DevOps for Defense

October 2018

Agile Deep Dive

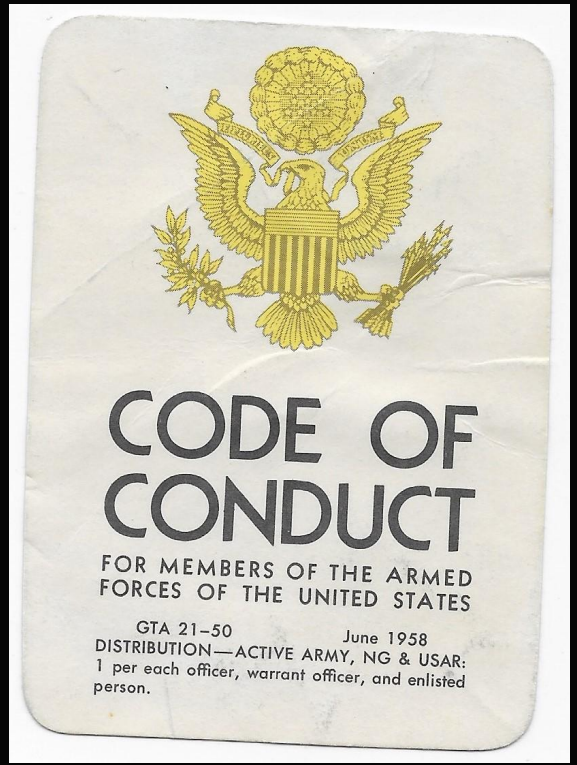
JD Black

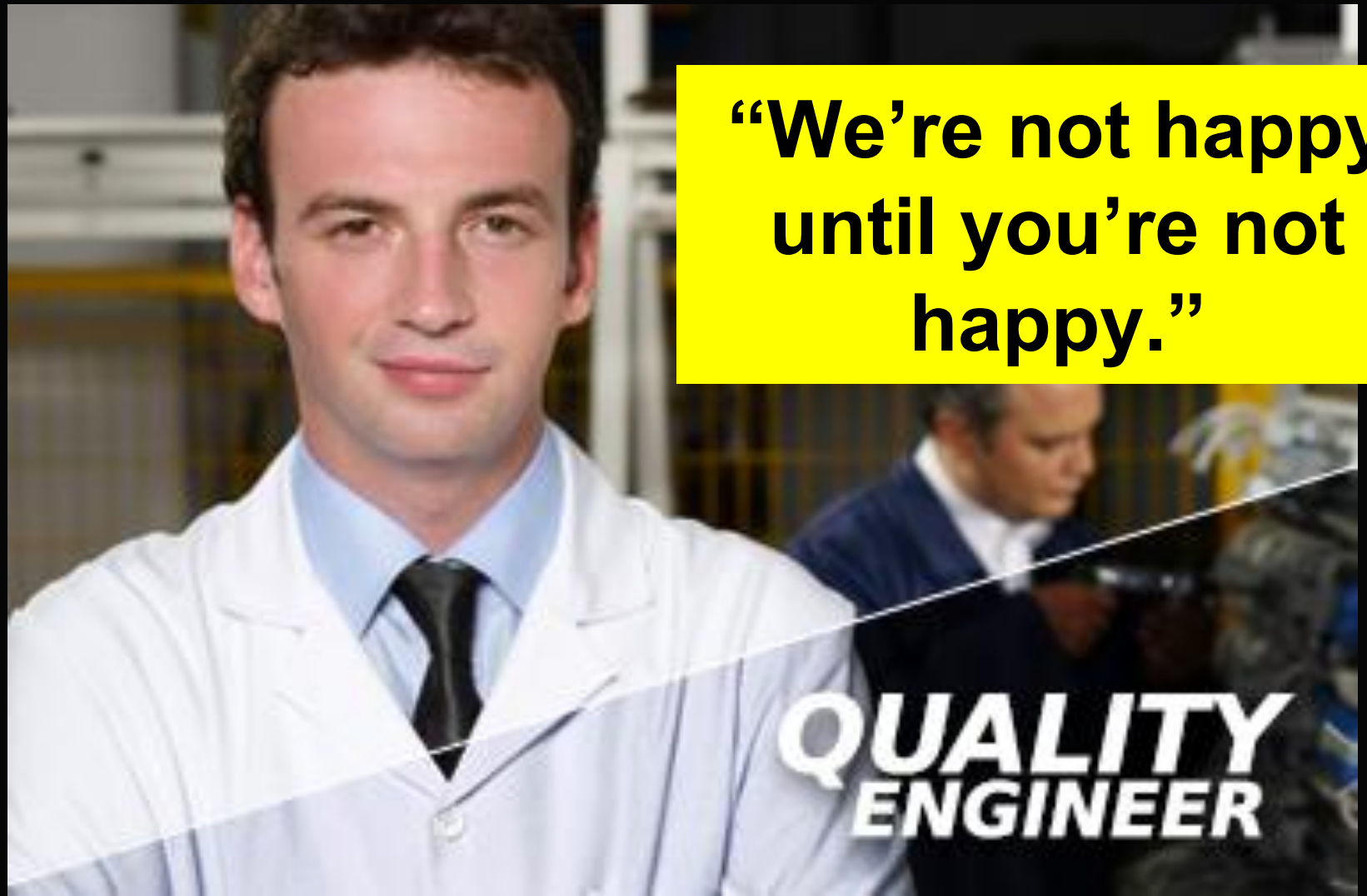
Session 4: Quality

https://www.meetup.com/DevOps-for-Defense/
https://github.com/jondavid-black/DevOpsForDefense
devopsfordefense@gmail.com

DevOps for Defense Meetup: Code of Conduct

- UNCLASSIFIED ONLY!!!!
- Treat each other with respect and professionalism.
- Do not talk about private, sensitive, or proprietary work.
