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INERTIAL
CONSULTING
SOFTWARE TESTING SOLUTIONS

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WHAT IS CONTINUOUS TESTING?

WHO THINKS THEY DO CONTINUOUS TESTING?

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WHAT IS CONTINUOUS TESTING?

Automated Tests Executed Continuously

WHO THINKS THEY DO CONTINUOUS TESTING?

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THAT DOESN'T SOUND QUITE RIGHT???

SOMEQUESTIONS

- What is the difference between continuous integration and continuous testing?
- What is the difference between automated testing and continuous testing?
- What's the difference between continuous deployment and continuous testing?
- What value does continuous testing provide?

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WHAT IS CONTINUOUSTESTING?

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WHAT IS CONTINUOUS TESTING?

- Continuous testing is the process of executing automated tests as part of the software delivery pipeline to obtain immediate feedback on the business risks associated with a software release candidate.

—wikipedia

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WHAT IS CONTINUOUS TESTING?

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WHAT IS CONTINUOUS TESTING?

- automated tests
  software delivery pipeline
  feedback business risks

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CONTINUOUS TESTING IS ABOUT UNDERSTANDING

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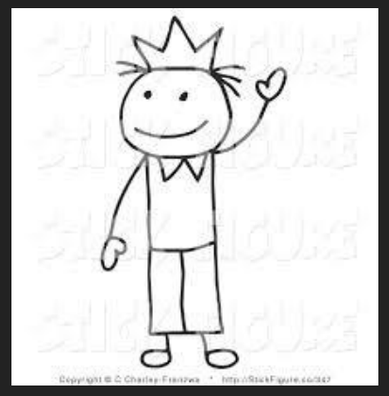

THE STORY OF

TODD

a story that definitely didn't happen

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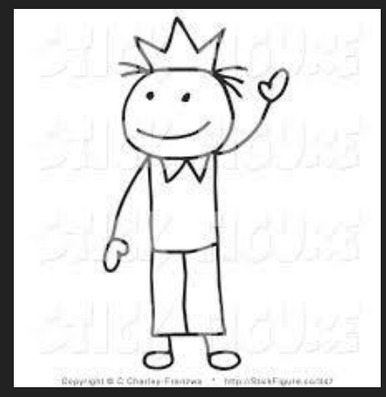
THSIS "TODD"

- Todd is a great cook
- Todd loves animals
- Todd enjoys LARPing on the weekend
- Todd thinks he's brilliant
- Todd is a terrible developer



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OK MAYBE I AM A LITTLE TODD

TODD IS MODFYNG A SERVICE

- It's Friday afternoon.
- Todd is fixing a defect
- While refactoring he discovers some "bad" code and duplicate calls
- Being "brilliant" Todd cleans up the service and removes the sloppy code
- Todd doesn't know the "sloppy" code was implemented as part of a fix for an edge-case defect within the caching layer
- Todd's code gets deployed to the test environment

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TODD'S "FIX" IS DEPLOYED

- QA (being diligent, brilliant, and extremely handsome) runs their automated regression and catches the issue
- "Regression is failing, defect logged"
- After working all weekend, the issue is identified, fixed, and the release passesregression

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ASADENDING

- The release ended up being held up for a low priority defect that only occurs occasionally
- The business wasn't able to make a judgement call because all they knew is 'the regression is failing'
- Everyone had to work over the weekend to meet a key marketing deadline
- A bunch of people quit because "this stuff happens all the time"

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SOWHATABOUT TODD?

Exhaustedfromworkinglate,hewas tragicallykilledinaLARPingaccident.

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ALTERNATELY….

IN A BETTER MODEL

- Developers know immediately when they break something
- All the automated tests map to business requirements
- At any point in time the business knows the status of the release.
- No longer does QA have to “sign-off” on a release, as the quality can be quantified
- QA doesn’t have to manually shepherd a release through each environment
- Todd lives!

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SO WHAT IS IT???

CONTINUOUS TESTING IS NOT

- Kicking off suites of tests manually
- Automating features after they are released
- Additional manual regression testing
- Manual report analysis
- Fragile tests or inconsistent results
- Asking QA if the release is ready

CONTINUOUS TESTING IS

- Automated validation of business requirements
- Easily understandable status reports
- Targeted notifications on failures
- Small, independent automated tests
- Stable, trustable automated tests
- Automatic test execution through CI
- Always knowing which features are working

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THAT DOESN'T SEEM TOO HARD LET'S TRY IT.

Famous Last Words

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THE FIRST BARRIER

GETTING EVERYONE LINED UP

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WAIT…WE'RE DOING WHAT? WHEN DID WE DECIDE THAT?

