Usable Persona Interface: Persona-Bookmark

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ABSTRACT

We present a design that assigns persona information and uses it to selects one identity from several user identities in user resources such as bookmarks. As a proof of concept, we implemented a persona-bookmark system. In this system, a user can assign his persona information to his bookmarks so that the system automates login processes using the persona information. Thus, the user can log into a service just by selecting its bookmark. We estimated the operation time for logging into services by using the GOMS-KLM model. The results indicate the usefulness of our model and its implementation.

Categories and Subject Descriptors

H.5 [Information Systems]: Interfaces and Presentation

General Terms

Security, Human factors.

Keywords

User interface designs.

1. INTRODUCTION

Personalized services offer online buyers a customized experience by responding to their individual requirements and interests. However, such services raise concerns about the privacy of user information. To protect the user's privacy, the persona model has been presented [1] [5]. Persona, which originally meant a mask in Latin, describes the outward social appearance of a human. In the persona model, a persona consists of a digital identity and private information, which is isolated from other personas. Users switch their personas in order to isolate their behavior in one situation from those in others.

2. Related Work

Persona interfaces that have been proposed to date can be classified into two categories. Category 1 interfaces enter persona selecting mode after the user selects a service. The autocomplete function in Web browsers and CardSpace, which represents an identity as a card, are in this category. The user can switch personas by selecting a different card when he logs into the service. Category 2 interfaces enter persona selecting mode before the user selects a service. Passpet, which represents a persona as pet, is in this category [6].

These designs have interfaces for selecting persona and we assume this persona selecting reduces usability. In order to verify this assumption, in this study we propose a user-interface that reduces this persona selection, and we evaluated it and CardSpace.

3. Persona-Bookmark

We implemented Persona-Bookmark by extending a bookmark application to handle persona tags. Persona-Bookmark has no persona selection interface after the user has set it up. In the system, a bookmark has a persona tag, which corresponds to a digital identity such as ID/password, and SSL client certificates, SAML2.0 identities, Open ID. If the user assigns two persona tags to a single bookmark, the system shows the bookmark as two separate bookmarks.

The system can recognize the corresponding digital identity from a persona tag, so a user can log in to the service just by selecting his bookmarks.

The user interface for adding a new bookmark is shown in Fig. 1. By selecting persona buttons, the user can give a bookmark persona tags. In Figure 1, Bob is tagging the bookmark of an SNS with Dad (DadBob). The bookmark selection user interface is shown in Fig. 2. In this case, Bob has two personas: HackerBob and DadBob, for his roles as a hacker and a father. Bob uses both of these personas on the service, so the system displays two bookmarks (SNS [HackerBob] and SNS [DadBob]). If he wants to use the SNS service as a hacker, he clicks the "SNS [HackerBob]" bookmark and this action causes automatic log in to the service.
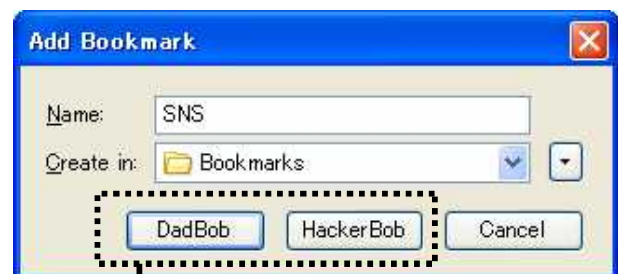
Bob's personas

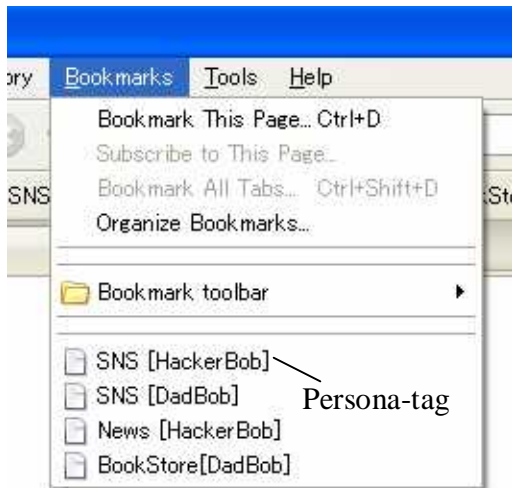**Figure 1. Adding Persona-Bookmark.**

Figure 2. Persona-Bookmark.

4. Usability

We evaluated the usability of the persona user interfaces by using the GOMS-KLM model [3][4]. With GOMS-KLM, the execution time is estimated by listing the sequence operators and then summing the times of the individual operators. In this evaluation, we used mental operator (M =1.35 s), pointing operator (P = 1.1 s), homing operator (H = 0.4 s), and keying operator (K = 0.2 s). In addition, we assumed that the user scrolls when selecting a bookmark or persona bookmark.

Category 1

  HMPKPKPKMPKMPK = 10.95 s (selecting bookmark, clicking login button, selecting personas)

Category 2

  HMPKMPKPKPKMPK = 10.95 s (selecting personas, selecting bookmark, clicking login button)

Persona-bookmark system

  HMPKPKPK = 5.65 s (selecting bookmark)

This evaluation showed that our design reduced the log-in time by 51%.

We also evaluated the usability of our system through pilot tests with five participants who had good computer skills. Followings are evaluation result.

Average Time (sec)

CardSpace Interface : 8.6 sec

Persona Bookmark : 3.6 sec

 In future, we will repeat the user study with more users.Both evaluation results indicate that the proposed user interface reduces about 50% of login operation time.

5. Security Considerations

Poor usability increases human errors, which in turn increase security threats. The main cause of failures of existing security systems seems to be not malfunctions, but misconfiguration and misuse [7]. BeanAuth uses bookmarks to secure the login process

[9]. Our implemented system also uses bookmarks to secure the login process. Users select their identities by selecting a bookmark, and the persona-bookmark software checks the service, instead of the user having to do so, to see whether the service is the same one that sent the password, and it inputs the password instead of the user. This feature removes the operation of clicking the login button.

6. Conclusions

A user usually selects a persona from a set of personas according to his/her individual circumstances. To improve the usability of personas, we presented Persona-Bookmark, which we implemented by extending ordinary bookmarks, for logging into a service with only one click. We evaluated our system and found that it improves usability by removing the persona selection interface. In future work, we will apply the persona tag concept to user contents such as text on a blog site, comments, or photos.

7. REFERENCES

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