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MATTI TAHVONEN: Evaluating Software Architectures - Case IT Mill Toolkit

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IT Mill Toolkit is a GUI library for Java programming language developed by Oy IT Mill Ltd. Originally the library was called Millstone and during this thesis it was again renamed as Vaadin. It is used in web applications, but it abstracts away the web platform. When web technologies developed and Ajax style programming became more common, there were big changes expected for the architecture. A quickly coded Ajax terminal adapter was written for version 4, but its maintenance and extensibility was soon discovered to be inadequate.

In addition to the burden by legacy code, it was the quickly engineered client side code written in JavaScript that caused the greatest issues. Bad code quality, non-documented API and varying conventions caused bugs and expensive maintenance. The same issues made it impossible for third parties to create extensions causing uncertainty when choosing an UI library.

For the next major version the issues needed to be solved in a way or another. This thesis discusses motivations for the architecture renewal, the approaches considered and the final architecture of the IT Mill Toolkit 5.

The renewal was done without a systematic evaluation of the architecture, mostly by feeling and instinct of the development team. Scenario based architecture evaluation methods are a way to test suitability of an architecture without a need to implement it. In this thesis one of these methods is tested against the architecture of IT Mill Toolkit 5. The suitability of these methods is estimated by comparing evaluation method's results to the actual experiences collected after the implementation.

Keywords: Architecture, Evaluation, ATAM, SAAM, ARID, IT Mill Toolkit, Vaadin