



DEPLOYMENT OF MODEL BASED TEST AUTOMATION IN A ENTERPRISE IT PROGRAM

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About the Co-Author (Ish Kumar)



- Ish heads delivery for one of the largest clients of Tech Mahindra in Communications Sector. Over the past 10 years he has led various IT Transformation programs.
- Ish completed his B.E in 1998 from NIT Durgapur. In his career spanning 18 years, he has worked with Wipro and IBM in the past. At Tech Mahindra, Ish has been part of the core team which conceived, strategized and won one of the largest IT transformational program in the organization, providing significant gains to business and clients.
- Passionate about emerging technologies, in addition to heading some of the business critical delivery accounts, he also heads Center of Excellence responsible for creating industry competitive Solutions and Platforms in Testing and DevOps.

The Beginning (The Tech Mahindra Customer)

- Interest in MBT sparked by reading a blog
- Tech Mahindra Customer contacted Conformiq directly and a proof of concept was successfully conducted
- Tech Mahindra Customer's testers were concerned about the process change but testing had been mostly outsourced
- Would Tech Mahindra be able to train and implement fast enough to meet upcoming delivery schedules?
- Could Tech Mahindra manage and coordinate this huge transformational change?
- Could Tech Mahindra find a solution that delivered everything they needed and wanted?
 - Not everyone believed MBT was capable enough

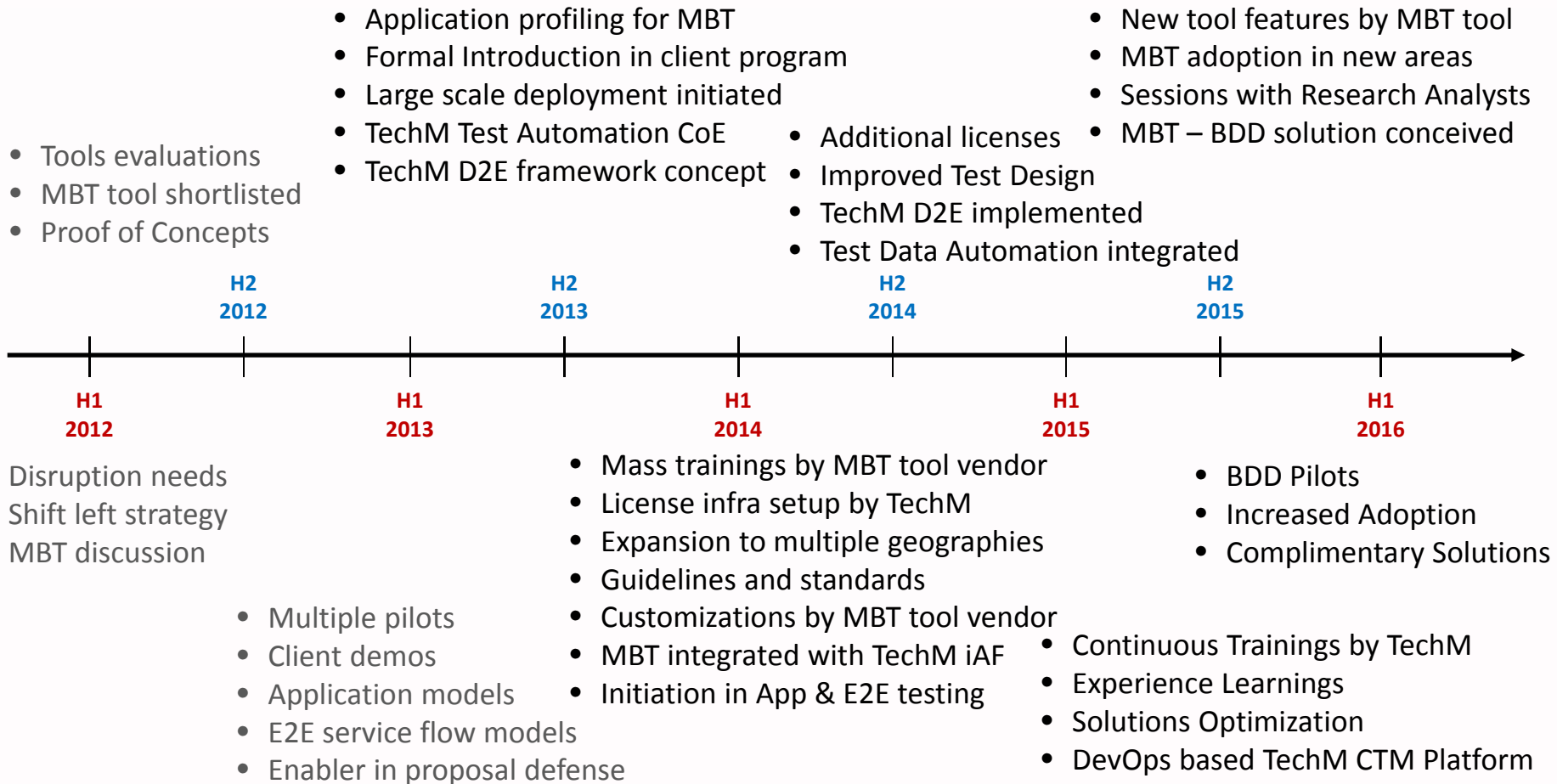
The Beginning (Tech Mahindra)

