

Understanding Web 2.0 service models, applications, reflections, perspectives, and beyond

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Understanding Web 2.0 service models, Applications, Reflections, Perspectives, and beyond

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Abstract— Since 2004 the term “Web 2.0” has generated a revolution on the World Wide Web and it has developed new ideas, services, application to improve and facilitate communications through the web. Technologies associated with the second-generation of the World Wide Web enable virtually anyone to share their data, documents, observations, and opinions on the Internet. The serious applications of Web 2.0 are sparse and this paper assesses its use in the context of applications, reflections, and collaborative spatial decision-making based on Web generations and in a particular Web 2.0.

Index Terms— Web 2.0, Web generations, RSS, AJAX

I. INTRODUCTION

One of Sweden’s biggest newspapers recently wrote a long article on their debate section. They had started linking back to blogs that linked to them, in a little box next to the article. The problem was that they had got into trouble with what blogs to link to [1]. After all, you can’t just link to anything, right?

Aside from starting to think about the implications of blog links, I got another interesting question in my head. What is Web 2.0 really? Most people working with interface development would say that Web 2.0 is everything that uses AJAX [1]. But the newspaper didn’t use AJAX at all, and still they claim links to blogs is Web 2.0. Time for some research!

Web 2.0 is not only about “user to website” interactivity. It’s also about letting other sites and tools interact with your site directly[2]. This is often summarized as “syndication”.

Somewhere you have some kind of database with your content, be it products in your e-store or posts on your blog. Usually you take that content, add some structure (HTML) to it, and send it to the user [8].

Another website that wants to access the same information could parse the HTML and try to understand what it means,

something called “screen scraping”. The problem with that method is that it’s very dependent on that the webmaster doesn’t decide to change the HTML. The other problem is that computers and humans often want different types of information. A computer that is going to parse a list of your products doesn’t need navigation like humans do. What you do is send your data directly to computers instead, without messing it up with HTML[4]. Formats include: RDF, RSS, or perhaps custom XML through a Web Service.

Thing is, when you start syndicating your data you make it easier for others build services based on it. Now people get several entrances into your content instead of the one you produced. Again, your users are helping you reach more people

II. WEB 2.0

The Focus of Technology Moves To People With Web 2.0. One of the lessons the software industry relearns every generation is that it’s always a people problem. It’s not that people are the actual problem of course. It’s when software developers naively use technology to try to solve our problems instead of addressing the underlying issues that people are actually facing[29]. Then the wrong things inevitably happen; we’ve all seen technology for its own sake or views of the world which are focused much too little on where people fit into the picture. Put another way, people and their needs have to be at the center of any vision of software because technology is only here to make our lives and businesses better, easier, faster or whatever else we require. Web 2.0 ideas have been successful (at least) because they effectively put people back into the technological equation [9]. This even goes as far as turning it on its head entirely and making the technology about people. Web 2.0 fundamentally revolves around us and seeks to ensure that we engage ourselves, participate and collaborate together, and mutually trust and enrich each other, even though we could be separated

by the entire world geographically. And Web 2.0 gives us very specific techniques to do this and attempts to address the "people problem" directly [3].

A. Web 2.0 Represents Best Practices.

The ideas in the Web 2.0 toolbox were not pulled from thin air. In fact, they were systematically identified by what actually worked during the first generation of the Web. Web 2.0 contains proven techniques for building valuable Web-based software and experiences. The original Design Patterns book was one of the most popular books of its time because it at long last represented distilled knowledge of how to design software with ideas couched in a form that were reusable and accessible. So too are the Web 2.0 best practices [7]. If you want to make software deliver the very best content and functionality to its users, Web 2.0 is an ideal place to start.

B. Quality Is Maximized, Waste Is Minimized.

The software world is going through one of its cyclical crises as development jobs go overseas and older, more bloated ways of building software finish imploding as the latest software techniques become more agile and lightweight (sometimes called lean). The guys over at 37Signals say it best... Using Web 2.0 you can build better software with less people, less money, less abstractions, less effort, and with this increase in constraints you get cleaner, more satisfying software as the result [8]. And simpler software is invariably higher quality.

C. Web 2.0 Has A Ballistic Trajectory.

Never count out the momentum of a rapidly emerging idea. For example, I'm a huge fan of Eric Evans' Domain Driven Design but it's so obscure that it will probably never get off the ground in a big way. There's no buzz, excitement, or even a general marketplace for it. This is Web 2.0's time in the sun, deserved or not. You can use the leviathan forces of attention and enthusiasm that are swirling around Web 2.0 these days as a powerful enabler to make something important and exciting happen in your organization. Use this opportunity to seize the initiative, ride the wave, and build great software that matters.

III. WEB 2.0 MARKETING

How should marketers look at the possibilities of Web 2.0? If you're thinking about utilizing social networking or other Web 2.0-like services on your own site, or you want to look into the marketing possibilities offered by these services, here are six rules to remember:

A. Remember you're part of a community.

Members of a community have a vested interest in the greater good of the whole. They only participate in a way that benefits all. Spamming, misleading tags, incorrect information, and sneaky stuff (e.g., creating fictitious Wikipedia entries to

promote your products are all activities that hurt the community [9].

B. Strike a balance between authentication and anonymity.

The Internet was built on the concept of anonymity, but the anonymity that promotes participation and the free exchange of information can also allow malicious types to wreck your project. Contributor authentication can help by allowing you to delete offending material. But you'd better be sure you have a clear, strict privacy policy to encourage users [10].

C. Have some institutional guts.

If you're going to allow the public in, be prepared for the consequences. Not everyone's going to agree with you or say nice things about your products and services. Don't block critics out. Engaging them in a positive way can often turn around potential problems. If you blog, you know this; often, engaging disagreeable posters turns them into instant friends [9].

