Chapter 2

An Overview and Differentiation of the Evolutionary Steps of the Web X.Y Movement:
The Web Before and Beyond 2.0

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ABSTRACT

Web 2.0 is a popular term used to describe a class of Web applications that offers mostly free services to its users. However, an exact definition of the concepts, features, and technologies that argue for a Web 2.0 service is still missing. Similarly, terms such as Web 3.0, Web 4.0, or Web 2.5 also have no clear and unambiguous definitions. This chapter reports the results of a Web and literature survey about Web X.Y concepts. Based on several definitions, we synthesized new definitions for Web X.Y, which provide an overview and can be used for differentiation, and we classified contemporary Web services (e.g., Flickr) according to these definitions.

INTRODUCTION

The World Wide Web (WWW) has been through many changes since its beginnings and has become the largest information platform worldwide. When Tim Berners-Lee published his ideas for hypertext in 1989, he could not have guessed how he would change our lives. Due to technical progress made since then, its use has become more and more intuitive and users can provide their own content for public use more and more easily. Similarly, when O'Reilly Media coined the term "Web 2.0" in 2004, they combined a set of concepts under one notion. In addition, version numbers can be used to differentiate evolutionary steps of the Web, as it is common practice with software systems.

The term "Web 2.0" – and it seems that the same will happen with "Web 3.0" – has often been abused as a marketing term over the years. Many people used it as a buzzword without knowing that it does not only constitute a particular technology, e.g., AJAX, but refers to other concepts and features.

Therefore, there exist a lot of different perceptions of Web 2.0 (or Web X.Y in general).

This chapter aims at clarifying what Web 2.0 (Web X.Y) is, and what it is not. It goes into detail regarding the concepts (e.g., collaboration or mashups), features (e.g., tagging or microformats), technologies (e.g., AJAX or Flex), tools (e.g., Wikis or blogs) and services (e.g., Flickr[1] or MySpace[2]) of Web 2.0. Based on a literature and Web survey, we present an overview of the evolution of the Web before and beyond it. We summarize existing Web X.Y definitions and derive new comprehensive definitions from these findings. However, the main focus lies on the classification of Web X.Y, including definitions with differentiating and common factors.

In summary, this chapter provides a categorization of evolutionary Web steps that makes it possible to assign Web applications and services, as well as principles and concepts, to a particular Web step.

DESIGN OF THE SURVEY

Today, the term Web 2.0 is omnipresent. In March 2008, Google Blog Search[3] delivered over 10 million blog entries, Del.icio.us[4] listed over 400,000 tagged bookmarks, and Amazon[5] stocked over 1,700 related books. However, the ACM Digital Library[6] returned only 337 scientific publications dealing with Web 2.0, which indicates that there exists only little research in this area. Furthermore, because many user groups have gotten in touch with Web 2.0 in many different ways, there exist many diverse perceptions of what Web 2.0 is all about. The disagreement is even greater regarding the meaning of Web 2.5, 3.0, 3.5, or 4.0.

Thus, our main research objective was to identify the commonalities and variabilities of definitions for Web X.Y. Based on the available body of knowledge in the form of blog entries, scientific publications, and books, we elicited which concepts, definitions, technologies, and services are used.

Research Method

In order to systematically conduct the review, we roughly based the research method on the systematic literature review process synthesized by Kitchenham (2004). The following phases were conducted to realize this literature review. Besides identifying the need for a systematic literature review, the following steps were performed:

- *Background research*: Initial scoping survey to identify search terms for Web X.Y. While this is not a step defined by Kitchenham (2004), we performed it to retrieve as many search terms as possible within a short period of time (approx. 2 weeks).
- *Review planning*: Specification of the research question, required data, and search terms, as well as identification of search engines (i.e., data sources).
- *Identification of literature*: Search for literature in the search engines and retrieval of titles, abstracts, and reference material.
- *Selection of literature*: Reading of literature abstracts, including (i.e., selecting) and excluding literature, and obtaining full-text versions of the selected literature. Analysis of the references in the obtained literature in order to identify further literature (i.e., repeating this phase with the new list of literature).
- *Quality assessment*: Reading the full papers or Web resources, evaluating their appropriateness, and identifying bias.
- *Data extraction*: Extraction of relevant data (e.g., definitions, keywords, etc.) from the literature.
- *Data synthesis*: Structuring and systematization (descriptive / non-quantitative) of

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