Agenda

- Intro
- Mobile Computing: Driving Change in the Testing Business
- Key Differentiators to Business As Usual
- Resulting Challenges: Multi-Channel-\{Development|Testing\}
- Multi-Channel-Testing: Pragmatic Solutions
- Key Benefits & Open Issues
- Q&A
Intro

At a glance: SQS is the world’s leading specialist in software quality.

The global leader in independent software testing and quality management services – majority of its business in Europe

Financial Times, 21 August 2007

- More than 30 years of prosperous operations
- Over 7,000 completed projects
- The customer base includes 20 FTSE-100 companies, half of the DAX 30 companies and nearly a third of the STOXX-50 companies
- The SQS philosophy is to help our customers improve the quality of their business solutions.

SQS is listed on the AIM London
Cloud and Mobile/Ubiquitous Computing drive some of the biggest changes we have seen in the last decade.

So how does this affect testing?
Key Differentiators to Business As Usual

**Mobile Testing differs from traditional testing in four key areas**

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**The Mobile Quality Fingerprint**
- Characterized by: Security, User Experience, Efficiency, Reliability
- Requiring different priorities and testing techniques

**The Mobile Test Items**
- Characterized by: Software delivery, changing networks, etc.
- Requiring different test cases, test data, test environments and test tools

**The Mechanics of the Mobile Ecosystem**
- Characterized by: Short innovation cycles, delivery to tight schedules
- Requiring highly systematic yet nimble project and test management approaches

**Multi-Channel S/W Development and Testing**
- Well, we’ll cover that in a second…
Resulting Challenges: Multi-Channel-{Development|Testing}

What is Multi-Channel about?

- Hundreds of Devices
- Dozens of Target Platforms
- Multiple Distribution Channels
The term multi-channel development (MCD) characterizes the act of developing software products for distributing their value-add through multiple different channels with identical subsets of functionality, resulting in a potentially large number of target platforms.

A set of software-intensive systems that share a common, managed set of features satisfying the specific needs of a particular market segment or mission and that are developed from a common set of core assets in a prescribed way.

(Source: CMU Software Engineering Institute)
Key Benefits & Open Issues

Multi-Channel Testing: From requirements to testware

Requirements

Application

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<tr>
<th>Requirements</th>
<th>High Level Test Cases</th>
<th>Low Level Test Cases</th>
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<td>HL TCs</td>
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Test Execution
Multi-Channel-Testing: Pragmatic Solutions

Multi-Channel Testing: A case for testware product lines

Start

Platform 1.0

Platform update

Platform 2.0

Variant A 1.0

Variant A 2.0

Variant B 1.0

Variant B 2.0
Multi-Channel-Testing case study gives first indication concerning efficiency
Key Benefits & Open Issues

**MCT supports increase in efficiency compared to traditional approaches**

**Benefits**

- Without MCT the combinatorics of mobile channels would render systematic testing uneconomical or even infeasible
- MCT helps alleviate this pain by providing techniques to factor out common requirements and test cases
- Tool support supports practical adoption in the field

**Open Issues**

- Works well only for simple scenarios where multi channel testing implies multi-release testing
- Complex scenarios with problematic interdependencies between channels and, thus, sets of requirements that are not easily mapped to simple categories
Thank you for your attention