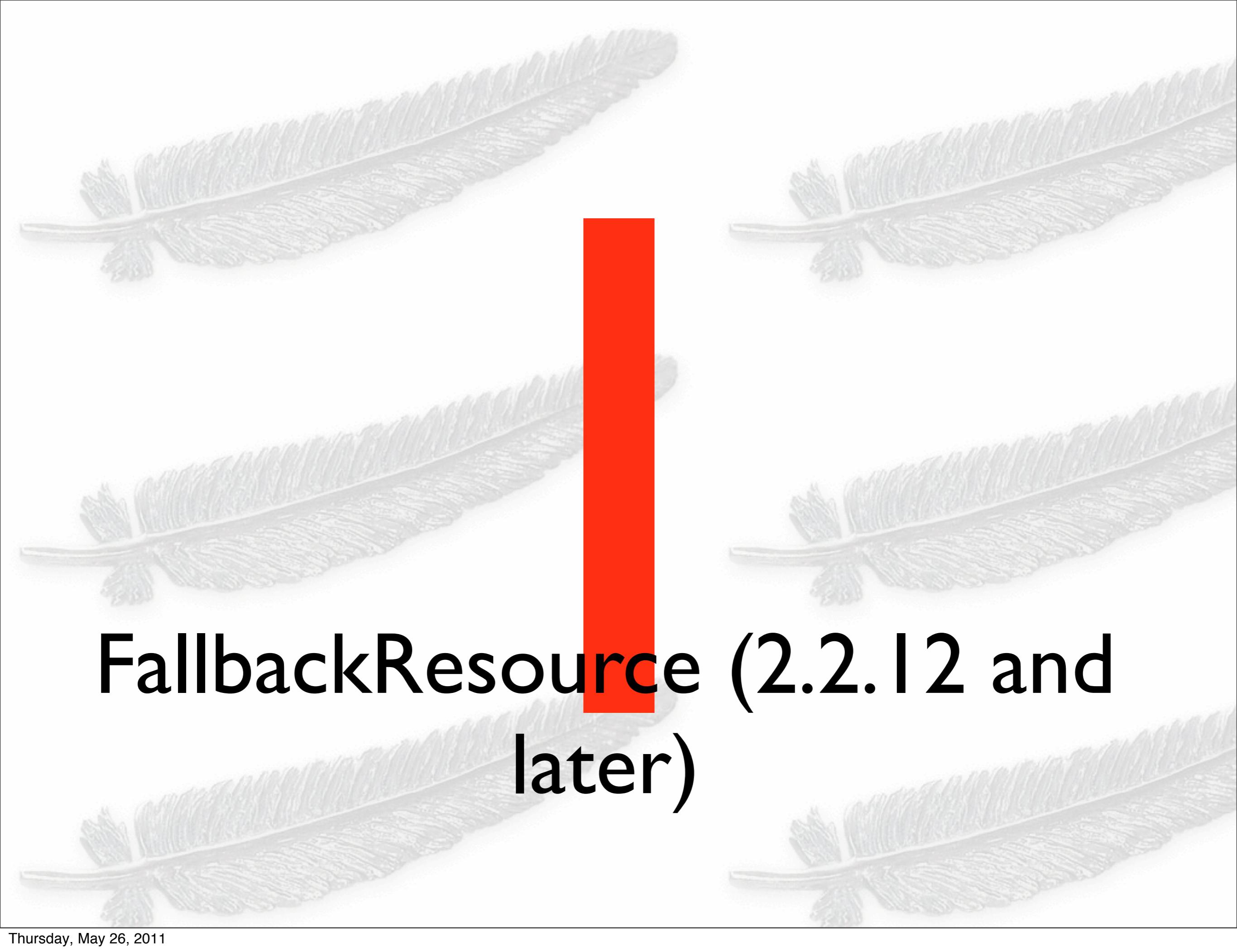# *N* Things You Didn't Know You Could Do With Apache

Tek11, 2011, Chicago

OmniTI /

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N=29

FallbackResource (2.2.12 and later)

RewriteCond %{REQUEST_FILENAME} !-f
RewriteCond %{REQUEST_FILENAME} !-d
RewriteCond %{REQUEST_URI} \
    (alias1|alias2|special|other) [NC]
RewriteRule . index.php [PT]

- Adds a Fallback in the case that there's no suitably named file

- Like ErrorDocument, except it's not an error

Long, long ago ...

```
RewriteCond %{REQUEST_FILENAME} !-f
RewriteCond %{REQUEST_FILENAME} !-d
RewriteCond %{REQUEST_URI} \
            (alias1|alias2|special|other) [NC]
RewriteRule . index.php [PT]
```

- Anything that doesn't match a file or directory

- or a list of special URIs that we want to protect

- send to the "front controller" or "handler"

However

- Slow

- Fragile

- Can break relative links, embedded files, etc

- Server administrators will just put one line in the global config

- Nobody will need to touch .htaccess files

FallbackResource /index.php

Where useful

- Practically every web app uses this technique

- Wordpress

- Drupal

- Joomla

- Habari

- etc ...

