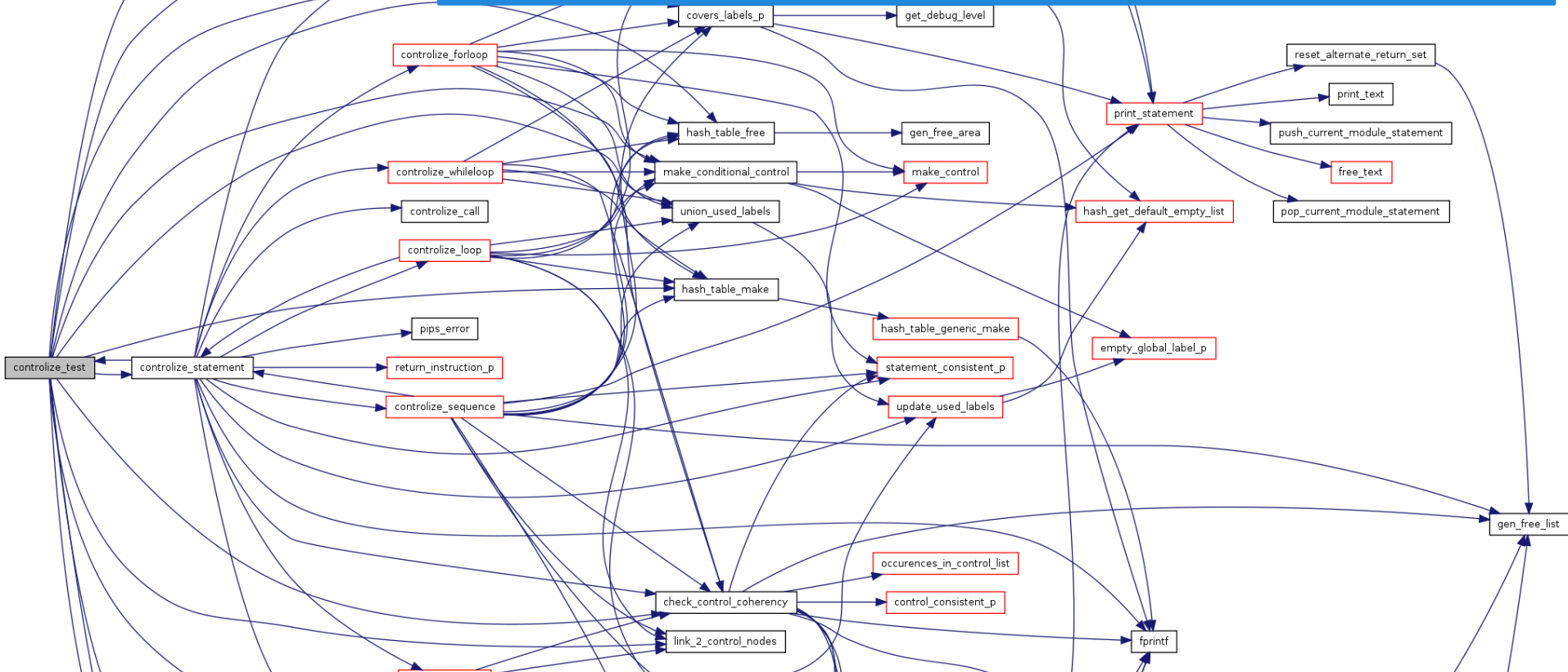
Do you really want to manage your server?



- Can install physical server
- Can have any internet service
- Root access
- You must replace parts
- You can run any code
- You have to set up webserver

- Can share IP and server
- Maybe no root access
- Server operation is assumed
- Backups done automatically
- Server operator on call

500 - Your code is broken?



500 - Your code is broken?

Is it your fault? (+1 Managed Hosting)

Reduce what you can break!

Everything is more complicated than you think!

What did you change? (+1 Source Control)

Did your code change?

Did something happen to your database?

Managed hosting gives your own IT group!

Know what they can fix
Give them the important info

What server?

What should it do?

What should it not do?

Submit a Support Ticket

What e-mail address should we reply to?

How can we help?

Attachment

 No file chosen

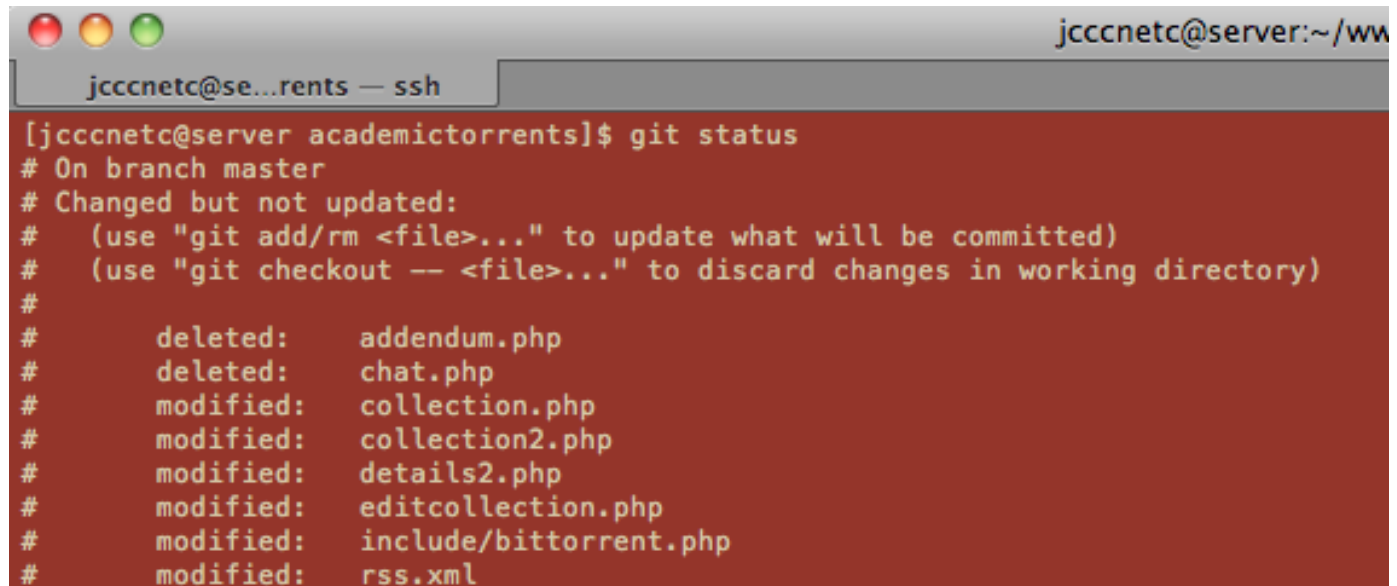
Message

My server won't start. Please fix it for me!

Submit Ticket

GIT / SVN

Storing your website in GIT or SVN allows you to see the changes you made before the site broke.

