

# NEC's New Services and Technologies in the Web 2.0 Age

SHIRAISHI Nobuhisa

## Abstract

Since around 2005, Web 2.0 mashup services such as the Google Maps etc. are becoming familiar conversation topics. Web 2.0 has now passed the stage at which it was merely a source of “amusing” services for consumers and it has now begun to exert various impacts on software, services, SI and development techniques. The developmental styles and product/service strategies of software development businesses are under strong pressures for innovation and in support of this trend, NEC is promoting various Web 2.0 influenced activities. This paper is intended to consider the development and product/service strategies that are required in the Web 2.0 age and also to introduce the Web 2.0-related activities that are being pioneered at NEC.

## Keywords

Web 2.0, collective intelligence, SaaS, mashup, Enterprise 2.0, SLATES

## 1. Introduction

“Web 2.0” has been a prominent discussion topic since around 2005. Web 2.0 initially attracted attention in the context of “amusing” consumer-oriented services such as the Google Maps, but it is now extending the range of its effects into the business domain, product/service strategies and software development styles.

## 2. What Is Web 2.0

### 2.1 Concept

The concept of Web 2.0 is discussed in detail in the paper entitled “What Is Web 2.0”<sup>1)</sup> by Tim O’Reilly, the CEO of O’Reilly Media, Inc. The Web 2.0 Conference that was initiated in the fall of 2004 has quickly made Web 2.0 well-known as a keyword in the IT industry.

Fig. 1 illustrates the concept of Web 2.0. In “What Is Web 2.0,” Tim O’Reilly enumerated the following seven points as the core components of Web 2.0.

- (1) The web as a platform
- (2) Harnessing collective intelligence
- (3) Possession of service core data
- (4) Delivering Software as a Service (SaaS)
- (5) Easy reuse of software (mashup)
- (6) Device independence
- (7) Rich user interfaces

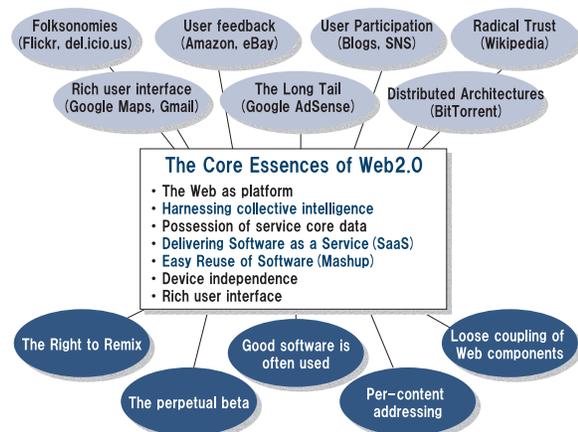


Fig. 1 Concept of Web 2.0 (Compiled based on reference material 1)).

Of the above points, this paper will focus on three of them; “Harnessing collective intelligence,” “Delivering Software as a Service (SaaS)” and “Easy reuse of software (mashup).”

### 2.2 Using “Collective Intelligence”

By the use of sites such as Blogs and Wikipedia with which users can write and transmit their information freely, information in CGM (Consumer Generated Media) continues to grow independently without strict control by administrators. One of the major characteristics of Web 2.0 is that it uses this kind of information positively. This is called the “collective intelligence.”

### 2.3 Delivering Software as a Service (SaaS)

Previously, delivering software to users took the form of “releasing” the software entity to users. With Web 2.0, it is not the entity that is provided as software, but the “service” achieved with the software is provided in a form that is usable by the user. This approach, which is called SaaS (Software as a Service) shortens considerably the cycle from the development to the disclosure of the software and greatly transforms software business models.

### 2.4 Easy Reuse of Software (Mashup)

With Web 2.0, the functions provided by services are offered in easily reusable formats. For instance, the Google Maps employ a simple interfacing specification based on the technology called AJAX, so that users may easily develop their original services and open them to the public using the interface of the Google Maps. The same also applies to the RSS, the simple data formats and protocols that allow the users to easily develop various applications that use the information obtained from the RSS. This method of developing new services based on existing services using simple interfaces is called a “mash-up,” which is a development technique that characterizes Web 2.0.