2

server-info?config

server-info?config

```
 26:    ForceLanguagePriority Prefer Fallback
  :  </Directory>
In file: /usr/local/apache/conf/extra/httpd-dav.conf
 15: DavLockDB "/usr/local/apache/var/DavLock"
 17: Alias /uploads "/usr/local/apache/uploads"
 19: <Directory "/usr/local/apache/uploads">
 20:    Dav On
 34:    order allow,deny
 35:    allow from all
 37:    Options Indexes
  :  </Directory>
 46: BrowserMatch "Microsoft Data Access Internet Publishing Provider" redirect-caref
 47: BrowserMatch "MS FrontPage" redirect-carefully
 48: BrowserMatch "^WebDrive" redirect-carefully
 49: BrowserMatch "^WebDAVFS/1.[0123]" redirect-carefully
 50: BrowserMatch "^gnome-vfs/1.0" redirect-carefully
 51: BrowserMatch "^XML Spy" redirect-carefully
 52: BrowserMatch "^Dreamweaver-WebDAV-SCM1" redirect-carefully
In file: /usr/local/apache/conf/httpd.conf
472: SSLRandomSeed startup builtin
473: SSLRandomSeed connect builtin
476: <AuthnProviderAlias file file1>
477:    AuthUserFile /tmp/user1
```

What's in there?

- All your configuration settings
- What file they live in
- What order they are applied

- Other available arguments ...

Server Module List
- mod_php5.c
- mod_rewrite.c
- mod_alias.c
- mod_speling.c
- mod_actions.c
- mod_imagemap.c
- mod_dir.c
- mod_negotiation.c
- mod_dav_fs.c
- mod_cgi.c
- mod_info.c
- mod_autoindex.c
- mod_status.c
- mod_dav.c
- mod_mime.c
- mod_proxy_balancer.c
- mod_proxy_http.c
- mod_proxy.c
- mod_version.c
- mod_setenvif.c
- mod_headers.c
- mod_expires.c

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/server-info?mod_log_config.c

Module Name: `mod_log_config.c`
Content handlers: *none*
Configuration Phase Participation: `Create Server Config, Merge Server Configs`
Request Phase Participation: `Logging`
Module Directives:

    CustomLog - a file name, a custom log format string or format name, and an optional "en
    (see docs)
    TransferLog - the filename of the access log
    LogFormat - a log format string (see docs) and an optional format name
    CookieLog - the filename of the cookie log
    BufferedLogs - Enable Buffered Logging (experimental)

Current Configuration:

    In file: /usr/local/apache/conf/httpd.conf
     252: LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\"" combined
     253: LogFormat "%h %l %u %t \"%r\" %>s %b" common
     257: LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\" %I %O" cor
     273: CustomLog logs/access_log combined

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- ?hooks - lists hooks and which modules are attached to them

- ?server - Same as httpd -V

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SNI

Common Wisdom

- You can't run name-based virtual hosts with SSL

- One SSL host per IP address

- Certificate is sent to the client *before* the client sends the HOST: header

- Server Name Indication

- ServerName and Certificate figured out prior to encryption

```
Listen 443
NameVirtualHost *:443

SSLStrictSNIVHostCheck off

<VirtualHost *:443>
  DocumentRoot /www/example1
  ServerName www.example.com
</VirtualHost>


<VirtualHost *:443>
  DocumentRoot /www/example2
  ServerName www.example2.org
</VirtualHost>
```

```
<VirtualHost *:443>
  DocumentRoot /www/example2
  ServerName www.example2.org

    SSLCertificateFile /path/to/www.domain.com.cert
    SSLCertificateKeyFile /path/to/www.domain.com.key


</VirtualHost>
```

Browser Support

- Mozilla Firefox 2.0 or later

- Opera 8.0 or later (with TLS 1.1 enabled)

- Internet Explorer 7.0 or later (on Vista, not XP)