A terminal window with a dark red background. The title bar shows 'jcccnetc@server:~/ww'. The terminal prompt is '[jcccnetc@server academictorrents]\$'. The output of the 'git status' command is as follows:

```
[jcccnetc@server academictorrents]$ git status
# On branch master
# Changed but not updated:
#   (use "git add/rm <file>..." to update what will be committed)
#   (use "git checkout -- <file>..." to discard changes in working directory)
#
#       deleted:    addendum.php
#       deleted:    chat.php
#       modified:   collection.php
#       modified:   collection2.php
#       modified:   details2.php
#       modified:   editcollection.php
#       modified:   include/bittorrent.php
#       modified:   rss.xml
```

Commit history helps you

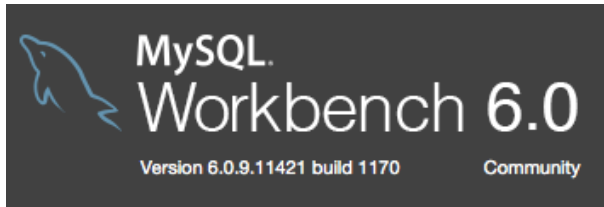
Leaving yourself notes
helps you figure out how
you broke the site

`$svn log`

`$git log`

- added colour picker, bunch of other c
- dont track sprockets this gets genera
- add avatar column
- default database settings
- don't need doc
- remove junk
- don't need haml plugin its a gem
- shouldn't track junk
- added favicon

Database Tools



- +Command line DB is hard!
- +phpMyAdmin installs on your server
- +MySQL Workbench and pgAdmin are desktop clients

phpMyAdmin vs MySQL Workbench

phpMyAdmin only needs to be set up once and allows administration from anywhere but is slow

Desktop clients allow you to connect to multiple servers and run faster but need to be installed. Most have ssh tunneling built in.

phpMyAdmin

- (Recent tables) ...
- collections
 - collections_torrents
 - comments
 - config
 - countries
 - files
 - forums
 - friends
 - messages
 - news
 - peers
 - pollanswers
 - polls
 - posts
 - readposts
 - siteog
 - stylesheets
 - tags
 - topics
 - torrents
 - Columns
 - Indexes
 - torrents_authors
 - torrents_downloads
 - torrents_tags
 - users
 - jcccnetc_what
 - jcccnetc_wor1
 - jcccnetc_wor2
 - jcccnetc_wor3
 - jcccnetc_wor4

Server: localhost » Database: jcccnetc_tbsource » Table: torrents

- Browse
- Structure
- SQL
- Search
- Insert
- Export
- Import
- Operations

```
SELECT * FROM `torrents`
```

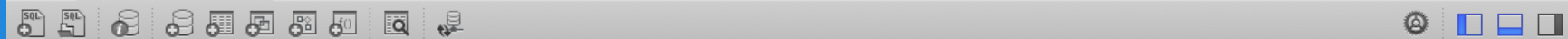
Profiling [Inline] [Edit] [Explain SQL] [Create PHP Code] [Refresh]

1 Show all > >> | Number of rows: 25

Sort by key: None

+ Options
 ← T →

		id	info_hash	name	filename	save_as	search_text	des
<input type="checkbox"/>				75	71âDÚl'í}}?~1gÖ«æ	Bernoulli trials based feature selection for crate...	bernoullitrial.pdf	bernoullitrial pdf @in title
<input type="checkbox"/>				74	0t-zÉ·_öoÄÄ+BŽD5Ä	Crater Dataset	crater-arff.zip	@ar title jour
<input type="checkbox"/>				76	Šâ0ÄÄFk`pi™#IÉ/pŽ	Crater Detection via Genetic Search Methods to Red...	ASRgeneticcrater2013.pdf	ASRgeneticcrater2013 pdf @ar title
<input type="checkbox"/>				67	ËUÿ)ÖCEÉêzCÄi à<z y	Genetically Enhanced Feature Selection of Discrimi...	geneticcrater.pdf	geneticcrater pdf @in au...
<input type="checkbox"/>				116	xÝx%oO"04E6ÿ/áÚQ ÈZ	NLCD2001 Land Cover (Version 2.0)	NLCD2001_landcover_v2_2-13-11.zip	NLCD2001 landcover v2 2 13 11 zip @ar title
<input type="checkbox"/>				57	0~.òx)µµ\$Dd@~õ_3l ¥\$	Wikipedia English Official Offline	Wikipedia_English_Official_Offline_Edition_(versio...	Wikipedia English Official Offline Edition version... @ar titl



Management Schemas

Query 1 x Query 2 x Query 3 x torrents x

SCHEMAS

Filter objects

- meas
- forums
- friends
- messages
- news
- peers
- pollanswers
- polls
- posts
- readposts
- sitelog
- stylesheets
- tags
- topics
- torrents**
- torrents_authors
- torrents_downloads
- torrents_tags
- users
- Views
- Stored Procedures
- Functions

1 • SELECT * FROM jccnctc_tbsource.torrents;

100% 1:1

Result Set Filter:

Edit:

Export/Import:

id	info_hash	name	filename	save_as	search_text	descr	ori_descr	catogo
75	71â^DÚl^í)?-1...	Bernoulli trial...		bernoullitrial.pdf	bernoullitrial pdf	@inproceedin...	@inproceedin...	5
74	0t<zÉ_öoAA÷...	Crater Dataset		crater-arff.zip	crater arff zip	@article{, title ...	@article{, title ...	6
76	Ša0ÁÁFk^pí™...	Crater Detecti...		ASRgeneticcra...	ASRgeneticcra...	@article{cohe...	@article{cohe...	5
67	ËU¥}ÖCEÉzC...	Genetically En...		geneticcrater.pdf	geneticcrater pdf	@inproceedin...	@inproceedin...	5
116	×Ý×%0^04£...	NLCD2001 La...		NLCD2001_la...	NLCD2001 la...	@article{, title ...	@article{, title ...	6
57	0~.òx)±μ§Ðd...	Wikipedia Eng...		Wikipedia_Eng...	Wikipedia Eng...	@article{, ...	@article{, ...	6
61	½ééí£ó»μÉu1^...	Abalone : Pre...		abalone.data	abalone data	@article{, title ...	@article{, title ...	6
62	¿<úÇ^fboBY[2...	Enron Email B...		docword.enro...	docword enro...	@article{, title ...	@article{, title ...	6
63	~LlæCó	New York Tim...		docword.nyti...	docword nyti...	@article{, title ...	@article{, title ...	6
66	f_~í î^Éjà~	Yeast : Predict...		yeast	yeast	@article{,auth...	@article{,auth...	6
71	0i;•ã";1ZZ?±È^	Effectiveness ...		seccomp.pdf	seccomp pdf	@article{cheu...	@article{cheu...	5
68	°pup-uk{S4 ©...	Mars Weeken...		marsweekend...	marsweekend ...	@inproceedin...	@inproceedin...	5
69	EQ,%dÉyÁ6†J\$...	NLCD2006 La...		NLCD2006_la...	NLCD2006 la...	@article{, title ...	@article{, title ...	6
70	ì +ët:Mßãóää...	Mars and Bey...		marsandbeyond	marsandbeyond	@article{cohe...	@article{cohe...	5
72	Y^ Ö_ãâ0lò<sm...	Indoor Scene ...		indoorCVPR_0...	indoorCVPR 0...	@article{, title ...	@article{, title ...	6
77	R 7Nc^3INüé...	Visual Obiect...		VOCtrainval 1	VOCtrainval 1	@article{, title ...	@article{, title ...	6

torrents 1

Apply

Revert

Table: torrents

Columns:

id	int(10) UN AI PK
info_hash	varchar(20)
name	varchar(255)
filename	varchar(255)