- Do talk about your experiences, needs, desires to improve work in our domain.
- Do share your thoughts.
- Do learn from others.
- Do respect & tip your bartenders!




“We’re not happy until you’re not happy.”
QUALITY
ENGINEER

Quality is the Critical Dependency!

- Cannot Optimize for Speed without Quality.
  - Rapidly delivering low quality releases does not achieve value.
- Cannot Optimize for Cost without Quality.
  - Rework due to quality escapes is more expensive.

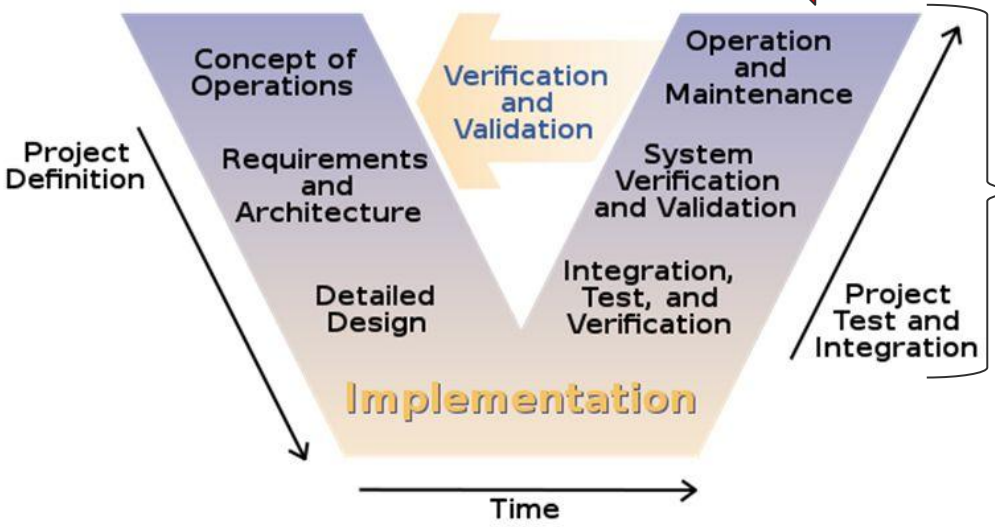
Today's "Right Way"