Literally Everyone

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ORGANIZATIONAL ALIGNMENT

- Meet with key stakeholders across the organization:
  - Architecture
  - Development
  - Quality Assurance
  - Infrastructure (Ops)
  - Product & Business Org
  - Executives

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THE VALUE

EXPLAIN COST AND BENEFITS

- Costs
  - Process Changes
  - Development costs
  - Resource Training
  - Documentation / Meetings
  - Have to keep tests up to date
- Value:
  - Improved environment stability
  - Reduced development time
  - Reduced application release time / cost
  - Lower release risk
  - Improved agility

If all else fails just tell them it's what Apple/Google/Amazon does

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THE SECOND BARRIER

DEFINE WHAT TO TEST

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IF EVERYTHING IS A PRIORITY, NOTHING IS

Somebody famous

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BUSINESS REQUIREMENTS

- Define and prioritize which business requirements to automate
  - Mandatory, high, low, none
- Include automated tests as part of the 'definition of done'
  - What does this mean if they aren't done or are failing?
- Decide as a team what happens when automated tests are incomplete or failing
- Include automated testing as part of the sprint planning and estimation process

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WHAT IS BETTER?

1 TEST THAT COVERS 1000 REQUIREMENTS	1000 TESTS THAT EACH COVER 1 REQUIREMENT

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SMALL TESTS > BIG TESTS

- Ideally each automated test should map to a single requirement
  - Failing tests don't block each other
  - Very clearly shows what is broken, and what still works
- Provides a mechanism to scale (multi-threading)

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AUTOMATED TESTING SUCKS

- Testing tools are inconsistent, hard to use, and specialized
- Invest in a framework:
  - An internally developed library that can be shared across the organization
  - Any tool, any language, any technology
    - UFT, Selenium, TestComplete, JMeter
    - UI, Web, API, DB, etc
    - Java, C#, Python, Ruby, JavaScript, Go

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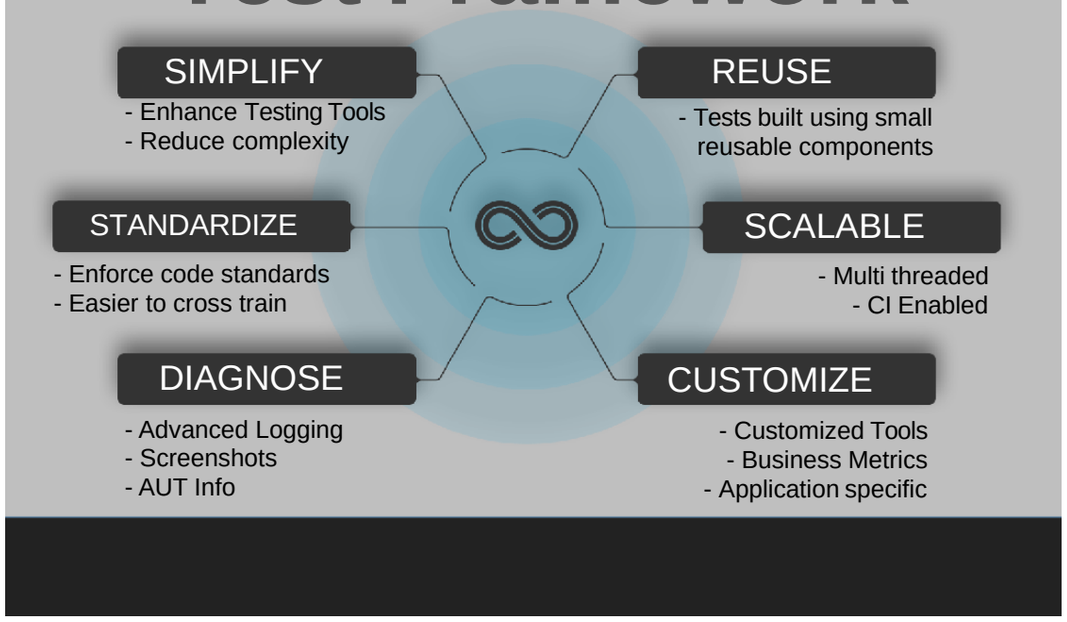
Test Framework



