Merging Horde Groupware with jQuery Mobile

LinuxTag Berlin
26.05.2012

Jan Schneider
Horde LLC
I'm going to show

- How Horde evolved
- How that helped us adding a jQuery Mobile interface
- What have been the key points for a success
- Which problems we experienced
- How we solved them
A little bit of history

- Horde has a history of 14 years
- 1998: IMP 1.0 – PHP 3 webmail client
<table>
<thead>
<tr>
<th>Date</th>
<th>From</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun, 12 Jul</td>
<td>chuck hagenbuch <a href="mailto:chuck@osmos.ml.org">chuck@osmos.ml.org</a></td>
<td>i hope this gives a real address</td>
</tr>
<tr>
<td>Sun, 12 Jul</td>
<td><a href="mailto:chagenbu@usl.williams.edu">chagenbu@usl.williams.edu</a></td>
<td>my first message from IMP to IMP!</td>
</tr>
<tr>
<td>Mon, 29 Jun</td>
<td>chuck hagenbuch</td>
<td>the things they put in emacs...</td>
</tr>
<tr>
<td>Mon, 20 Jul</td>
<td><a href="mailto:chagenbu@usl.williams.edu">chagenbu@usl.williams.edu</a></td>
<td>testing textwrap</td>
</tr>
<tr>
<td>Tue, 21 Jul</td>
<td><a href="mailto:chagenbu@usl.williams.edu">chagenbu@usl.williams.edu</a></td>
<td>oh yes, it's our favorite: textwrap!!</td>
</tr>
</tbody>
</table>

Select all - select none

[Delete] [Undelete] checked mail [Move] [Copy] checked mail to:
A little bit of history

- 1999: Horde 1.0, IMP 2.0
- PHP 3 application framework
- First objects
<table>
<thead>
<tr>
<th>Date</th>
<th>From</th>
<th>Subject</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 27</td>
<td>Lacutis of Borg</td>
<td>RE: Hey man what up?</td>
<td>4 kb</td>
</tr>
<tr>
<td>Mar 30</td>
<td>Joey Hess</td>
<td>Debian Weekly News - 23 to 29 Mar 1999</td>
<td>7 kb</td>
</tr>
<tr>
<td>05:22</td>
<td>Josip Rodin</td>
<td>Re: creating libraries</td>
<td>3 kb</td>
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</tbody>
</table>
A little bit of history