University of Southern California
Center for Systems and Software Engineering

V-Model

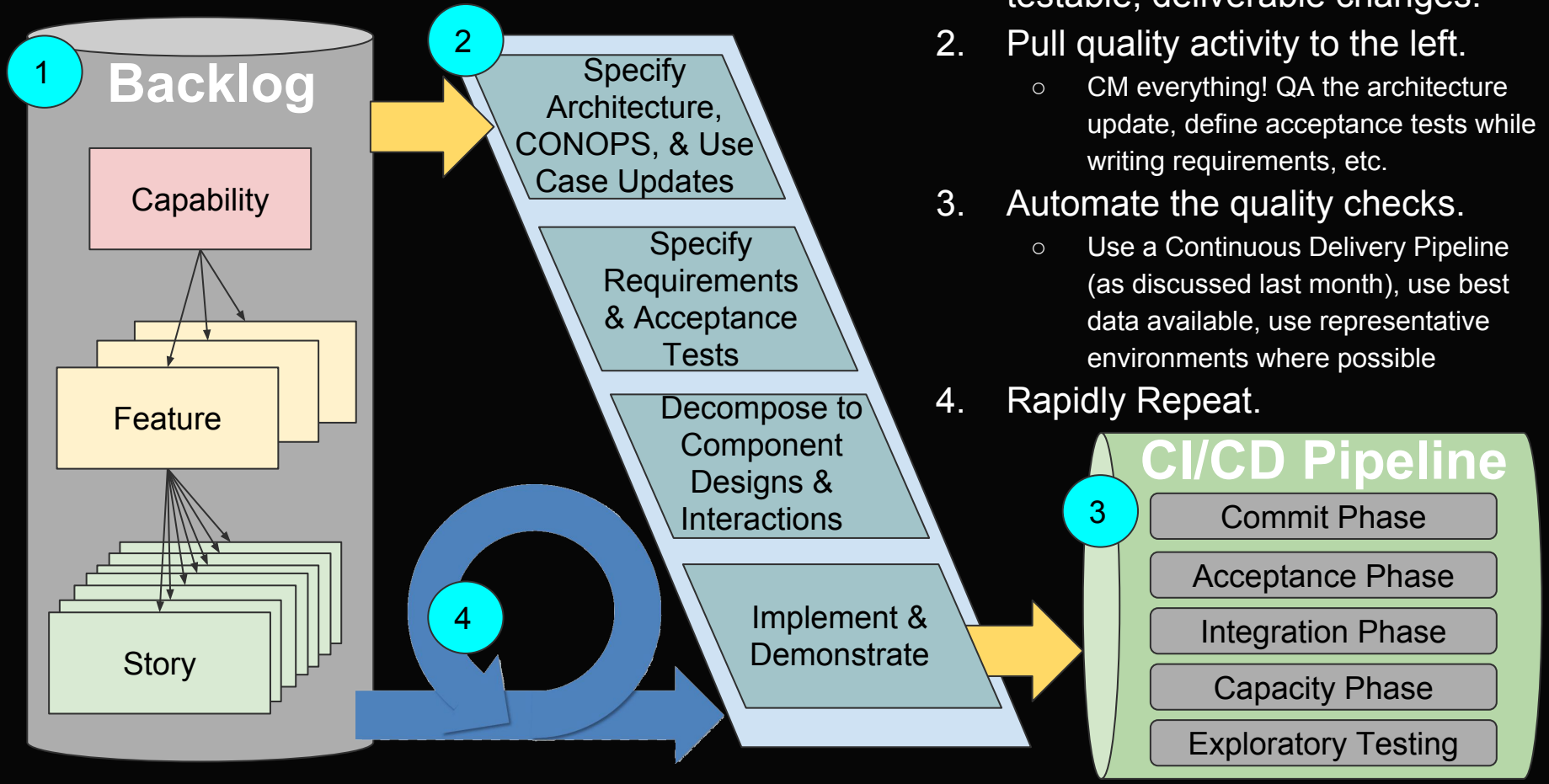
- Extension of Waterfall model, but V up to pair development with testing
- Widely used in systems engineering
- Does not explicitly shown the concurrent engineering
- Challenges in supporting evolutionary development

