

Title of Paper

The Use of Behavior Engineering for Early Test Estimates

Presenter/Company

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Instructional Skill Level

Introductory Intermediate Advanced

Target Group

Systems Engineers, Test Engineers

Key Points

- Requirements Engineering
 - Software Testing
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Abstract

Traditional Requirements Analysis requires the individual to review a requirement for attributes such as testability, completeness, and correctness. Behavior Engineering requires an individual to follow a simple process transform a single requirement into a semi-formal graphical language. The simple use of this language call Behavior Modelling Language (BML) forces an individual to have a paradigm shift when reviewing, analysing, and through BML model an individual requirement. The major benefit from this paradigm shift is the requirements engineer does not have to rely on personal experience, expertise or education level to transform a single requirement from natural language text into a BML model. The resulting BML model of a single requirement when integrated with multiple requirements presents a model of units, subsystems, and finally a complete system.

The models developed perform several functions identification of requirement issues, a behaviour model or architecture of the natural language requirements, a logical physical architecture base upon the written requirements, a set of preliminary use cases, and set of preliminary test cases.

This presentation will describe the novel methodology Behavior Engineering to perform Requirements Analysis The presentation will describe Behavior Engineering, the model language BML and the performance of Behavior Tree Analysis on the resulting model. This presentation will explain the business results in identifying requirements issues from a non domain expert and a domain expert for a large defence system. In addition, we will show that BML significantly increases issue identification compared to traditional Requirements Analysis.

We will pose that through Behavior Engineering and the development of Behavior Trees and Component Trees using BML a requirements engineer develops a list of issues, a preliminary physical and logical architecture and preliminary use cases instead of just a list of issues.

Developing these issues, architecture and uses case during the bid phase of a project presents several benefits for a bid team. This presentation will demonstrate how BE, BML and the resulting model provides a Test team the with a set of issues a, a preliminary architecture and use case provides significant information in developing early preliminary test cases, development of a more complete test plan and improved cost, schedule and resource estimates for a proposal.

Biography

Michael Larsen is a Systems Engineer for 10 years. Mr Larsen has worked for organisations in defence, research and development, software and telecommunications. During the last 10 years he has performed requirements engineering, development and testing for a variety of systems from the small and complex as communications DSPs, real-time embedded software, GPS to large and complex systems such as UAVs, telecommunications systems and defence systems. Mr. Larsen served in the United States Navy as an Electronics Technician. Upon leaving the Navy, Mr. Larsen attended the University of Texas at San Antonio receiving a BSEE. From 1998 to 2001 Mr. Larsen worked for Southwest Research Institute as a research engineer working on UAVs for a diverse set of customers. Mr. Larsen moved from the United States in 2001 and joined Motorola and for the next six years as a Systems Engineer and had the opportunity to perform requirements engineering, software engineering and test engineering for a GPS chipset and government Telecommunications Network. Mr. Larsen currently works for Raytheon Australia working on various defence contracts in developing Bid Proposals and Requirements Engineering especially requirements analysis.

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