

The Design and Development of Facebook Based Agenda Application With BlackBerry Integration

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ABSTRACT

BlackBerry users need a BlackBerry application to inform as well as promote the events which he had built from the BlackBerry to his Facebook friends. Users also want a Facebook Application that utilizes the advantages of the features possessed by the Facebook event and integrate it with the BlackBerry event.

This mobile application for BlackBerry is made with the BlackBerry Java Development Environment (JDE), while the Agenda application is made on the Facebook Platform with the PHP Client Library provided by Facebook. The data storage is built uses the MySQL Database. And then we test the application to meet the objectives in the first paragraph.

Based on test results, it can be concluded that the application integrates well with the BlackBerry Event in terms of Event features possessed by Facebook, such as the Create Event, Edit Event, Invite, Cancel Event, Sharing / Publishing feature and synchronizes the Events. The agenda application also handles the other two types of PIM in BlackBerry handset, To Do List and Contact.

Key words:

Facebook, BlackBerry, Agenda, Event, Synchronization.

1. Introduction

In Indonesia, the total number of Blackberry user is going higher and higher as the advance of cellular technology. According to survey that has been launched by www.detik.com, the total number of Blackberry user on Indonesia per July 2009 is about 300 – 400 person. It is the highest number in the world, and rising about 500% last year.

One of the cause is the social networking site called Facebook. Even now, facebook is trend in our lifestyle, Every one loves facebook. They use it to socialized with other. And, one of the most important thing is, we can access facebook from our blackberry.

Most Blackberry user is business man / woman that very very busy with their activity. So, there is agenda application build in on blackberry handset. These agenda application is equiped with reminder that can ring blackberry whenever event is coming. The problem is arise when the blackberry user want to used his/her blackberry to open facebook. There is no application on facebook that can get blackberry personal data like PIM or event and/or agenda to sychronized it with facebook.

So there is three factor that push us to make these facebook based agenda application with blackberry integration. First and the most important is there is no application like this on facebook, the second is there is huge blackberry user and the third is most of them are business man / woman that used facebook too. In the next section we will describe the technology to make this application.

2. Background

To make this agenda application, we used the development technology from both facebook and blackberry, and because the blackberry is java based, then we used the java micro edition too.

2.1 Blackberry

BlackBerry is a mobile device made by Research In Motion (RIM). The BlackBerry have a full capability as a smartphone i.e an Address Book, Calendar, To Do List and push mail through gsm or cdma carrier. BlackBerry is also a name from Os that come with the Blackberry devices. The Blackberry OS is fully support MIDP 1.0 and WAP 1.2, the Blackberry OS 4 have a fully support of MIDP 2.0 subset.

BlackBerry is a backward compatible devices, it's mean that the application that can run smoothly on OS 4.2 will run on higher version OS. Actually, the compatibility of the application is defined by the API that used to compiled the application. For example, when the application is used API 4.2, although it compiled by JDE 4.5, it will run smoothly on OS 4.2 (King, 2009).

2.1.1 Blackberry PIM

PIM is a application that defined the personal information group. There are three group of personal information on Java ME devices include the BlackBerry : Calendar, Address Book (Contacts), dan Tasks (To Do List) (King, 2009). This three group is showed on fig 2.1

PIM in the BlackBerry is saved on a PIMList, an entry (for example is Calendar) is called PIMItem that consist of data fields. In other word, there is some PIMItem that grouped on a PIMList (PIMItem is an element of a PIMList). A Data Field that lay on a PIMItem can consist of many data field. Such as String, Date, Integer, etc. There is two main class that can be used to manipulate the PIM data, ie:

- `javax.microedition.pim`
is a standard class that consist of PIM basic feature.
- `net.blackberry.api.pdap`

This is a specific class made for blackberry. This class has a new feature that only can be used on blackberry handset if the application is verified by sign in using special code from RIM.