- 2002: Horde 2.0, IMP 3.0
- PHP 4
- First PHP OOP/MVC application framework
- 20 libraries
<table>
<thead>
<tr>
<th>Date</th>
<th>From</th>
<th>Subject</th>
<th>Size</th>
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<tbody>
<tr>
<td>11/05/01</td>
<td>Cliff Green</td>
<td>Re: [imp] automatically appending a default domain...</td>
<td>3kb</td>
</tr>
<tr>
<td>11/09/01</td>
<td>Liam Hoekenga</td>
<td>[imp] filter checking on inbox refresh</td>
<td>6kb</td>
</tr>
<tr>
<td>12/02/01</td>
<td>Mike Hardy</td>
<td>Re: hello from a long-lost developer</td>
<td>97kb</td>
</tr>
<tr>
<td>12/03/01</td>
<td>Mathieu CLABAUT</td>
<td>Re: [dev] password module.</td>
<td>2kb</td>
</tr>
<tr>
<td>12/03/01</td>
<td>Mike Hardy</td>
<td>[Libmcal-users] libmcal Source RPM (spec file incl...</td>
<td>2kb</td>
</tr>
<tr>
<td>12/05/01</td>
<td>Scottie Swenson</td>
<td>Re: Lets go</td>
<td>4kb</td>
</tr>
<tr>
<td>12/05/01</td>
<td><a href="mailto:mgrommet@elucidations.net">mgrommet@elucidations.net</a></td>
<td>[imp] &quot;Undisclosed Recipients&quot; with latest PHP (4....</td>
<td>2kb</td>
</tr>
<tr>
<td>12/17/01</td>
<td>Paul Wolstenholme</td>
<td>Re: Checking in</td>
<td>3kb</td>
</tr>
<tr>
<td>12/18/01</td>
<td>Harry Hoffman</td>
<td>Jonah install docs</td>
<td>2kb</td>
</tr>
<tr>
<td>12/21/01</td>
<td><a href="mailto:dominique.dalponte@utbm.f">dominique.dalponte@utbm.f</a>...</td>
<td>[turba] identical entries in the address book</td>
<td>2kb</td>
</tr>
<tr>
<td>12/23/01</td>
<td>Jon Parise</td>
<td>Re: [core] O'Reilly Open Source Convention (July 2...</td>
<td>2kb</td>
</tr>
<tr>
<td>12/23/01</td>
<td><a href="mailto:bugs@bugs.horde.org">bugs@bugs.horde.org</a></td>
<td>[bugs] [Bug 826] Changed - failure to deal with</td>
<td>2kb</td>
</tr>
<tr>
<td>01:48:22</td>
<td><a href="mailto:bugs@bugs.horde.org">bugs@bugs.horde.org</a></td>
<td>[bugs] [Bug 750] Changed - problem deleting messag...</td>
<td>3kb</td>
</tr>
<tr>
<td>06:14:26</td>
<td>Jan Kuipers</td>
<td>[dev] Updated Dutch translations</td>
<td>2kb</td>
</tr>
<tr>
<td>09:06:40</td>
<td>Brent J. Nordquist</td>
<td>Freshmeat</td>
<td>2kb</td>
</tr>
<tr>
<td>10:14:26</td>
<td><a href="mailto:bugs@bugs.horde.org">bugs@bugs.horde.org</a></td>
<td>[bugs] [Bug 825] Changed - imp not correctly displ...</td>
<td>2kb</td>
</tr>
<tr>
<td>14:01:07</td>
<td>To: <a href="mailto:dev@lists.horde.org">dev@lists.horde.org</a></td>
<td>Re: [dev] Re: RC4 announcement</td>
<td>3kb</td>
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</tbody>
</table>
A little bit of history

- 2004: Horde 3.0, IMP 4.0
- 64 PHP libraries
- PEAR involvement
<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>From</th>
<th>Subject</th>
<th>Size</th>
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<tbody>
<tr>
<td>1</td>
<td>03/10/2003</td>
<td>Christophe de VIENNE</td>
<td>[imp] Message Disposition Notifications</td>
<td>5kb</td>
</tr>
<tr>
<td>2</td>
<td>04/01/2003</td>
<td>Liam Hoekenga</td>
<td>Re: [imp] IMP 3.2.1 attachment view / save problem (NS4, may...</td>
<td>5kb</td>
</tr>
<tr>
<td>3</td>
<td>05/26/2003</td>
<td>Chuck Hagenbuch</td>
<td>[imp] Fwd: spam report patches</td>
<td>9kb</td>
</tr>
<tr>
<td>4</td>
<td>06/16/2003</td>
<td>Marchand Robert</td>
<td>[imp] delete sent-mail task does not work with non english l...</td>
<td>5kb</td>
</tr>
<tr>
<td>5</td>
<td>06/17/2003</td>
<td>Eric Rostetter</td>
<td>Re: [imp] Custom Color Legend?</td>
<td>5kb</td>
</tr>
<tr>
<td>6</td>
<td>06/18/2003</td>
<td>Rob Siklos</td>
<td>Re: [imp] select all/members dropdown in CVS HEAD</td>
<td>5kb</td>
</tr>
<tr>
<td>7</td>
<td>10:37:02 AM</td>
<td>Diane</td>
<td>[imp] Attachment problems</td>
<td>4kb</td>
</tr>
<tr>
<td>8</td>
<td>02:23:08 PM</td>
<td>Khan Gorlewski</td>
<td>[imp] Image Attachments Question</td>
<td>3kb</td>
</tr>
<tr>
<td>9</td>
<td>07:16:30 PM</td>
<td>jkpsj</td>
<td>[imp] unable to solve double sent-mail and Trash folder</td>
<td>5kb</td>
</tr>
</tbody>
</table>
A little bit of history

