Chapter I

Knowledge Sharing Infrastructure and Methods for Virtual Enterprises

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Abstract

The world is witnessing a dramatic increase in the availability of knowledge and information due to the proliferation of the Internet. Virtual enterprises are new collaboration models, which enable the sharing of knowledge within and across organizations over the Internet. The chapter is concerned with both providing a knowledge-sharing infrastructure to facilitate collaborative work in virtual enterprises, as well as introducing a methodology for designing groupware for enhancing collaboration in
The chapter reviews a number of existing Computer Supported Cooperative Work (CSCW) techniques, such as groupware and workflow and their role in supporting such an infrastructure. It then introduces a methodology for the analysis and design of collaborative information systems with a specific objective of maintaining a shared awareness among knowledge workers in virtual enterprises. This methodology includes as its main analytical tool a conceptual model called Collaborative Process Model for analyzing knowledge-sharing requirements of the actors in enterprise environments. Finally, the chapter presents an application of the methodology to a network management/trouble-shooting case study and discusses a NOTES prototype implementation.

Introduction

Virtual enterprises enable groups of people from remote locations and at any time to collaborate over computer communication networks to perform various tasks. In today’s information age economy, it is important to share knowledge and information within and across organizations for this purpose. Such knowledge sharing is a common need for virtual enterprises in all business sectors covering finance, health care, telecommunications, retailing, aviation, and so forth. Virtual enterprises are now being supported through intranets, extranets, and Computer Supported Cooperative Work (CSCW) techniques, such as groupware, workflows, and object-oriented software (Molli et al., 2001).

Despite the productive history of research in groupware design, the majority of current groupware implementations are based on a bottom-up approach. One main reason could be a lack of high-level analytical models and frameworks for designing collaborative applications. This chapter presents a top-down approach for design of collaborative systems that support knowledge sharing among their users. This methodology uses an object-oriented conceptual model called the Awareness Net. This model helps in identifying the gaps in the collaborative process support. The methodology also allows designs to be systematically derived from the awareness net and later implemented using a groupware system.

The chapter is structured as follows. The second section reviews current issues in the development of a collaborative technology infrastructure. The third
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