



Chapter 16

The VLEG Based Production and Maintenance Process for Web-based Learning Applications

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For the realization and maintenance of high quality and complex Web-based applications, there is a need to use sound Web-engineering principles. This chapter presents an application for the realization, management and maintenance of Web-based learning applications. Web-based learning applications are very important for the area of E-Learning, which is a field of increasing importance for E-Commerce.

INTRODUCTION

In many cases there is a lack of systematic approaches to the development of Web-based systems (Murugesan, Deshpande, Hansen & Ginige, 1999). Due to the increasing complexity of Web-based applications, there will be an increasing demand for methods and tools that support the efficient development of Web-based applications. By using adequate methods and tools, the costs and time to develop and maintain a Web-based application can be decreased enormously. Furthermore, the quality of the resulting Web-based applications will be much higher (Chen, Zhao & Fan, 1999).

This chapter introduces an architecture of a special kind of Web-based application, a Web-based learning application, the production process of the Web-based application, the architecture of a tool that plays an important part in the production process and the overall process model. The product model of the

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Web-based learning application is modelled with the well known OOHDM method. The process model can be applied to different kinds of Web-based applications. The importance to differentiate between a product model and a process model is stressed in Ginige (1998) and Lowe and Hall (1999). The tool that plays a very important part in the production process is called the *Virtual Learning Environment Generator* (VLEG). It is a tool for the realization, management and maintenance of Web-based learning applications. Examples of products produced by the VLEG are Web-based learning applications of the project WINFOLine. WINFOLine is a well known german teaching cooperation of the universities of Göttingen, Leipzig, Kassel and Saarbrücken. The following Figure 1 shows the situation at the beginning of the WINFOLine project, after the requirements of the Web-based applications had been defined. Figure 2 shows briefly the development method chosen to produce and maintain the Web-based applications.

Figure 1: The situation at the beginning

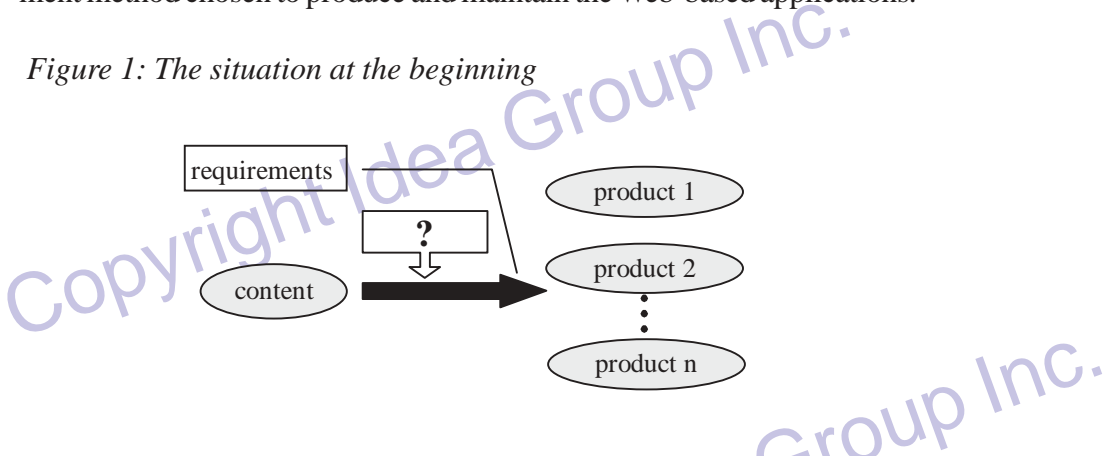
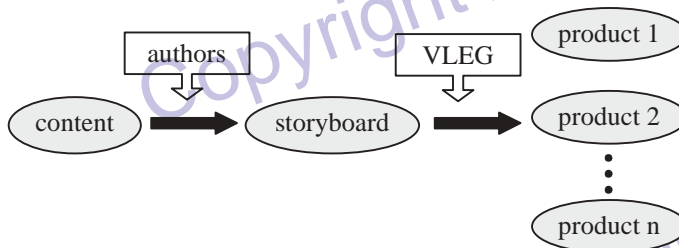


Figure 2: The chosen development method



ARCHITECTURE OF THE WEB-BASED LEARNING APPLICATIONS

This section presents the architecture and some typical features of Web-based learning applications that are produced by the VLEG.

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