Model Based Testing Workbench for TS2®

Maximizing business value through Capgemini's model based testing approach

TS2® is a state-of-the-art card processing system from Total System Services (TSYS®) used to manage credit card portfolios. Processing credit and debit card transactions is very complex and often involves testing customized, inter-related systems so full lifecycle testing for TS2® can be a complicated effort which requires a combination of testing methodologies. Many financial institutions use off-the-shelf test cases or automation frameworks to speed testing efforts. But these pre-built tools and accelerators often require customization to work with a specific implementation which dilutes the cost savings.

To achieve significant cost savings while improving test coverage and quality, Capgemini believes financial institutions must rethink current standards for testing cards processing systems. We understand the criticality of business owners in the testing process. Having a clear picture of the business processes that drive the application under test is key to successful testing efforts. With this in mind, Capgemini has developed a model based testing approach which provides more test coverage at a lower cost than traditional methods.

People matter, results count.

Align your testing efforts with requirements and business processes

Capgemini's Model Based Testing Workbench for TS2 aligns your testing efforts with requirements and business processes. We use storyboards to create models and address the redundancies that often occur in conventional testing. Our models are then used to produce test cases which tie directly to business requirements and functions.

More flexible than traditional testing approaches, model based testing can be used to:

- Achieve sizable savings in testing efforts using a test script design process that is faster and more accurate than traditional methods
- Effectively and efficiently manage requirements by linking test cases to business processes and requirements
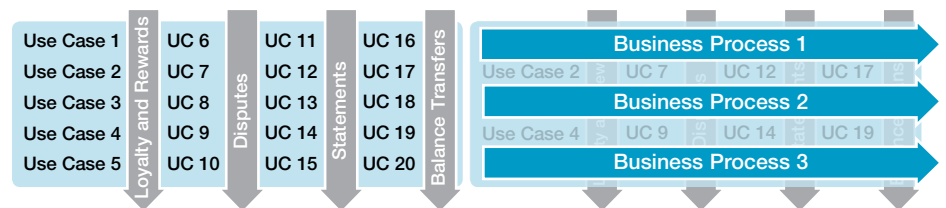
- Support faster reviews due to functional flow modeling
- Reduce defect leakage across testing phases.

Our Workbench was created exclusively for TS2 and covers critical business flows/scenarios across various core TS2 functions.

Addressing the Complexities of TS2 Testing

Testing for TS2 projects combines multiple levels and types of testing including release customer acceptance document (CAD), disclosure testing, and other levels of functional testing. A change in geographies also brings about change in trend.

What are you really testing?

Use Case 1	UC 6		UC 11		UC 16		Business Process 1			
Use Case 2	UC 7		UC 12		UC 17		Use Case 2	UC 7	UC 12	UC 17
Use Case 3	UC 8	Disputes	UC 13	Statements	UC 18	Balance Transfers	Business Process 2			
Use Case 4	UC 9		UC 14		UC 19		Use Case 4	UC 9	UC 14	UC 19
Use Case 5	UC 10		UC 15		UC 20		Business Process 3			

(Loyalty and Rewards)

With traditional test design methods:

- Use cases are written by module
- Context for use cases is in silos
- Test cases follow use cases, so…
- Test cases test modules

Business processes aren't fully aligned with use cases:

- Business processes span many modules
- Test coverage can be incomplete

The way financial institutions use TS2 can vary widely, ranging from full processing outsourced to TSYS using the off the shelf application, to in-house processing using a highly customized version. To address this broad landscape, Capgemini created the Workbench by building base test cases covering all requirements. This enables quick customization for each level of testing. When there is a new TS2 release, customizations are driven through models so test cases can be generated with one click.

An Established Leader in Cards Testing

Testing cards platform requires test professionals with an understanding of the cards business. With experience converting over 80 million accounts, Capgemini has proven experience in supporting platform migrations, upgrades, enhancements and portfolio conversions for in-house and outsourced clients in the United States, Canada and Europe.

