

# useKit\* – A Step towards the Executable Web 3.0.

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## ABSTRACT

A lot of situations from daily life have found their counterpart in the internet. Buying or selling goods, discovering information or making social connections have been very successful in the virtual world and make the Web the central working place.

Until now the purpose of a Web site has been defined at the time of creation. Extension of the available functionality or transfer of the functionality onto another site has only been possible with considerable additional effort. With useKit, we present a software platform that allows users to add individual selected functionalities to any Web site without installing software.

useKit offers a new approach towards a collaborative, personalized and individually compiled view of the Web. useKit focuses on personalized applications and services that can be applied to any Web site. In analogy to file system permissions, this can be seen as an instance of the “executable Web” or Web 3.0 if Web 1.0 was “read-only”, and Web 2.0 was “read-write”. User contributed code will morph online applications into omnipresent functional platforms with a single interface.

## Categories and Subject Descriptors

H.3.5 [Information Systems]: Information Storage and Retrieval—*On-line Information Services, Web-based services*; D.2.6 [Software]: Software Engineering—*Programming Environments, Integrated environments*; H.5.2 [Information Systems]: Information Interfaces and Presentation—*User Interfaces, Interaction styles*

**General Terms:** Algorithms, Experimentation, Management

**Keywords:** Web3.0, Mashup, Personalization, Refinement, Service Composition

## 1. INTRODUCTION AND RELATED WORK

More and more applications and services move to the Web. Universal access and personalization possibilities allow ubiquitous usage of these applications and can make desktop applications redundant.

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\*<http://useKit.com>

Often several applications and services will be used in a combination to fulfill a specific task. The discovery of these applications and services and the necessary workflow through different user interfaces to interoperate can get very time consuming and often takes one out of focus. At the same time people frequently use more than one device at several locations to access these applications on the Web (Computer at home, office, internet coffee, mobile device). Aligning settings and access codes across different Web browsers and computers can cumber the advantages of the Web. This leads to the question: “How to discover and use services effectively that increase the efficiency of Web usage?”

The idea of user-friendly integration of existing web services is not new. The majority of assistant tools are extensions to popular web browsers that allow powerful enhancements and seamless integration into the daily web usage [1][3]. Another group of assistant tools covers web sites where existing web services can be combined together on a high-level programming basis. Web sites generally offer more generic services as browser extensions and are ubiquitous. The third group identifies development frameworks that support the integration of existing web services. Frameworks offer the most powerful way and lead to new web sites similar to the second group. A detailed analysis can be found in [4].

## 2. INDIVIDUAL SERVICE COMPOSITION

useKit allows to apply so called “Missions” to any Web site a user visits. Missions can manipulate content, presentation and behavior of a Web site and mix it with content or functionality coming from other Web sites. Language translations or the transformation of text into spoken words are two examples of a Mission. In order to fulfill its task, a Mission can use several external Web services. For example language translation can include different services for different languages. Missions appear as a graphical representation in a menu bar in the bottom of a visited Web page, much in the same way as desktop programs are represented by a graphical icon.

### 2.1 Missions

Currently we provide a set of Missions but will open up with an API for user contributions. The following Missions are examples of the possibilities of useKit:

### 2.1.1 Cut'nGo

Cut'nGo allows to cut out pieces of a Web site with just a few mouse clicks and to store the content together with user defined tags. These pieces are available as RSS feed and can be shared with friends.

### 2.1.2 Bookmarklet

The Bookmarklet Missions offers an extensible way to get access to personal Bookmarklets. As with all Missions, access is guaranteed across all major browsers.

### 2.1.3 Annotation

The Sticky Mission allows to annotate Web pages and share it with friends. A searchable overview of annotations allows fast access to interesting sites and private notes.

### 2.1.4 Handicap

This Mission helps visually handicapped people with extra large fonts and synthetic speech to better access information on the Web.

### 2.1.5 Twitter

Tweeting directly within a visiting Web page with automatic url shortening. The shortening service and twitter account can individually be selected.

### 2.1.6 Map

A selected address can be transferred into a geographic map and visited without leaving the Web page. As with all other Missions, the Mission log contains selected addresses for further processing.

## 2.2 Activation

useKit needs an enabling Bookmark that can be taken from a providing Web site or email. Browser extensions and plugins are also available for omnipresence. This application is shown with Web sites 'X' and 'Y' in figure 1. A third option are Web sites that provide the menu bar statically in their Web presence as shown with Web site 'A'. A visiting user can still add own Missions to the bar, but suggestions are already in place.

There are three different ways to activate a Mission: A user can activate a Mission with mouse or keyboard gestures, a Mission can automatically start as soon as a web page has been loaded or periodic activation based on a time schedule.

## 2.3 Platform

The useKit platform serves as Mission storage and allows users to select and manage individual Missions and settings. Web users can browse through available Missions and compile an individual set of Missions. Access to the platform itself is not necessary but the platform acts as gateway between Missions and external service connections. This gives the opportunity to optimize service access and service selection.

The platform contains a life feed of all useKit activities. In the future it will also be possible to take advantage of personal selected and modified content across different applications and services.

## 2.4 Standards

The base of interoperable Missions are a set of Web standards. User authentication with OpenID and authorization

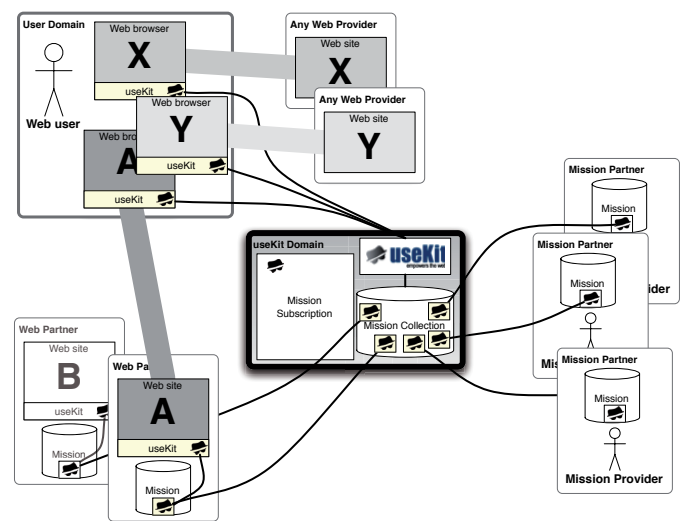


Figure 1: useKit in three types of application.

among applications with OAuth. Syndication and distribution of information with RSS<sup>1</sup>, RDF<sup>2</sup> and OPML<sup>3</sup> and semantics based on microformats[2]. Since the user selects information to be processed, the problem of semantic detection is limited. For structured information such as calendar or contacts data, an automatic extraction is possible.

## 3. CONCLUSIONS

We have proposed a platform that allows end users to add individual selected functionalities to any Web site. Content, presentation and behavior of a Web site can be modified without installing any software. A definition of Web 3.0 from Eric Schmidt is “applications that are pieced together. They are relatively small?very fast and customizable, and distributed virally”[5]. useKit Missions take the role of these applications.

As future work, we work on an API for user contributions and a strong embedding into existing social networks.

## 4. REFERENCES

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<sup>1</sup>Really Simple Syndication

<sup>2</sup>Resource Description Framework

<sup>3</sup>Outline Processor Markup Language