

14E - Utilizing Design of Experiments to Reduce Software Testing Cost in the Financial Services and Information Technology (IT) Industries

Presenters

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Session Summary

Software testing costs the financial services industry hundreds of millions of dollars annually. In addition, conducting tests takes multiple months, delaying time to market of key technologies. In the current economic environment, several financial services firms are looking for ways to reduce the cost of testing and the time to market, while ensuring that defects are not passed onto the customer. However, due to the heavy cost of field failures and regulatory concerns, firms are very reluctant to change their standard testing processes.

This paper describes the change management process, case studies, and basics of the OA-based testing process. The session addresses the following issues:

- Overview of the OA based testing methodology
 1. The fundamentals and history of OA's
 2. How to utilize OA's for software test planning
 3. The advantages OA's provide in comparison to other test planning processes
 4. Identifying root causes of failure
 5. System of systems testing and interoperability testing
- Case study of a mainframe migration test of an Auto Insurance Claims Processing system
 1. Overview of the standard business testing process for mainframe migration
 2. How OA based testing methodology was applied
 3. Comparison of the results
- Case study of a system upgrade test for a Property and Liability Home Fire policy quote system
 1. Overview of the standard business testing process used for the Home-Fire system
 2. How OA based testing methodology was applied
 3. Comparison of the results
- Summary statistics for side-by-side implementations across multiple financial services institutions and organizational units
 1. What type of savings and benefits to expect by transitioning to OA based test planning
 2. Comparison of number of test cases, defects detected, and total labor effort
- Lessons learned

About the Presenters – Kedar Phadke and Dr. Madhav S. Phadke

Kedar Phadke, Vice President of Phadke Associates. Phadke Associates is a global consultancy and software company specializing in statistical tools for improving testing and design productivity. Kedar has a MS in Statistics, MS in Management, and a BS in Economics from the Wharton School, University of Pennsylvania.

Dr. Madhav S. Phadke is founder and President of Phadke Associates, Inc. Dr. Phadke is an ASQ Fellow and the author of the first engineering textbook on Robust Design Methods in the US, *Quality Engineering Using Robust Design*. He holds a PhD in Mechanical Engineering and an MS in Statistics from the University of Wisconsin in Madison, an MS in Aerospace Engineering from the University of Rochester, and a BTech in Mechanical Engineering from the Indian Institute of Technology in Mumbai. Prior to founding Phadke Associates, Dr. Phadke was a manager at AT&T Bell Labs, a visiting scientist at the IBM Watson Research Center, and a Research Associate at the Army Math Research Center.