Query Completed

Action Output

	Time	Action	Response	Duration / Fetch Time
✓ 1	16:42:06	SELECT * FROM jccnctc_tbsource.torrents LIMIT 0, 1000	135 row(s) returned	0.139 sec / 0.986 sec



Management

Schemas

Administration - Server Status x

MANAGEMENT

- Server Status
- Client Connections
- Users and Privileges
- Status and System Variables
- Data Export
- Data Import/Restore

INSTANCE

- Startup / Shutdown
- Server Logs
- Options File



Connection Name
bluehost-tbsource

Host: server.jccnet.com
 Socket: /var/lib/mysql/mysql.sock
 Port: 3306
 Version: 5.5.36-cll
 MySQL Community Server (GPL)
 Compiled For: Linux (x86_64)

Available Server Features

Performance Schema:	<input type="radio"/> Off	SSL Availability:	<input type="radio"/> Off
Thread Pool:	<input type="radio"/> n/a	PAM Authentication:	<input type="radio"/> Off
Memcached Plugin:	<input type="radio"/> n/a	Password Validation:	<input type="radio"/> n/a
Semisync Replication Plugin:	<input type="radio"/> n/a	Audit Log:	<input type="radio"/> n/a

Server Directories

Base Directory: /usr
 Data Directory: /var/lib/mysql/
 Disk Space in Data Dir: unable to retrieve
 Plugins Directory: /usr/lib64/mysql/plugin/
 Tmp Directory: /tmp
 Error Log: On /var/lib/mysql/server.jccnet.com.err
 General Log: Off
 Slow Query Log: Off



Server Status

Running



Load



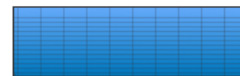
Connections

6



Traffic

118.37 KB/s



Key Efficiency

100.0%



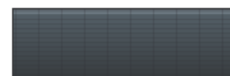
Queries per Second

1



InnoDB Buffer Usage

70.0%



InnoDB Reads per Second

0



InnoDB Writes per Second

0



Object browser

- Server Groups
 - Serveurs (1)
 - externe (localhost:6543)
 - Tunnels SSH (3)
 - serveur 1 (localhost:5432)
 - Databases (7)
 - b1
 - b2
 - benchs
 - Catalogs (2)
 - Casts (0)
 - Languages (1)

Properties Statistics Dependencies Dependents

Property	Value
Name	pgbench_accounts
OID	16391
Owner	guillaume
Tablespace	pg_default
ACL	
Of type	
Primary key	aid
Rows (estimated)	100000
Fill factor	100
Rows (counted)	not counted
Inherits tables	No

Query - benches on guillaume@localhost:5432 *



SQL Editor Graphical Query Builder

```
select * from pg_stat_activity
```

Output pane

Data Output Explain Messages History

	datid oid	datname name	procpid integer	usesysid oid	username name	application_name text	client_addr inet	client_port integer	back time
1	11874	postgres	12482	10	guillaume		:::1	49467	2010
2	33018	b1	12483	10	guillaume		:::1	49468	2010
3	16391	benchs	12485	10	guillaume		:::1	49469	2010

Table pgbench_accounts

Properties Inherits Columns Constraints Auto-vacuum Privileges SQL

Name:

OID:

Owner:

Tablespace:

Of type:

Fill Factor:

Has OIDs:

200 - Someone broke into your server?

How can you tell?

- + File changes/
- + Strange connections
- + Someone told you

How do you recover?

- + Worst case erase everything

400 - How are people using your site?

What data do you have?

+Access Logs from httpd

+HTTP Header info

+Requested pages

+Track users with cookies and javascript

+Track returning users

+Where they are active on page

+Track mouse movements and which links are clicked

400 - How are people using your site?

Analyze Logs Offline

- +Webalizer

- +Grep

Javascript based online analysis

- +Google Analytics (Pay by giving user data)

- +Pwick (You can run yourself)