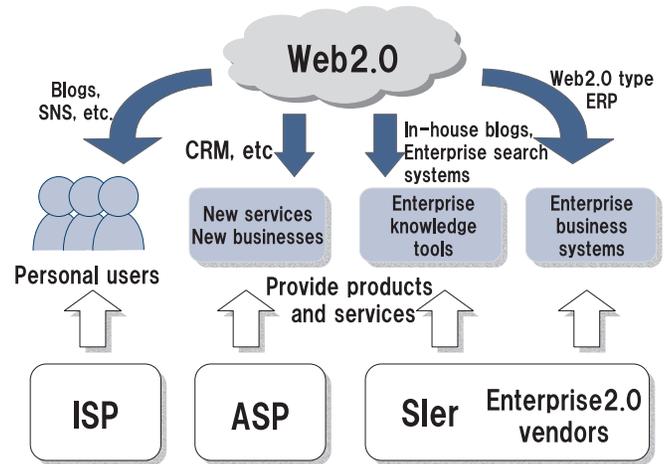


Fig. 2 Web 2.0 from the viewpoint of software business.

ness systems and software development styles to the lifestyles of consumers (Fig. 2).

Software development firms should take note of these user impacts of Web 2.0 and provide products, services and solutions that can match the Web 2.0 needs of users from the perspectives of ISPs, ASPs, Slser’s and Enterprise 2.0 vendors.

### 3.2 Development Style of Web 2.0 Software

With Web 2.0, software is not delivered after having been brought to perfection over a long time period. Instead, the software is delivered as a service (SaaS). The beta version is delivered to the users in the initial stage and improved continually in short cycles based on user feedback so that a more perfected service can thus be provided. Such a technique is a specialty of venture businesses that are capable of flexible strategies. How to deal with such techniques is an important issue for any software development firm. At the software development site, collective intelligence should be accumulated based on thorough information sharing and this should be utilized effectively in order to improve the efficient development of new ideas and software. In addition, the software development speed should be accelerated by developing new software in combination with existing software (mashup). Software developed in this way is not released as a software entity, but should be delivered to the users as a service (SaaS) in order to speed up software provision to users and to accelerate feedback of user needs with regard to the software.

## 3. Effects of Web 2.0 on Businesses

Now, let us view the impact of the new concept of Web 2.0 on businesses.

### 3.1 Enterprise 2.0 and SLATES

Most of the seven core components of Web 2.0 are related to the brand of software, but some of them such as “harnessing collective intelligence” are also important in general business activities. An increasing number of private businesses are utilizing Wikipedia and blogging as a means of utilizing the “collective intelligence” of its employees when performing their activities. The use of Web 2.0 in the work environment of businesses and the group of systems enabling it are referred to as “Enterprise 2.0.” Andrew McAfee at the Harvard Business School enumerated the six factors characterizing Enterprise, including Search, Links, Authoring, Tags, Extensions and Signals. These factors are called “SLATES” as derived from their initials.

Web 2.0 exerts impacts in various scenarios, from the busi-

#### 4. Web 2.0 Activities at NEC

At NEC Corporation, we have already started various Web 2.0 type activities, some of which are described in the following sections.

##### 4.1 Web 2.0 Taskforce and Web 2.0 Software Platform

NEC has organized a taskforce provisionally named “Web 2.0 Taskforce,” which aims to study the business strategy of NEC regarding the Web 2.0 age. As a result, a software platform composed of open-source software programs, called the “SpikeSource Core Stack” has been added to the NEC product range.

##### 4.2 Brainstorming with the In-House Blog

NEC’s in-house blog system “Innovation Café” is used by many corporate members, and is a venue for various discussions on daily topics, socio-technical trends and the future orientation of the corporation. These discussions also include brainstorming-type sessions that consider a variety of new ideas related to Web 2.0-type services. Some of the ideas born thus have been implemented experimentally in prototypes and demonstrated in-house by voluntary members of the “Corporate virtual organization,” a development that is discussed in the next section.

##### 4.3 Web 2.0 Service Creation Activities

NEC holds “Corporate virtual organization,” which is composed of both core members and voluntary members for quick prototyping and in-house experimental demonstrations of Web 2.0-type services. It inputs the ideas on Web 2.0-type services obtained as a result of brainstorming in the corporate blogs or ones that are proposed by voluntary members, implements them quickly as on-line services making use of OSS, etc., and demonstrates the prototypes as in-house experimental services that can be tried freely on the in-house network by all of the corporate employees (Fig. 3).

