Faster & more flexible CDN integration

Wim Leers ~ http://wimleers.com/

Drupal.org, IRC, Twitter, LinkedIn: wimleers
Bachelor thesis

“Improving Drupal’s page loading performance”

- Promotor: Prof. dr. Wim Lamotte
- Co-promotor: dr. Peter Quax
- Mentors: Stijn Agten & Maarten Wijnants
Goal

- Faster web sites
  - Speed = satisfaction = more & happier visitors = more revenue

source: http://www.slideshare.net/stubbornella/designing-fast-websites-presentation, Nicole Sullivan, Yahoo!
Goal

- Faster web sites
  - Speed = satisfaction = more & happier visitors = more revenue
  - Google: +0.5s → -20% searches

source: http://www.slideshare.net/stubbornella/designing-fast-websites-presentation, Nicole Sullivan, Yahoo!
Drupal’s page loading performance

- One of the most effective measures:

  “Use a CDN”
Drupal’s page loading performance

- One of the most effective measures:
  
  “Use a CDN”

- Drupal: not yet possible!
Terminology: CDN
Key properties of a CDN
Key properties of a CDN

• Geographical spread
Key properties of a CDN

- Geographical spread

- Pull versus Push

<table>
<thead>
<tr>
<th>Pull</th>
</tr>
</thead>
<tbody>
<tr>
<td>transfer protocol</td>
</tr>
<tr>
<td>automatically</td>
</tr>
<tr>
<td>+</td>
</tr>
<tr>
<td>virtually no setup</td>
</tr>
<tr>
<td>-</td>
</tr>
<tr>
<td>no flexibility</td>
</tr>
</tbody>
</table>
# Key properties of a CDN

- Geographical spread

- Pull versus Push

<table>
<thead>
<tr>
<th>Transfer Protocol</th>
<th>Pull</th>
<th>Push</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>automatically</td>
<td>FTP, SFTP, rsync, WebDAV, Amazon S3</td>
</tr>
<tr>
<td>+</td>
<td>virtually no setup</td>
<td>flexibility</td>
</tr>
<tr>
<td>-</td>
<td>no flexibility</td>
<td>setup</td>
</tr>
</tbody>
</table>
### Key properties of a CDN

- Geographical spread
- Pull versus Push
- Lock-in

<table>
<thead>
<tr>
<th>Transfer Protocol</th>
<th>Pull</th>
<th>Push</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FTP, SFTP, rsync, WebDAV, Amazon S3 ...</td>
</tr>
<tr>
<td>+</td>
<td>virtually no setup</td>
<td>flexibility</td>
</tr>
<tr>
<td>-</td>
<td>no flexibility</td>
<td>setup</td>
</tr>
</tbody>
</table>

Pull: automatically

+ virtually no setup

- no flexibility

Push: FTP, SFTP, rsync, WebDAV, Amazon S3 ...
Profiling: *Episodes*
Profiling: *Episodes*

- Measures “episodes” during page loading
Profiling: *Episodes*

- Measures “episodes” during page loading
- **Real measurements**: JS in browser, for *each* visitor
- No simulation!
Episodes module
Episodes module

• **Drupal module** that offers Episodes integration
Episodes module

- **Drupal module** that offers Episodes integration
Episodes Server module
Episodes Server module

- **Drupal module** that visualizes the collected measurements
Daemon: *File Conveyor*
Daemon: *File Conveyor*

1. **Configuration**: simple XML file
Daemon: *File Conveyor*

1. **Configuration**: simple XML file

2. **Detection**: instantaneous
Daemon: *File Conveyor*

1. **Configuration**: simple XML file

2. **Detection**: instantaneous

3. **Processing**: store image more efficiently … — extensible!
Daemon: *File Conveyor*

1. **Configuration**: simple XML file

2. **Detection**: instantaneous

3. **Processing**: store image more efficiently ... — extensible!

4. **Syncing**: supports many protocols (FTP, Amazon S3 ...) — extensible!
Daemon: *File Conveyor*

1. **Configuration**: simple XML file

2. **Detection**: instantaneous

3. **Processing**: store image more efficiently ... — extensible!

4. **Syncing**: supports many protocols (FTP, Amazon S3 ...) — extensible!

5. **Result**: SQLite DB with CDN URLs
Daemon’s capabilities: scenario 1

Company wants to switch from CDN provider X to Amazon S3.
- CDN X: FTP
- Amazon S3: custom protocol
Daemon’s capabilities: scenario 1

Company wants to switch from CDN provider X to Amazon S3.
- CDN X: FTP
- Amazon S3: custom protocol

• Setup:
  • CDN X → Amazon S3
  • Daemon
Daemon’s capabilities: scenario 1

Company wants to switch from CDN provider X to Amazon S3.
- CDN X: FTP
- Amazon S3: custom protocol

• Setup:
  • CDN X → Amazon S3
  • Daemon

• Alternative: write a lot of code
Daemon’s capabilities: scenario 2

U.S. company expands to South-Korea
Daemon’s capabilities: scenario 2

U.S. company expands to South-Korea

• Setup:

  • North-American CDN

  • Static file server in South-Korea

  • Daemon + language-/subdomain-based logic to pick CDN/server
Daemon’s capabilities: scenario 2

U.S. company expands to South-Korea

• Setup:
  • North-American CDN
  • Static file server in South-Korea
  • Daemon + language-/subdomain-based logic to pick CDN/server
  • Alternative: global CDN or slower web site in South-Korea
CDN integration module
CDN integration module

- Drupal core patch for Drupal 6, committed to Drupal 7
CDN integration module

- Drupal core patch for Drupal 6, committed to Drupal 7
- Basic mode: Origin Pull CDN
CDN integration module

• Drupal core patch for Drupal 6, committed to Drupal 7

• Basic mode: Origin Pull CDN

• Advanced mode: any CDN (daemon)
What are the "DriverPacks"?

Each DriverPack is a package of drivers that fit a certain category. There are for example DriverPacks for Sound devices and for Graphics devices. For each of these DriverPacks we include every device driver of that category. On top of that, we solve tricky problems — such as driver conflicts — for you.

They are intended to be used while creating a Windows 2000, XP, 2003 or Vista (and soon Windows 7) installation disc/image. We also provide you with the software to make that as simple as possible.

We've built this to simplify the lives of network administrators and employees of pc shops, but also enthusiast pc users.

Sounds cool? Then explore our downloads and come and say hi in our forum!

New site live!
Posted on Thu, 06/1/2009 - 03:14 by Wim Leers

Finally the time has come! The new website went live today!
Test case
Test case
Conclusion
Conclusion

1. Speed of web site very important
Conclusion

1. Speed of web site very important

2. Episodes → monitor page loading performance
Conclusion

1. Speed of web site very important

2. Episodes → monitor page loading performance

3. CDN integration module → best method to integrate Drupal with a CDN
Conclusion

1. Speed of web site very important

2. Episodes → monitor page loading performance

3. CDN integration module → best method to integrate Drupal with a CDN

4. Daemon → flexible CDN integration
Conclusion

1. Speed of web site very important

2. Episodes → monitor page loading performance

3. CDN integration module → best method to integrate Drupal with a CDN

4. Daemon → flexible CDN integration