


WordCamp ABQ 2013 DNS and WordPress Website Migration



Mark Costlow, Southwest Cyberport

- ✦ *Mark Costlow*
- ✦ *Southwest Cyberport*
- ✦ *Web Hosting since 1994*



FireFox



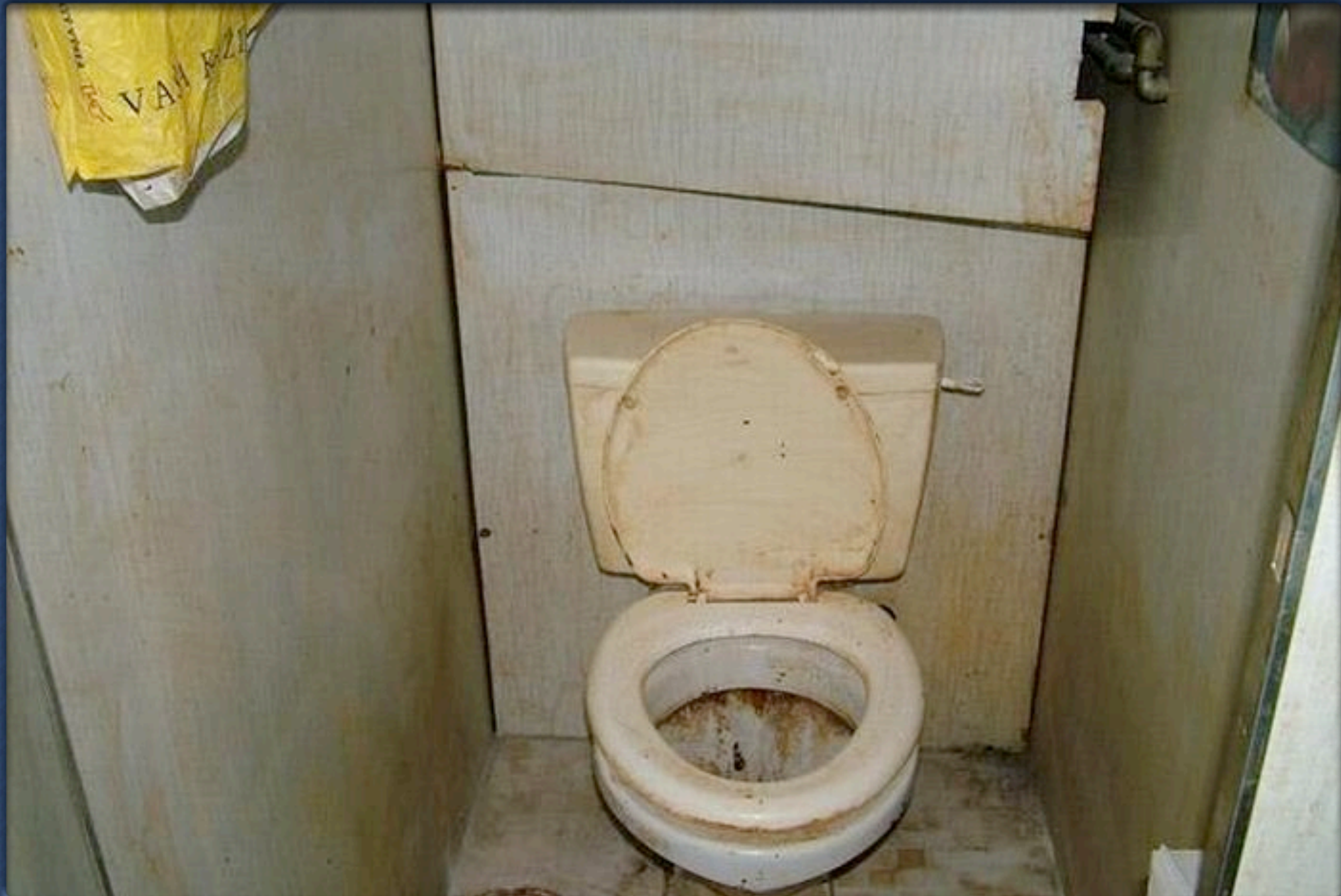
Chrome



Opera



Safari



?????

Who are you?

- ✿ Manage your own self-hosted WordPress site(s)?
- ✿ Manage sites for others?
- ✿ Have sites on 3 or more different web hosts?

DNS Overview

- ✿ Basic DNS Concepts
- ✿ Roles of the DNS players
- ✿ Caches and TTLs
- ✿ DNS Tools
- ✿ Suggested order of events

WP Migration Overview

- ✿ Should you use export / import?
- ✿ How to edit the database, if needed?
- ✿ .htaccess file
- ✿ What if you can't access the database?

What is DNS?

- ✿ DNS is a Distributed Directory
- ✿ Maps Names to IP Addresses:
www.swcp.com → 216.184.2.198
www.google.com → 74.125.225.211
- ✿ *Distributed* - Organizations are responsible for their own data
- ✿ *Global Consistency* - better than “hosts.txt”

DNS: The Players

- ✦ *Registrar* - Handles registration and yearly renewal of the domain.
- ✦ *Name Server* - DNS server that knows about some of DNS. Types: Resolvers, Authoritative servers, Root servers.
- ✦ *Registry* - Manages root servers for a TLD
- ✦ *ICANN* - governs registrars and root servers.

