



TITAN

Test Suite Optimization technology Experiences so far

CISCO's adoption of TITAN technology

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TITAN at Cisco

- **Starting point**
 - Lots of automated tests 400+
 - Lack of complete overview of test coverage
 - Most tests run on all platforms 8+
 - Suspected heavy overtesting
 - About 4 days to run a complete suite on all platforms
 - Product quality was OK, but it is never good enough!

TITAN at Cisco

- **First step with TITAN (done)**
 - Build a feature model with platform variants in PURE:VARIANTS
 - Tag all tests with feature names
 - Create test export from test management system (QASTATUS) to TITAN
test definition, tags, run statistics
 - Create test suite import from TITAN to QASTATUS
an executable collection of tests (suite)

Experiences & results

- **Feature modelling**
 - Feature modelling isn't simple
 - No complete requirements spec available – current test plan was the closest we had
 - What is a feature?
 - Finding the right level of abstraction takes time
 - Conclusion: Our features had a several dimensions
 - A feature must be tested in many ways using different tests

Experiences & Results

- **1st. Generation TITAN worked as planned (good!)**
- **but..**
 - Feature modeling opened up our eyes
 - The actual product complexity was higher than expected
 - Ongoing testing showed that:
 - A feature must be tested in more variants/ways than we already had!
 - i.e. no point in test set reduction of already incomplete testset!
 - TITAN path is a manual filtering mechanism still
 - Found a safer and faster way of filtering in QASTATUS

Next TITAN generation

- Testplan: Expand the test set – improve coverage
 - Capture the feature variants (or dimensions)
 - Hopefully leads to fewer more flexible tests
 - Add priority
 - Some exec variants are more likely than others
 - Need a smart tester for this!
- TITAN
 - Handle feature variants and priority
- QASTATUS
 - Improve test results filtering for test variants
 - Improve TITAN test suite management and execution
- Seamless TITAN/QASTATUS integration