- Google Chrome

- Safari 3.2.1 on Mac OS X 10.5.6

Docs

- Best docs for this are in the wiki. Should be in the official docs soon

- http://wiki.apache.org/httpd/NameBasedSSLVHostsWithSNI

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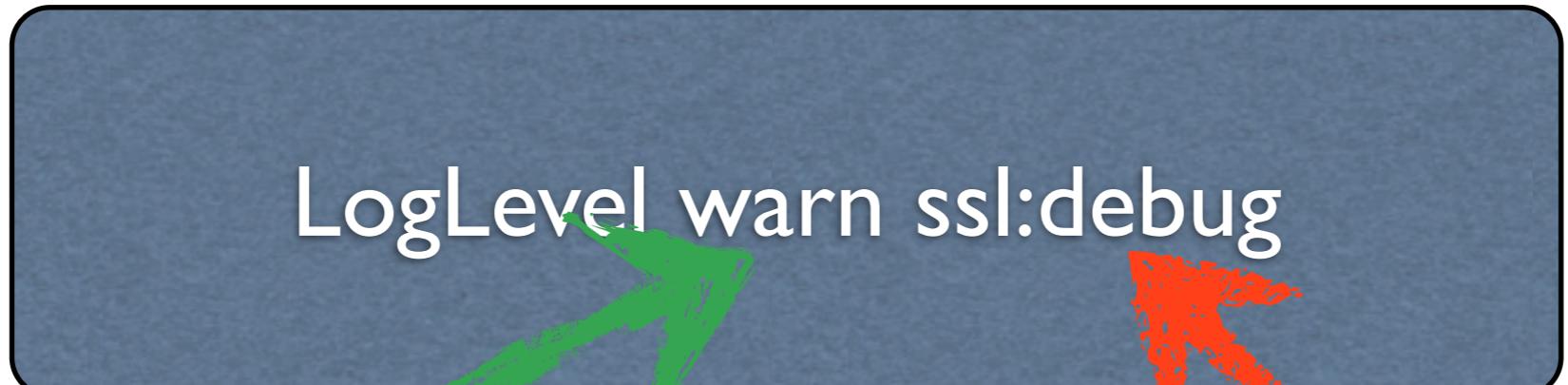
Per-module LogLevel configuration (2.4)

LogLevel Debug

- mod_proxy is noisy
- Everything else lost in the noise

LogLevel warn ssl:debug

Default

Just this module

- Some modules have detailed trace information

- Replaces RewriteRule

2.2

> RewriteLog /var/log/rewrite.log
> RewriteLogLevel 5

2.4

> LogLevel warn rewrite:trace5

Log files

- Everything goes to the error log
- Think "debug log" instead
- Use grep to separate:

tail -f /www/logs/error_log | grep 'rewrite:'

Error logs

- And error log formats are now configurable, too

- `ErrorLogFormat` much like `LogFormat`, with similar sprintf-like variables

- Most excitingly, %L is the log entry ID, and can be placed in the access log and error log, to correlate entries

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Expression evaluation (2.4)

- mod_rewrite, Directory, *Match, etc, various different syntaxes

- util_expr provides a consistent expression syntax

- <If> (See slides later)

- SetEnvIfExpr

- Regular expressions, backreferences, environment variable tests

Documentation

- Documentation is lacking. I hope to fix this in the coming weeks.

- Just a few modules use this syntax. This is expected to expand.

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IndexStyleSheet

Index of /icons

Name	Last modified	Size	Description
Parent Directory		-	
HEADER.html	17-Nov-2005 16:18	85	
README	21-Nov-2004 09:35	4.8K	
README.html	17-Nov-2005 16:24	43	
a.gif	21-Nov-2004 09:35	246	
a.png	21-Nov-2004 09:35	293	
alert.black.gif	21-Nov-2004 09:35	242	
alert.black.png	21-Nov-2004 09:35	279	
alert.red.gif	21-Nov-2004 09:35	247	
alert.red.png	21-Nov-2004 09:35	298	
apache_pb.gif	21-Nov-2004 09:35	2.3K	
apache_pb.png	21-Nov-2004 09:35	1.4K	
apache_pb2.gif	21-Nov-2004 09:35	2.4K	
apache_pb2.png	21-Nov-2004 09:35	1.4K	
apache_pb2_ani.gif	21-Nov-2004 09:35	2.1K	
back.gif	21-Nov-2004 09:35	216	
back.png	21-Nov-2004 09:35	284	
ball.gray.gif	21-Nov-2004 09:35	233	
ball.gray.png	21-Nov-2004 09:35	277	
ball.red.gif	21-Nov-2004 09:35	205	
ball.red.png	21-Nov-2004 09:35	265	
binary.gif	21-Nov-2004 09:35	246	
binary.png	21-Nov-2004 09:35	296	
binhex.gif	21-Nov-2004 09:35	246	
binhex.png	21-Nov-2004 09:35	304	
blank.gif	21-Nov-2004 09:35	148	
blank.png	21-Nov-2004 09:35	195	
bomb.gif	21-Nov-2004 09:35	308	
bomb.png	21-Nov-2004 09:35	356	
box1.gif	21-Nov-2004 09:35	251	
box1.png	21-Nov-2004 09:35	308	
box2.gif	21-Nov-2004 09:35	268	
box2.png	21-Nov-2004 09:35	322	
broken.gif	21-Nov-2004 09:35	247	
broken.png	21-Nov-2004 09:35	305	
burst.gif	21-Nov-2004 09:35	235	
burst.png	21-Nov-2004 09:35	314	

IndexStyleSheet

IndexStyleSheet "/css/style.css"

i am code. what are you?