DNS Server Types

- ✿ *Resolver* - the kind of server you query at your ISP. Knows how to find answers, and caches them.
- ✿ *Authoritative* - the designated know-it-all for a specific domain.
- ✿ *Root Server* - knows about the top-level domains. E.g. where the *.com* name servers are.
- ✿ *Secondary* - backup authoritative server

DNS Record Types

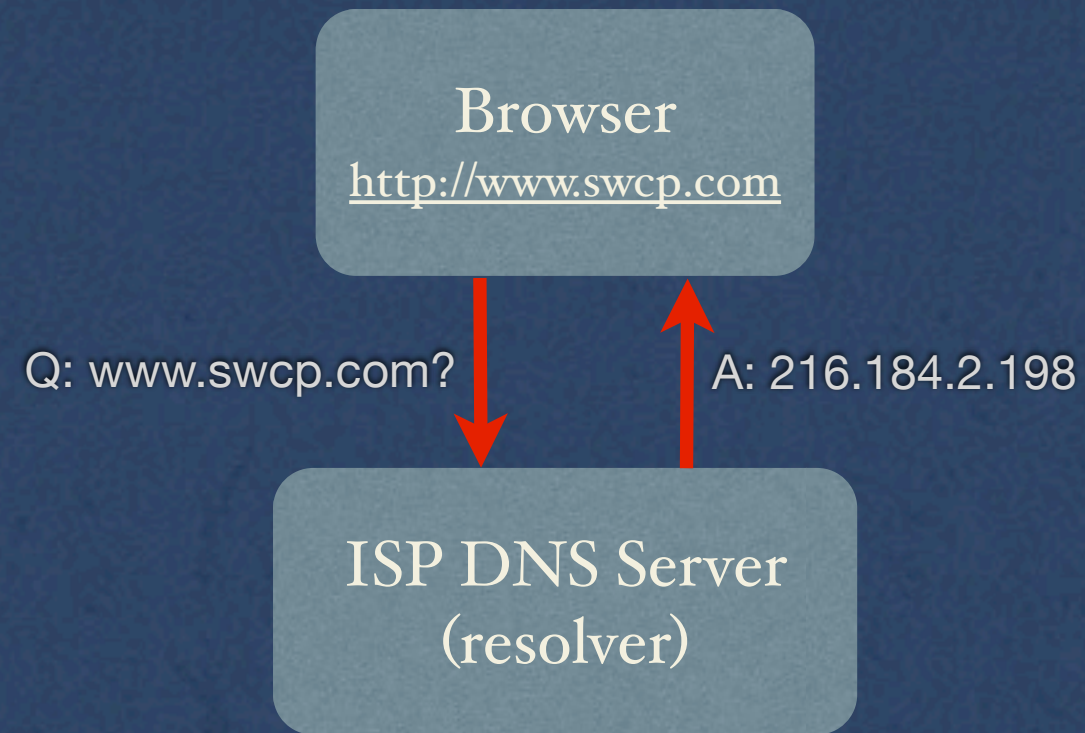
- ✿ The term “zone” is interchangeable with “domain”.
Ex zones: *cnn.com*, *whitehouse.gov*, *swcp.com*
- ✿ *NS* - Name Server - tells what name servers are authoritative for a zone.
- ✿ *A* - Address, *www.swcp.com* ➡ 216.184.2.198
- ✿ *MX* - Names the email servers for a zone
- ✿ *CNAME* - Canonical Name - like an alias