- 2008: Horde 3.2, IMP 4.2
- New webmail interfaces: MIMP, DIMP
<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>From</th>
<th>Thread [Subject]</th>
<th>Size</th>
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<tbody>
<tr>
<td>22</td>
<td>04/23/2005</td>
<td>Bestelling</td>
<td>Offerte aanvraag</td>
<td>2 KB</td>
</tr>
<tr>
<td>23</td>
<td>06/08/2005</td>
<td>scott slack</td>
<td>Communicate by choice lower res</td>
<td>565 KB</td>
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<tr>
<td>24</td>
<td>08/04/2005</td>
<td>楊富雄</td>
<td>Fw: 也許你已經接到這種電話...提供大家參考.......</td>
<td>64 KB</td>
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<tr>
<td>27</td>
<td>08/17/2005</td>
<td>Silva, Danielle S (D.H.)</td>
<td>Performance Parcial de Peças - 17 de Agosto - Atualizado!!</td>
<td>164 KB</td>
</tr>
<tr>
<td>25</td>
<td>08/30/2005</td>
<td>Tong</td>
<td>Fw: โพแนและใช้สมุดสติหลักยู</td>
<td>7 KB</td>
</tr>
<tr>
<td>26</td>
<td>09/01/2005</td>
<td>Martin Schulze</td>
<td>[SECURITY] [DSA 793-1] New sqwebmail packages fix cross-site scripting</td>
<td>66 KB</td>
</tr>
<tr>
<td>28</td>
<td>10/12/2005</td>
<td><a href="mailto:bocaciua@libero.it">bocaciua@libero.it</a></td>
<td>included message</td>
<td>2 KB</td>
</tr>
<tr>
<td>29</td>
<td>10/26/2005</td>
<td><a href="mailto:steveh@eecs.umich.edu">steveh@eecs.umich.edu</a></td>
<td>New Catering Lead From Yadaya.com</td>
<td>8 KB</td>
</tr>
<tr>
<td>30</td>
<td>01/24/2006</td>
<td>BET Armor Ingénierie - EB</td>
<td>CTA / CODIS - 22 St Brieuc</td>
<td>861 KB</td>
</tr>
<tr>
<td>31</td>
<td>03/07/2006</td>
<td>Carlos Amaral Rocha</td>
<td>Que otário-----------------------------</td>
<td>1,306 KB</td>
</tr>
<tr>
<td>32</td>
<td>03/17/2006</td>
<td><a href="mailto:temp4@truemail.co.th">temp4@truemail.co.th</a></td>
<td>ไทย Language - Attach UTF-8</td>
<td>2 KB</td>
</tr>
<tr>
<td>33</td>
<td>04/03/2006</td>
<td>David Chang</td>
<td>Re: 最近好嗎？</td>
<td>3 KB</td>
</tr>
<tr>
<td>34</td>
<td>04/06/2006</td>
<td>Mail Delivery System</td>
<td>Undelivered Mail Returned to Sender</td>
<td>3 KB</td>
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<tr>
<td>35</td>
<td>06/21/2006</td>
<td>Netmagic Support</td>
<td>202.87 xx xx nagios error</td>
<td>4 KB</td>
</tr>
<tr>
<td>36</td>
<td>06/22/2006</td>
<td>Rimma Ashkinadze</td>
<td>They got their summer haircuts!</td>
<td>116 KB</td>
</tr>
<tr>
<td>37</td>
<td>08/01/2006</td>
<td>Jacques Beaudoin</td>
<td>Test from thunderbird</td>
<td>2 KB</td>
</tr>
<tr>
<td>38</td>
<td>08/02/2006</td>
<td>紹雄 欧</td>
<td>Fwd: 美的饗宴!!~有音樂喔!!!!</td>
<td>277 KB</td>
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<tr>
<td>39</td>
<td>08/24/2006</td>
<td>Dimitris Tsachalidis</td>
<td>thundirbird</td>
<td>61 KB</td>
</tr>
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<td>From</td>
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<td>Chuck Hagenbuch</td>
<td>07/04/2005</td>
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<tr>
<td>Mike Cochran</td>
<td>06/25/2005</td>
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<tr>
<td>Martin Lohmeier</td>
<td>06/21/2005</td>
<td></td>
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<tr>
<td>Jan Schneider</td>
<td>07/11/2005</td>
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<td>07/11/2005</td>
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<td>Jan Schneider</td>
<td>07/11/2005</td>
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<tr>
<td>Jason M. Felice</td>
<td>07/11/2005</td>
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<td>Jan Schneider</td>
<td>07/12/2005</td>
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<tr>
<td>Chuck Hagenbuch</td>
<td>07/12/2005</td>
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<td></td>
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</tr>
</tbody>
</table>