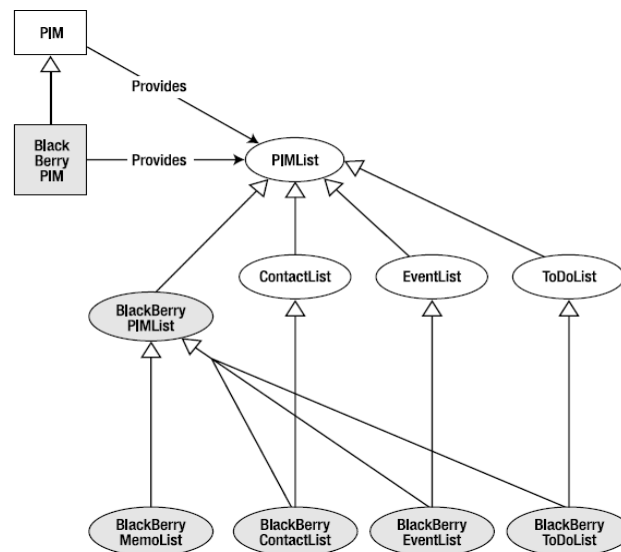


Figure 2.1 : PIM Structure

2.2 Facebook

In order to develop a facebook application, on 24 May 2007 The facebook has launched a facebook platform. This platform provide a framework for the facebook software developer. (Wagner, 2008). They used a special mark up language called FBML (Facebook Markup Language) and FQL (Facebook Query Language) to query data from it. In the next section we will digg more depper to canvas. Canvas is a UI for facebook application.

2.2.1 Canvas

Canvas can be accessed from the url : http://apps.facebook.com/application_name. Canvas application is consist of FBML and iFrame. one thing to consider to choose a canvas is a component that build it. FBML is a kind of *Canvas* that can be used a FBML *tag* to built the UI, because of that, this canvas is like a parser, they parse the FBML tag first on the server before they give us the whole UI picture. In another word, iFrame did not need Facebook server to give the whole UI picture, because they use a HTML that come from the developer application server. The detail picture of FBML and iFrame is on fig 2.2