Snippet of a zone file

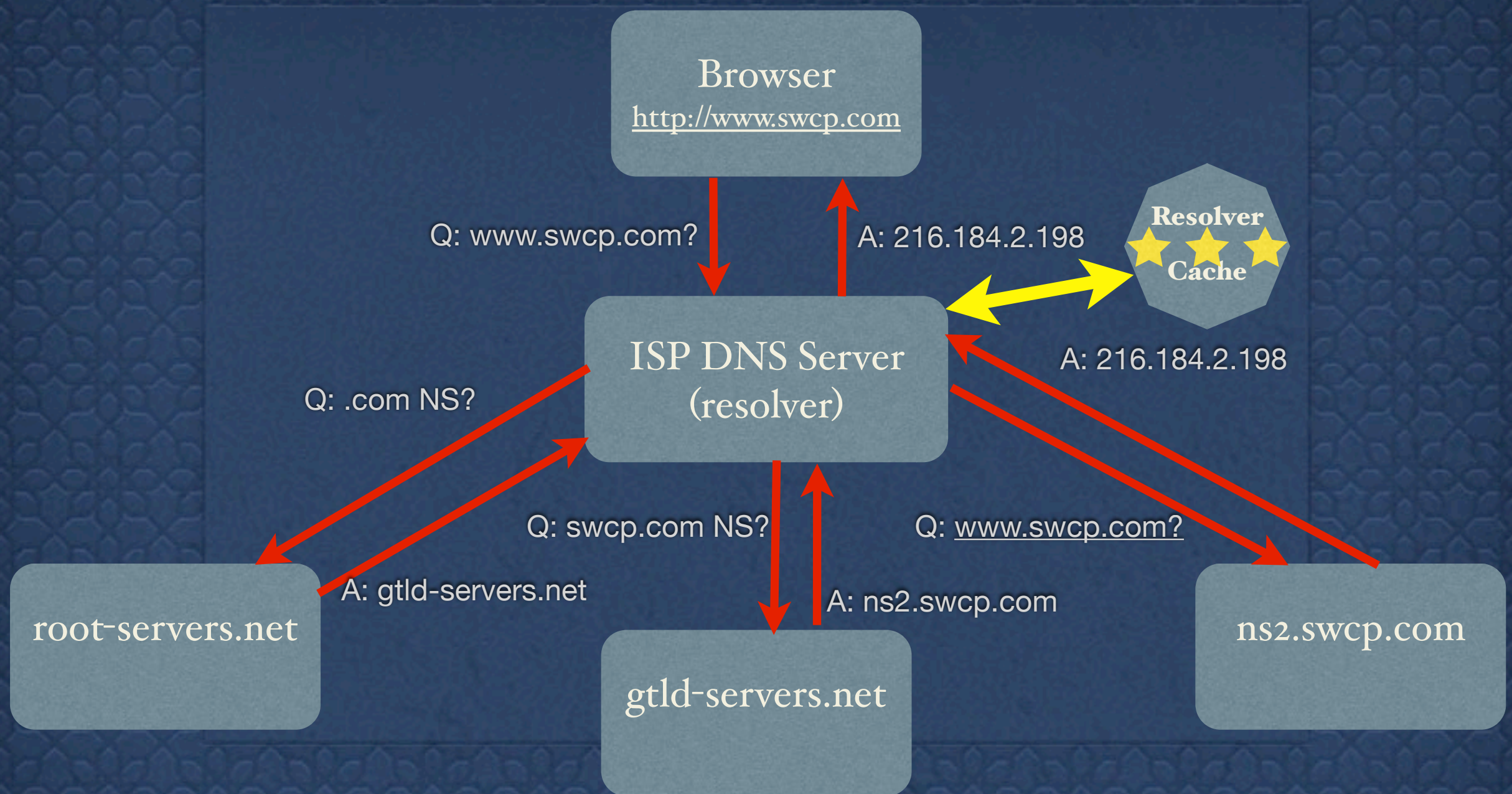
whatever.com.	172800	IN	NS	ns1.someisp.net.
whatever.com.	172800	IN	NS	ns2.someisp.net.
whatever.com.	14400	IN	A	216.184.2.32
www.whatever.com.	14400	IN	CNAME	whatever.com.
whatever.com.	14400	IN	MX	10 mx1.whatever.com.
whatever.com.	14400	IN	MX	20 mx2.whatever.com.
vpn.whatever.com.	14400	IN	A	172.17.18.3

TTL

- ✿ TTL = Time To Live - how long to cache
- ✿ Every DNS record has a TTL
- ✿ NS Record TTLs are large - 48 hours - *cannot be changed*
- ✿ You can lower the TTL of other records



Simple DNS Query



Detailed DNS Query

Caches and TTLs

- ✿ ISP's Resolver caches all those answers
- ✿ Can lower the TTLs of the zone records to minimize downtime
- ✿ NS Record TTLs are 48 hours - *cannot be changed*

Best Order Of Events

- ✿ Configure new Name Servers w/old DNS records
- ✿ Lower TTL for the zone (**10M** is nice)
- ✿ Change NS records at registrar (wait 24-48 hrs)
- ✿ Initiate registrar transfer at will
- ✿ Change A/MX/CNAME records at will

If you can't do that...

- ✿ Some web hosts will turn off service if the NS records change.
- ✿ Lower TTL on old Name Servers
- ✿ Change A records in old Name Servers to point to new host.
- ✿ Don't Forget To Transfer The Domain Later!

Registrar Transfer Issues

- ✿ Transfer will take 2-10 days
- ✿ Can't transfer a new or newly-renewed domain
- ✿ Some registrars may lock domain after contact change (Network Solutions, Go Daddy)
- ✿ Minimize chances of this by only changing Admin contact, not Registrant Info

Pre-Transfer Checklist

- ✿ Make sure admin contact email address is good
- ✿ Domain must be unlocked
- ✿ WHOIS Privacy should be turned off
- ✿ Get *auth code*, aka *EPP Key*, from current registrar
- ✿ Initiate transfer request with new registrar

DNS Tools

- ✦ Good (safe) WHOIS lookup tool:
<http://www.tucowdomains.com/whois>
- ✦ Zone checkers: *<http://mxtoolbox.com>*
<http://www.nabber.org/projects/dnscheck/>
- ✦ dig is the best tool:

```
linux$ dig @kitsune.swcp.com costlow.org NS
...
;; ANSWER SECTION:
costlow.org.      7200      IN        NS        ns2.swcp.com.
costlow.org.      7200      IN        NS        kitsune.swcp.com.
```


Ninja Troubleshooting

- ✦ 2 kinds of records are duplicated in the root servers and your zone file: NS and A records for your name servers.
- ✦ Ensure NS records identical in zone and roots
- ✦ Ensure Host Glue records match your zone.
- ✦ `dig @a.gtld-servers.net costlow.org NS`

WordPress Migration

- ✿ Why are you migrating?
 - ✿ *New web host*
 - ✿ *Deploy a site after development, or make a staging copy*
 - ✿ *Change domain name*

What's the big deal?