Index of /projects/apache

	Name	Last modified	Size	
	Parent Directory		–	
	cgi-win.awk	2006-06-19 01:29	13K	AWK Script
	httpd-2.2.2-14jun06.exe	2006-06-14 13:18	17M	Executable File
	httpd-2.2.2-25may06.exe	2006-05-25 19:59	17M	Executable File
	isapi-handler.2.0.diff	2006-06-26 08:22	3.5K	Diff Patch
	isapi-handler.2.2.diff	2006-06-26 08:24	3.7K	Diff Patch
	isapi-handler.trunk.diff	2006-06-26 08:29	3.2K	Diff Patch
	martin.patch	2006-06-26 09:11	1.6K	Diff Patch
	mod_isapi-response-attempt2.diff	2006-05-31 01:37	1.3K	Diff Patch
	mod_isapi-response-attempt3.diff	2006-06-01 19:37	3.7K	Diff Patch
	mod_isapi-response.diff	2006-05-30 22:18	515	Diff Patch
	mod_isapi.patched.zip	2006-06-01 22:15	70K	Diff Patch

Documentation

- http://httpd.apache.org/docs/2.2/mod/mod_autoindex.html#indexstylesheet

- 2.2 and later

Now with extra class

Class	Definition
tr.indexhead	Header row of listing
th.indexcolicon and td.indexcolicon	Icon column
th.indexcolname and td.indexcolname	File name column
th.indexcollastmod and td.indexcollastmod	Last modified column
th.indexcolsize and td.indexcolsize	File size column
th.indexcoldesc and td.indexcoldesc	Description column
tr.breakrow	Horizontal rule at the bottom of the table
tr.odd and tr.even	Alternating even and odd rows

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And ...

- With HeaderName and ReadmeName, wrap all that content in whatever shell you want.

```
HeaderName /style/header.html
ReadmeName /style/footer.html
IndexStyleSheet /style/style.css

IndexOptions FancyIndexing \
    SuppressHTMLPreamble \
    SuppressLastModified
```

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Proxy Balancer

mod_proxy_balancer

- One front end server running mod_proxy and mod_proxy_balancer

- Multiple backend servers running HTTP, FTP, or AJP protocol servers

Not that it's related ...
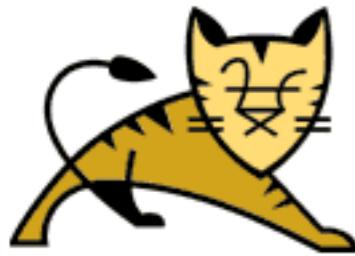
He's dead, Jim

- Does heartbeat, so that dead servers are removed

- Weighted traffic distribution

- Does sticky sessions (so that an established session always goes back to the same server)

mod_proxy_ajp

- Replaces mod_jk and all the other ajp protocol proxy servers

Balancer manager

- Relies on mod_proxy

- Gives a webby management interface for the proxy balancer

```
<Location /balancer-manager>
  SetHandler balancer-manager
</Location>
```

Load Balancer Manager for localhost

Server Version: Apache/2.2.3 (Unix) DAV/2 PHP/5.2.0
Server Built: Mar 23 2007 22:06:40

LoadBalancer Status for balancer://mycluster

StickySession	Timeout	FailoverAttempts	Method
	0	1	byrequests

Worker URL	Route	RouteRedir	Factor	Status
http://192.168.1.50			1	Ok
http://192.168.1.51			1	Ok

Edit worker settings for http://192.168.1.50

Load factor: `1`

Route:

Route Redirect:

Status: Disabled: ○ | Enabled: ◉

[Submit]

Apache/2.2.3 (Unix) DAV/2 PHP/5.2.0 Server at localhost Port 80

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Example 1

```
<Proxy balancer://mycluster>
   BalancerMember http://1.2.3.4:8009 loadfactor=1
   BalancerMember http://1.2.3.5:8009 loadfactor=1
   # Less powerful server, don't send as many requests there
   BalancerMember http://1.2.3.6:8009 loadfactor=5
</Proxy>

ProxyPass / balancer://mycluster/
```

Example 2

```
<Proxy balancer://hotcluster>
    BalancerMember http://1.2.3.4:8009 loadfactor=1
    BalancerMember http://1.2.3.5:8009 loadfactor=2
    # The below is the hot standby
    BalancerMember http://1.2.3.6:8009 status=+H
    ProxySet lbmethod=bytraffic
</Proxy>

ProxyPass / balancer://hotcluster/
```

- Many loadbalancer parameter options

- See mod_proxy documentation for the full list

8

<lf> (2.4)

- Wrap anything in a conditional block

- Evaluated at request time - performance implications

```
<If $req{Host} = 'example.com'>
  Redirect / http://www.example.com/
</If>
```

Replaces Rewrite-based
"canonical hostname" rules

$req

$resp

$env

<If %{REQUEST_METHOD} IN GET,HEAD,OPTIONS>

9

svn auto-commit

Ever wish life had an undo button?