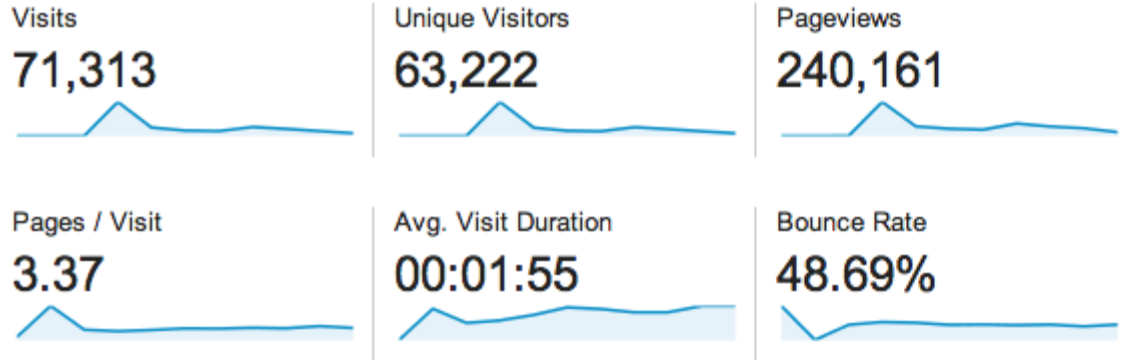
```
94.23.2.2 - [19/Mar/2014:18:17:41 +0000] "GET /details/28e4d28f5c7873118147b64625e85ce34ea50184&hit=1&toseeders=1 HTTP/1.0" 200 4531 "http://academictorrents.com/details/28e4d28f5c7873118147b64625e85ce34ea50184&hit=1&toseeders=1"
94.23.2.2 - [19/Mar/2014:18:17:43 +0000] "GET /details/dfd956b3e86279213b3b9a82a3156990dc735cac&hit=1&filelist=1 HTTP/1.0" 200 4160 "http://academictorrents.com/details/dfd956b3e86279213b3b9a82a3156990dc735cac&hit=1&filelist=1"
94.23.2.2 - [19/Mar/2014:18:17:45 +0000] "GET /details/df0aad374e63b3214ef9e92e178580ce27570e59&hit=1&filelist=1 HTTP/1.0" 200 5051 "http://academictorrents.com/details/df0aad374e63b3214ef9e92e178580ce27570e59&hit=1&filelist=1"
94.23.2.2 - [19/Mar/2014:18:17:46 +0000] "GET /details/30ac2ef27829b1b5a7d0644097f55f335ca5241b&hit=1&filelist=1 HTTP/1.0" 200 5092 "http://academictorrents.com/details/30ac2ef27829b1b5a7d0644097f55f335ca5241b&hit=1&filelist=1"
94.23.2.2 - [19/Mar/2014:18:17:48 +0000] "GET /details/2399616d26eeb4ae9ac3d05c7fdd98958299efa9 HTTP/1.0" 200 4827 "http://academictorrents.com/browse.php?id=2399616d26eeb4ae9ac3d05c7fdd98958299efa9"
94.23.2.2 - [19/Mar/2014:18:17:50 +0000] "GET /details/0e8384b9efad1e09ee2a80bfe0ac0d451d696c2e&hit=1&toseeders=1 HTTP/1.0" 200 5278 "http://academictorrents.com/details/0e8384b9efad1e09ee2a80bfe0ac0d451d696c2e&hit=1&toseeders=1"
94.23.2.2 - [19/Mar/2014:18:17:52 +0000] "GET /details/28e4d28f5c7873118147b64625e85ce34ea50184&hit=1&filelist=1 HTTP/1.0" 200 4532 "http://academictorrents.com/details/28e4d28f5c7873118147b64625e85ce34ea50184&hit=1&filelist=1"
94.23.2.2 - [19/Mar/2014:18:17:53 +0000] "GET /details/8b89d5825ca251ea355277d1f6e014891aa24875&hit=1&toseeders=1 HTTP/1.0" 200 4457 "http://academictorrents.com/details/8b89d5825ca251ea355277d1f6e014891aa24875&hit=1&toseeders=1"
94.23.2.2 - [19/Mar/2014:18:17:55 +0000] "GET /details/30ec3bb79d95e4af3b92315a5a073fb10ec8a87d&hit=1&toseeders=1 HTTP/1.0" 200 5575 "http://academictorrents.com/details/30ec3bb79d95e4af3b92315a5a073fb10ec8a87d&hit=1&toseeders=1"
94.23.2.2 - [19/Mar/2014:18:17:57 +0000] "GET /details/b0fc43009de3d358bfd8a14ba99ca320b356bc5&hit=1&filelist=1 HTTP/1.0" 200 4695 "http://academictorrents.com/details/b0fc43009de3d358bfd8a14ba99ca320b356bc5&hit=1&filelist=1"
94.23.2.2 - [19/Mar/2014:18:17:59 +0000] "GET /collection/cryptocurrency.xml HTTP/1.0" 200 6484 "http://academictorrents.com/collections.php" "torrents/1.1"
94.23.2.2 - [19/Mar/2014:18:18:01 +0000] "GET /collection/test-collection.csv HTTP/1.0" 200 346 "http://academictorrents.com/collections.php" "torrents/1.1"
94.23.2.2 - [19/Mar/2014:18:18:03 +0000] "GET /collection/gnu-radio-rf-captures.csv HTTP/1.0" 200 758 "http://academictorrents.com/collections.php" "torrents/1.1"
94.23.2.2 - [19/Mar/2014:18:18:05 +0000] "GET /collection/books HTTP/1.0" 200 6340 "http://academictorrents.com/collections.php" "torrents/1.1"
94.23.2.2 - [19/Mar/2014:18:18:07 +0000] "GET /collection/downloaded-datasets HTTP/1.0" 200 7380 "http://academictorrents.com/collections.php" "torrents/1.1"
94.23.2.2 - [19/Mar/2014:18:18:08 +0000] "GET /collection/knowledge-discovery-lab-at-umass-boston.xml HTTP/1.0" 200 12511 "http://academictorrents.com/collections.php" "torrents/1.1"
94.23.2.2 - [19/Mar/2014:18:18:11 +0000] "GET /collection/test-collection HTTP/1.0" 200 7313 "http://academictorrents.com/collections.php" "torrents/1.1"
94.23.2.2 - [19/Mar/2014:18:18:13 +0000] "GET /details/82c64b111b07ff855b8966701a13a25512687521&hit=1&toseeders=1 HTTP/1.0" 200 4279 "http://academictorrents.com/details/82c64b111b07ff855b8966701a13a25512687521&hit=1&toseeders=1"
94.23.2.2 - [19/Mar/2014:18:18:15 +0000] "GET /details/30ac2ef27829b1b5a7d0644097f55f335ca5241b HTTP/1.0" 200 5092 "http://academictorrents.com/browse.php?id=30ac2ef27829b1b5a7d0644097f55f335ca5241b"
94.23.2.2 - [19/Mar/2014:18:18:18 +0000] "GET /details/e3e68948b2e01b01a415740cb6fa6fe918c971ac&hit=1&filelist=1 HTTP/1.0" 200 103829 "http://academictorrents.com/details/e3e68948b2e01b01a415740cb6fa6fe918c971ac&hit=1&filelist=1"
94.23.2.2 - [19/Mar/2014:18:18:20 +0000] "GET /details/30ac2ef27829b1b5a7d0644097f55f335ca5241b&hit=1&toseeders=1 HTTP/1.0" 200 5093 "http://academictorrents.com/details/30ac2ef27829b1b5a7d0644097f55f335ca5241b&hit=1&toseeders=1"
94.23.2.2 - [19/Mar/2014:18:18:22 +0000] "GET /details/fbfe954c816cf914709d9483134df7448337eb9e HTTP/1.0" 200 4312 "http://academictorrents.com/browse.php?id=fbfe954c816cf914709d9483134df7448337eb9e"
94.23.2.2 - [19/Mar/2014:18:18:24 +0000] "GET /details/d666bf4b83066bcf7401e9c155fcd1b1c01cfb11&dlist=1 HTTP/1.0" 302 3310 "http://academictorrents.com/browse.php?id=d666bf4b83066bcf7401e9c155fcd1b1c01cfb11&dlist=1"
54.197.32 - [19/Mar/2014:18:18:26 +0000] "GET / HTTP/1.1" 200 2960 "-" "Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10.6; en-US; rv:1.9.2) Gecko/20100115 Firefox/3.5.1"
```

- +Web logs are a very granular and great for debugging
- +You can see strange requests very easy

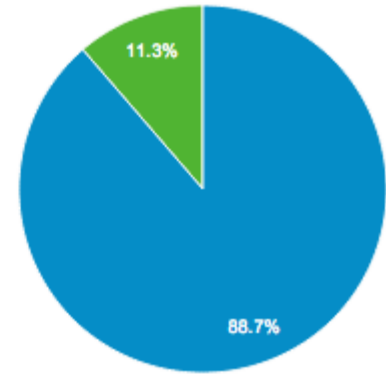

```
[19-Mar-2014 12:21:08 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:08 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:29 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:29 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:29 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:29 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:29 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:29 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:29 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:29 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:30 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:30 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:31 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:31 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:31 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:31 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:31 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:31 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:31 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:31 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:32 America/Denver] PHP Warning: mysql_num_rows() expects parameter 1 to be resource, boolean given in /home/j  
[19-Mar-2014 12:21:32 America/Denver] PHP Warning: mysql_fetch_array() expects parameter 1 to be resource, boolean given in /home/j
```

- +Error logs provide insight into how your code is working
- +Using “tail -f” to follow error logs is useful for development

