Enabling interoperability of STEP Application Protocols at meta-data and knowledge level

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ABSTRACT

There are numerous proposals worldwide for the representation of data models and services for the main business and manufacturing activities. The ISO10303 STEP has developed more than forty standard Application Protocols for product data representation, and they reflect the consolidated expertise of major industrial worldwide specialists working together for more than twenty years, covering the principal product data management areas for the main industries. However, these standards are focused on product data representation. A framework to enable them to interoperate at meta-model and knowledge levels permits the reuse of this existing expertise, extending its capabilities in complementary application domains, like advanced modeling tools, knowledge management and the emergent semantic web technologies. This paper proposes a framework for the development, usage and extension of integrated data and knowledge models, using as a reference existent standard-based protocols. The work results from the research and development completed by the authors during the last few years under the umbrella of a cluster of international projects.

1. INTRODUCTION

When searching for integrated product and services, and considering their life cycle, enterprises are facing a major problem regarding the explosion in the number of heterogeneous interfaces and data models that software applications need to handle (Ducroux, 1999) (Cofurn, 2001) (ATLAS, 1995) (e-Construct, 2000) (PDES Inc., 2002) (SUMMIT, 1998) (Jardim-Goncalves, 2001a). For all software applications to integrate and achieve compatibility in interfaces and data, each application must develop one dedicated translator for each normally incompatible application it would like to operate. This is a problematic situation considering the effort required to develop each