

# Chapter 88

## Web Services E-Contract and Reuse

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### INTRODUCTION

The Internet and the Service-oriented Computing (SOC) paradigm (Papazoglou, Traverso & Dustdar, 2008) made the electronic interchange of services possible. Consequently, the scope of Business Process Management (BPM) (Khalaf, Keller & Leymann, 2006) has broadened from intra-organizational service interchange to inter-organizational cooperation. In this new scenario, organizations are concentrating efforts on their main business and subcontracting electronic services (e-services) from partners. Business processes that cross organizational borders are more complex, thus a simple definition of the process is no longer enough to ensure trust. An electronic contract (e-contract) is necessary to define the rights and obligations of

each involved party and monitoring of business process execution becomes mandatory.

The current complexity involved in e-contract establishment may hinder new business partnerships. Major issues involved are: the great amount of information necessary for e-contract establishment; the increasing number of parameters to be considered; the potential long-duration of electronic negotiations; and, the involvement of different profiles (business and development teams) of distinct organizations. Solutions involving information structuring and reuse are required to tackle these issues. This chapter aims at: (i) providing an overview on e-contracts and WS-contracts; (ii) pointing out existing problems related to contract negotiation and establishment; and (iii) presenting existent solutions for e-contract establishment, mainly related to information reuse.

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This chapter presents a two-level e-contract metamodel. The first level represents the e-contract at a higher level of abstraction, including common contract parts such as: parties, e-services, business process and QoS attributes; and the relationships between them. The second level represents a possible WS-contract implementation which uses specification languages as WSDL, WS-BPEL and WS-Agreement (Fantinato, Toledo & Gimenes, 2008). This metamodel is designed to promote the reuse of e-contracts during e-contract negotiation and establishment taking into account contract templates.

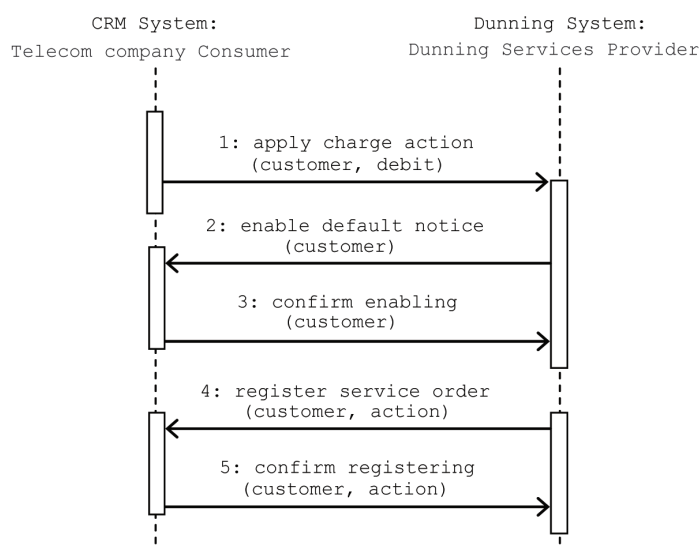
## BACKGROUND

An ordinary contract is an agreement between two or more parties interested in creating mutual relationships on business or legal obligations. It defines an activity set to be carried out by each party, which must satisfy a set of terms and conditions – the contractual clauses. An e-contract is an electronic document (Marjanovic & Milosevic, 2001; Hoffner et al., 2001) used to represent an agreement between partner organizations carry-

ing out business using the Internet, in which the negotiated services are e-services. The e-contracts are therefore used to describe details of the supply and the consumption of e-services within a business process, including Quality of Services (QoS) (Sahai, 2002; Menasce, 2002) levels agreed between the parties.

A telecommunication company, for instance, would need an e-contract as it may use e-services from partner organizations such as collection or dunning companies. To provide services to its final customers, a telecom company, through its telecom system, needs to use e-services provided by partner organizations systems, thus creating an inter-organizational business process. Each party provides a set of e-services to be used by another party. The terms of an e-contract are negotiated and then established to define the details about the business agreement. A dunning company can provide a series of e-services to a telecom company, such as services related to: applying charge action, reverting charge action application, irregular checks management, debts controlling, and charges and discounts applications. On the other hand, the telecom company can also provide some e-services to the dunning company, such as

Figure 1. Business scenario for the telecom context



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