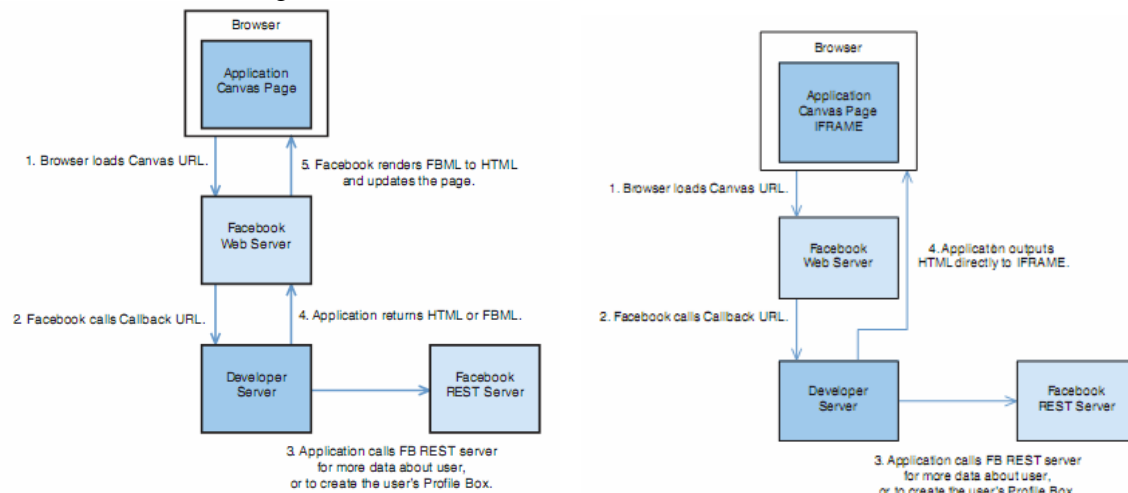


Figure 2.2
FBML and i Frame

2.2.2 Facebook API

Facebook API is a REST (Representational State Transfer) based interface. REST is an architecture that used HTTP. Facebook provide an REST like implementation for their API. It is not pure REST because they did not give an URI for an individual resource (methods, object). This API interface is implemented using single end point, which is followed by all data for requesting something, on POST or GET parameter. This is like a RPC or known as Remote Procedure Call through interface that look a like HTTP. This is the rule from facebook for their API: Each API Call must have their own parameter, and each application must have their own information and security hash to make sure tha API Call is valid (Maver & Popp, 2009). For example, to manually call an API function named `friends.getAppUsers()` , we can use a URL like this:

```
http://api.facebook.com/restserver.php?method=facebook.friends.getAppUsers&
session_key=XXXXXXXXXXXXXXXXXXXX&api_key=XXXXXXXXXXXXXXXXXXXX&call_id=1234557716.3
62&v=1.0&sig=XXXXXXXXXXXXXXXXXXXX
```

It would be so difficult for programmer to call an API function manually, fortunately Facebook provide a multilanguage wrapper like PHP to adhere this problem. For example to make a facebook API Call from PHP, the listing program may look like this:

```
$facebook = new Facebook($app_apikey, $app_secretkey);
$result = $facebook->api_client->friends_getAppUsers();
```

So there, it can be conclude that PHP Client Library just consist a method / function wrapper to make an API Call for REST Server (wagner, 2008). For more detail we can look to figure 2.4

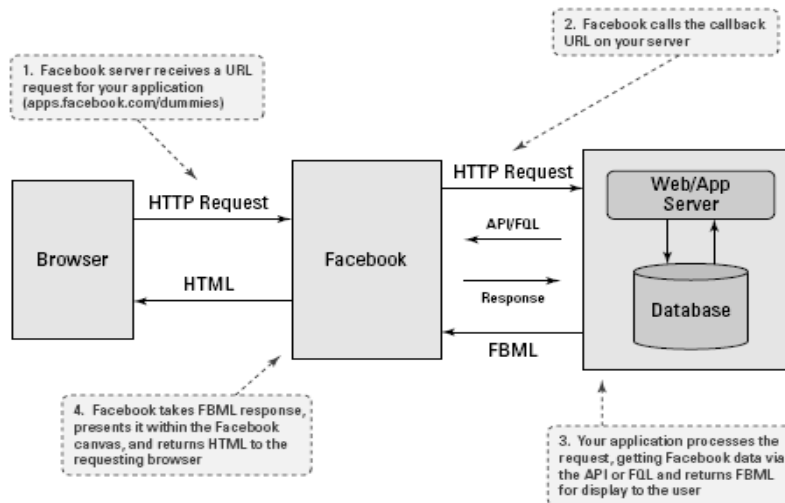


Figure 2.4
An API Call

Officially, facebook has fully support PHP 4 and 5 client library, and Java too. Using PHP, all API Call is provide on object `$facebook->api_client`. To instantiate a facebook object, the listing program my look like this:

```

<?php
Require_once 'facebook.php';
Require_once 'facebookapi_php5_restlib.php';
$appapikey = 'api_key'; //api key aplikasi
$appsecret = 'secret_key'; //secret key aplikasi
$facebook = new Facebook($appapikey, $appsecret);
$friends = $facebook->api_client->friends_get(); // API call
?>

```

In the next chapter we will describe how to use these technology to make our Agenda application.

3. System Design

Basically, our agenda application that make on facebook platform standard would be host on a web server, and then, the mobile application is a blackberry application that made on Java ME platform. So we have two application, and there is one database for agenda application that hosted on a web server. Our agenda application will made by PHP 5 client library and hosted on apache web server with My SQL database.