**Subject:** Re: [core] Fwd: Re: SyncML support project in SOC

---

Forwarded message from jan@horde.org

Date: Mon, 11 Jul 2005 15:06:09 +0200

From: Jan Schneider <jan@horde.org>

Reply-To: Jan Schneider <jan@horde.org>

Subject: Re: [core] Fwd: Re: SyncML support project in SOC

To: Chuck Hagenbuch <chuck@horde.org>

CC: kevin.myer@u13.org

Zitat von Chuck Hagenbuch <chuck@horde.org>:

[Hide Quoted Text]

----- Forwarded message from kevin.myer@u13.org -----

Focus:
end up throwing out the baby with the bath water so to speak. So maybe the important thing to clarify is which of the modules are really active modules, and which are stubs, or effectively dead. By providing snaps of everything daily, it makes it easier for people to shoot themselves in the foot (but as Jan says, people will always find a way to do that, no matter what you do).

What's even worse INO, is that we currently have at least 3 module listings scattered
<table>
<thead>
<tr>
<th>From</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael</td>
<td>Re: Need to get supp...</td>
</tr>
<tr>
<td>C.</td>
<td></td>
</tr>
<tr>
<td>Mimi</td>
<td>Re: wedding party dr...</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Kurt Van</td>
<td>Re: kronolith edit</td>
</tr>
<tr>
<td>S...</td>
<td></td>
</tr>
<tr>
<td>Jeff Clark</td>
<td>[whups] due date</td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Robert E.</td>
<td>[cvs]</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A little bit of history

- 2011: Horde 4, IMP 5
- PHP 5
- 91 libraries
- PEAR distribution (modularization, dependency management and injection)
- Webmail interfaces „back home“
- jQuery Mobile interfaces
[turba] Addressboc
Sebastian Kronenwerth
11/21/2010

[kronolith] Kronolith
gimili
11/19/2010

Re: [horde] Whups
Félix Manuel Molinuevo
11/17/2010

Re: [horde] LDAP o
Chris Flav
11/17/2010

[horde] Object Inter
Mailingliste TBits.net GmbH
06/04/2010

[sync] Sync problem
Lawrence McAbee
09/05/2009

[sync] /tmp/sync of
T. Bühlmann
09/03/2009
A little bit of future

- 2012: Horde 5, IMP 6
- Redesign of traditional and dynamic (AJAX) interfaces
At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd...

Of: Invidunt ut labore
To: Lorem ipsum
Get: 10:59

Dear my Recipient,

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua.

