

DashSearch: Desktop Widget based Desktop Search for Metadata Exploitation

Takayuki Goto
The Graduate University
for Advanced Studies
2-1-2, Hitotsubashi,
Chiyoda-ku,
Tokyo 101-8430, JAPAN
tygoto@nii.ac.jp

Hideaki Takeda
National Institute of
Informatics
2-1-2, Hitotsubashi,
Chiyoda-ku,
Tokyo 101-8430, JAPAN
takeda@nii.ac.jp

Michiaki Yasumura
Faculty of Environmental
Information,
Keio University
5322 Endo Fujisawa
Kanagawa 252-8520, JAPAN
yasumura@sfc.keio.ac.jp

ABSTRACT

We developed a desktop search interface called “DashSearch” that enables users to retrieve stored data by efficiently using various metadata (e.g. date and author). DashSearch consists of several desktop widgets, i.e., simple applications related to metadata (e.g. calendar and address book). Each widget works as an input and output interface. Users can intuitively set search conditions by combining widgets and use widget to browse search results from various viewpoints.

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General terms: Design, Human Factors

Keywords: desktop search, user interfaces, interactive information retrieval, metadata.

INTRODUCTION

Managing files using only a hierarchical structure, such as folders, has recently become difficult because computers can now store many files. Therefore, a desktop search using a search technique developed for the web has attracted attention and is now an important basic OS function [1].

One of the important features of desktop searches is the use of various metadata, e.g. author, file type, and time of creation. However, the current desktop search interfaces do not allow users to use such metadata easily. As a result, users still find it difficult to retrieve files from various viewpoints.

We created a new desktop search interface called DashSearch (**Dashboard + Search**) that enables users to use various metadata intuitively.

DashSearch expresses metadata by extending simple applications called desktop widgets (widgets for short) [2]. Combining widgets enables retrievals from various viewpoints.

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DASHSEARCH FUNCTION

The retrieval procedure in DashSearch is as follows.

- 1: Set search conditions in widgets.
- 2: Compose the retrieval query by combining widgets whose search conditions have been set in step 1.
- 3: Display the retrieval result of the widgets.

The details of each retrieval step are described below.

Setting search conditions using widgets

A desktop widget is a simple application to execute a specific function on the desktop, and there are various kinds, e.g., clock, calculator, and calendar. Some widgets show information such as the date, launchable applications, and persons. Such information can be used as metadata about files in a desktop search. In other words, these widgets can show metadata.

We decided to extend widgets that show and operate on metadata for search conditions. For example, with the calendar widget, the range of selection can be displayed and the selection operation on the calendar can be done with the mouse (see Figure 1). Thus DashSearch's widgets can express and operate appropriate metadata to character of it.

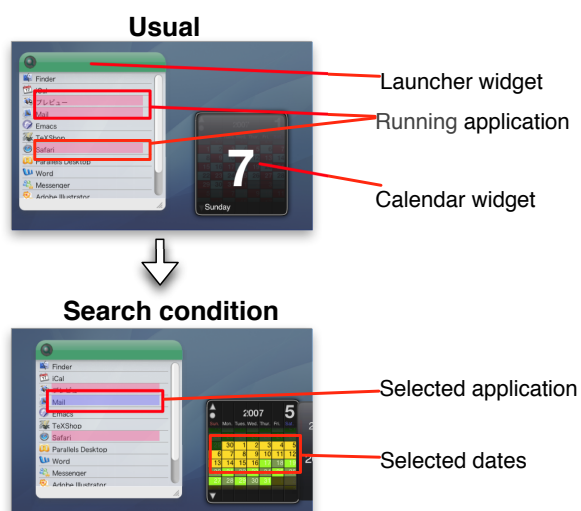


Figure 1: Metadata expressed by Widget



(1) Narrow a search by author. (2) Narrow a search by date.

Figure 2: Search formula created by widgets

In addition, they are also available as a simple application that is original usage not just retrieval. For example, DashSearch's application widget can work retrieval query as well as application launcher (see Figure 1). The familiar widgets make metadata retrieval immensely user-friendly.

Rearrangement of search conditions by direct manipulation

DashSearch uses direct manipulation[3] as its method of interaction. Users can retrieve files by overlapping a widget that displays search conditions, as shown in Figure 2. Users can specify the AND operation of the search condition by combining touched widgets to compose a query. The search condition can be removed from the query when separating widgets. Thus, addition, deletion, and repetition of search conditions can be facilitated by rearranging widgets by direct manipulation, and complex search formulae can be made quickly.

Displaying search results using widgets

DashSearch's widgets not only set the search conditions; they also display the retrieval result. This allows users to see the retrieval result from various viewpoints. For example, when a user overlaps the launcher widget with the calendar widget, the calendar widget displays the usage history of the selected application. Overlapping a launcher widget and file display widget results in the display of a file that relates to the selected application (Figure 3).

In addition, users can create a new search condition by (1) clicking a part of the search results(e.g. date) and (2)dragging it to an other widgets.

Thus user can intuitively do a complex retrieval task by displaying the retrieval result not just retrieval condition on widget.

RELATED WORK

Several interesting approaches to information search interfaces have been reported to facilitate the use of various retrieval conditions.

For example, Cousins et al. developed the DLITE system [4], which expresses a set of queries, retrieval results, and

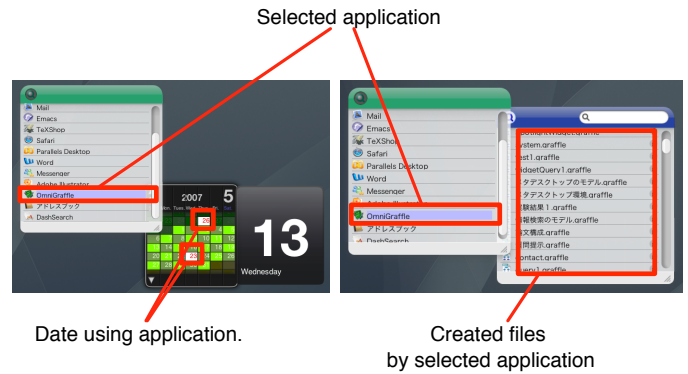


Figure 3: Displaying search results

document collections as visual objects. The DLITE system retrieves information by attaching the object that shows the query to the object that shows the document set. Cutrell et al. describe the design and deployment of a system called Phlat [5]. The Phlat displays the metadata included in the retrieval result and can add it to the search condition. DashSearch has functions almost equivalent to those of the above studies but with the added convenience of them being in the form of everyday desktop widgets. We think that users can more easily operate on metadata with tools they are accustomed with, rather than with new specialized tools for metadata.

CONCLUSION

We described a retrieval interface called DashSearch that uses widgets to facilitate the use of various metadata. Our main contribution is a novel metadata retrieval environment that enables a user to use metadata through an intuitive interface. We hope ordinary users take advantage of various metadata that can make it easier to search for information.

At present, there are still a limited number of widgets that can be used with DashSearch. We plan to increase the number of widgets in order to make a lot of metadata available to users.

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