3.1 Requirement analysis

As stated before, a good agenda application must have 3 main activity ie: manage event (for eg an appoinment or other agenda), manage to do list, manage contact. Beside that, user may want to share a picture from an event, or a movie to promote an event. Because of that need, facebook platform can enabling an application to integrate itself with event on facebook, so the user can share something to the facebook's news feed and wall.

On the other side, in mobile Blackberry application, it must have capabilities to send user data from Blackberry device's Calendar, Task and Phonebook to our agenda. And the most important is that this mobile application can synchronize the data from the Blackberry to our agenda and vice versa. So it would be maintain the concistency data between facebook and blackberry. To make it a good design we used an uml shown in figure 3.1

Figure 3.2
Class Diagram

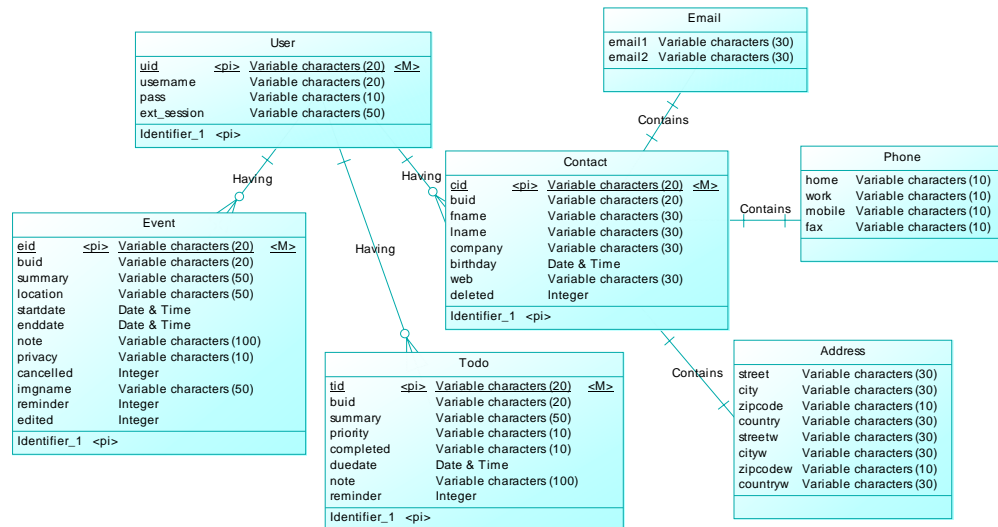


Figure 3.3
E-R Diagram

From the three diagram above, we can prepare to implement this to blackberry mobile device and facebook development platform. In the next chapter we will describe the implementation of the design of our facebook based agenda application.

4. System Implementation.

We will built our application on few steps. Begin with developing the blackberry mobile application and we will continue with development of facebook application platform.

4.1 Blackberry Application

On Blackberry application development, first we begin with setting the workspace of blackberry JDE 4.7.0. we can see the illustration in figure 4.1. after setting the workspace we can continue with create a new project like illustration in figure 4.2.



Figure 4.1
Setting workspace



Figure 4.2
Create a new project

After that we will continue with coding, and if its finished, we can compile it and the blackberry JDE will show his simulator like figure 4.3



Figure 4.3
Blackberry JDE 4.7.0

4.2 Facebook Application

Same as Blackberry application, we must setting the facebook environment first. But before we set the facebook environment, we must have a facebook account and has registered in www.facebook.com/developers. Then we can follow the instruction on screen, begin shown as figure 4.4



Figure 4.4

The facebook developer site

After we finish develop, we can testing the application and it would be shown in next chapter.

