Drupal Varnish & ESI

Drupalcamp Toulouse November 2011
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DELIVERING WEBSITES
Back to basics
Old faithful, serving sites since 1996.

> Quick

> Simple

Apache
Apache's model
Apache's model with PHP
Do it with Drupal
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML+RDFa 1.0//EN" "http://www.w3.org/MarkUp/DTD/xhtml-rdfa-1.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" version="XHTML+RDFa 1.0" dir="ltr"
xmlns:content="http://purl.org/rss/1.0/modules/content/"
xmlns:dc="http://purl.org/dc/terms/"
xmlns:foaf="http://xmlns.com/foaf/0.1/"
xmlns:og="http://ogp.me/ns#"
xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
xmlns:sioc="http://rdfs.org/sioc/ns#"
xmlns:sioct="http://rdfs.org/sioc/types#"
xmlns:skos="http://www.w3.org/2004/02/skos/core#"
xmlns:xsd="http://www.w3.org/2001/XMLSchema#">
<head profile="http://www.w3.org/1999/xhtml/vocab">
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="shortcut icon" href="http://testbed.local/misc/favicon.ico" type="image/vnd.microsoft.icon" />
<meta name="Generator" content="Drupal 7 (http://drupal.org)" />
<title>Welcome to Site-Install | Site-Install</title>
</head>

HTML from homepage after running drush si
Drag race results

- HTML: 1800
- PHP: 1400
- Drupal: 0
CONCLUSION
We're choosing the slow way
WHY ARE WE USING PHP AND DRUPAL?

> Dynamic pages – gazillions of combinations
> Ease of site maintenance – can change templates without changing every file
> User-specific features by business logic
HOW DO YOU LIKE YOUR WEBSITES?
A history of web publishing:
baked or fried?
> Prepared in advance
> Typically uses a build-script
> Produces static pages
> Quick
> No complex behaviour
> Boost module is an example
> Pages created on the fly
> CMS or other complex dynamic system
> Allows complex behaviour
> Drupal does this
> Slow

Fried
VARNISH
Baked AND fried?
What is Varnish?

- Software package (daemon) for Linux
- Reverse proxy, such as Squid, Nginx and Zeus
- Cache
How Varnish works

GET /blog
Host deglos.com
User-AgentMozilla/5.0 (Macintosh; Intel Mac OS X 10.6; rv:8.0.1) Gecko/20100101 Firefox/8.0.1
Accept
   text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language en-us,en;q=0.5
Accept-Encoding gzip, deflate
Accept-Charset ISO-8859-1,utf-8;q=0.7,*;q=0.7
Connection keep-alive
If Varnish passes every request to Drupal – and acts just as a MITM – your site will be slower.
Varnish needs to cache

Varnish

Drupal

Cache
Varnish + cache is quicker

10x faster (or more)

Varnish → Cache → Drupal
Personalisation is a problem
The Uncacheable

Community & Support

Where is the Drupal Community?

Online & Local Groups
Groups.drupal.org provides a place for groups to organize, meet, and work on projects based on interest or geographic location. It's a great way to get involved, learn, and get support.

Events & Meetups
Community members can also be found at Drupal events where you can meet face to face, share tips, and get inspiration for your next Drupal project, making friends along the way.
CONCLUSION

Personalised pages cannot be cached.

(or can they?)
VARNISH PITFALLS

> Same problems as Baked – no personalisation
> Can be slower – benchmark!
> Can break functionality (POSTs should always hit the backend)
VARNISH CONFIGURATION

VCL: Varnish Configuration Language
WHAT IS VCL?

> It's a DSL: Domain-Specific Language
> Configures Varnish: tells it what to cache, how to behave with requests...
> Default is /etc/varnish/default.vcl
> VCL commands have changed – version-dependent.
Example VCL:

#This is a basic VCL configuration file for varnish.
backend default {
    .host = "127.0.0.1";
    .port = "80";
}

sub vcl_fetch {
    unset obj.http.Cache-Control;
    unset obj.http.Expires;
    set obj.ttl = 86400s;
}
UNDER CONTROL
The Varnish admin port
VARNISH HAS AN ADMIN INTERFACE

- Listens on port 6082 by default
- Can connect over telnet
- Uses plain-text commands
- See https://www.varnish-cache.org for docs
telnet localhost 6082
Trying ::1...
Connected to localhost.
Escape character is '^[].