Google Analytics



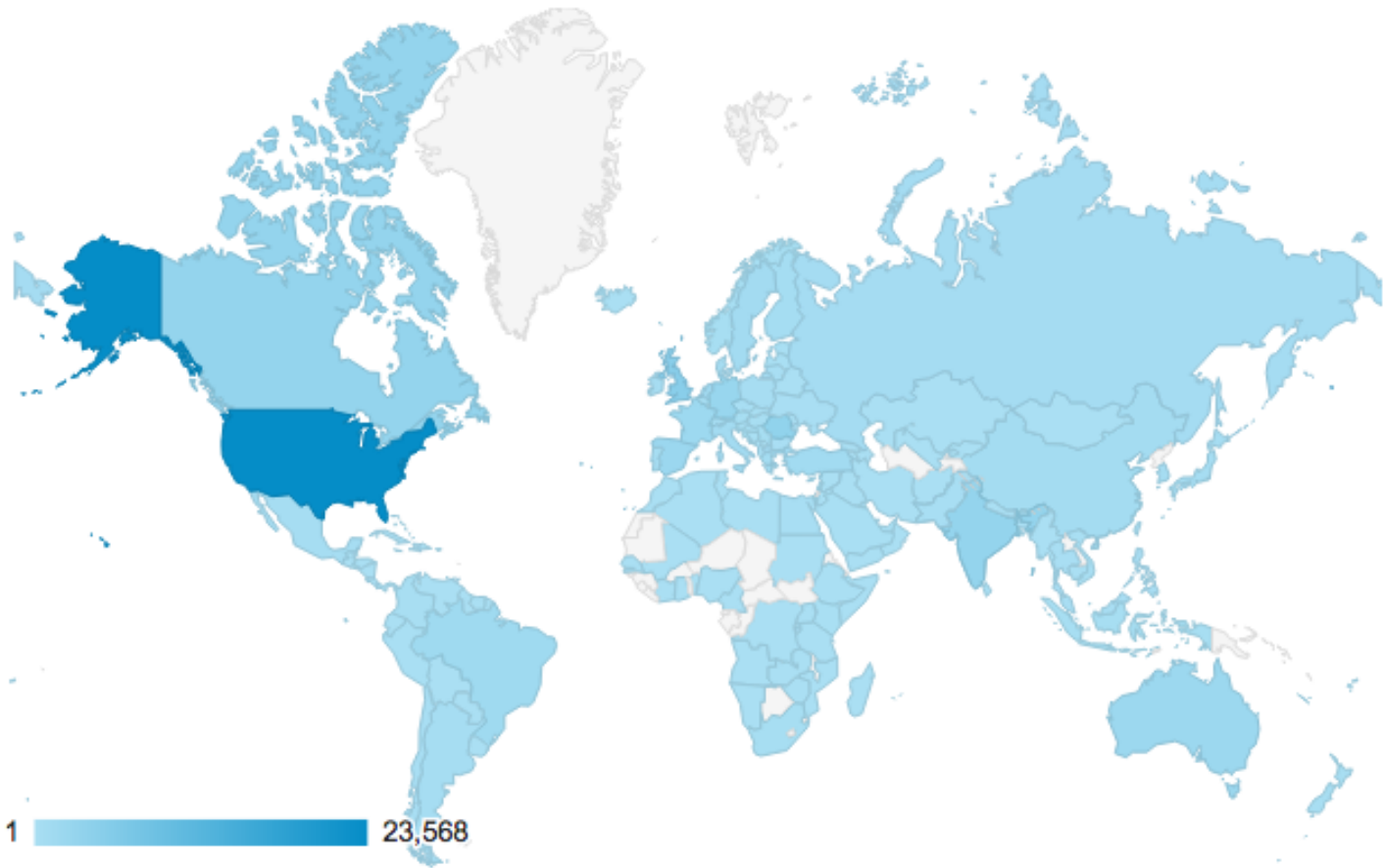
■ New Visitor ■ Returning Visitor



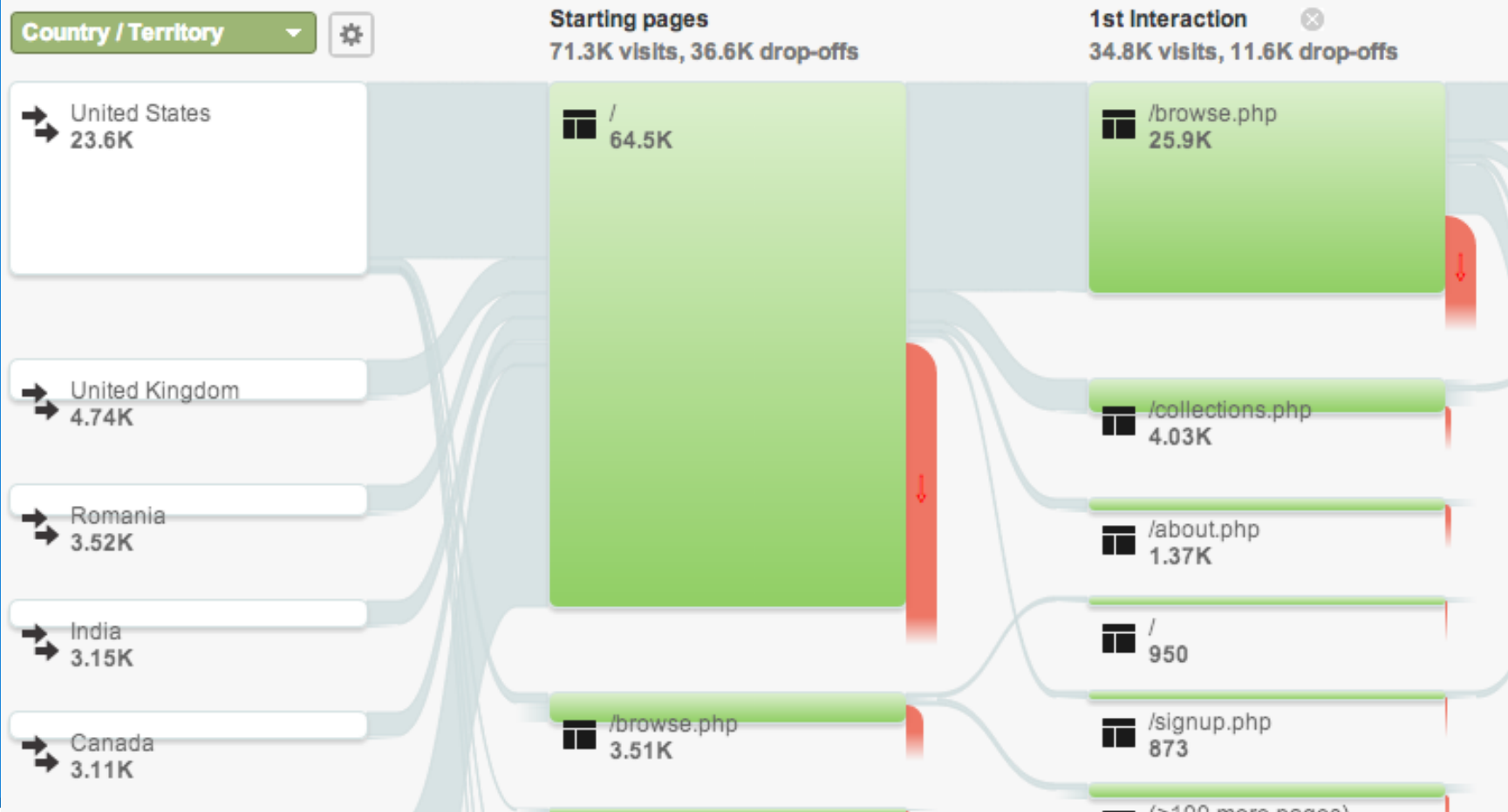
Add Javascript to all your pages