D. Avoid spin.

If you're going to participate in Web-based open services, don't try to spin your content with bland PR platitudes. People can spot "marketing" in a microsecond and don't think too highly of content that turns out to be a thinly disguised ad. On the other hand, using editorial to promote products can be pretty effective if done correctly [12].

E. Examine your motives.

Are you jumping on the Web 2.0 bandwagon because it fits your strategy or because it's the current thing to do? Examining this question will tell you whether you're really ready to come to the party. It's a long-term commitment.

F. Get ready to work.

Participating in the open, rough-and-tumble world of social networking and user-supplied content is a lot of work. The content needs to be fed and cared for constantly. Make sure you have the budget and the institutional will to continue the project – indefinitely [13].

IV. WHAT IS IT REALLY?

Six main elements are defined for Web 2.0 :

- **Web 2.0 is about data abstraction.** All those Web 2.0 functions people love to talk about, such as tagging, sharing, XML, open APIs, and mashups, only became possible because we now understand how to free information from containers [24]. Though the Web credo "information wants to be free" has been around for a while, we've only recently been able to make it happen. Pulling information out of proprietary containers allows you to do pretty much whatever you want with it, whether driving collaborative sites, interfacing with mobile devices, or something else[11].

- **Web 2.0 takes broadband and Moore's Law for granted.** Sites like YouTube and Google Docs & Spreadsheets wouldn't be possible in a non-broadband world populated by powerful computers [17]. All Web 2.0's multimedia features, especially video, start with the assumption bandwidth is basically free and readily accessible.
- **Web 2.0 is about connections.** Connections between people, between sites, between the Web and mobile worlds, between buyers and sellers. Web 2.0 includes all of them. At its heart, the new Web is about moving from a one-to-many publishing model to a many-to-many one [22].
- **The Web 2.0 revolution puts people first.** All the tagging, social content, social networking, blogging, and virtual communities people point to as examples of Web 2.0 come out of this. It's perhaps the most widely recognized aspect of what's changing. But putting people first is more than just connecting them or allowing them to post content. It's also understanding people use the Web [4]. The needs of the user (not the programmer, marketing director, or information architect) come first.
- **Web 2.0 is about allowing people to manipulate data, not just retrieve data.** The AJAX revolution isn't that it lets you make zippy interfaces that kind of look like real desktop applications in a browser. It's that it does away with the old Web 1.0 model of request page/get page/view page technology all of us were used to. Contrast the old MapQuest "point and zoom and pan with buttons" interface with the revolutionary interface Google Maps deploys [30]. All of a sudden, we're actually in there with the data, moving it around, playing with it, and interacting with it in real time.
- **Web 2.0 is about doing stuff on the Web that can't be done in any other medium.** Functionalities that have generated so much Web 2.0 hype are all things that wouldn't be possible without the Internet. Period. Much of Web 1.0 tried to shoehorn old media models into the new technology, often with bad or even disastrous results. All the bad thinking of the past decade or so revolved around the misperception that the Web is "like medium X, only different." The Web isn't TV with clicking. It isn't print with the ability to link and embed multimedia content. Podcasting isn't radio you can download [16].

You get the idea. To truly do Web 2.0, you must do something that absolutely can not be done without the Web.

V. TECHNIQUES INVOLVED IN WEB 2.0

A. AJAX (and other javascript)

Everyone talks about AJAX together with Web 2.0, but I think it's important they are kept separate.

AJAX is just a technology that helps prevent (full) page reloads. Instead you connect to the server silently in the background and receive your data that way. What's the revolutionary about this technique? Nothing. It has been in use for at least 5 years. The new thing about it is that people started using it to build better interfaces [9].

Javascript is language that enables AJAX, and playing with reloads is not all it can do. Through some nifty use you can change attributes on any HTML element on the page. Move things around, react to mouse movement, fade and animate, it's your choice. This means a lot of new controls become possible, ranging from simple sliders to interactive maps [8].

Why do most accessibility people hate it? Because most developers don't know enough about accessibility. And when those start to use AJAX they disregard accessibility completely. Javascript and AJAX have different goals and I think a good compromise is making sure the basic functions of the site (buy a product and pay for it) works without javascript, but enabling it adds additional features.

When was the last time you used javascript to enhance your site? What was the last control you invented?

B. Feeds (RSS, Atom)

Feeds are great for syndication of content. There are many different feed formats to choose from but they all have one purpose: to communicate pure data, skipping all design.

A feed is simply a list of feed items, each with an unique identifier. A user adds the address to their "feed reader" and it starts polling you, asking for updates. I have my reader set to just a couple of minutes, making sure I quickly notice changes in people's feeds [23].

The good thing about feeds is that they make it easy to follow several at once. There's no annoying different designs in the way if you don't want to (you can always just visit the site if you want design). Feeds are getting more and more of a commodity; you should already be allowing your users the possibility to subscribe your content.

C. Tags

Tags is another hip concept. It deals with the collective intelligence idea and how to categorize content efficiently. A tag consists of a phrase of some kind that describes a piece of content [10]. This blog post could have the tag "javascript".

There's several ways you can use them. One is the just fix what tags are allowed and use them as regularly groups you can assign content to. But allowing more than one tag enable you to do more than just split things into groups, you can instead pick all contents bits that have the same tag. You can

go further, allowing custom tags that the users can pick themselves. That gives you a wide array of descriptive words for your content, free to play around with. For example, if many users pick the same word, that one is probably a better descriptor [18].

Picking many bits of content and analysing all tags tied to them can be easily done with a tag cloud. In that you simply print all tags used after each other, and make those used often bigger. Doing this on a whole site is an effective way of giving users a snapshot of what you write about, something I know I like.

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