Model Based Testing

&

Automated Test Design with Conformiq Qtronic

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Agenda

• Test Design Challenges
• Model Based Testing
• Modeling for Automated Test Design
• Conformiq Qtronic
Test Design Challenges

- Increasing software and system complexity
- Decreasing time to market
- Multi-component integration
- One software platform with multiple configurations

Traditional (manual) test-design methods offer limited capability to meet the emerging testing needs
Automated Test Design Benefits

- Faster Test Design
- Higher Test Quality
- Better Test Coverage
- Easier Test Maintenance
- More Test Re-use

Deliver Better Products to Market
Faster and at a Lower Cost
So What is Model-Based Testing?

- Create a system model
- Generate **executable** test cases **automatically**
- Execute tests and analyze the results
Modeling for Automated Test Design

Model

Tester Synthesis

Synthesized Tester

Real System
The Model is Smaller than the Implementation Because...

It is more abstract than the implementation
The Model is Smaller than the Implementation Because...

It usually models only a part of the functionality.
The Model is Smaller than the Implementation Because...

It does not need to be algorithmically efficient
The Model is Smaller than the Implementation Because...

It does not concern with real-world implementation details.
Conformiq Qtronic: The Solution
The Conformiq Solution

Automatically Generates Tests for Functional Black Box Testing
Conformiq Qtronic Architecture

A test design environment and an automated test generation engine

*Client and Server may run on the same computer
Conformiq Qtronic Integration in Test Process

- Supports input from 3rd party modeling tools
- Generates scripts in many formats:  
  - TCL, Perl, Python, TTCN-3 and more  
  - Customer formats can be easily specified
- Easier Integration with test execution and test management tools
Qtronic Based Automated Test Design Work Flow

1. Create System Model

2. Automatically Generate Test Cases
   - Modify Model or Testing Goals
   - Manage Test Cases

3. Review & Analyze Test Design Results
   - Review & Analyze Test Design Results

4. Configure Test Output Scripter
   - Render Executable Test Cases in the format of your choice
   - TCL, C, C++, Java, Perl, TTCN-3...

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Qtronic Test Design Environment (3 of 4)
Qtronic Test Design Environment (4 of 4)

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<th>Testing Goals</th>
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Deliver Better Products to Market
Faster and at a Lower Cost
Company Overview

- Founded in Finland and now headquartered in the USA with offices in Finland and Sweden
- R&D operations - Finland
- Sales Offices - Silicon Valley, Helsinki, Stockholm
- C2S2<sup>SM</sup> to support customers in successful Conformiq Qtronic use
- Customers
  - Telecom Equipment Manufacturers
  - Enterprise Application Integration
  - Industrial Automation Companies
- Lead Investors
  - Nexit Ventures
  - Finnish Industry Investment Ltd.
Thank You

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Automated Test Design™

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