The Essential Components of Software Architecture Design and Analysis

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Abstract

Architecture analysis and design methods such as ATAM, QAW, ADD and CBAM have enjoyed modest success in recent years and are being adopted by many companies as part of their standard software development processes. They are used in the software lifecycle, as a means of understanding business goals and stakeholder concerns, mapping these onto an architectural representation, and assessing the risks associated with this mapping. These methods have evolved a set of shared component techniques. In this talk I will show how these techniques can be combined in countless ways to create needs-specific methods. I will demonstrate the generality of these techniques by describing a new architecture improvement method called APTIA (Analytic Principles and Tools for the Improvement of Architectures). APTIA almost entirely reuses pre-existing techniques but in a new combination, with new goals and results. Lastly, I will exemplify APTIA’s use in improving the architecture of a commercial information system.

Biography

Rick Kazman is a Senior Member of the Technical Staff at the Software Engineering Institute of Carnegie Mellon University and Professor at the University of Hawaii. His primary research interests are software architecture, design and analysis tools, software visualization, and software engineering economics. He also has interests in human-computer interaction and information retrieval. Kazman has created several highly influential methods and tools for architecture analysis, including the SAAM (Software Architecture Analysis Method) and the ATAM (Architecture Tradeoff Analysis Method). He is the author of over 100 papers, and co-author of several books, including “Software Architecture in Practice”, and “Evaluating Software Architectures: Methods and Case Studies”.