

Social networking APIs for companies

An example of using the Facebook API for companies

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Abstract—The use and integration of social networks is becoming increasingly important to many companies. Such networks are used within a company not only to publish information, but also to recruit new customers. Of particular interest is the provision of a vehicle for direct, effective communication between the company and its customers. Most of the well-known social networks provide what are known as “Application Programming Interfaces” (APIs), which provide flexible tools to enhance and customize the use of the networking platform. We discuss the uses and possibilities of APIs using Facebook as an example.

API; Facebook; Twitter; SDK

I. INTRODUCTION

In the era of social networks, users tend to create their own “social identity” on the Internet [1]. Many companies show a high commitment to maintain representation on social networks [2]. Potential customers are able to set up direct contact with the company, and can then rate or comment on products, advertising messages, press releases and any other activities. An important factor in maintaining an active relationship is the authentic presence as well as the dialog with the customer [1].

One of the most important components of a social network is the profile page. The profile page reflects a single user or a company. Every user on the social network can access this information, and the company can specify and maintain exactly what information it makes available to the user. Usually the profile page is managed and administrated via a website of the social network. In social networks, the profile page’s management and administration are carried out by reading and writing comments. There is increasingly a strong interest in integrating these procedures into a software solution. The so-called “Facebook Apps” represent an essential example. Facebook Apps allow the acquisition of customers and extra information.

The given demands require the usage of “Application Programming Interfaces” (APIs) that are already successfully provided by a few social networks (e.g. Facebook or Twitter). Combined with open “Software Development Kits” (SDKs) developers are able to access the services of a social network.

Using the example of Facebook, this paper shows the perspectives and possibilities of Facebook itself and the “Facebook Open Graph API” for companies [7]. The most

significant steps and basics are described. A short introduction to developing a Facebook App is also briefly described.

II. SOCIAL NETWORKS FOR COMPANIES

In the last few years, social networks have become enormously popular. In September 2009, the German “IVW”, the Information Community that determines the distribution of advertising media, counted attendance on known networks. The attendance of the German social network StudiVZ was up to 171 million [2]. However, the worldwide leading platform Facebook reached up to 400 million users [2]. Today Facebook has an attendance of 600 million users and every day more users join the platform [13]. “Worldwide users upload 20 hours of video, compose around 30.000 Tweets and more than 1.000 blog entries per minute” [1]. As well the video platform YouTube has around 81 million visitors of any age group per month [17]. Studies show that using social networks allows companies to achieve higher profits than their competitors [3]. One reason for this is the direct contact of a customer with the company on the social network. There is a practical dialogue between customer and company, in which both sides receive useful information and feedback from the other party. In an interview with Kristin Walther, CEO of the German juice manufacturer Walther, she stated that the use of social media in companies would be “a useful tool to improve and expand communication as well as customer loyalty” [4]. The loyalty of the customer is strengthened because it has never been so easy to effectively contact a company [5].

III. FACEBOOK

The 600 million Facebook users make this the most visited worldwide platform [11]. In addition to serving the individual user who just reads messages or writes to his friends, Facebook offers different services for companies who are or are interested in becoming a part of the Facebook community. A short look on Facebook shows that there are already many companies represented on the social platform. Besides the increase in sales [3] and the direct contact to the customer, the prevention of faked profile pages of companies is very important. Using the example of the German fashion company “Tamaris” [14] there can be found a lot of other Tamaris profile pages that actually are not the original one. Facebook does not prevent users from

creating any profile page they want. Consequently, the authenticity of a company's information needs to be maintained.

Once a company has decided to create a profile page on Facebook, registration is required. The different possibilities for companies on Facebook are actually not transparent to every one.

A. The Facebook profile page

Usually social network use, including Facebook, begins when the profile pages of a user are created. After logging in, the user can inspect his profile. Facebook profile pages basically consist of four parts: the user picture, the information elements and the main part.

The user picture area is located in the left top corner of the profile page and usually contains a picture of the user. At the top of the profile page there is a short information bar including all the relevant information (e.g. home town, birthday, job, education, etc.) about the user shown in a few lines. Depending on the privacy settings, the user information can be made completely or partly visible for different kinds of users (friends, visitors, etc.). The other information element is located on the left side. It consists of some links to photo albums and a list of the user's friends. The main part is the so-called "wall" where all activities, wall posts and status notification are shown. Likewise, messages and comments can be posted on other user profile pages of the network [6].