You manage less +1

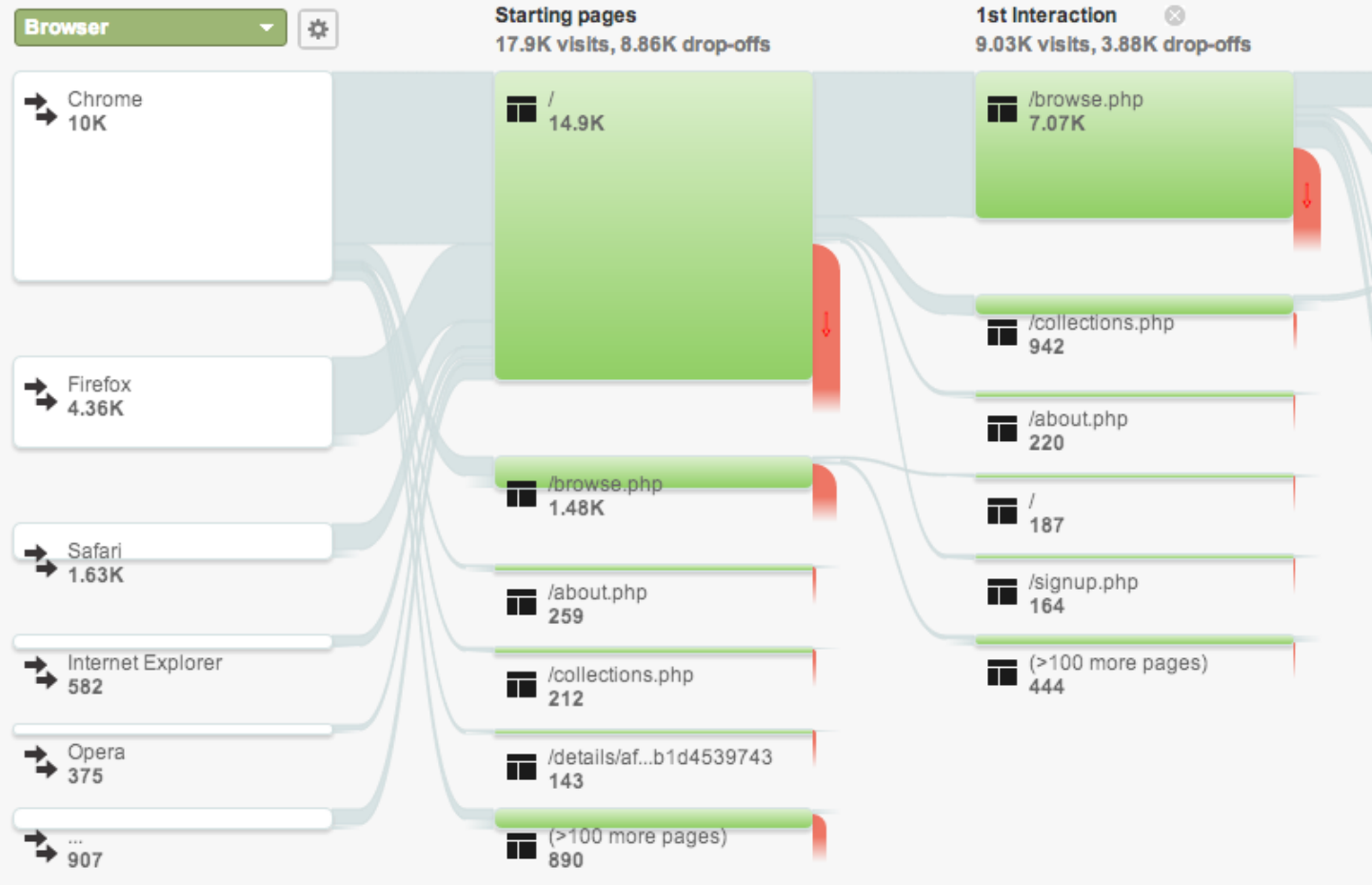
Google can track your users -1



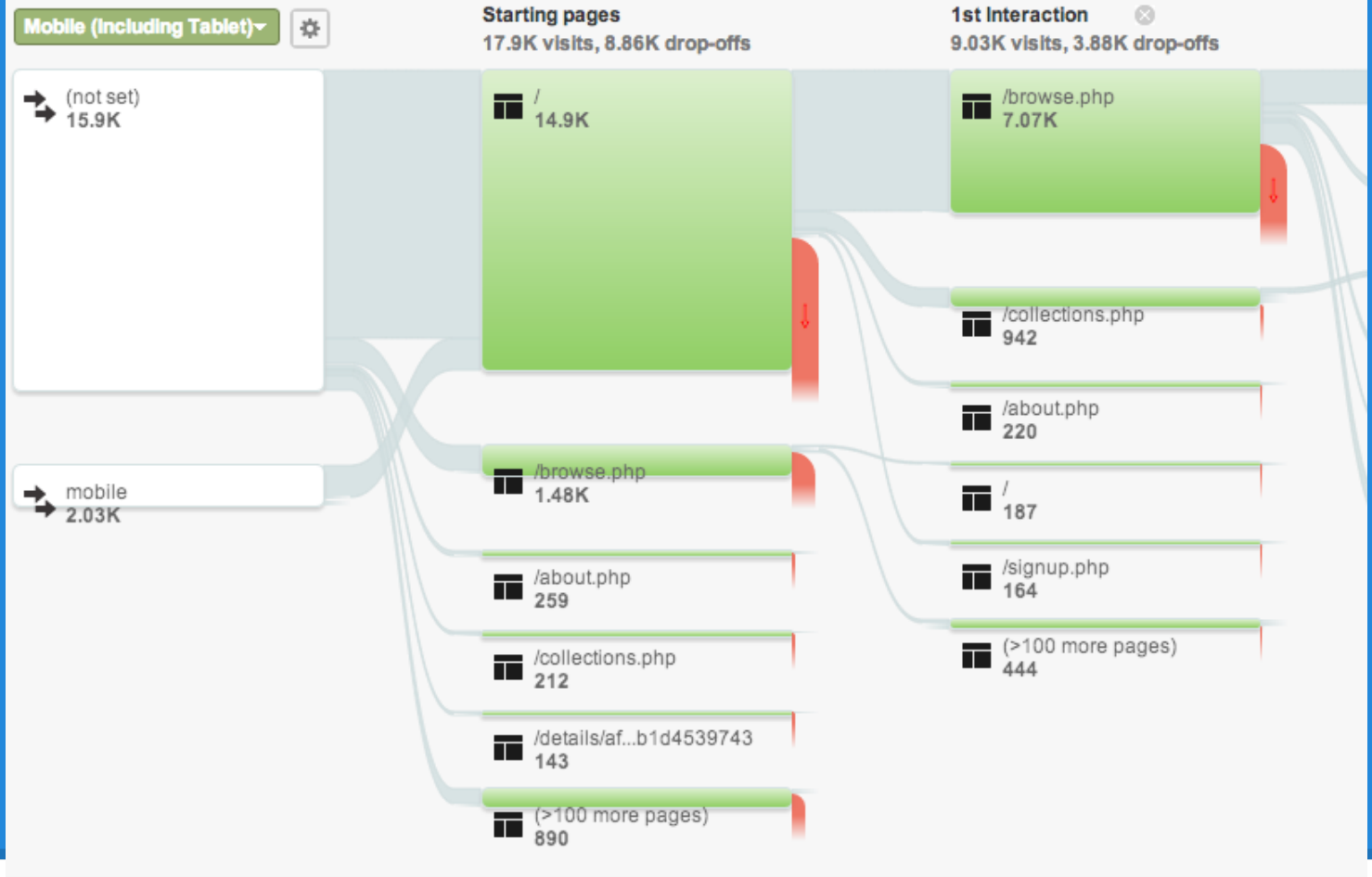
Where are your visitors from?