- ✿ Copy files, copy database, done! Right?
- ✿ Maybe, if WAMP/MAMP uses same hostname:
 - ✿ *Put www.yoursite.com in /etc/hosts file*
 - ✿ *Import database with phpMyAdmin*
 - ✿ *Upload files to server*
 - ✿ *Edit [wp-config.php](#) to use server's database*

WP Import/Export?

- ✿ Tools -> Export
 - ✿ Exports Posts, Pages, Users
 - ✿ Does NOT export custom data tables for themes and plugins
 - ✿ Sometimes works, but often incomplete

Name Changes

- ✦ Example domain name changes:
 - ✦ *dev.mydomain.com* → *www.mydomain.com*
 - ✦ *www.oldname.com* → *www.thisisbetter.com*
 - ✦ *www.site.com/newtest* → *www.site.com*
- ✦ These names get inserted into the database

Example w/Name Change

- ✿ Have existing site, *www.ideasandcoffee.com*
- ✿ Want to create test site, *ictest.swcp.com*

Name Change Steps

- ✦ Have web host create new web site and database
- ✦ Copy files from old location, upload to new
- ✦ Download SQL dump of old database
- ✦ Import the SQL dump into the new database
- ✦ Edit [wp-config.php](#)
- ✦ Search-and-Replace in database
- ✦ Check .htaccess file

- ☐ CSV
- ☐ CSV for MS Excel
- ☐ Microsoft Excel 2000
- ☐ Microsoft Word 2000
- ☐ LaTeX
- ☐ Open Document Spreadsheet
- ☐ Open Document Text
- ☐ PDF
- ☒ SQL
- ☐ XML
- ☐ YAML

- ☒ Add DROP TABLE / VIEW / PROCEDURE / FUNCTION
- ☒ Add IF NOT EXISTS
- ☒ Add AUTO_INCREMENT value
- ☒ Enclose table and field names with backquotes
- ☐ Add CREATE PROCEDURE / FUNCTION

Add into comments

- ☐ Creation/Update/Check dates

Data

- ☒ Complete inserts
- ☒ Extended inserts

Maximal length of created query

50000

- ☐ Use delayed inserts
- ☐ Use ignore inserts
- ☒ Use hexadecimal for BLOB

Export type

- ☒ Save as file

File name template (1): (/ ☒ remember template)

Export old Database

Import New Database

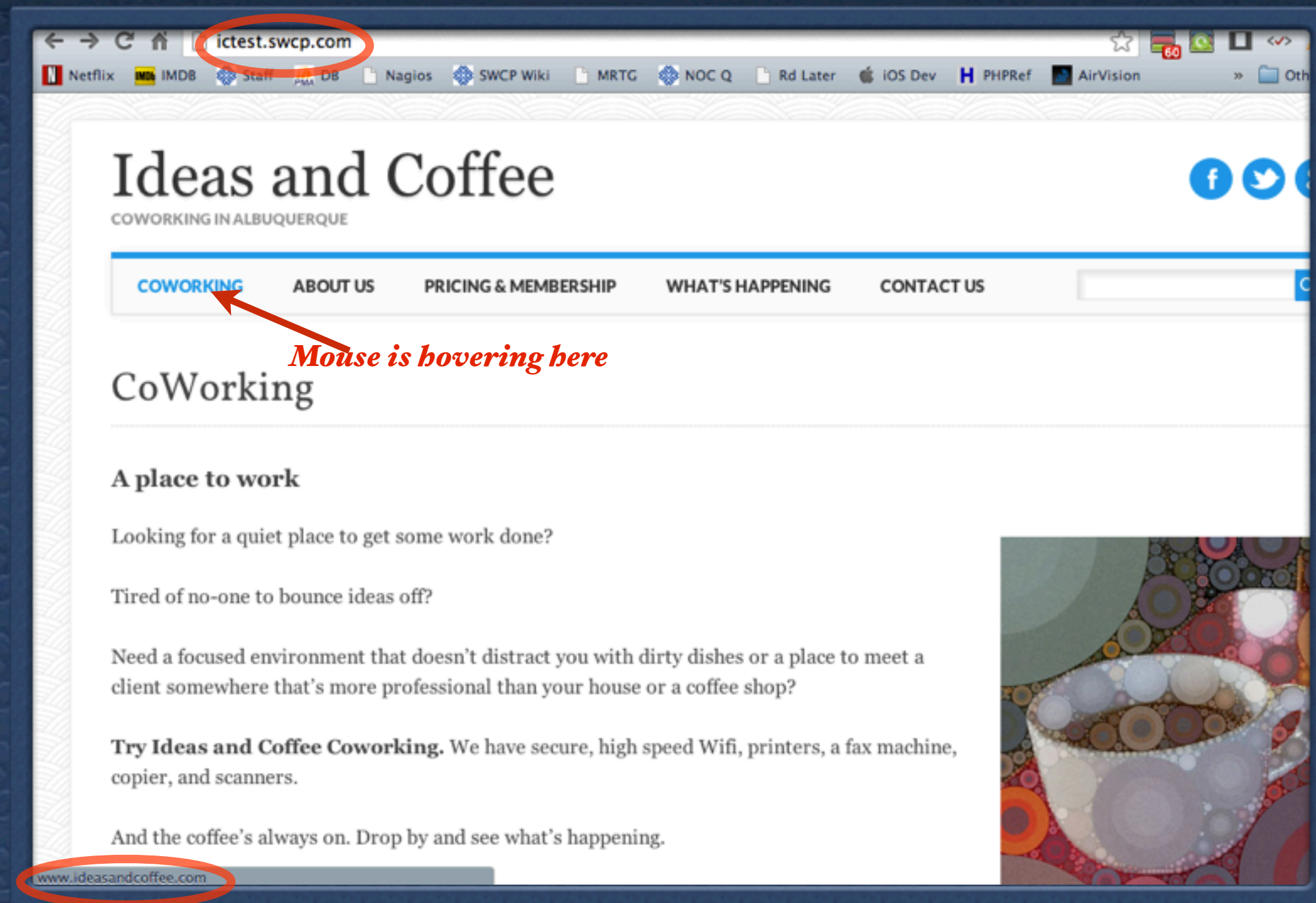
- ✿ No picture for this one, too boring
- ✿ Remember, save the .sql file for later
- ✿ If things go badly in the search/replace step, just re-import your database
- ✿ **Add DROP TABLE** from the export step was important