Revision control everything!

```
<Location /dav>
   DAV svn
   SvnPath /path/to/svn/repos
   SVNAutoversioning On
</Location>
```

- Your users just mount this like a regular DAV share

- All file modifications generate an SVN commit

- Can always roll back to a previous version

- MANY times more drive space required

- No commit messages

- Diffs not possible on binary files (usually)

- Can revert by date/time if you know it

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ext_filter

ExtFilterDefine

```
ExtFilterDefine fixtext mode=output \
     intype=text/html \
     cmd="/bin/sed s/verdana/arial/g"

<Location />
    SetOutputFilter fixtext
</Location>
```

- Yes, it's a somewhat silly example

- And very slow

- But good for rapid prototyping and quick fixes

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Ok, better example

```
ExtFilterDefine c-to-html mode=output \
    intype=text/c outtype=text/html \
    cmd="/usr/bin/enscript --color -W html -Ec -o - -"

<Directory "/www/htdocs/c">
    SetOutputFilter c-to-html
    AddType text/c .c

    # Extra logging
    ExtFilterOptions DebugLevel=1
</Directory>
```

- Pretty-prints C source code

- Color syntax coding

- Declines to process files that aren't "text/c"

PHP Source Syntax Pretty Printing

.phps

- PHP provides a syntax highlighting handler

AddHandler application/x-httpd-php-source .phps

phps

```php
/**
 * Action: Landing page
 */
public function landingAction() {
    // If there's a code, put it in the session
    $code = $this->getRequest()->getParam('referralCode');
    if (!empty($code)) {
        $session = new Zend_Session_Namespace('referral');
        $session->referralCode = $code;
    }
    // Check if this is a deal archive link
    $dealSlug     = $this->getRequest()->getParam('dealSlug');
    $date         = $this->getRequest()->getParam('date');
    $merchantSlug = $this->getRequest()->getParam('merchantSlug');
    $citySlug     = $this->getRequest()->getParam('citySlug');
    if (!empty($dealSlug)) {
        $redirect =  '/' . $citySlug . '/deals/' . $merchantSlug . '/' .
            $date . '/' . $dealSlug;
    } else {
        $redirect =  '/';
    }
    $this->_redirect($redirect);
}

}
```

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- With mod_rewrite

```
RewriteRule ^(.+\.php)s$ \
   $1 [H=application/x-httpd-php-source]
```

- Or, for Apache 2.0 and earlier ...

```
RewriteRule ^(.+\.php)s$ \
   $1 [T=application/x-httpd-php-source]
```

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mod_substitute

Edit content

- mod_rewrite edits URLs

- mod_substitute modifies content

Full PCRE syntax available

> Substitute s/ariel/helvetica/in
> Substitute s/\bdamn\b/darn/i

Flickr: abulic_monkey

More usefully ...

Substitute s/localhost/www.example.com/i

13

Require, <RequireAll>, <RequireNone>, <RequireAny> (2.4)

- New syntax for combining multiple access control requirements

```
<RequireAny>
    Require method GET POST OPTIONS
    Require valid-user
</RequireAny>
```

Require expr \
    %{TIME_HOUR} >= 9 & %{TIME_HOUR} <= 17

```
SetEnvIf User-Agent ^KnockKnock/2\.0 let_me_in
<Directory /docroot>
    Require env let_me_in
</Directory>
```

```
<Directory /www/mydocs>
  <RequireAll>
    <RequireAny>
        Require user superadmin
        <RequireAll>
          Require group admins
          Require ldap-group cn=Administrators,o=Airius
          <RequireAny>
            Require group sales
            Require ldap-attribute dept="sales"
          </RequireAny>
        </RequireAll>
    </RequireAny>
    <RequireNone>
      Require group temps
      Require ldap-group cn=Temporary Employees,o=Airius
    </RequireNone>
  </RequireAll>
</Directory>
```

```
# Used to be "allow from all"
Require all granted

# Used to be "deny from all"
Require all denied
```

14

CheckSpelling

CheckSpelling

CheckSpelling On

CheckCaseOnly On

Good for ...

