

Chapter 4.17

Finding e-Service Offerings by Computer-Supported Customer Need Reasoning

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ABSTRACT

We outline a rigorous approach that models how companies can electronically offer packages of independent services (service bundles). Its objective is to support prospective Website visitors in defining and buying service bundles that fit their specific needs and demands. The various services in the bundle may be offered by different suppliers. To enable this scenario, it is necessary that software can reason about customer needs

and available service offerings. Our approach for tackling this issue is based on recent advances in computer and information science, where information about a domain at hand is conceptualized and formalized using ontologies and subsequently represented in machine-interpretable form. The substantive part from our ontology derives from broadly accepted service management and marketing concepts from business studies literature. In earlier work, we concentrated on the service bundling process itself. In the present chapter, we

discuss how to ensure that the created bundles indeed meet customer demands. Experience of Norwegian energy utilities shows that severe financial losses can be caused when companies offer service bundles without a solid foundation for the bundle-creation process and without an in-depth understanding of customer needs and demands. We use a running case example from the Norwegian energy sector to demonstrate how we put theory into practice.

INTRODUCTION

More and more businesses nowadays offer their services via Internet, either parallel to or instead of the traditional physical channels. Statistics show an immense growth in the percentage of households with Internet access that actually shop online; from 27% in 1998 to nearly 50% in 2000 (Xue, Harker & Heim, 2003). Almost 30% of Internet users in the EU use online banking services, with the Nordic countries as leaders; nearly 65% of Internet users in Finland use online banking (Centeno, 2003). Airlines sell more and more tickets online instead of through traditional travel agencies; check-in is performed online rather than at the check-in counter in the airport. Companies as DHL and FedEx allow customers to follow their shipments through a so-called track-and-trace system. Governments are considering online voting. These are all examples showing the dominant and growing role and importance of e-services in a variety of industries.

Online service offerings introduce a new challenge, with which traditional service suppliers do not have to deal. It no longer is sufficient that only service personnel understands customers' needs; if a supplier wishes to offer customized services through an automated online process, software must be able to reason about these customer needs and about the possible service offerings satisfying such needs, so that the whole process can be provided online. The need for an automated

process becomes even greater when a customer wants to buy a service bundle (Grönroos, 2000), a package of more elementary services, offered by multiple suppliers. Each supplier offers its added value, and together suppliers provide a complete answer for a customer need. In such a case, software should be able to decide whether and how to combine services of multiple suppliers into one service bundle.

Our study on creating customer-driven service bundles aims at this new challenge. We present a method for formalizing customer needs and available service offerings, and relate the two to each other. We do not directly address the problem of how to elicit and understand customer needs (although, as we will show, our method helps gain insights into these needs) but focus on the issues of conceptualizing and formalizing customer needs, such that software can configure service bundles satisfying customer needs.

Our research uses well-known and accepted knowledge, concepts, ideas, and terminology from business science literature (Grönroos, 2000; Kotler, 1988; Zeithaml, Parasuraman & Berry, 2001) to describe services from a supplier perspective as well as from a customer perspective. The idea is to conceptualize and formalize well-known business science concepts, not to invent new ones. Additionally, we use practices and ideas from computer science as a means to process this knowledge in order to enable automated support for the bundling process of customer-driven service bundles. One of these practices is the use of an ontology, which is a formal, shared conceptualization of something we assume to exist (Borst, 1997; Quine, 1961), in our case, needs and e-services. The unique contribution of this chapter is in the combination of well-known business science terminology on services with the modeling and conceptualization rigor of computer science.

The work presented in this chapter is not limited to e-services, but can be applied to traditional services as well. Nevertheless, our work is of much greater importance for e-services,

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