

# Stories and Venues

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**Abstract.** All the user interfaces of the personal computers of the present days are based on the desktop metaphor, i.e., on an analogy with the physical work-place. However, that metaphor reflects the complexity of human activities without helping people to manage it. In this position paper, we propose a new way of presenting information in *venues*, i.e., according to the context in which objects are generated, or needed. We envision the design of a new generation of workstations, built (from the core) around the metaphor of *stories and venues* to substitute the desktop one.

## THERE IS MORE THAN THE DESKTOP

In 1984 Apple, inspired by the famous prototypes and workstations of Xerox, has defined with the Macintosh the interface standard and the features of the workstations that would be offered on the IT market state. As proposed by the Xerox PARC researchers, the workstation interface is based on the “desktop metaphor” [2], i.e., a replica of the surface on which users work: a plane supporting and containing several distinctive tools, documents and objects of different types, a hierarchy of folders, a trash basket, etc. The success of the desktop metaphor stems from its ability to reproduce the arrangement of tangible things.

However, *the desktop metaphor reflects the complexity of human activities without really helping people to manage it.*

Let us point out three of the main limitations of the present-day personal computers, provided with a user interface built on the desktop metaphor:

- filling the desktop with all the objects users create, find or receive during their everyday actions and interactions generates an amount of confusion that some people try to manage by filing items in different folders. This method does not solve the problem, since the content is hidden by folders, which also have names that become obscure with time;
- the two major internet applications – email and the Web – store their objects (e.g., messages, bookmarks, cached pages) in two other distinct places so there is no contiguity with other information;
- the file systems of the most popular operating systems neither allow to quickly tag objects (with one click only) or to cross-link them, nor to make their inner structure visible to other objects, like XML does for the web.

These limitations have grown in relevance as the Internet transformed workstations into systems mostly devoted to communication between users and to information search on the web: users increasingly need not only to find objects but also to be able to browse, or navigate among them.

Early groupware systems were too rigid, creating and relying on a space for collaboration that was separate from the individual workspace (and with its own productivity tools), and they have not effectively evolved with the Web, which was offering new applications to users. Typically, those

services allow users to browse, to search for knowledge on the Web, and to update, organize, and manipulate their personal knowledge base. Alternatively, those services can be provided by groupware and generic collaborative computing applications, allowing groups and/or communities of users to share objects and to interact either directly or indirectly. Shared calendars and spaces, document management systems, networked repositories, co-browsing tools, and chats have all enriched the set of services and functions that workstations offer to users, but the metaphor around which services and objects are organized (the desktop) has not (yet) been affected or “updated”.

The issues to be taken into account in order to overcome the limitations of current workstations are:

1. the (limited) support of context awareness, as highlighted by several conceptual work and case studies in the area of CSCW;
2. the inadequacy of the presentation of objects (and of their structure and correlations) based on the desktop metaphor.

There is a growing evidence that the complexity users meet when trying to get rid of the large amount of objects stored in folders is not purely quantitative, since users at any moment need to access only those documents that constitute the pragmatic and semantic *context* of their current focus of attention, but they have no ways to select them among all their objects. The context awareness provided by current workstations is limited and partial: productivity tools (even if collected in suites) still have supremacy over the usage context of their objects and, moreover, there is a clear-cut separation between them and the communication and/or web browsing packages, not allowing to organize all objects on the basis of their usage context. For example, an object in the local file system is treated differently from the favorite URLs in the web browser. Any communication channel available to users has its own environment. Email messages and the attachments to them are generally stored in different spaces (and reverse links are not available); *conversations* [1], even held through a unique medium, are not supported as such by communication systems.

We have finally reached the conclusion that they are all limited by their being developed as applications and not as parts of the *operating system*. Context awareness is not something users need while they are working with specific applications: on the contrary, they need it to articulate their work in relation with others, to organize themselves, to access relevant pieces of knowledge, to know what to do next. The services supporting context awareness cannot be an attribute of single applications but should glue them together instead.

We need to modify existing operating systems, at the front-end level, embedding in them context awareness services. This results in a greater complexity of workstations at the interface level, if we don't change them in a radical way, grounding them in a new metaphor.

*In order to provide users with an integrated experience of the services we have designed for context awareness in these years, we need to design a new workstation where, abandoning the desktop metaphor, everything a user does is embedded in the context giving it sense, so that awareness is supported at system level.*

## **THE METAPHOR OF STORIES AND VENUES**

The research on context awareness has brought us to conceive a new metaphor for the interface of a workstation, namely that of *stories and venues* (please note the plural!) Everything users do is in the context of the different stories they live with other people (sometimes, alone). Any of these stories is populated by all the items (objects of different types, people's addresses, relevant URL's, exchanged messages) created or imported during the experience and users need to have them ready at hand, in the *venue* associated to the story within which they are acting or interacting.

The creation and maintenance of a *venue* can be straightforward and does not need for user intervention, but for corrections and refinements, if we let the system react to events taking into account the *venues* where new objects are created. This does not require that all the interacting users

have workstations based on the *venues*' metaphor, since the *venue*-based system of a user can locate objects in *venues* on the basis of interaction threads without making reference to the *venues* of other people.

The natural flexibility of (inter-)personal processes to adapt to internal or external events can only be understood by taking into account the context(s) in which a person is embedded. In our previous research we revisited the language/action perspective [1] claiming the importance of conversations, and these same concepts are now the bases of the new metaphor we are proposing:

- A conversation defines a context that is represented by a *venue*;
- Venues aggregate related objects, that should then be managed altogether, being them constituents of a context;
- New *venues* are created as new conversations begin, from scratch (i.e., by replying to a new message) or spinning off existing ones (e.g., when the topic of a conversation changes or multiplies);
- Users can modify *venues* sorting the objects they contain, merging different *venues*, creating *subvenues*, deleting them (different policies can be characterized), and so on;
- Objects only exist within a venue: an object can be accessed through replicated references, if it is referred by different conversations.

While the desktop metaphor does not preserve the individuality of different contexts, meaning that users can handle objects related to multiple contexts at the same time, in the *venues*' metaphor only one venue can be open (i.e., visible) at a time. A special venue is the one containing all other venues ("home"), which can be used to move from one venue to another.

## REFERENCES

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2. A. C. Kay. *Microelectronics and the Personal Computer*, Scientific American, volume 237, number 3, September 1977, pp. 230--244.