

Distribution Concerns in Service-Oriented Modelling

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ABSTRACT

Service-oriented development offers a novel architectural approach that addresses crucial characteristics of modern business process development such as dynamic evolution, intra- and inter-enterprise cooperation, and distribution/mobility. In previous papers, we have shown how the mechanisms that regulate the relationships, functioning and cooperation of business activities in such architectural models can be externalised from business rules in terms of connectors that can be superposed dynamically on stable core business entities. That is to say, we focused on what, in the literature, has been called the “service composition layer” of service-oriented architectures or, for short, their “composition logic”. Our emphasis in this paper is on the distribution aspects: we show how a corresponding “distribution logic” can be defined in terms of another set of architectural primitives that address the way business rules depend on “locations”. These primitives address what are sometimes called “business channels” (ATMs, PDAs, Pay-TV, Internet, inter alia) as offered in typical contemporary ICT-infrastructures with substantial added-value to business processes. We argue that interacting (core) business entities located at or endowed with such ICT capabilities should be modelled in a way that separates the composition from the distribution logic so that business interactions can be understood and evolved in a location-transparent way. Our approach is based on a mathematical model that we have recently developed for modelling context-aware interactions. An example from banking is used for illustrating its applicability.