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Web 2.0

Introduction of Web2.0

Web 2.0 was popularised by Tim O’Reilly and Dale Dough at the O’Reilly Media Web 2.0Conference in late 2004, and is the term which is used to describe a second generation of the World Wide Web and enable people to collaborate and share information online. It also can be known as the transition from traditional static HTML Web pages (Web 1.0) to a more dynamic Web hosted by Web server applications to serve terminal users. With the technique of Web 2.0, websites can be not only dynamic but also highly interactive (What Is Web 2.0, 2005, para.3.). Many of the interactive Web 2.0 websites rely on several new programming approaches like AJAX, HTML5 and CSS3, RESTful or SOAP services to make the web more user-friendly and accessible. These three most used technologies in the building of modern websites have become the cornerstone of every Web 2.0 websites making millions of business websites to be successful. However, nowadays, with the rapid development of technology, data exchanging is so convenient, it also brings about the problem that customers’ information is subjected to the leak threaten. This report will also provide a discussion about some suggestions in terms of what privacy policy should contain when a website is trying to implement Web 2.0 technology.

Case study of GitHub

Users can contribute is one of the important characteristics of Web 2.0. I will take GitHub as the case study. GitHub provides users with user-interface, micro-service and storage facilities, GitHub is similar with Wikipedia—highly sociable, taking advantage of the human desire to contribute to the same goal and it is the effort by Preston-Werner and cofounder Chris Wanstrath to simplify Git, a version control system developed by Linus Torvalds, the creator of Linux. GitHub can be seen as programmer’s paradise, just as its slogan says “how people build software”, since so many brilliant brains coming from all over the world, the process of software development is significantly accelerated. As Andreessen Horowitz co-founder Marc Andreessen said it not long ago If "software is eating the world, GitHub is where much of that software gets its teeth” (BOURNE , 2013, Vol. 35 Issue 2, p68-73. 6p.). Besides the full support for the open source campaign, GitHub has also launched a commercial version for companies named GitHub Enterprise, which has all the great stuff coming from GitHub as expected, as well as private compare view, organizations and team management, etc. as the bonus. (Introducing GitHub Enterprise,2011, Holman). No matter public or private service it supplied, they are built upon loads of Ajax, HTML5 and CSS3(for the other devices viewers) and RESTful API.

Ajax is the foundation

First of first important and universally used technologies is Ajax, which is an acronym for Asynchronous JavaScript and XML. AJAX enables the web browser to connect to the web server and download information chunk by chunk without end user’s notification, which significantly enhance user experience and makes the website becomes more interactive. (What is web 2.0, 2011, para. 2). The highlighted word here is Asynchronous, technically speaking, such technology enables web browser and backend server communication via JavaScript in the background or updating portions of the page without causing any full page reloads (AJAX and PHP Building Modern Web Applications 2nd Edition, 2009). For example, given a user who wants to register a new account in GitHub and is filling the registration forms where he or she is asked to enter personal data, such as name, email address, password or credit card number, etc. Those data will be validated, like checking if there is already an existing username or valid email format and so on, before proceeding to the next step. There are three possible ways to achieve this:

1.Enforce user to complete all required data fields before page submission. If the validation doesn’t succeed, the server will redirect page to the original form where is empty for the most of the time and ask the user to correct the invalid entries and submit again. In this scenario, the user has to experience a delay time between submitting and waiting for the response.

2.By the means of JavaScript to check user’s input from a browser, the user will get a warning once invalid data input before the form submission. The shortage of this approach is that the technique only works for very simple validation that doesn’t require additional data from the server and is limited by the problem that some proprietary or secret validation can’t be transferred to the client in the form of JavaScript code.

3.Ajax gives the ability to websites that validate the entered data in the background, meanwhile, the user can fill the form. For instance, when user after choosing his or her username, the web browser calls the server to load “on-the-fly” to query database if there is an existing username out there, if so, the form will pop-up a friendly warning to the user to let him choose another username instead. For those website developers, they are surely willing to adopt the third option, since there is no shortage in user waiting for dead time or facing to a secret-leak issue but building a very resilient and robust website. AJAX can be used in many ways, such as login form, auto-completion, instant message, etc. However, web developers need to be careful about problem of where this technique used is not a misuse. Typically, AJAX is best used as in addition to the traditional web development paradigms rather than changing or replacing them. Another noticeable element to enhance user experience is its appearance, including layout, HTML elements and special decoration, even animations on the page. Moreover, by the advent of mobile devices, more and more people are choosing to browse the web via their smart phone or tablet that brings the new challenges to the website to adapt them to this new trend.