Editing wp-config.php

```
// ** MySQL settings - info from your web host ** //  
/** The name of the database for WordPress */  
define('DB_NAME', 'yourdbname');  
  
/** MySQL database username */  
define('DB_USER', 'yourdbusername');  
  
/** MySQL database password */  
define('DB_PASSWORD', 'SeKrItPasSwOrd');  
  
/** MySQL hostname */  
define('DB_HOST', 'mysql.yourhost.com');
```


Search/Replace in DB

- ✦ Get searchandreplacedb2.php from *http://interconnectit.com/products/search-and-replace-for-wordpress-databases/*
- ✦ Upload it to the new site with FTP, and invoke it:
- ✦ <http://ictest.swcp.com/searchandreplacedb2.php>
- ✦ **Remove *searchandreplacedb2.php* when finished!**



Search/Replace cont'd

Do we really have to do it?

Safe Search Replace

by [interconnect/it](#)

Load DB connection values from WordPress?

- ☒ Pre-populate the DB values form with the ones used in wp-config? It is possible to edit them later.

Submit

[interconnect/it Safe Search and Replace on Database with Serialized Data v2.0.0](#)

This developer/sysadmin tool helps solve the problem of doing a search and replace on a WordPress site when doing a migration to a domain name with a different length.

WARNING! Take a backup first, and carefully test the results of this code. If you don't, and you vape your data then you only have yourself to blame. Seriously. And if you're English is bad and you don't fully understand the instructions then STOP. Right there. Yes

Search/Replace cont'd

Yes, do it!

Safe Search Replace

by interconnect/it

Database details

Server Name:

Database Name:

Username:

Password:

Charset:

Search/Replace cont'd

Gets db access info from wp-config.php

Safe Search Replace

by interconnect/it

Which tables do you want to scan?

Tables:

wp_commentmeta
wp_comments
wp_frm_fields
wp_frm_forms
wp_frm_item_metas
wp_frm_items
wp_links
wp_options
wp_postmeta
wp_posts

Multiple tables can be selected with (CTRL/CMD + click).

☒ Leave GUID column unchanged?

If the values in the GUID column from the WordPress posts table change RSS readers and other tools will be under the impression that the posts are new and may show them in feeds again.

All columns titled "guid" will be skipped if this is ticked.

Search/Replace cont'd

Select all the tables, and the GUID option

Safe Search Replace

by interconnect/it

What to replace?

Search for (case sensitive string):

Replace with:

Submit Search string

Search/Replace cont'd

Get the URL references first

Safe Search Replace

by interconnect/it

Completed

In the process of replacing **"//www.ideasandcoffee.com"** with **"//ictest.swcp.com"** we scanned **15** tables with a total of **899** rows, **87** cells were changed and **87** db update performed and it all took **0.238834** seconds.

interconnect/it Safe Search and Replace on Database with Serialized Data v2.0.0

This developer/sysadmin tool helps solve the problem of doing a search and replace on a WordPress site when doing a migration to a domain name with a different length.

WARNING! Take a backup first, and carefully test the results of this code. If you don't,

Search/Replace cont'd

Results of first substitution

Safe Search Replace

by [interconnect/it](#)

What to replace?

Search for (case sensitive string):

Replace with:

interconnect/it Safe Search and Replace on Database with Serialized Data v2.0.0

This developer/sysadmin tool helps solve the problem of doing a search and replace on a WordPress site when doing a migration to a domain name with a different length.

Search/Replace cont'd

Update file pathname references

Safe Search Replace

by [interconnect/it](#)

Completed

In the process of replacing "**public_html/ideasandcoffee.com**" with "**public_html/ictest.swcp.com**" we scanned **15** tables with a total of **899** rows, **1** cells were changed and **1** db update performed and it all took **0.166609** seconds.