B. Facebook Groups

Facebook groups are essentially closed or open groups with a certain topic where Facebook users can discuss different matters and share information with like-minded persons. Every user who joins the group shares the same interests as the rest of the group. The author of the group is able to set the group's content. Like the user information on the profile page, group information also features privacy settings, which are shared by the members of that group. This allows many different groups, with different needs and levels of access, to be set up. For example, a company can create a new group that lets employees join the group.

C. Facebook Fanpage

Facebook offers companies and other users the ability to create so-called "Fanpages". Fanpages are attractive to companies because they provide a better option than the normal profile pages for exchanging information of a certain type. A user or an employee of the company who is registered on Facebook can create a fanpage. By creating it the user gains author status of the fanpage, which allows him to appoint other authors or users who can administer the page. A company can consequently create its own fanpage, which may be administered by several employees. This page will then represent not one single user, but rather the company or a company's brand.

D. Facebook Apps

One of the most powerful features of Facebook is "Facebook Apps". Facebook Apps are integrated applications that can be added by every user. In principle, Facebook Apps are a type of interface to the Facebook network. Facebook Apps are open for every user of the platform, but require the user's permission to access different Facebook user components (profile wall, user information, etc.). Once a user has granted this permission, the Facebook App supports nearly all features of basic usage such as reading and writing wall feeds, getting user information, etc. The user can stop Facebook Apps access on his account by removing it. Fig. 1 clarifies the general function of Facebook Apps. Generally, the user accesses his profile page via a login. Facebook Apps extends the login, allowing external software application or interactive websites, which run on web servers.

The result is advantageous for companies in a number of different ways. They are able to get usage statistics of the Facebook App, do advertisement or marketing [16], or they may develop their own applications such as online-games or contests, or their own tools for managing and administrating the profile wall. These applications can develop different information about a Facebook user or customer. An "Application Programming Interface" (API) that offers an interface for software application is needed to make this access possible. Open "Software Development Kits" (SDKs) in different programming languages are available to facilitate the API access for developers. They implement a package of functionalities, which correspond with the API as simply as possible [10]. With the "Facebook Open Graph" API Facebook offers a wide range of functionalities.

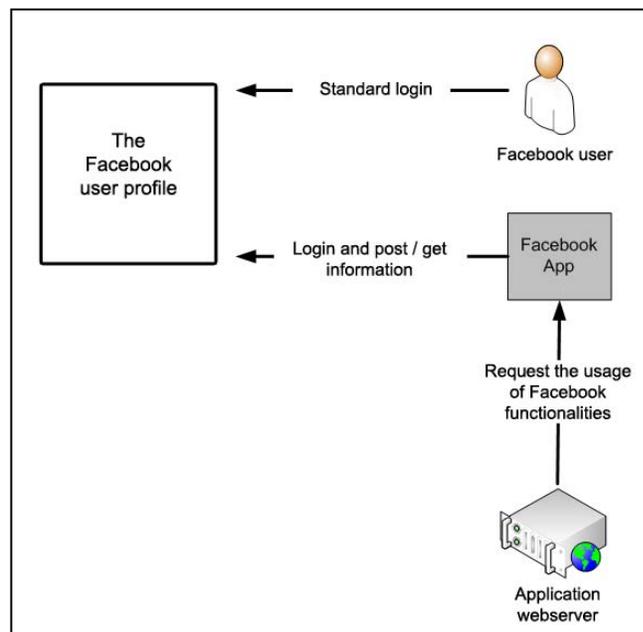


Figure 1. Function / role of the Facebook Apps

IV. SOCIAL NETWORKING APIS

Application Programming Interfaces are services that enable a code-based access to the social network. Depending on the complexity of the given API, different features can be used (usually the main features of the social network). For most users, APIs are difficult to understand. They deliver text-based information that must be processed for software application; essentially, APIs require programming knowledge. Software developers can implement the services of the API into enterprise applications [7].

A. Facebook Open Graph API

All essential information about the use of the “Facebook Open Graph API” can be found on the developer website of Facebook [8]. The “Graph API” is the crucial core of Facebook Open Graph. It allows for easy access on the social network, and makes the implementation of user-developed applications possible.

On Facebook users, single wall posts, comments or Facebook Fanpages describe just a few examples of objects on Facebook. Every single object on Facebook has its own ID. Access to these objects is made by an HTTP request to the endpoint “https://graph.facebook.com/<ID>”. This endpoint handles all HTTP-GET and POST requests. In this connection, the placeholder “<ID>” represents the ID of the given object. If a user wants to gather information about the object “Facebook platform” with the ID “19292868552” the request must take the form of “https://graph.facebook.com/19292868552”. The server’s response is a JSON (JavaScript Object Notation) [15] object as shown in Fig. 2. The content of the JSON response depends on the object type (e.g. Facebook user, wall post, comment, photo, etc.).

