Markup Meets Middleware

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Abstract. Research into software architectures has traditionally addressed architecture description languages and architectural styles. The industrial focus is on middleware-based approaches to software architecture. Middleware is layered between applications and network operating systems and aims to resolve heterogeneity and distribution in a transparent way. We present an architectural style that integrates real-time financial data feeds and identify a judicious combination of object middleware and markup languages that is suitable for the implementation of the style. In this combination object middleware implements reliable data transport and markup languages, particularly the eXtensible Markup Language (XML), are used to express semi-structured data in heterogeneous representations. We discuss the need for semantic transformations between different representations and demonstrate how they can be achieved using markup technology. We present performance and scalability measurements, which show that the combination of object middleware and markup languages scales to the requirements that are, for example, expressed in the finance industry.