- Windows users

- Simple typos

- Stupid people who just can't get stuff right on brochures

- Performance

  - Every 404 results in a directory scan to see if something was missed

- Yes, mod_speling

- See, it's misspelled. Funny, hmm?

- No, I didn't think so either

15

Caching

Sort-of-dynamic

- Your blog that you update once every three months

- The front page of your corporate site with database-driven press releases

Caching dynamic content

```
CacheEnable disk /
CacheRoot /var/www/cache
CacheDefaultExpire 3600
# Only in 2.3+
CacheMinExpire 3600
```

```
# Or, in 2.2-
CacheIgnoreCacheControl On
CacheDefaultExpire 600
```

Caching

- CacheDir needs to be writeable by the Apache user

- Also great for proxying content from a back-end server

- Can also cache to memory, if you have a lot of RAM

Even if I say not to ...

CacheIgnoreCacheControl On
CacheStoreNoStore On
CacheStorePrivate On

Resources requiring authentication are NEVER cached!

Don't Cache That

CacheIgnoreHeaders Set-Cookie

CacheDisable /images

16

mod_deflate

Deflate

AddOutputFilterByType DEFLATE \
text/html text/plain text/xml

Compressed

- All content gzipped on the way out to the client

- Browsers decompress it as it arrives

- 2-3 times performance improvement

- Can log compression percentage. See docs.

Logging

DeflateFilterNote Input instream
DeflateFilterNote Output outstream
DeflateFilterNote Ratio ratio

LogFormat '"%r" %{outstream}n/%{instream}n (%{ratio}n%%)' deflate
CustomLog logs/deflate_log deflate

Caveats

- Works best for sites that are text-heavy

- Don't try to deflate non-textual data. IE gets angry.

- You *can* cache the output, but probably don't want to

17

syslog

ErrorLog syslog:local1

local1.* @sysloghost:601

- Many servers logging to one location

- Log critical errors to somewhere you can't miss

local1.crit /var/log/panic

- Sending the access log to syslog is harder

- Can be done with a piped log handler

- mod_log_spread might be a better way to handle this

For the access log, use a
pipe to `logger`

CustomLog "|/usr/bin/tee -a /var/log/www/access.log
| /usr/bin/logger -thttpd -plocal6.notice" combined

18

WebDAV

WebDav

- FTP is insecure

- SCP or SFTP is too complicated for your manager

- Maybe DAV is the right solution

```
DavLock /var/dav/davlock
<Directory /www/upload>
  Dav On
</Directory>
```

Mount from any OS

- Dav on Windows tends to be harder

- Mac, Linux mount them the same as any other file system

19

Debug log modules

What does the error log say?

- Sometimes, the error log just doesn't contain enough detail

mod_dumpio

DumpIOInput On
DumpIOOutput On

BIG log

mod_log_forensic

- Logs the beginning and end of a request

- check-forensic script complains if a particular request wasn't created

- Logs the details of the request

- Relies on unique_id in 2.0, and can use it in 2.2 if you want

20

mod_logio

Normal logging

129.101.54.111 - - [13/Sep/2006:19:45:35 -0400] "GET /images/Kenya_world_map.jpg HTTP/1.0" 200 42739

- 42729 is the bytes downloaded, NOT including headers, and does NOT include the request.

- Total transaction size is more than this

mod_logio

LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\" %I %O" combinedio

- %I is total input
- %O is total output

21
PATH_INFO

PATH_INFO
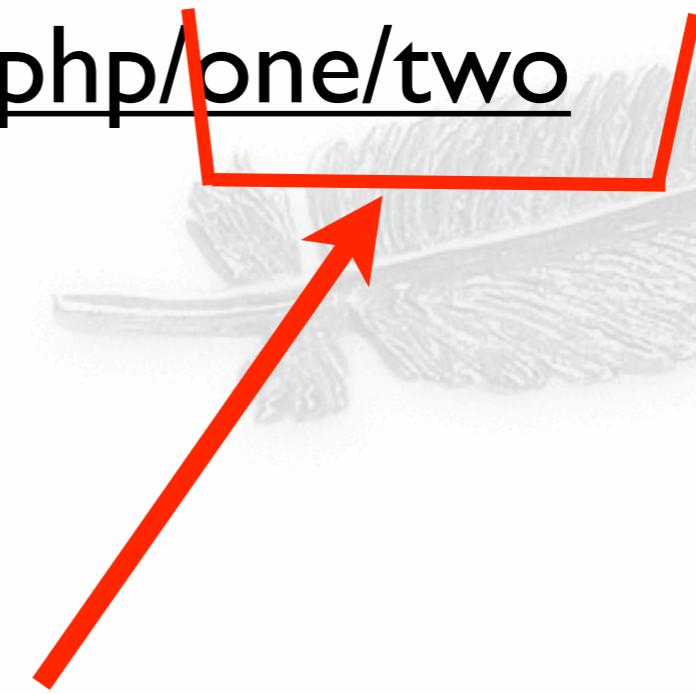
http://www.foo.com/example.php/one/two

This bit

Granny says ...