All API requests of a Facebook App demand several rights. The access to Facebook services is limited. It is therefore not possible to post a message on someone’s wall with only default rights. Rather, it is necessary to ask for special rights, or “extended permissions”. There are many permissions supported this way (upload photos, get friends lists, get extra personal information, etc.). The user who wants to add the Facebook App has to confirm a dialog window that displays every possible access on the user’s account. The most important condition for performing API requests is a valid access token that must be requested. This access token is attached to the endpoint address to create an authorized request of an object with any ID (“https://graph.facebook.com/<ID>?access_token=<token>”). The Graph API uses “OAuth 2.0” that has already been proved in other social networks. The OAuth protocol was introduced to ensure a safe authorization. The OAuth specification indicates that every request must be signed so that the receiver can verify the sender as well as the request must not be modified [9].

```
{
  "name": "Facebook Platform",
  "type": "page",
  "website": "http://developers.facebook.com",
  "username": "platform",
  "founded": "May 2007",
  "company_overview": "Facebook Platform enables
  anyone to build...",
  "mission": "To make the web more open and
  social.",
  "products": "Facebook Application Programming
  Interface (API)...",
  "fan_count": 449921,
  "id": 19292868552,
  "category": "Technology"
}
```

Figure 2. Facebook JSON response

B. Facebook PHP SDK

If a developer wants to create a certain application he is offered different open “Software Development Kits” (SDKs). These SDKs offer some utility classes, which can be used to get quickly started and provide all functionalities to use the API. The developer needs to program only a few lines of code to execute the desired operations. Facebook supports different SDKs for their API [10], which means that different programming languages like JavaScript, PHP [11] or Python are appropriate. Fig. 3 shows a PHP code example to illustrate the principle of the SDKs. The “require” statement integrates the Facebook SDK that contains all functionality to access the API. Afterwards it is possible to create an instance of the class. The essential parameters are the “application key” and the “application secret” that a developer gets by creating a new Facebook App. The key, a numeric id, and the secret, a random hexadecimal value analog to a password, are essential to authenticate the application. After authenticating the application toward Facebook, the application gets a valid session. The session then enables the use of the API methods. The API call leads to the same result as already shown in Fig. 2. The JSON response is stored into an associative array called “apiCall”; thus, every API request can be created and stored into a variable.

```
require '../src/facebook.php';
$facebook = new Facebook(array(
  'appId' => <APP_ID>,
  'secret' => <SECRET>,
  'cookie' => true,
));
$session = $facebook->getSession();
[...];
$apiCall = $facebook->api('19292868552');
```

Figure 3. SDK code example

C. Social Plugins

Another helpful component of the Facebook API are the “Social Plugins”. They can be simply implemented into a HTML website. Examples of Social Plugins include the “Like-Button”, the “Comment-Box”, the “Login-Button”, etc. Fig. 4 shows, as an example, the development of a Comment-Box. Users can automatically generate their implementation code [12]. Different parameters, such as the numbers of comments allowed can be set. In addition, the application’s identifier and a unique ID (identification of the website’s page) must be assigned.

```
<div id="fb-root">
</div>
<script
src="http://connect.facebook.net/en_US/all.js#appId
=APP_ID&xfbml=1">
</script>
<fb:comments xid=UNIQUE_ID numposts="5" width="425"
publish_feed="true">
</fb:comments>
```

Figure 4. Code example of a Comment-Box

V. CONCLUSION

Social networks are already an integral part of companies. They enable both communication and customer acquisition. In combination with Software Development Kits, Application Programming Interfaces offer perfect interfaces to access the social networking services in a customized manner. Facebook thus offers many desirable features for companies. In addition to other Facebook services like Facebook Groups, the Facebook Open Graph API provides essential functionalities that which may be of interest to companies. The requirement for the use of the Facebook API is the registration of a Facebook App, which consists of an application ID, a key and an application secret. Social Plugins are an additional feature of the API, which enhance the flexibility of the application and thus represent a significant feature for websites. Currently, Facebook is one of the social networks that provides and supports the most interesting possibilities for companies interested in social networking. When compared to other social networks, the Facebook API provides

significant opportunities to enhance and customize the use of the platform to best meet a company’s goals. There is so much room for developing different kinds of company-based applications.

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