# SOFTWARE CHANGE IMPACT ANALYSIS TOOL

OBJECTIVE • AUTOMATED • ACCURATE • REGESSION TESTING

"One thing I see too often is test organizations that continue to run the same automated test scripts over and over again. The ability to easily repeat tests is of course a key benefit of test automation. But running more tests, faster, does not produce better software. Better software is the result of running the right tests and continually re-evaluating which tests are the right ones."

- Bob Galen - Agile Test Expert
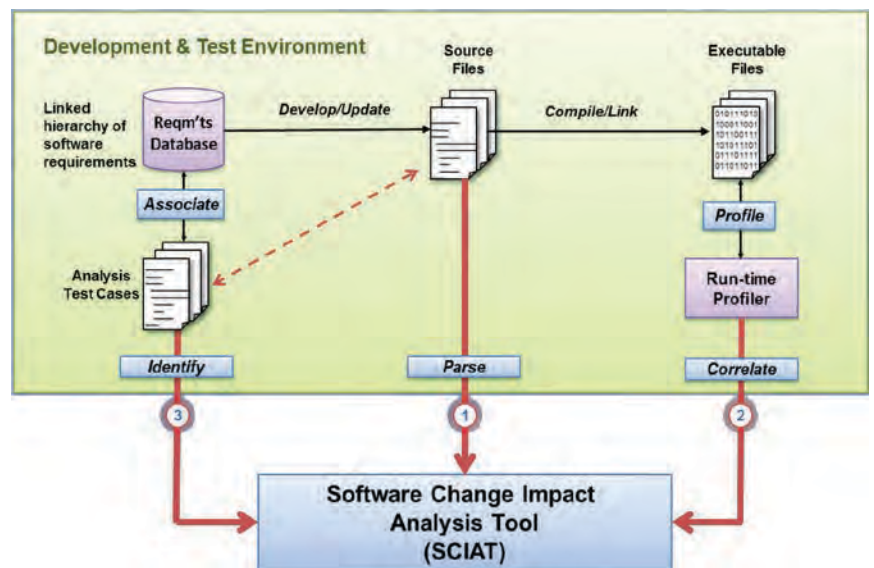
Objective Analysis for Determining Regression Test Strategy

- Automatically collects objective data to determine the right regression tests to run on each new build

- Documents how a given set of tests exercise the changed and impacted code

- Determines what regression tests need to be re-run based on what source code has changed and the impact

- Provides insight on what test changes (new, modified or obsolete) are required if the existing set of test procedures does not provide adequate test coverage on the new build

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Software Change Impact Analysis Tool

"This technology will provide the AEGIS program with an objective and highly automated means to identify what needs to be tested from one software build to the next. For weapon system software, this should give us the ability to more accurately focus testing resources by reducing unnecessary and redundant testing while at the same time ensuring all areas impacted by code changes, whether directly or indirectly, are identified for testing."
— Aegis PMO
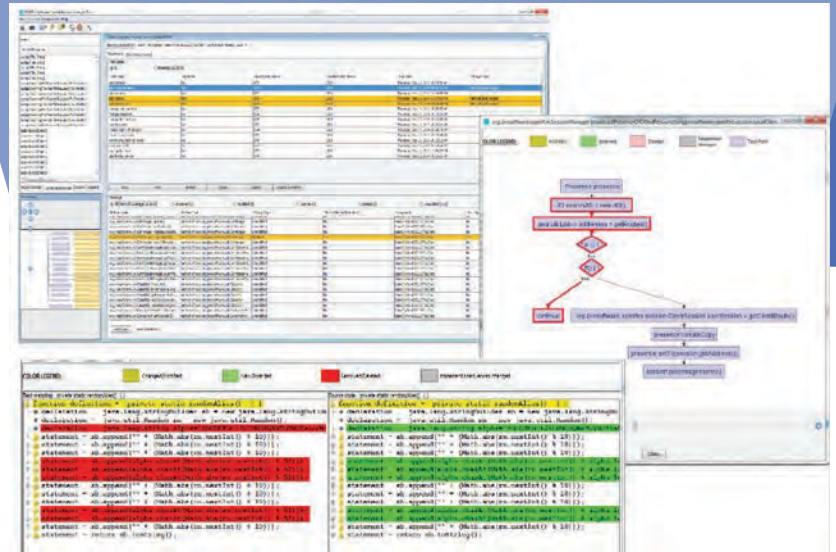
Maximize near term test efficiencies

- Reduce testing overlap
- Focus test resources
- Streamline processes for certificationand acceptance testing

Pilots

- Successfully used at componentand product levels; system level analysis in process
- Analyzed millions of lines of C++ and Java code with automated batch processing
- Multiple simultaneous users supporting simultaneous analysis and viewing of results
- Found to be more accurate and thorough than manual SME process
- Assisted the test leads to reduce the number of total re-tests by over 60%

Features

- Automated analysis of code impact and alignment of tests to code
- Document objective results used for test selection
- Supports test updates eliminating reliance on subjective human understanding
- Requires minimal LOE to refine test strategies and update tests between builds
- Pinpoints areas of impact across the system
- Quickly identify errors early to minimize expensive acceptance testing and impact on test events
- Provides improved quality and reliability
- Reduces time to get updates to the customer

- Supports class structure, control and data analysis
- Middleware analysis designed to support any communication method (e.g. OMG Std DDS)
- Supports C, C++ and Java. Ada support in development. Designed to be able to plug in Parsers for other languages which output OMG standard AST Models for analysis
- Test Profiler interface supports various vendors, quickly integrate new profiler/code coverage tools
- Open Requirement Interface supports common input formats from Excel, DOORS and other sources of requirements

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