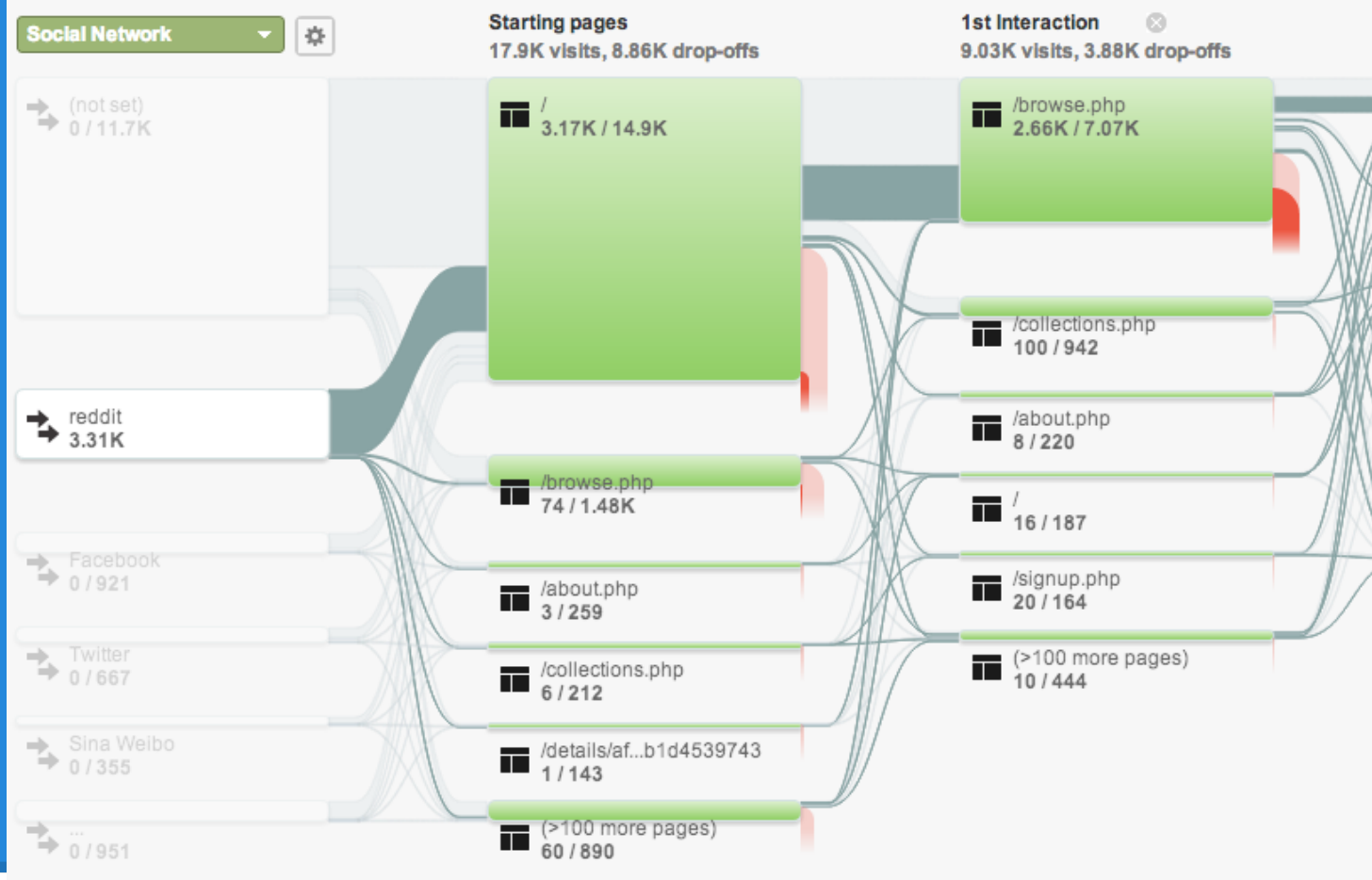
Where have people been traveling on your site?



Does the browser make a difference?



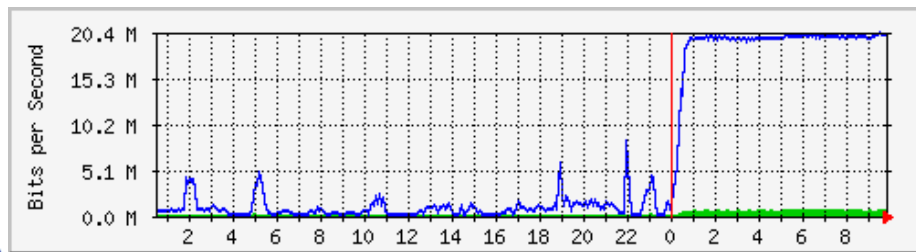
Does the browser make a difference?



Where are the engaged visitors from? Focus on the referral URL

502 - You need to scale?

What is not scaling?
Bandwidth/CPU/Storage



● VISITS

40,000

20,000

Jan 29

Jan 31

Feb 2

Feb 4

Overview

Create Shortcut BETA

Right now

231

active visitors on site

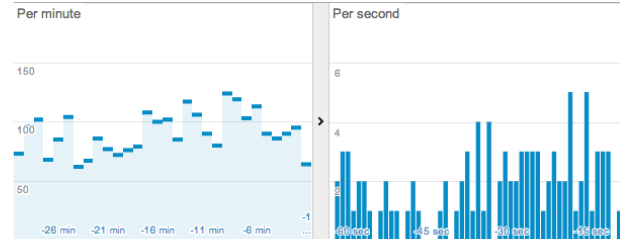
DESKTOP MOBILE TABLET

73% 19% 7%

Top Referrals:

Source	Active Visitors ↓
1. cheeaun.github.io	1
2. flipboard.com	1
3. hackers.tgdaily.com	1
4. hn.premil.com	1

Pageviews



Top Active Pages:

Active Page	Active Visitors ↓	
1. /	145	62.50%
2. /browse.php?cat=6	23	9.91%
3. /collections.php	8	3.45%
4. /browse.php?cat=6&page=2	7	3.02%

Caching!

