Web Services—Moving towards an Agile Web

Michael Stal

Today, many Web-based products and software systems must continuously evolve in E-Time. Nonetheless, they must be easily changeable, extensible, and reveal many other non-functional properties. The question arises how software systems can be prepared to cope with these requirements? Conventional applications are driven by a specific set of requirements that is stable during development, at least in theory. Applications may be extended after their rollout, but their usage context is mostly unchanged. This approach doesn't work anymore for a Web-based world. Here, new applications must be developed with change and integration in mind. This requires a more framework-like approach where the same applications may participate in different contexts. To support this kind of flexibility, we need to increase entropy. That means, applications shouldn't make too many assumptions a priori where they run and how they interact. Everything should be loosely coupled. Meta-information should be decentralized. For this purpose, applications need to resort to standards and minimize dependencies on other applications. This does not only hold for inter-application interaction, but also for intra-application boundaries. Thus, we should partition applications into decoupled services we can compose to completely new applications previously not anticipated. In other words: we need agile software technologies for an agile world. What we finally get is a world of services that interoperate and interact with each other using Web-based standards. Finally, we have reached the universe of Web Services and Web-based middleware.

Michael Stal works as a Senior Principal Engineer for Siemens Corporate Technology where he is head of the Middleware & Application Integration Team. His main research areas include Object-Oriented Middleware, Patterns, Software Architecture, Web Technologies, and Component-based Software Development. Michael is Siemens-representative at the OMG, and former member of the C++ standardization working group X3J16. He is co-author of the books "Pattern-Oriented Software Architecture – A System of Patterns" as well as "Pattern-Oriented Software Architecture - Vol. 2: Patterns for Concurrent and Networked Objects". In addition, he serves as editor-in-chief of the German Java Spektrum magazine. Michael has published articles in many magazines and given talks at many conferences world-wide.