

Test Optimization using Combinatorial Test Design

AT SCALE IMPLEMENTATIONS OF CTD

Reduce effort

Client: Large Insurance Company

Objective: Reduce cost by reducing test effort

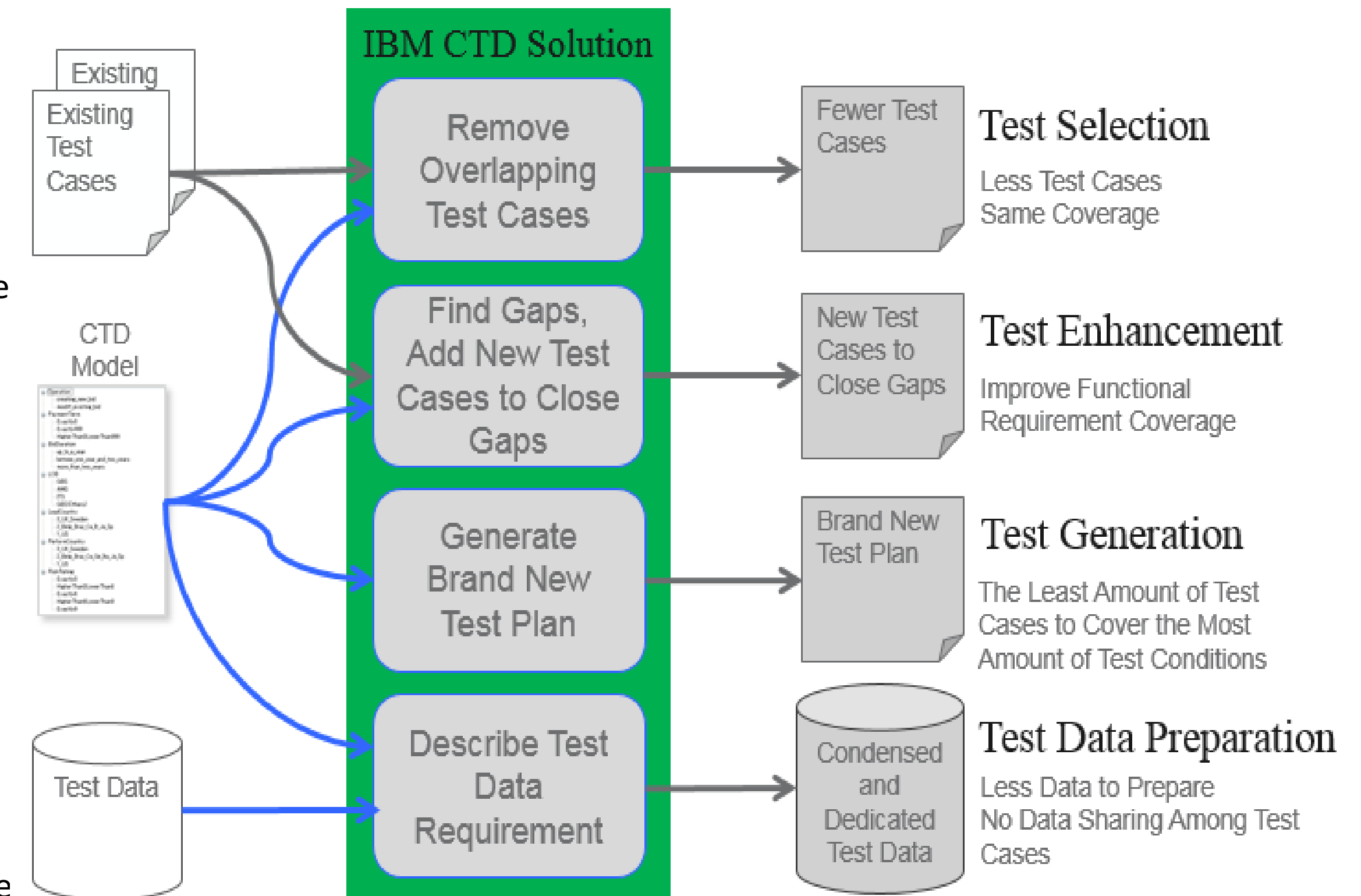
Method: Reduce test effort by optimizing test suites using Combinatorial Test Design

Approach:

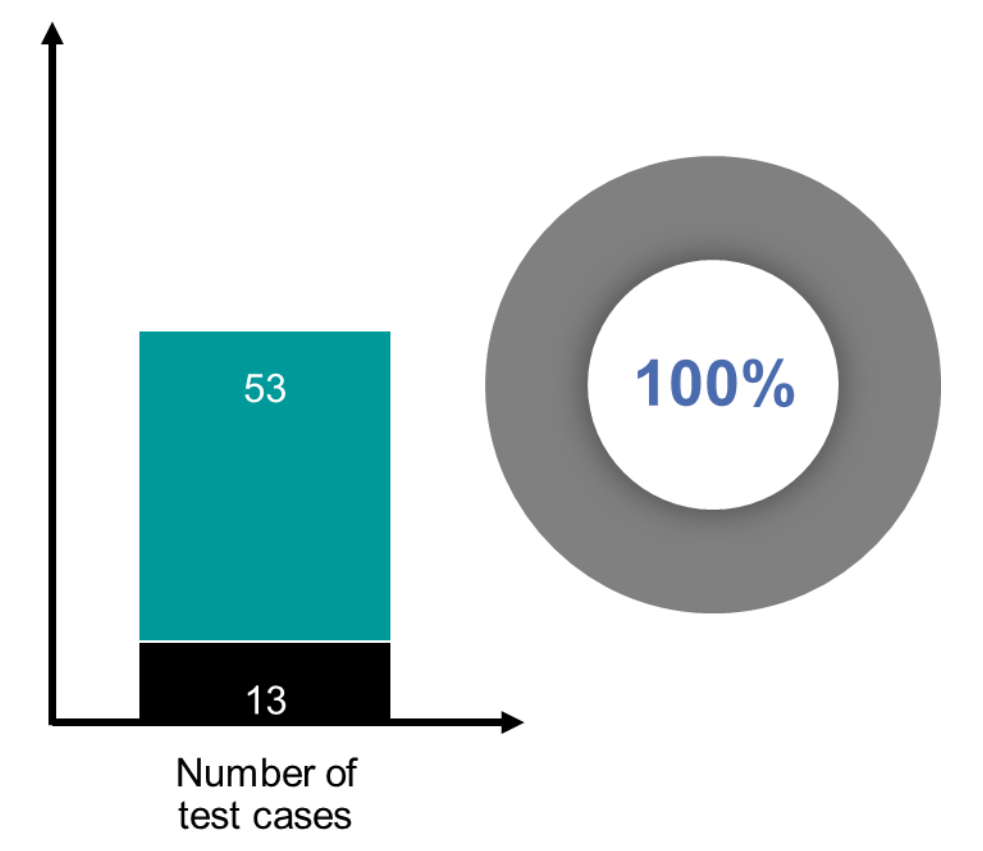
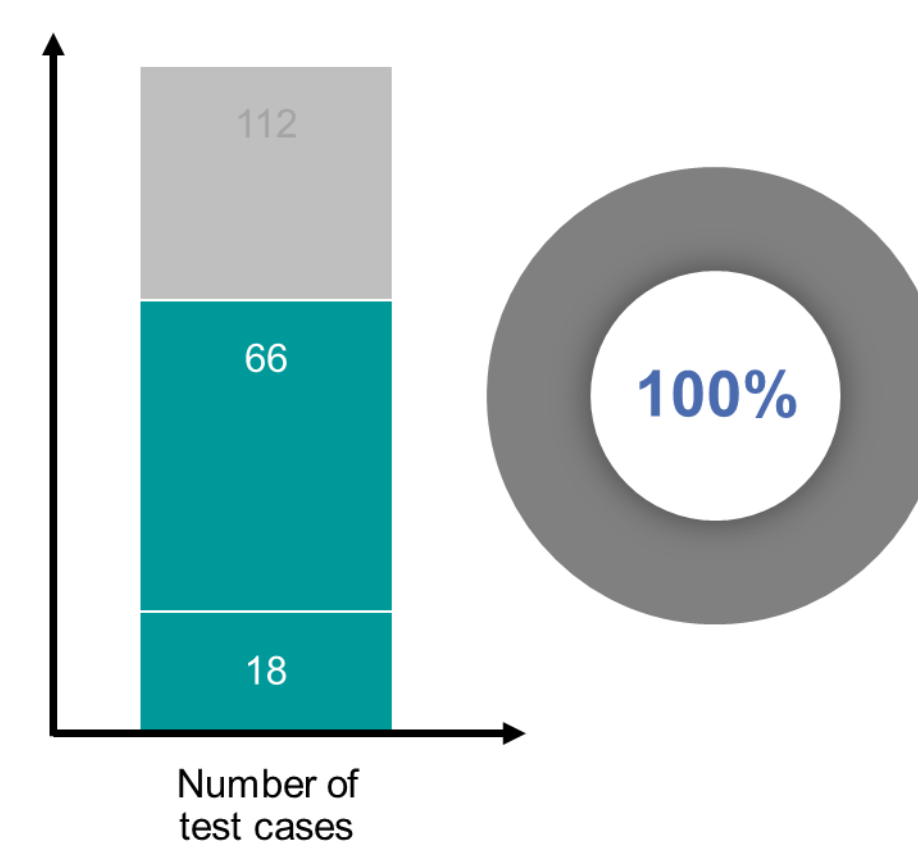
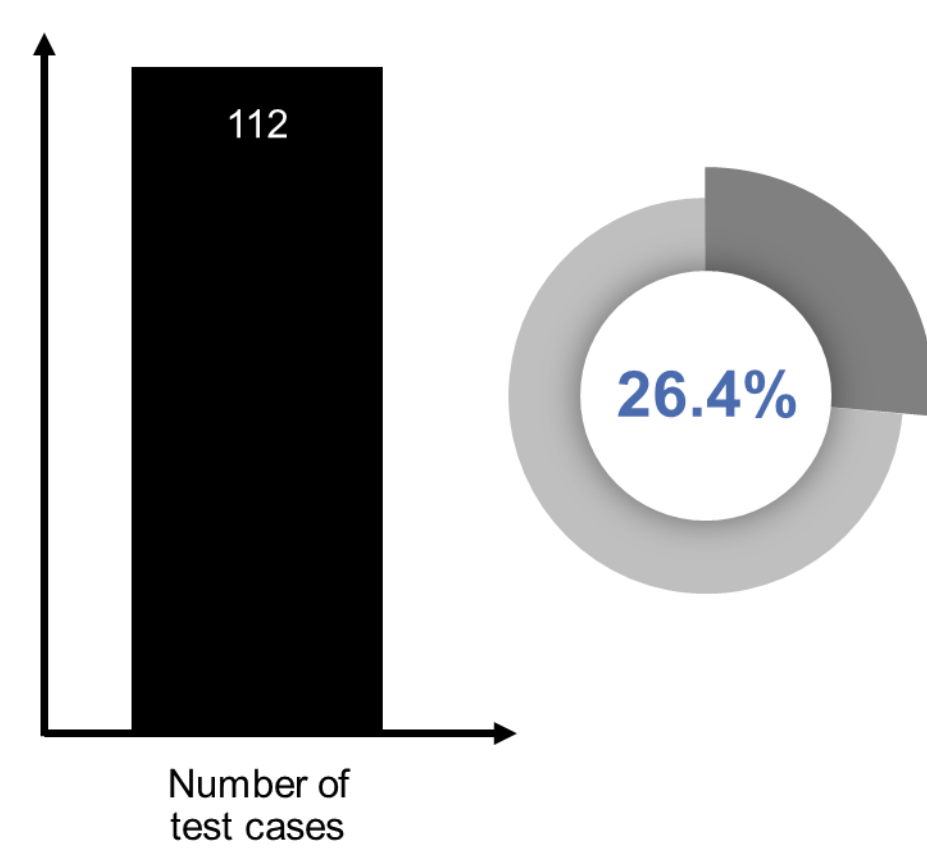
- Targeted reduction of regression test bed comprising over 60,000 test cases
 - Determined effort impact by frequency of usage of tests across release
 - Factored quantum of changes expected in next releases
 - Types and natures of changes
 - Nature of application testing
 - Number of releases
 - Analysis of past defects
- Embedded CTD experts in the team to develop models and build skills in the team
- Focused on regression packs in year one; later added functional test optimization
- Required intense socializing of concepts and results with clients to gain acceptance

