Conceptual portal-features for heterogeneous user communities

Silvano Mussi
CILEA, Segrate

Abstract
The papers presents a conceptual view of the customization features underlying the current release of the CILEA Supercomputing Portal. The basic conceptual choices are illustrated, justified and discussed with regard to the problem of addressing user communities with heterogeneous interests. Finally some general conceptual definitions are presented and, in the light of them, the current portal release is classified and discussed.

Keywords: Supercalcolo, Web-portal, Customization, Supercomputing.

In recent years, supercomputing has been applied to many disparate target fields (Computational Fluid Dynamics, Economy and Finance, Astrophysics and Nuclear Physics, Virtual Reality, etc.), and in each of them, specific supercomputing technologies, suitable for coping with the kinds of problems the field is characterized by, have been developed. As a consequence, each target field can be considered a sort of self-contained world of technological knowledge. This fact has led to think out a very structured way of organizing information inside the CILEA Supercomputing Portal [1]. More precisely, a twofold-view organization has been chosen: the target-field centered view (stemmed by aggregating information on the basis of the target fields it refers to), the object-type centered view (stemmed by organizing information on the basis of the kinds of objects it deals with, e.g. software packages, courses and conferences).

The news presentation problem
So far we have considered information concerning supercomputing (target fields, software, conferences, etc). However, whenever a relevant new piece of information (e.g. concerning a new software release or a conference) is entered the portal, a piece of news announcing the event that that piece of information has been added, is also generated. News is therefore a sort of meta-information, i.e. announcement information (that is a sort of service information) about the actual supercomputing information (that is the substantive information). However, news, by its nature, should not be stored inside a structure. It must be shown in a suitable space of the portal home-page, e.g. in a Highlights window, so that it appears in foreground and captures the user attention. Let us note, though, that, given the sequentiality due to news listing in a Highlights window on one hand, and the heterogeneous news subjects on the other hand, a news presentation problem arises. In other words, it might happen that a supercomputing user finds the news concerning his/her own field, scattered through a possible long list if news concerning other fields. We aim at avoiding that.

A customizable-portal based solution
To overcome the above illustrated news presentation problem a customizable portal approach has been adopted. In the case of the current release of the CILEA Supercomputing Portal, the customization concept is instantiated by providing a supercomputing user operating in one of the above mentioned target-fields, with a related field-centered home-page. Such a home-page is characterized by the fact that information concerning the field the home-page refers to appears in foreground. More precisely, in the Highlights win-

1 The twofold-view structure appears from the crossed links logically connecting the portal pages "Applications" (target-field centered), "Software" (centered on software packages) and "Courses and Conferences" (centered on conferences). A portal user can navigate at the level of a certain target field or a certain object type (i.e. software or conference).
dow, news concerning the specific field is listed before the one concerning other fields. Moreover, the field-centered home-page is provided with marketing banners, i.e. banners promoting the specific supercomputing field by pointing out special events, books, software and cultural information concerning the field.

**Software equipment for a customizable portal**

In order in order to make a portal customizable we have to equip it with a suitable infrastructure: basically a database with a set of interface programs for both the user side and the administrator side. In other words, on one side a user must be able to create his/her profile record, on the other side the administrator must be able to classify news and insert news records in the database. In the current portal release, news is classified according to the target-field it refers to. Similarly, a user specifies in his/her profile the target-field/s he/she is interested in. Customization is therefore basically obtained by matching the field names present in the user profile with the field names present in the news records. See [2] for a detailed presentation of the software equipment.

**Marketing addressing heterogeneous user communities**

A customizable portal is an effective tool for parallely carrying out marketing initiatives addressing user communities with heterogeneous interests. For example, given a user-profile database and an automatic e-mail sending functionality, particularly relevant news can be automatically and selectively sent via e-mail to the user communities it pertains to. A customizable portal is also an effective tool for monitoring single user reactions to recommended information, carrying out a selective statistical click-analysis in order to take single-user tailored measures in case of expectation failure.

**Conceptual distinctions and discussion**

Let us conclude this presentation by making some considerations that will contribute to conceptually classify the current release of the CILEA Supercomputing Portal. Let us distinguish between customized and personalized portal, and between adaptable and adaptive portal. A customized portal is tailored to the characteristics of the community the user belongs to, whereas a personalized portal is tailored to the specific user model (built on the basis of a set of explicitly/implicitly acquired user information). Turning to our portal, its current release is endowed with customization rather than personalization capabilities. In fact, as above said, the portal diversifies its presentations through field-centered home-pages, that is: no other information of the user profile but the target-field/s he/she is interested in is/are used to tailor the specific home-page.

Let us consider now the difference between adaptable and adaptive portal. A portal is adaptable if it requires the user to specify exactly how it should be different. Conversely, a portal is adaptive if it automatically adapts to a user given the related user model. In other words, an adaptive portal is self-tailoring (e.g. self-customizing or self-personalizing). Having said that, it can be claimed that the current release of our portal is characterized by adaptability rather than adaptiveness. In fact, given that customization only depends on target-fields, the possibility for a user to specify his/her target-fields is, in practice, equivalent to the possibility of specifying how the portal must be different. So, in the light of the distinctions so far considered, we can conclude that the current version of our portal is adaptable in its customization capabilities, hence it is "customizable".

To conclude, let us note that, as far as the sensitive degree of a portal to the personal needs of a user is concerned, customized portals are at the bottom of the scale (they have coarse-grain sensitiveness) whereas portals featuring adaptiveness and personalization (i.e. self-personalizing portals) are at the top (they have fine-grain sensitiveness). Of course there is a trade-off between the complexity degree of the required infrastructures and the sensitiveness degree of the portal2.

**References**


---

2 A feasibility study for rising the portal sensitiveness degree is in progress.