

iXML: a process-pluggable ADL for supporting architectural analysis in component-based systems

ABSTRACT

Component-based software development (CBD) is an architecture-centric process that relies on the integration of pre-fabricated software components to construct systems. Architecture plays a central role in CBD by providing a means to document system development, verify the integrity and adequacy of component compositions, and to manage change. Architectural analysis can provide an effective and relatively low-cost mechanism for checking design constraints and improving the quality of a component-based system. Architecture description languages (ADLs) offer a potential mechanism for supporting architectural analysis in CBD. However, current ADLs vary markedly in their modelling notations, the kinds of entities they describe, the properties and relationships they express about the entities, and the analysis that may be conducted on the entities. This paper presents iXML ADL, a language-independent scenario-driven architecture description language, to support architecture analysis in CBD.

Keyword: Component-based software engineering; Architecture description language; Quality concerns; Software evaluation; XML