vcl.list
200 23
active 1 boot
help

telnet localhost 6082
Trying ::1...
Connected to localhost.
Escape character is '^[}'.
help
200 376
help [command]
ping [timestamp]
status
start
stop
stats
...

url.purge

telnet localhost 6082
Trying ::1...
Connected to localhost.
Escape character is '^[].'
url.purge .*
200 0
SETTING UP VARNISH
A brief installation guide
Setting up Varnish

> Download varnish daemon
debian: `apt-get install varnish`
redhat: `yum install varnish`

> Re-configure Apache to listen on port 8080 (or other non-standard port)

> Configure Varnish to listen on port 80

> Configure Varnish VCL to connect to Apache

> VCL tweaks (default does not cache Drupal)

> Install Drupal modules: varnish and expire
ESI
The grail of performance
WHAT IS ESI?

- Edge Side Includes
- Allows full caching of personalised pages
- A W3C standard
- Requires a proxy or an advanced CDN such as Akamai
Serving ESIs

Varnish

Drupal

Cache
Serving ESIs
Serving ESIs

```html
<div id="nav-masthead" class="grid-12">
  <ul>
    <li class="homepage active first active">
      <a href="/home" class="active active">Drupal Homepage</a>
    </li>
    <li class="dashboard last">
      <a href="/user/dashboard">Your Dashboard</a>
    </li>
  </ul>
  <div id="userinfo">
    <a href="/user" title="View & edit your user profile">Logged in as manarth</a>
    <a href="/logout">Log out</a>
  </div>
</div>
```

<-- /#nav-masthead -->
Serving ESIs

<div id="nav-masthead" class="grid-12">
  <ul>
    <li class="homepage active first active">
      <a href="/home" class="active active">Drupal Homepage</a>
    </li>
    <li class="dashboard last">
      <a href="/user/dashboard">Your Dashboard</a>
    </li>
  </ul>
  <esi src="http://example.com/esi/userinfo" />
</div>
Serving ESIs

```html
<div id="userinfo">
  <a href="/user" title="View & edit your user profile">Logged in as manarth</a>
  <a href="/logout">Log out</a>
</div>
```
What do you need in order to do ESIs?

- Replace personalisation with ESI tags
- Theme-alters?
- Provide backend `hook_menu` handlers for each ESI tag
- Ensure that Varnish is caching
- Rule 35 applies
ESI PITFALLS

> Unless you cache, site will be slower
> Complex
> Some blocks might rely on global state
> Not ready for primetime D7 use (but we're working on it!)
CONCLUSIONS

Cache all the things
VARNISH MODULES

Drupal and Varnish: a happy family
VARNISH

> Allows Drupal to send control commands to Varnish – such as clear cache

> Optional: you can cache with Varnish without this module

> Adds hooks to integrate with expire

> Limited use without expire
EXPIRE

- Originated in Boost
- Looks for changes – such as nodes that are edited – and notifies external proxies to expire their cache
- Requires a proxy module – such as Varnish – to handle the notifications
ESI

- Implements Edge Side Includes
- Stable (but primitive) for Drupal 6
- Currently blocks only (experimental panels support)
- Some D7 patches – looking promising
- New ground-up re-architecture in-progress for 7.x-2.x
Configuring ESI Blocks

Block specific settings

Block title:
<none>
Override the default title for the block. Use <none> to display no title, or leave blank to use the default block title.

ESI settings
Control how this block is cached on an ESI-enabled reverse proxy.

- Enable ESI

TTL:
5 minutes
Time-to-live on the proxy-cache.
PERFORMANCE TIPS

Zoom zoom!
OTHER SPEED TIPS

> Ensure **APC** is installed, running, and adequately sized
> Use **memcache**
> Use **CSS** and **JS** aggregation
> Monitor MySQL's **slow query log**
> Enable **anonymous page cache**, unless using a proxy / all traffic is authenticated
Flickr Credits

> Babbage engine
http://www.flickr.com/photos/melgart/4444251225

> Cookies
http://www.flickr.com/photos/sabine01/2485502578

> Frying wok
http://www.flickr.com/photos/18403292@N00/3048993

> Varnish
http://www.flickr.com/photos/dawniecakes/4686467791
THANK YOU!

Questions?