Chapter XXIV

WSRP–O: An Ontology to Model WSRP Compliant Portlets

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ABSTRACT

The use of Web portals continues to rise, showing their importance in the current information society. Specifically, this chapter focuses on portlet-based portals. Portlets are Web components, and they can be thought of as COTS but in a Web setting. Recently, the Web service for remote portlets (WSRP) standard has come into existence. Its aim is to provide a common interface in order to allow the communication between portal and portlets. Bearing all that in mind, in this chapter we propose an ontology for this standard. This ontology offers an understandable summary of the standard. Thus, the ontology leads both portlet and portal developers to focus their effort on developing the portlet domain logic instead of implementing its communication.

INTRODUCTION

A portal is a Web presence that consolidates a variety of information and services, for example, searching, news, e-mail, discussion groups, and e-commerce (Ma, Bacon, Petridis, & Windall, 2006). The aim of many Web portals is to select, organize, and distribute content (information, or other services and products) in order to satisfy its users/customers (Domingues, Soares, & Jorge, 2006). Therefore a Web portal is an entry door for users.

Today, portlet is the basic component of a portal, which represents an interactive Web mini-application and is deployed on a portal server (Java Community Process, 2003). Portlets are used by
portals as pluggable user interface components that provide a presentation layer to Information Systems, that is, they are the individual components displayed in the portal that provide content for it. (Java Community Process, 2003)

Therefore, a portlet is a producer-hosted component that generates content design for aggregating and processing interactions generated from that content (OASIS, 2003). It can be thought as a Web component that comprises a full-fledged Web application to be delivered through a Web portal.

When portlets came into existence, their main problem was the lack of interoperability between the portlet and the portal in which it was aggregated. Portlets had to be custom-developed for each portal server because the API was different for each server (Linwood & Minter, 2004). However, this problem was eliminated when the Web services for remote portlets (WSRP) standard appeared. This standard allows portal developers to aggregate portlets developed by third parties without modifying the code.

Despite the existence of the WSRP standard, there are different companies which offer portlets that do not adhere to this standard (see http://www.jahia.net/jahia/571). These portlets present several problems between them; the following ones can be highlighted:

1. Nonexistence of interoperability between portlets and portal; and
2. Impossibility of offering these portlets to different portal developers.

Currently it is possible to find portlet repositories where portal developers can acquire a portlet which satisfies their needs (i.e., they do not have to develop the portlet, they only have to use it) (Montejava, 2006). Indeed, the Open Source Portlet Repository Project has been recently launched (Blattman et al. 2006) to foster the free and open exchange of portlets. A Portlet Repository can be defined as “a library of ready-to-run applications that you can download and deploy directly into your portal with, in most cases, no additional setups or configurations”. Other similar portlet-sharing sites include Portlet Swap (jboss.org) and Portlet Exchange (portletexchange.com).

The majority of portlets, which are offered in repositories, adhere to the WSRP standard. This standard defines four different interfaces for accessing and interacting with portlets, but the specification is not easily understood and there is a lack of a methodological base for the development of portlets.

On the other hand, a new software development paradigm has emerged, the model-driven architecture (MDA). MDA allows developers to not focus on the design, because they can use abstract languages or metamodels which lead to the development of artefacts (OMG, 2003). In particular, the OMG’s model-driven architecture is a new software development method which enables heterogeneous interaction and integration, and improves software portability (OMG, 2001).

Bearing all that in mind, it is possible to conclude that the use of MDA to make easier the development of new portlets which adhere to WSRP, as well as the adaptation of existing portlets that do not adhere to WSRP, would be useful. Therefore, one effective way to develop or adapt portlets which adhere to WSRP standard is to create an ontology which supports the portlet development.

Ontologies reduce the problems associated with terminological ambiguity, and allow us to share knowledge and facilitate the communication between people and/or systems, even those having differing necessities and viewpoints (Ruiz & Hilera, 2006). By using an ontology, both portlet and portal developers can focus their effort on developing the portlet domain logic instead of understanding the standard. For all these reasons, we have created a specific ontology, namely WSRP-O, for the WSRP standard.

This chapter is structured as follows. The second section gives a brief view of portlets and standards for portlets. In the third section, the ontology for WSRP is shown. Finally, in the
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