Result:

- In year one
 - Created 75 CTD models across regression tests of applications
 - Yielded 32% reduction of test scenarios and 27% reduction of test cases (year 1)
 - 4000 hours of test effort reduced (2 person years savings) for one execution cycle
- Over three years increased test coverage with 150 CTD models
- Currently delivering ~40% optimization, with around 20,000 test cases reduction



TO REDUCE TEST COST



Sample of optimization and coverage results from one model

TO REPLACE RISK BASED TESTING NEEDS

Increased test coverage

Client: Large Auto, Home and Life Insurance Company

Objective: Ensure speed to market with reduced risk of defect leakage

Method: Ensured 100% test coverage with test beds by optimizing test case design using Combinatorial Test Design

Approach:

- Redefined the test design process to include Combinatorial Test Design
 - Started modeling new program requirements using CTD
 - Converted existing tests to CTD models
 - Institutionalized CTD to ensure coverage and savings
- Trained existing team on CTD and provided mentorship of CTD SMEs
- Project team developed the models upfront and experts reviewed models
- Targeted increased test through-put by increased design productivity
 - Incorporated CTD in new test case design (from scratch)
 - Factored a minimal 8 weeks of learning curve
- Early inclusion of client in the design journey to enable greater acceptance

Result:

- Delivered higher throughput of test cases per day (12 TC per day against planned of 8 test case per day)
- Increased throughput savings inclusion of review efforts by 9%
- Delivered 18% test case reduction with 100% coverage
- Enabled increase in business (new test services were commissioned)