- The most important thing about ~~mod_rewrite~~ magic is knowing when not to use it.

(With apologies to Terry Pratchett)

"Pretty" URLs

- mod_rewrite frequently used to rewrite query strings into path information:

```
RewriteEngine On
RewriteRule ^/book/([^/]+)/([^/]+)/? \
    /book.php?author=$1&topic=$2 [PT,L]
```

Which gives you

http://www.foo.com/book/bowen/apache

... instead of ...

http://www.foo.com/book.php?author=bowen&topic=apache

Bad news

- This doesn't actually result in higher search engine ranking

- It does, however, make it easier to read the URL over the phone

Using PATH_INFO instead

- Remove the unnecessary additional processing

- Faster

- Much shinier

- You get to be smug with people who do it the old-and-crufty way

Step One

- 'book' needs to be a php file

- Without the .php file extension

```
<Files book>
  SetHandler application/x-httpd-php
</Files>
```

Step Two

```php
<?php

list($zero, $one, $two) =
    explode("/", $_SERVER['PATH_INFO']);

?>
```

Switch

```
$args = split('/', $_SERVER['PATH_INFO'];
switch( $args[1] ) {
    case 'foo' :
        // stuff here
    break;


    case 'bar' :
        // stuff here
    break;


    default :
        // Other stuff
    break;
}
```

22
graceful-stop

graceful-stop

- 2.2

- Stop the server, but allow connections to complete what they are doing

apachectl graceful-stop

23
authn_alias

mod_authn_alias

- Allows you to create aliases of various auth sources, so that you can check multiple sources of the same type

```
 LoadModule authn_alias_module modules/mod_authn_alias.so

<AuthnProviderAlias ldap ldap-alias1>
    AuthLDAPBindDN cn=youruser,o=ctx
    AuthLDAPBindPassword yourpassword
    AuthLDAPURL ldap://ldap.host/o=ctx
</AuthnProviderAlias>

<AuthnProviderAlias ldap ldap-other-alias>
    AuthLDAPBindDN cn=yourotheruser,o=dev
    AuthLDAPBindPassword yourotherpassword
    AuthLDAPURL ldap://other.ldap.host/o=dev?cn
</AuthnProviderAlias>

Alias /secure /webpages/secure
<Directory /webpages/secure>
    Order deny,allow
    Allow from all

    AuthBasicProvider ldap-other-alias ldap-alias1
    AuthType Basic
    AuthName LDAP_Protected_Place
    AuthzLDAPAuthoritative off
    require valid-user
</Directory>
```

Or ...

```
<AuthnProviderAlias file file1>
    AuthUserFile /tmp/user1
</AuthnProviderAlias>

<AuthnProviderAlias file file2>
    AuthUserFile /tmp/user2
</AuthnProviderAlias>

<Location /x>
    AuthType Basic
    AuthBasicProvider file1 file2
    AuthName "Wooga"

    Require valid-user
</Location>
```

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Protocol modules

mod_pop3

- That's right! It's a pop3 server!

- http://svn.apache.org/viewcvs.cgi/httpd/mod_pop3/

See also ...

- mod_echo
- mod_smtpd
- mod_spamd
- mod_ftpd

Protocol modules

- Apache httpd is a generic protocol server

- Protocol modules can be any protocol

Why?

- Common configuration format

- Common authentication architecture

- Common rewriting/mapping capabilities

25

Event mpm

- Solves the Keepalive problem

What Keepalive problem?

Apache Server Status for httpd.apache.org

Server Version: Apache/2.2.10 (Unix)
Server Built: Oct 11 2008 07:43:13

Current Time: Monday, 27-Oct-2008 22:27:11 GMT
Restart Time: Saturday, 11-Oct-2008 07:53:09 GMT
Parent Server Generation: 16
Server uptime: 16 days 14 hours 34 minutes 2 seconds
Total accesses: 113075512 - Total Traffic: 57225.8 GB
CPU Usage: u1440.79 s6348.18 cu0 cs0 - .543% CPU load
78.8 requests/sec - 40.8 MB/second - 0.5 MB/request
257 requests currently being processed, 127 idle workers

```
__W__WW_____WK_K_WK_CW_K_K_W_WKK_WK_K_KWW_WW_K_KW_KK__K_WK_K
KW_WWW_CCCKK_K__KK_W_KWKW_K_K_KWW_WW_WWC_WRK__WK_KWKWKWW__
W........W....W........WW.........WW.........
KKW__W_WKKWKWKK_WWKKW_K_WK_KWK_KWKC_WWKRWKKKWWKW_W_W_RWK_KW
W_WRKWKCKW_CW_WKWWKCKKKKKW__WKWW_KWC_WKW_KK__WK_WKKW__W_WWW
_____WKKKK_KKKWC_W_K__KKWK_K_KWK_WWW_CWWKK__KWWKKWK
_KW_RKC__K_KWC_KK__KK____WCWCKKCWWKWWWKKWKWK__WK_K_W___W_K_
```