[interconnect/it Safe Search and Replace on Database with Serialized Data v2.0.0](#)

This developer/sysadmin tool helps solve the problem of doing a search and replace on a WordPress site when doing a migration to a domain name with a different length.

WARNING! Take a backup first, and carefully test the results of this code. If you don't, and you wipe your data then you only have yourself to blame. Seriously. And if you're English is bad and you don't fully understand the instructions then STOP. Right there. Yes. Before you do any damage.

Search/Replace cont'd

There was just one, and we got it!

id	varchar(20)		217
name	varchar(64)		theme_mods_zeefocus
value	longtext		<pre> a:10: { i:0;b:0;s:16:"background_color";s:6:"f7f7f7";s:16:"background_image";s:0:"";s:17: "background_repeat";s:9:"no- repeat";s:21:"background_position_x";s:4:"left";s:21:"background_attachment";s:5:" fixed";s:18:"nav_menu_locations";a:1: {s:9:"main_navi";i:0;}s:12:"header_image";s:69:"http://icestest.swcp.com/wp- content/uploads/2013/08/cropped- couch_h.jpg";s:17:"header_image_data";O:8:"stdClass":5: {s:13:"attachment_id";i:36;s:3:"url";s:83:"http://localhost:8888/ideasandcoffee/wp- content/uploads/2013/08/cropped- couch_h.jpg";s:13:"thumbnail_url";s:83:"http://localhost:8888/ideasandcoffee/wp- content/uploads/2013/08/cropped- couch_h.jpg";s:6:"height";i:399;s:5:"width";i:1320;}s:16:"sidebars_widgets";a:2: {s:4:"time";i:1377880941;s:4:"data";a:4:{s:19:"wp_inactive_widgets";a:1: </pre>
id	varchar(20)		yes



Go

and then

Go Reset

Search/Replace cont'd

Can't we just edit the database by hand?

bigint(20) unsigned	<input type="text"/>	35
bigint(20) unsigned	<input type="text"/>	1
datetime	<input type="text"/>	2013-08-29 18:27:1 
datetime	<input type="text"/>	2013-08-29 18:27:1 
longtext	<input type="text"/>	

```

<h3>A place to work</h3>
Looking for a quiet place to get some work done?

Tired of no-one to bounce ideas off?

Need a focused environment that doesn't distract you with dirty dishes or a place
to meet a client somewhere that's more professional than your house or a coffee
shop?

<strong>Try Ideas and Coffee Coworking.</strong> We have secure, high speed Wifi,
printers, a fax machine, copier, and scanners.

```

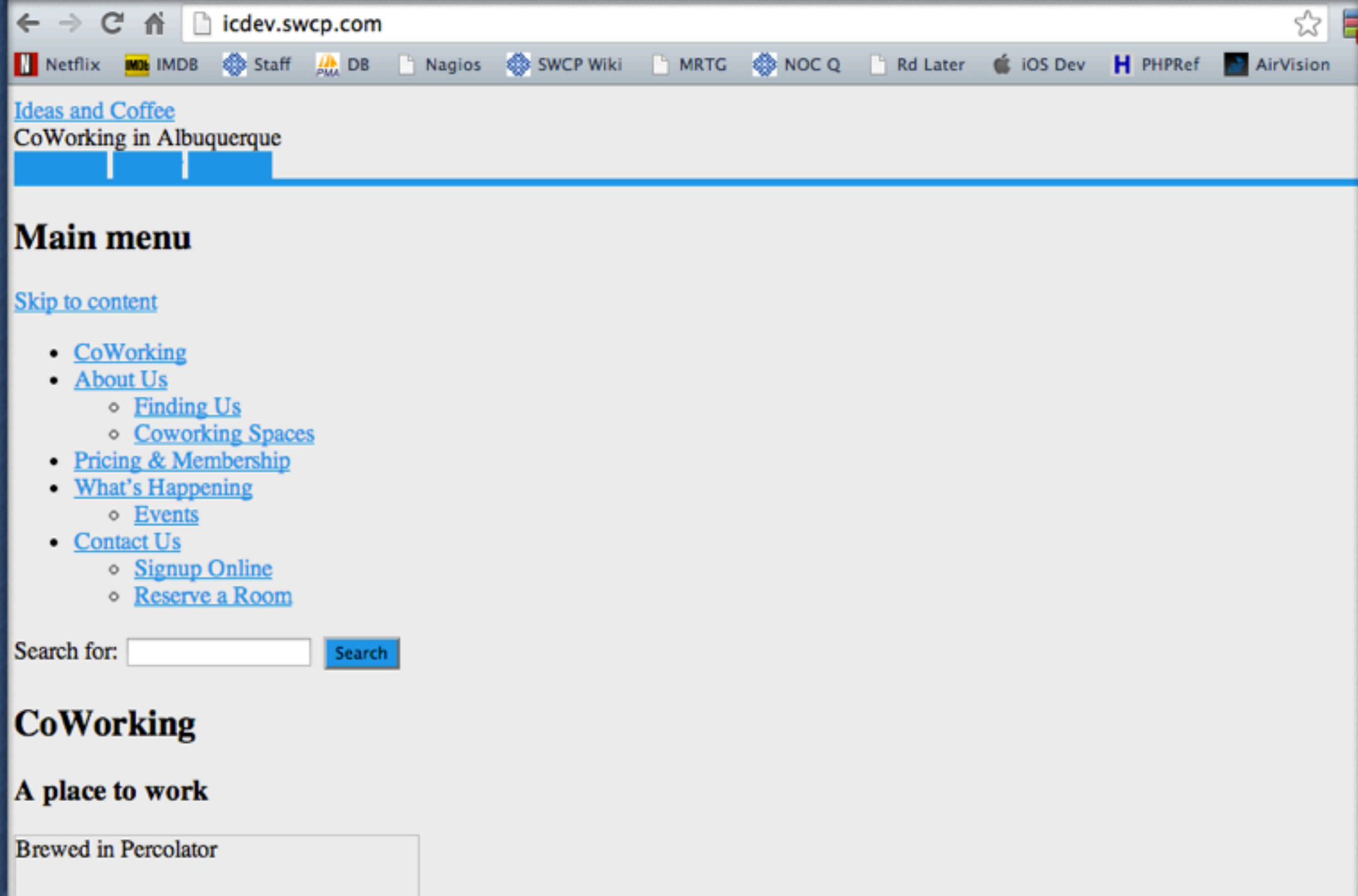
text	<input type="text"/>	Home
------	----------------------	------