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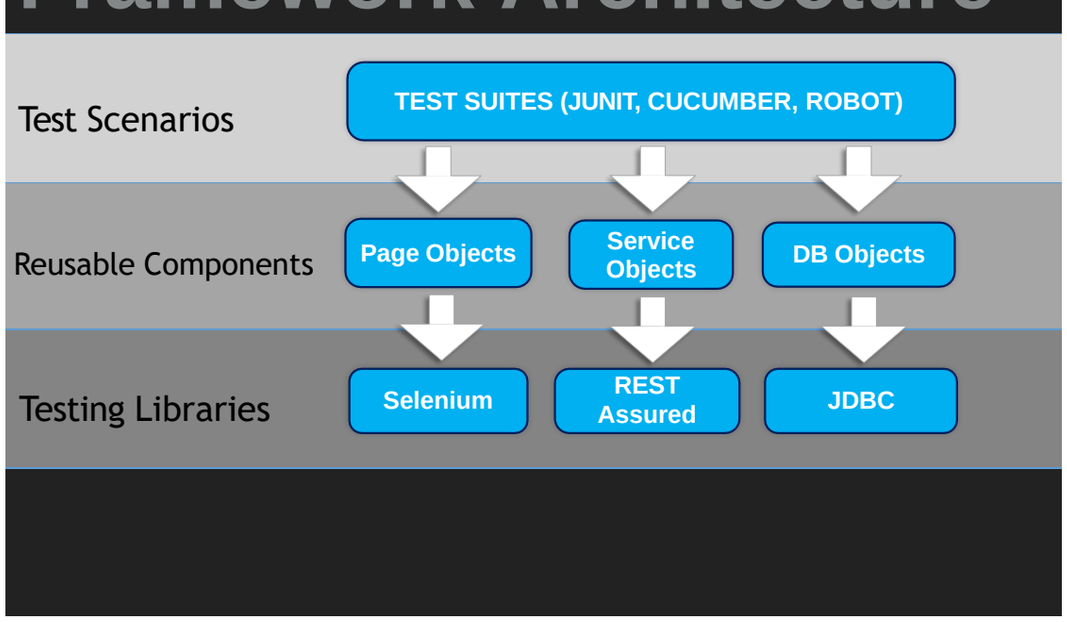
Framework Architecture



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THE FOURTH BARRIER

DATA STAGING

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CONSISTENT AND REPEATABLE DATA IS KEY

- Tests should stage their own test data
  - DB sync's can change over time
  - Test data needs may change sprint to sprint
  - Continuous testing will consume a LOT of data
  - As test suites grow cross-test data issues will appear
- Alternate strategies may be necessary
  - Transactional data can't always be generated on demand
  - May not have access

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API IS OPTION #1

DATASTAGING

- Api's can provide easy ways to stage data
- UI data staging is slow and time consuming
- DB data staging can bypass important business logic

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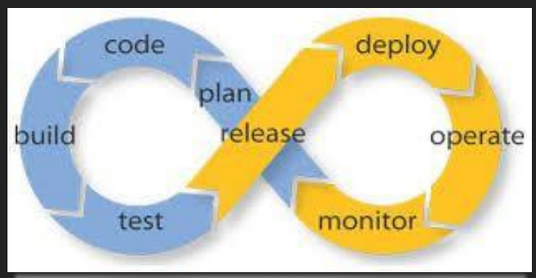

THE FIFTH BARRIER

CONTINUOUS INTEGRATION

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CI IS THE HEART

CONTINUOUS INTEGRATION

- Any CI server will do
  - Bamboo, Jenkins, CircleCI, TeamCity, etc
- Provides a place to execute tests, store the test results, and notify of failures.
- Start with a manual job, and add triggers when ready!
- Allows anyone or anything ability to execute the tests
- Standard XML report structure
- Get Todd a hate of shame

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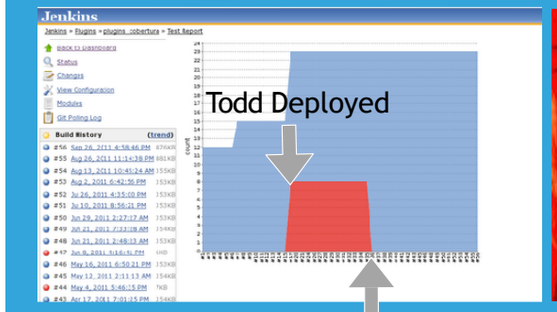
CI INTEGRATION



What did Todd “fix” this time???

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BEWARE OF SPAM

CI SERVER ENABLES NOTIFICATIONS

- Ci servers come with built in notifications
  - Email, IM, Text Message
- Need to have clearly defined targets
  - Notify the developers, not the automation engineers

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PEOPLE NEED TO CARE

- “The tests are failing”
- “Yeah they have been”
- “For how long?”
- “The last few months, we’ll fix them eventually”

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WHEN TEST IS FAIL

- Failing tests need to be fixed or removed
- Impacted teams need to be notified and prioritize fixing issues
- Developers need to be able to quickly understand test failures
- Don’t just comment out the failing code!!!!

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THE SEVENTH BARRIER

RISK IDENTIFYING TESTS

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REQUIREMENT MAPPING

- No one cares about broken tests, they care about broken business requirements
- A requirements traceability matrix can help, but isn't as clear
- Mark or comment automated tests with business requirements
  - Cucumber tags
  - JavaAttributes
  - Comments
- Ideally each test maps to a single requirement

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NON FUNCTIONAL REQUIREMENTS

- Security scanning
- Code Quality
- Performance Testing

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THE FINISH LINE

DEVOPS UNLOCKED

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LASTLY

DEVOPSUNLOCKED

- Continuous Testing enables Continuous Delivery and Deployment.
- Start small and iterate
- Pilot teams can provide proof of concept, and help onboard more teams onto the model

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