Scoreboard Key:
"_" Waiting for Co
"W" Sending Reply,
"C" Closing connec
"I" Idle cleanup of

Srv	PID
0-16	10516 0/199
0-16	10516 0/153
0-16	10516 0/237
0-16	10516 0/241
0-16	10516 0/250
0-16	10516 0/201
0-16	10516 0/194
0-16	10516 0/187
0-16	10516 0/148
0-16	10516 0/201
0-16	10516 0/129
0-16	10516 0/154
0-16	10516 1/134
0-16	10516 0/172
0-16	10516 1/187
0-16	10516 0/186
0-16	10516 0/155
0-16	10516 1/211
0-16	10516 0/200
0-16	10516 1/235
0-16	10516 0/210
0-16	10516 0/213
0-16	10516 1/220
0-16	10516 0/176
0-16	10516 1/176
0-16	10516 0/213
0-16	10516 0/213

| 0-16 | 10516 0/171/232549 | _ | 542.22 | 45 | 26 | 0.0 | 46.60 | 113082.52 | 74.6.17.179 | httpd.apache.org | GET /docs/2.0/ja/suexec.html HTTP/1.0 |
| 0-16 | 10516 0/133/233106 | W | 541.41 | 49 | 0 | 0.0 | 33.12 | 112064.86 | 124.228.103.32 | www.apache.org | GET /dist/struts/documentation/struts-2.0.11.2-docs.zip HTTP/1. |

With event …

How?

- Keepalive sockets are shoved into a queue

- The child/thread can immediately answer the next request

26 mod_dbd

mod_dbd

- Manages database connection pooling

- Not actually much use by itself

- Great for other modules that need to talk to databases

- Such as ...

mod_authn_dbd

- Auth against any SQL database

- Well, "any" might be a little too optimistic

```
DBDriver pgsql

#Connection string: database name and login credentials
DBDParams "dbname=htpasswd user=apache password=xxxxxx"

#Parameters for Connection Pool Management
DBDMin  1
DBDKeep 2
DBDMax  10
DBDExptime 60


<Directory /usr/www/myhost/private>
   AuthType Basic
   AuthName "My Server"
   AuthBasicProvider dbd
   Require valid-user
   AuthDBDUserPWQuery "select password from authn where username = %s"
</Directory>
```

OmniTI

dbd RewriteMap rules

```
RewriteMap myquery "fastdbd:SELECT destination
FROM rewrite WHERE source = %s"

RewriteRule (.*) ${myquery:$1} [PT]
```

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mod_negotiation

File extensions are *so* Windows 3.1

- http://www.example.com/index is much cooler than http://www.example.com/index.php

- And lets you change to .html or .cfm later on without changing your URLs

It's a feature

Options +MultiViews

- A request for the resource called index is served by the variant called index.php

- index.php.en and index.php.fr are also variants of this resource

- Accept-Language (in your browser prefs)

- See httpd documentation multi-language

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Pluggable MPMs (2.4)

- Changing MPM requires a rebuild.

- If you want to run several daemons with different MPMs, you'd need several different binaries

--enable-mpms-shared="event prefork worker"

Load with LoadModule

LoadModule mpm_event_module modules/mod_mpm_event.so

Multi-daemon

- Same binary

- Switch MPM (and other config options) by using -f

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mod_authnz_ldap

Auth against LDAP

```
LoadModule authn_alias_module modules/mod_authn_alias.so

        AuthLDAPBindDN cn=youruser,o=ctx
        AuthLDAPBindPassword yourpassword
        AuthLDAPURL ldap://ldap.host/o=ctx

    <Directory /webpages/secure>
        Order deny,allow
        Allow from all

        AuthBasicProvider ldap

        AuthType Basic
        AuthName LDAP_Protected_Place
        AuthzLDAPAuthoritative off
        require valid-user
    </Directory>
```

OmniTI

- Use any LDAP groups, users, ACLs, whatnot that you use elsewhere on your network

- For anything else you don't know, #httpd is the source of all wisdom and wit

- irc.freenode.net

- rbowen@apache.org

- http://people.apache.org/~rbowen

- http://joind.in/3413