Search/Replace cont'd

Example from the wp_posts table

Search/Replace cont'd

- ✿ What if the name you are changing from does not exist anymore?
- ✿ Suppose we want to change from *ictest.swcp.com* to *icdev.swcp.com*, and the *ictest.swcp.com* name has been deleted from DNS.

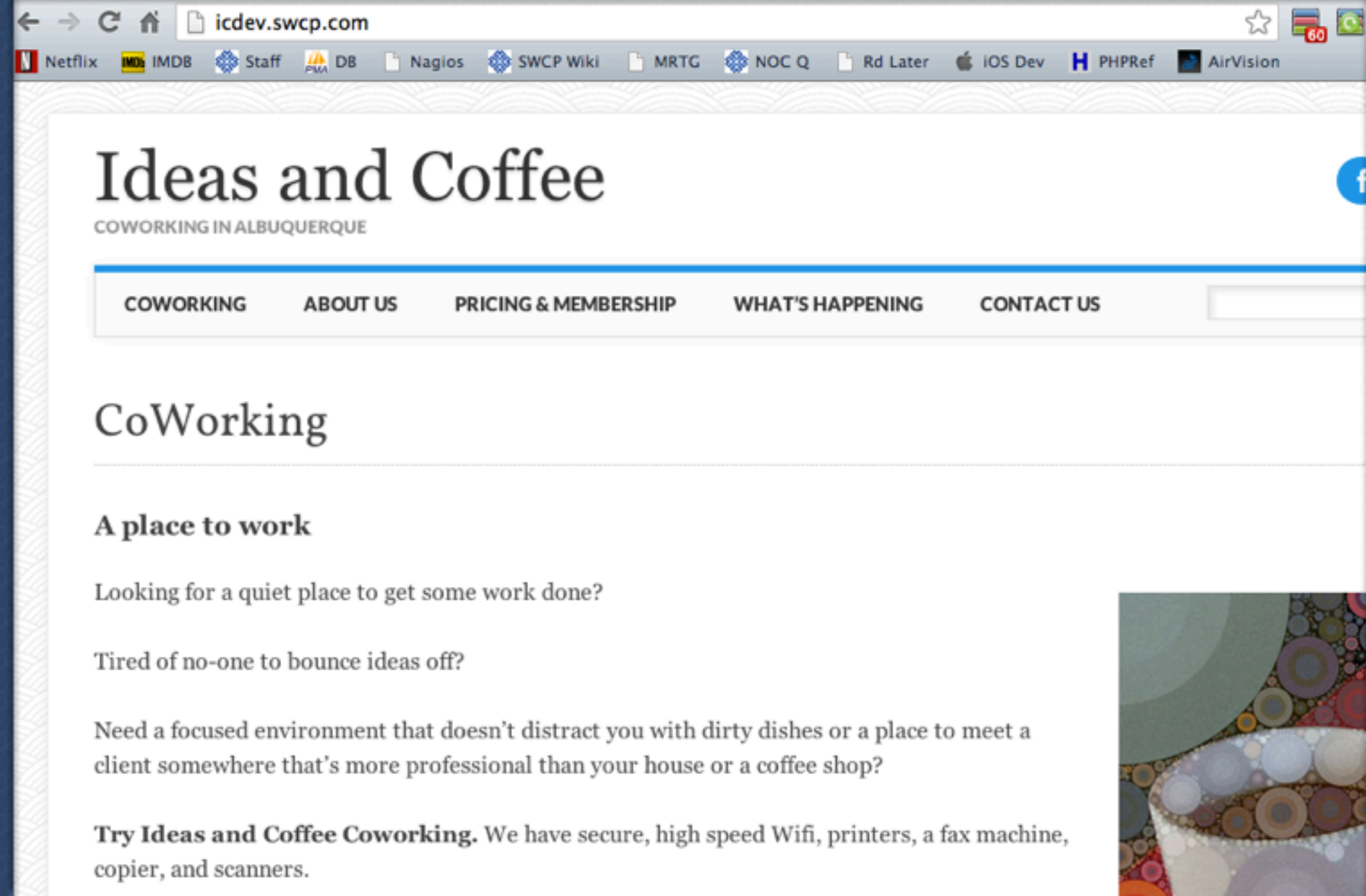


Search/Replace cont'd

What happened here?