5. System Testing

In this chapter we will review our system. We begin with the facebook first and then continued with the blackberry application. Figure 5.1 show the UI for our agenda application and blackberry mobile agenda application

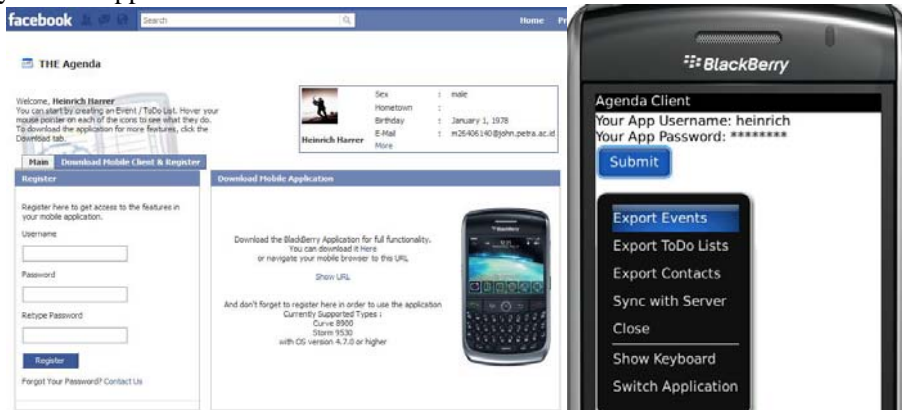


Figure 5.1

Facebook Agenda Application and blackberry mobile agenda application

And then how to synchronized it shown in figure 5.2 and we see that it work well.

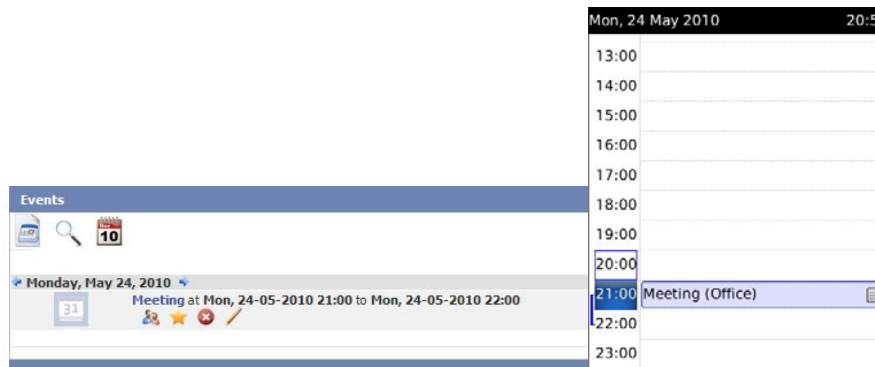


Figure 5.2
Mobile Application

6. Conclusion

This is our conclusion based on our testing, first, there is a way to synchronized the agenda from blackberry to event on facebook. Second, these synchronized application is very sensitive in latency especially in API latency. It is caused by slow respond or time out on facebook server when our application make an API request. But afterall is very usefull application.

7. References

- Agnes, M. (2002). *Websters new world college dictionary and thesaurus* (2nd ed.). New York : Hungry Minds, Inc.
- King, C. (2009). *Advanced BlackBerry development*. New York : Apress
- Maver, J., & Popp, C. (2009). *Essential Facebook development : Build successful applications for the Facebook platform*. Boston : Pearson Education, Inc.
- Noor, R.C. (2009, July 31). *Indonesia akan jadi pengguna BlackBerry terbesar dunia*. Detikinet. Retrieved November 12, 2009, from <http://www.detikinet.com/read/2009/07/31/115338/1175020/328/indonesia-akan-jadi-pengguna-blackberry-terbesar-dunia>.
- Research In Motion. (2009). *BlackBerry device application development : Getting started guide*. Waterloo : Research In Motion Limited. http://docs.blackberry.com/en/developers/deliverables/5783/BlackBerry_Java_Development_Environment_getting_started.pdf
- Topley, K. (2002). *J2ME in a Nutshell*. New York : O'Reilly.
- Wagner, R. (2008). *Building Facebook application for dummies*. Hoboken : Wiley Publishing, Inc.