Web 2.0-type service prototypes developed under this scheme include the following.

###### (1) Web Collaboration System “JACLE”

The web collaboration system “JACLE” (Fig. 4) is a system allowing anyone to attach a “tag” to any desired web page.<sup>3)</sup>

JACLE allows multiple users to attach tags to ordinary web

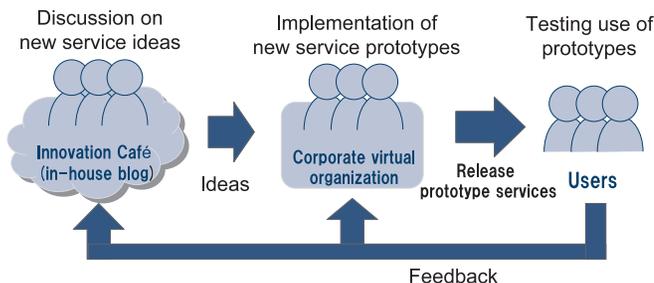


Fig. 3 Discussions via the in-house blog and prototyping via the corporate virtual organization.

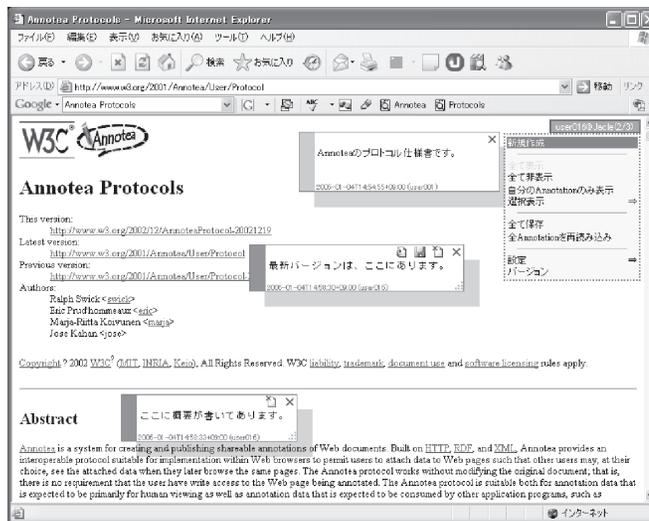


Fig. 4 Web collaboration system “JACLE”.

pages and reference the tags as shared information. It can therefore be used as a tool for the accumulation and sharing of a variety of collective intelligence, for use in collaborative document reviews or detailed bookmarking using tags attached to specific locations in web pages. JACLE is implemented using Annotea, which is investigated by W3C as a system for adding meta information to web information.

###### (2) Ubiquitous Memo

The Ubiquitous Memo has been developed in the context of the concept of “allowing anyone at all to attach information at a current location and to retrieve it later on.” As the primary prototype of this concept, a system and its applications have been developed to make it possible to attach desired information onto a map from the web browser that is running on a PC or from a cellular phone. Such information may be referenced later from a web browser or information attached to the current user’s location may be viewed using the GPS



Fig. 5 Ubiquitous Memo.

function of a cellular phone (Fig. 5).

### (3) Shared Translation System

The shared translation system has the aim of removing language barriers on the web by means of collective intelligence. It automatically translates web contents written in foreign languages and allows the translated text to be edited by anyone just as with Wikipedia. This helps to repair the errors and unnaturalness of automatic translations and to achieve multi-language web contents in a more natural form.

In the future, we are also planning to open up the results of development by “corporate virtual organization” to the public outside the corporation and to use the feedback from outside users in the planning of new services ideas and for the development of prototypes.

## 5. Conclusion

Currently, Web 2.0 is exerting an impact not only on software development styles but also on various other scenarios from the business systems to the lifestyles of consumers. At NEC, it is our intension to further promote the Web 2.0 activities introduced in this paper, so that we may deliver products and solutions that can meet the Web 2.0 needs of the users.

\* Some products and services introduced in this paper are mainly provided for the domestic market.

\* The corporate and product names mentioned in this paper are trademarks or registered trademarks of their respective owners.

### References

- 1) Some products and services introduced in this paper are mainly provided for the domestic market.
- 2) The corporate and product names mentioned in this paper are trademarks or registered trademarks of their respective owners.

### Author's Profile

**SHIRAIISHI Nobuhisa**  
 Assistant Manager,  
 Business Innovation Center,  
 NEC Corporation