At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum.
Frameworks Timeline

- 1998
- 2000
- 2002
- 2004
- 2006
- 2008
- 2010
- 2012

- IMP 1
- Horde 1
- Horde 2
- Horde 3
- Horde 3.2
- Horde 4
- DIMP CVS
- DIMP 1
- Smartphone UI
- Prototype
- jQuery
- jQuery Mobile
How to create JQM applications

- HTML 5 page with CSS and JS from JQM
- `<div data-role="page">
   <div data-role="header">
   </div>
   <div data-role="content">
   <a href="#page2">Next page</a>
   <a href="newpage.html">New page</a>
   </div>
   </div>
- External page loading via AJAX
- URL hash updating
We could have done that

- Single controller scripts for:
  - Application list
  - Folder list
  - Mailbox, message list
  - Message

- Possible because of MVC (IMP, DIMP, MIMP)
Advantages of traditional approach

- Browser degrading
- Easier to implement (best case: exchanging templates)
Disadvantages of traditional approach

- Payload overhead (HTML fragments)
- No client-side caching
  - Going back == new request or:
  - No server updates going back
- Already using AJAX in JQM
How we created JQM application

- Skeletons of all pages in single document/request
- Horde 4:
  - Observe vclick event
  - Manual JQM page change
    \$\text{.mobile\textunderscore changePage}'\text{('#pageid')}\text{);}
  - Manual AJAX request with callback
    \$\text{.ajax}({...});
  - Update skeletons with JSON response
How we created JQM application

- **Horde 5:**
  - Real links: #message?view=SU5CT1g&uid=2115
  - Observe pagebeforechange event
    ```javascript
    $(document).bind('pagebeforechange', ImpMobile.toPage);
    ```
  - Intercept page loading
    ```javascript
toPage: function(e, data) {
  var url = HordeMobile.parseUrl(data.toPage);
  switch (url.view) {
    case 'message':
      ImpMobile.toMessage(url, data.options);
      e.preventDefault();
      break;
  }
}
```
How we created JQM application

toMessage: function(url, options)
{
    if (HordeMobile.currentPage('message')) {
        HordeMobile.updateHash(url);
    } else {
        options.dataUrl = url.parsed.href;
        $.mobile.changePage($('#message'), options);
    }
    $.mobile.showPageLoadingMsg();
    HordeMobile.doAction(
        'showMessage', {...},
        ImpMobile.messageLoaded
    );
}
How we created JQM application

- Advantage: works with every page loading technique
  - Click
  - $.mobile.changePage()
- Deep links
Reuse of existing AJAX API

- AJAX API existed for DIMP
- API methods for anything needed
  - Mailbox loading: `viewPort(view, slice, requestid, sortby, sortdir)`
  - Message loading: `showMessage(uid, view)`
  - Update polling: `poll()`
Reuse of existing AJAX API

- **API methods for anything needed**
  - **Message composition**: `getReplyData(format, imp_compose, type, uid)`
    `getForwardData()`
    `getRedirectData()`
    `getResumeData()`
  - **Message building/sending**: `sendMessage(form)`
    `redirectMessage()`
    `saveDraft()`
    `addAttachment()`
Reuse of existing AJAX API

- API methods for anything needed
  - Message management:
    - `reportSpam()`
    - `copyMessages()`
    - `moveMessages()`
    - `deleteMessages()`
Key items for success

- Modularity
  - Strict separation of views and logic
- Flexibility
  - Proved multi-view support
- APIs
  - JS application talking to PHP application via AJAX/JSON
Problems

- Conflicting frameworks
  - Existing JS/AJAX framework on Prototype
  - New JS/AJAX/UI framework on jQuery Mobile
  - $.hell
- No jQuery.noConflict()
Workarounds/Solutions

• Workarounds
  – Port required JS code to jQuery
  – Filter security token from AJAX response
    /*-secure-{"some":"json_object"}*/
• Merge Prototype with jQuery
Conclusion

• How Horde evolved
  – From monolithic app to very modular framework
• How that helped us adding a jQuery Mobile interface
  – Re-use of existing APIs and multi-view architecture
• What have been the key points for a success
  – Modularity, flexibility, APIs
Conclusion

- Which problems we experienced
  - JQM focused on „static“ page loading
  - Conflicting frameworks
- How we solved them
  - Intercept „pagebeforechange“ event
  - Minimal code duplication
Questions?
Thank you!

Jan Schneider
jan@horde.org

http://www.horde.org/
http://demo.horde.org/