- Cost pressure in IT Test Service Provider market is high
 - Market is looking for solutions which will enable SHIFT LEFT in automation to allow testers to focus on business requirements
 - Executive management recognized a testing transformation was required to achieve these goals and drove change from the top down
- New solutions are required to ...
 - Reduce cycle time
 - Reduce cost of operations
 - Improve customer experience
 - Improve product quality
- Within 4 years Tech Mahindra matured a framework automating almost all aspects of testing and integrating it with DevOps solutions
 - At the same time changed from “resources” to “technology” thinking

How it Started – Assessments & Evaluations

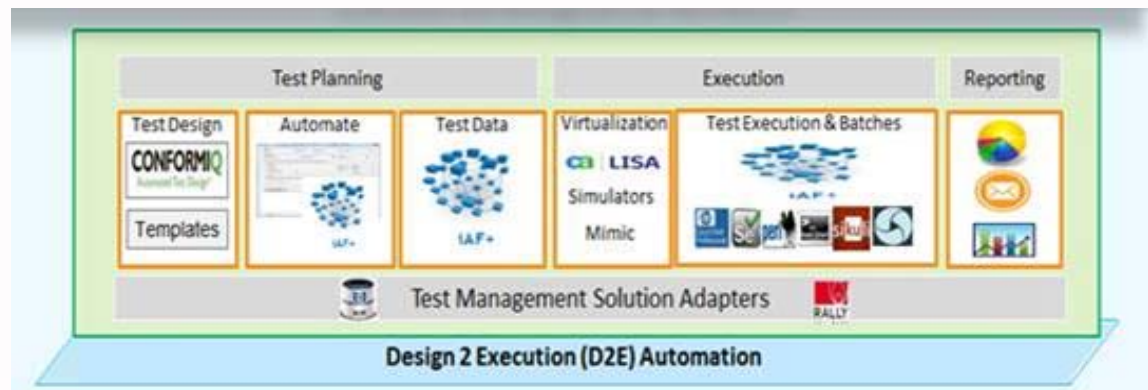
- Tech Mahindra Delivery Teams in multiple locations had to be all convinced
- 9 separate Proof of Concepts (PoCs) were conducted over one year
- Different capabilities and tool interfaces were examined in each PoC
- Rigorous comparisons with current methods were performed
- Test needs were complex requiring a very technically capable tool
- Target was from the beginning to automate everything – from test design through execution
- Integration with their existing SDLC tool chain
- What was the maximum that could be automated?
- Competitive analysis of MBT solutions was conducted by each team

Genesis of MBT in a Enterprise IT Testing Program



Our MBT Test Automation Solution

- Goals:
 - Model requirements based on intended business usage
 - Use COTS products and TechM solutions to automate various aspects of testing
 - Provide a seamless user experience to testers



Automatic Test Design
Test Data Automation
Integrated Test Management

Interface Virtualization
Automated Test Scripts
Continuous Testing

Our MBT Deployment in Numbers

- Deployment in the program during the first year:
 - Number of MBT licenses: **>100**
 - Number of users trained: **>250**
 - Number of user locations: **7 cities/2 countries**
 - Time to full deployment: **10 months**
- Projects tested during the first year:
 - Applications: **20+**
 - E2E Flows: **40+**
 - Models developed: **500+**
 - Test cases generated: **10,000+**

Results Achieved with MBT Test Automation

- Full automation in functional testing during development (waterfall & agile)
 - 70+% Total of Test Design Automated
 - ~65 % Total of Test Execution Automated
 - 25-30% Overall Productivity Gain in Progression Testing

Robust

Distributed
Architecture

Scalable

Over 1 Year of Usage
30+ Applications Hosted

Adaptable

Used by N/W facing,
Middleware, GUI Apps

Business Focus

Model Business Scenarios
Reduce Redundancy

Technology Agnostic

IOS, Android, Java, VB, Perl, Shell,
SOAP, Mainframe, etc.

- MBT-based test automation solved our need for known quality at the speed of development
- Models reduced training time of new Testers
- Enabler towards DevOps based solution [CTM](#) (see [Nelson Hall](#))

Key Take Aways

- MBT deployment
 - Good planning of rollout and on-going support is needed
 - Executive direction and support is critical to overcome with resistance to change
 - Model reuse for increased efficiency is critical but is an acquired skill
 - Skill assessment helps to incentivize testers
- MBT support
 - Establishment of a MBT Center of Excellence is a must
 - Plan training for many “extra” users to deal with tester overturn
 - Continuous on-going best practice workshops are needed as MBT changes the traditional testing process and deployment plans

Key Take Aways (continued)

- People aspect
 - Adoption of MBT is disruptive ... people need time to adopt
 - Keeping ~30% of testing team skilled in MBT is one of the keys to success
 - Demonstration of benefits in one application increases adoption by others
 - Institutionalize continuous trainings
 - Recognize and incentivize early adopters
- Process aspect
 - Establish standards and guidelines aligned with all tools sets
 - Define methodologies for model management and reuse
 - Select & prioritize scope and aligning of team strategy is essential
 - Cooperate closely with tool vendors for new features and integrations
 - Institutionalize regular test reviews based on models

Conclusions

- Model based approach
 - Improved test review effectiveness, requirement traceability and test coverage
 - Enabled early detection of requirement & design issues as well as visual change request impact analysis reducing test design rework efforts
 - Enabled production of standardized test cases across different projects
 - Led to significant improvements in test design efforts for testing E2E flows
- Integration with Tech Mahindra's test automation framework enabled seamless automation and automatic execution of generated tests
- Efforts required for test design & test execution automation have been and are reduced with every release

Thank you for you attention!

Questions?

4th UCAAT

User Conference on
Advanced Automated Testing



BACKUP

Complete Automation of End2End Testing Process