CSS Happened



Search/Replace cont'd

How it is supposed to look

Important Cleanup

- ✦ ***Remove `searchandreplacedb2.php`***

.htaccess

- ✿ If you get an *Internal Server Error*, probably an htaccess issue.
- ✿ “*Options all*” command may not be allowed.
- ✿ If moving from “/subdir” to “/” - look for:
`RewriteRule . /subdir/index.php [L]`
- ✿ Change it to:
`RewriteRule . /index.php [L]`

No phpMyAdmin?

- ✿ How to get a database dump without phpMyAdmin access?

- ✿ *mysqldump* from command line:

```
mysqldump -h dbhost -u dbuser -p dbname > dbname.sql
```

- ✿ Install “*adminer*” WordPress plugin.
- ✿ Access via Tools -> Adminer



Adminer for WordPress

[Adminer](#) (formerly phpMinAdmin) is a full-featured MySQL management tool written in PHP.
Current used version of Plugin Adminer: 1.2.3



A

Start Adminer inside

Start Adminer in a new tab

Your Database Data

Typ	Value
Server	mysql5.swcp.com
Database	1113_ictest
User	1113_ictest
Password	

Like

Here

[Give](#)

[Write](#)

[Don](#)

[Get](#)

[More](#)

adminer

Gets credentials from wp-config.php

Language: English

MySQL » Server » Database: 1113_ictest

[SQL command Dump](#)

1113_ictest

[Create new table](#)

[select wp_commentmeta](#)
[select wp_comments](#)
[select wp_frm_fields](#)
[select wp_frm_forms](#)
[select wp_frm_item metas](#)
[select wp_frm items](#)
[select wp_links](#)
[select wp_options](#)
[select wp_postmeta](#)
[select wp_posts](#)
[select wp_term relationships](#)
[select wp_term taxonomy](#)
[select wp_terms](#)
[select wp_usermeta](#)
[select wp_users](#)

Database: 1113_ictest

[Alter database](#)
[Database schema](#)
[Privileges](#)

Tables and views

Search data in tables:

<input type="checkbox"/>	Table	Engine	Collation	Data Length	Index Length
<input type="checkbox"/>	wp_commentmeta	MyISAM	utf8_general_ci	0	1
<input type="checkbox"/>	wp_comments	MyISAM	utf8_general_ci	236	6
<input type="checkbox"/>	wp_frm_fields	MyISAM	utf8_general_ci	146,756	11
<input type="checkbox"/>	wp_frm_forms	MyISAM	utf8_general_ci	21,932	6
<input type="checkbox"/>	wp_frm_item metas	MyISAM	utf8_general_ci	1,164	4
<input type="checkbox"/>	wp_frm items	MyISAM	utf8_general_ci	1,408	10
<input type="checkbox"/>	wp_links	MyISAM	utf8_general_ci	0	1
<input type="checkbox"/>	wp_options	MyISAM	utf8_general_ci	572,920	15
<input type="checkbox"/>	wp_postmeta	MyISAM	utf8_general_ci	106,120	17
<input type="checkbox"/>	wp_posts	MyISAM	utf8_general_ci	197,720	20
<input type="checkbox"/>	wp_term relationships	MyISAM	utf8_general_ci	378	3
<input type="checkbox"/>	wp_term taxonomy	MyISAM	utf8_general_ci	384	4
<input type="checkbox"/>	wp_terms	MyISAM	utf8_general_ci	420	8
<input type="checkbox"/>	wp_usermeta	MyISAM	utf8_general_ci	3,512	7

adminer

Click "Dump"

Export: 1113_ictest

Output	<input type="radio"/> open <input checked="" type="radio"/> save <input type="radio"/> gzip <input type="radio"/> bzip2
Format	<input checked="" type="radio"/> SQL <input type="radio"/> CSV <input type="radio"/> CSV; <input type="radio"/> TSV
Database	<input type="text"/> <input checked="" type="checkbox"/> Routines
Tables	<input type="text"/> DROP+CREATE <input type="checkbox"/> Auto Increment <input checked="" type="checkbox"/> Triggers
Data	<input type="text"/> INSERT

Export

<input checked="" type="checkbox"/> Tables	Data <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_commentmeta	0 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_comments	1 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_frm_fields	125 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_frm_forms	11 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_frm_item metas	24 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_frm_items	5 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_links	0 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_options	207 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_postmeta	278 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_posts	173 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_term_relationships	18 <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> wp_term_taxonomy	10 <input checked="" type="checkbox"/>

adminer

Click "Export"

Thank You!

- ✿ *Slides: <http://www.swcp.com/wc2013-costlow/>*
- ✿ *Mark Costlow*
- ✿ *Southwest Cyberport*
- ✿ *cheeks@swcp.com*