Capgemini's Model Based Testing Workbench adapts to the modular architecture of TS2 to focus on business process testing by connecting the thread from test cases to requirements. For financial institutions that outsource cards processing, contractual obligations require dynamic releases, customer acceptance cycles, option worksheet signoffs and disclosures. Our model based testing approach adapts to the different test requirements for each of these obligations and consistently delivers quality tests that focus efforts.

Proven Value

Capgemini's Financial Services testing practice has a proven track record of delivering mid- to large-scale testing engagements across banking, payments, insurance and capital markets domains. Capgemini's global testing team is one of the largest dedicated testing practices in the world and includes:

- 8,200 test professionals globally
- Over 2,700 test professionals focused on Financial Services
- More than 1,000 test professionals certified in ISTQB

TS2 Coverage	
■ ACE – Account Boarding	■ Fees
■ Authorizations	■ Insurance
■ Balance Transfer	■ Loyalty/Rewards/Awards
■ Collections	■ Plastics
■ Convenience Checks	■ Reissue
■ Correspondence	■ Security Fraud
■ Credit Balance Refund	■ Statements
■ Customer Service Adjustments	■ Terms-Interest
■ Disputes and Chargebacks	■ Terms-Payments and DD-Auto Pay

Capgemini
CONSULTING.TECHNOLOGY.OUTSOURCING

" Capgemini's Model Based Testing Workbench is a proven, proprietary solution that includes testing assets, tools and accelerators with a financial services focus. Unlike most testing solutions, our Workbench was created in partnership with Capgemini clients including some of the world's largest financial institutions to help solve their real-world testing challenges. Our solution is focused on financial services applications such as TS2, Guidewire, Calypso, and SWIFT. "

Govind Muthukrishnan
Vice President and Global
Financial Services Testing Leader

IN PRACTICE
Disclosure testing uncovers potential compliance issues for North American card issuer

The Situation
Our client, a large North American bank, needed to update their existing TS2 implementation to address the Credit CARD Act of 2009. At the same time, the bank was in the middle of a large platform migration and TSYS was launching a new TS2 release. This meant our client had very little time to update the system before Disclosures were sent to cardholders. The huge compliance and legal implications left the bank open to lawsuits and regulatory actions if the system was not ready.

Our Solution
Capgemini provided a Rightshore® team with experience in disclosures and TS2 terms testing. Using our Model Based Testing Workbench, the team completed disclosure testing in record time and provided a detailed daily analysis of testing with regards to CARD Act requirements.

The Results
Our client:

- Generated test scenarios with one click using models

- Uncovered several defects that could have caused incorrect implementation of the CARD Act, resulting in non-compliance

- Gained better understanding of requirements through bi-directional traceability and business flow simulation

- Avoided requirement defects leaking into test execution

Learn more about Capgemini's Model Based Testing Workbench for Financial Services. Email us at **fstesting@capgemini.com** or visit **www.capgemini.com/fstesting**.

About Capgemini and the Collaborative Business Experience

Capgemini, one of the world's foremost providers of consulting, technology and outsourcing services, enables its clients to transform and perform through technologies.

Capgemini provides its clients with insights and capabilities that boost their freedom to achieve superior results through a unique way of working, the Collaborative Business Experience™.

The Group relies on its global delivery model called Rightshore®, which aims to get the right balance of the best talent from multiple locations, working as one team to create and deliver the optimum solution for clients.

Present in 40 countries, Capgemini reported 2010 global revenues of EUR 8.7 billion and employs around 112,000 people worldwide.

Capgemini's Global Financial Services Business Unit brings deep industry experience, innovative service offerings and next generation global delivery to serve the financial services industry.

With a network of 18,000 professionals serving over 900 clients worldwide, Capgemini collaborates with leading banks, insurers and capital market companies to deliver business and IT solutions and thought leadership which create tangible value.

For more information please visit **www.capgemini.com/financialservices**

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