HTML5 and CSS3 make web responsive

HTML5 stands for not just the latest version of the HTML specification, but also a buzzword that describes a series of related technologies to make modern, rich web content. The key enhancement in HTML5 is the supporting for natively playing and display medias via different new added HTML tags (Adam, 2011, p. 5). That means, to play a video in the browser, customer no longer being bothered by annoying Flash plugin update reminder, in the meantime, users who access GitHub by mobile platform will not suffer battery consumed quickly either. Besides the benefits brought by HTML5, CSS3 contribute a lot in mobile platform adaption and fancy animation. Therefore, the website has become more and more accessible.

RESTful API makes data exchange easier

There is a promising trend that more and more company to integrate their applications to be the means of web service composition. Web Service composition refers to combining outsource Web Services to offer new, value-added services. Meanwhile, it can also provide internal data by exposing respective API to access to. That will enable different business systems interact with each other or just integrated as one so that making information from difference systems becomes easier and easier. In computing world, Representation State Transfer(REST) is an architectural style of application programming interfaces consisting of a coordinated set of components, connectors, and data elements within a distributed hypermedia system, where the focus is on component roles and a specific set of interactions between data elements rather than implementation details (Fielding, 2000, Chapter 5: Representational State Transfer).

Several architectural properties influenced by the characters of the REST architectural style are:

1. Performance: the interactions between each component can be the decisive factor in network efficiency and user-perceived performance.
2. Scalability to support large amount of components and interactions among components.
3. Simplicity of interfaces
4. Modifiability of components to meet changing needs
5. Visibility of communication between components by service agents.
6. Portability of components by moving program code with the data.
7. Reliability is the resistance to failure at the system level in the presence of failures within components, connectors, or data

(Fielding, 2000, Chapter 2: Network-based Application Architectures).

For GitHub, it exposes the corresponding interfaces, such as bug tracing, commit log, Authorization and Authentication and so on, to external users to build different kinds of useful tools upon them leveraging the power of GitHub in customer’s applications. Thanks to the comprehensive API, for those companies which purchase GitHub enterprise service will enjoy the benefits from development to test, continuous integration to deployment, they don’t need to setup those environments by themselves. It can tremendously reduce operation costs. So just let GitHub take over all the process of software development for you. However, does it mean GitHub silver-bullet for software development? Well, to some extent, let’s have a close look at its privacy policy then.

Privacy policy suggestions

“Privacy can be defined as ‘the right to be left alone’ and may refer to controlling one’s personal information and being free of observation. “(Bulletin of the Association for Information Science & Technology .2014) By exploring the privacy policy published on the GitHub, we can see what kind of user information could be collected to be used to improve the content of Web pages and quality of their service. Those information includes email, aggregated information on what pages’ consumers access or visit, which the website promises that they will not share or sell to any other organizations for commercial purposes except the investigation to prevent illegal activities or the scenario of that GitHub is acquired or merged by another company, but in this case, GitHub will notify users before the sensitive information transferred or becomes subject to a different privacy policy.(GitHub Privacy Policy,2016). General speaking, that’s enough, but is it completely meet the privacy condition, especially in Web 2.0environment? I don’t think so, since even though netizen recognize the rick of privacy tracking, they usually failed to prevent Cookies or Local Storage (new feature of storing client information originated from HTML5). Cookie or Local Storage can be described as a kind of especial text file that exists in users’ computer. It not only record which pages the user visits, but also the users’ other activities on the site. All these information is then sent back to the server.

(Bulletin of the Association for Information Science & Technology .2014)

Users should be aware of or be asked for the permission for the website will harness such technologies to read or write users’ personal data. In addition, Website runners should post their privacy policies on the websites to allow people to understand policies before engaging with them.

Conclusion

In conclusion, this essay has explored the three top of wildly used technologies which most of Web 2.0website adopt, especially for GitHub.

There is also a discussion about the pre-exist of privacy policy on GitHub and what further information should be enclosed for protecting users’ privacy.

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