- +Set up your server to cache
 - +Apache mod_cache or mod_file_cache
 - +nginx
- +Set up your code to cache
 - +Use HashSets
 - +memcached

Apache mod_cache, mod_file_cache

mod_cache

- +content that has not expired will be cached
- +Adjust expire time global or per file

mod_file_cache

- +some files never have their handles closed

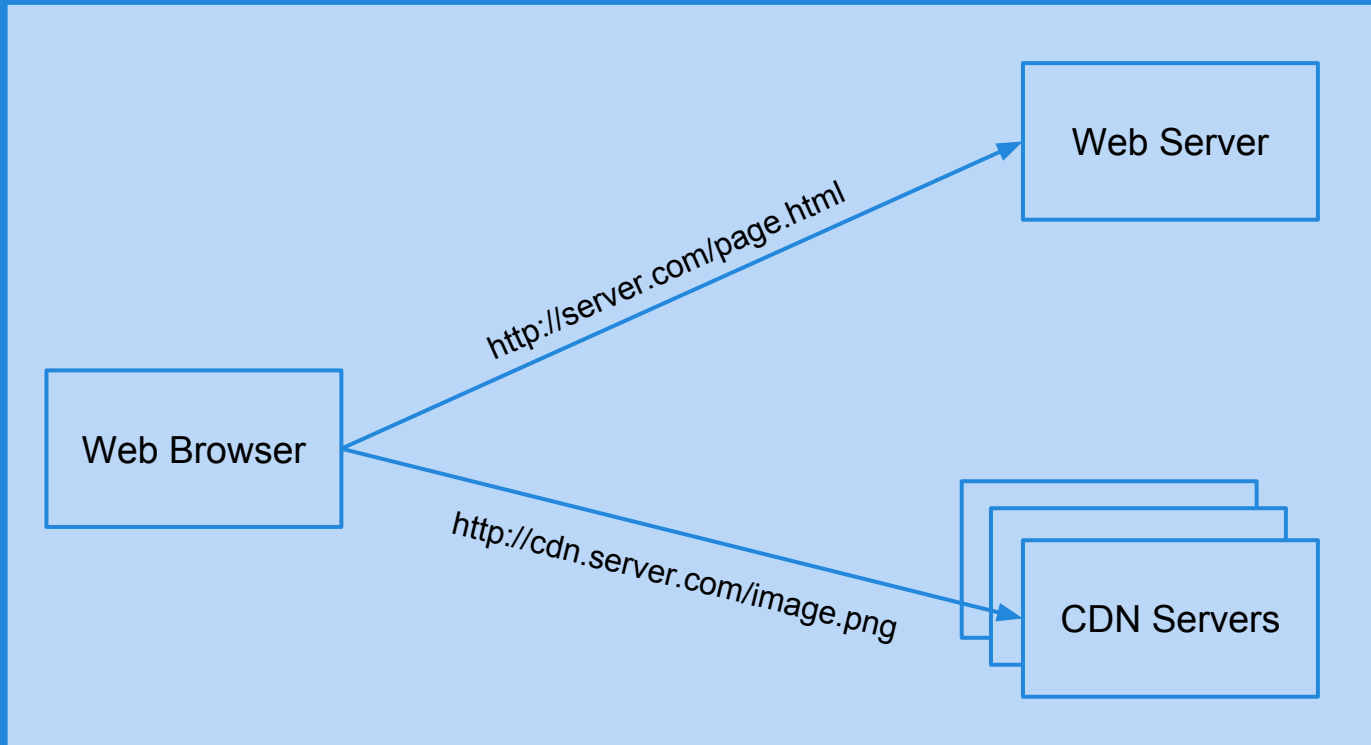
nginx

Answers requests instead of Apache

- +Forwards to apache if dynamic
- +Can handle 10k requests in 10mb
- +Setup filter for what is dynamic (.php)
- +Can forward requests to many servers

Expand to scalable network

- +Use dynamic DNS resolution to distribute
- +Use Content Delivery Network (CDN)
- +Services provided by CloudFlare/Akami

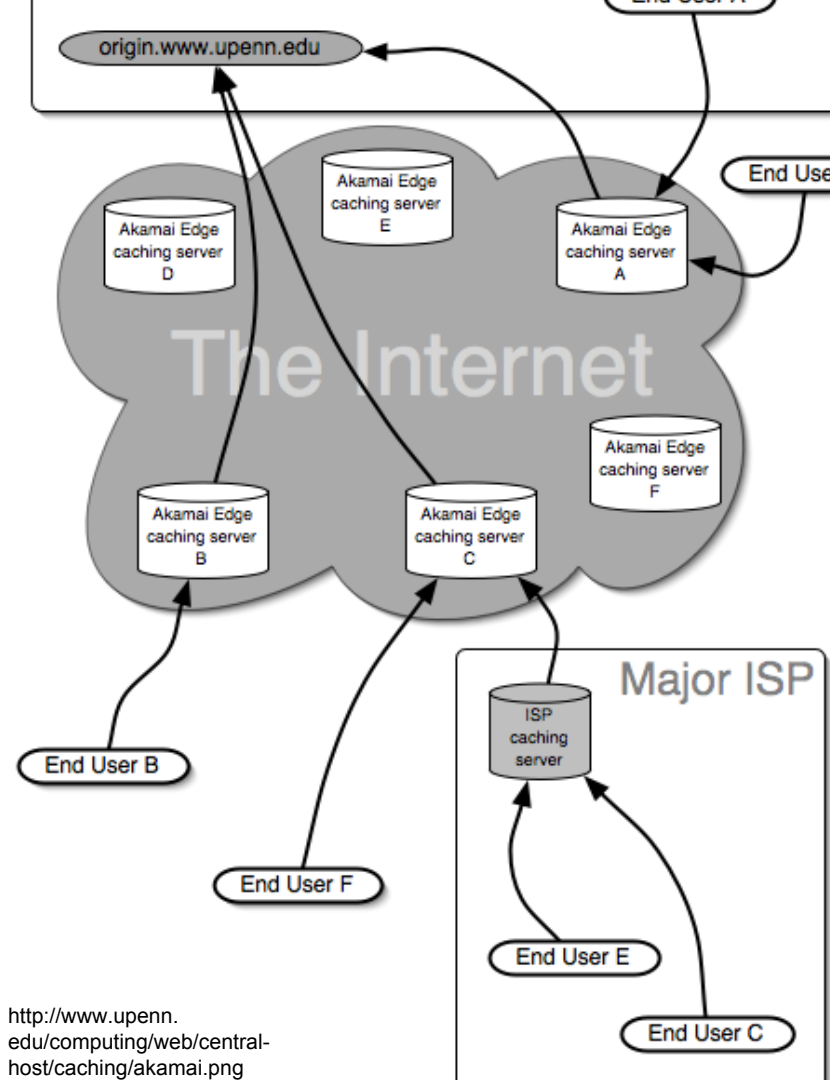


Content Delivery Network (CDN)

+Link static content to CDN network (which uses dynamic DNS)

Caching and dynamic DNS

- +Network of Edge servers
- +Give up DNS control to service
- +Edge servers receive all requests
- +Forward if content is dynamic
- +Set list of requests to forward
- +Transparent to developer



</talk>