Assumes too much up front knowledge



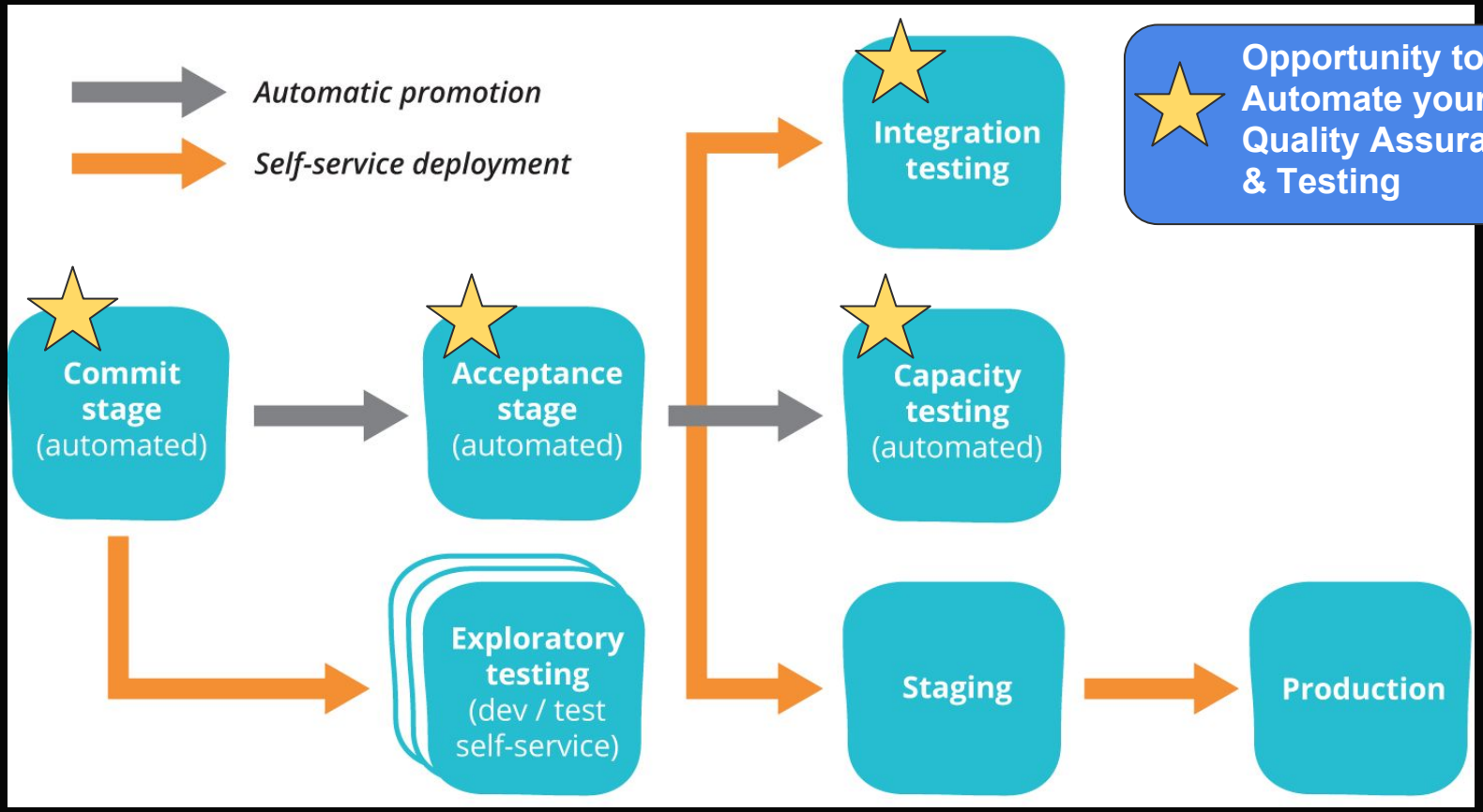
Quality is Demonstrated at the End of the Process

Agile “Folds the V”



1. Decompose work into small, testable, deliverable changes.
2. Pull quality activity to the left.
   - CM everything! QA the architecture update, define acceptance tests while writing requirements, etc.
3. Automate the quality checks.
   - Use a Continuous Delivery Pipeline (as discussed last month), use best data available, use representative environments where possible
4. Rapidly Repeat.

Anatomy of a CI / CD Pipeline



Resources: *Continuous Delivery* by Jez Humble & Dave Farley, continuousdelivery.com

An Automated QA Toolbox (many other exist)

Gradle

checkstyle

FindBugs™

JUnit

Cucumber

sonarqube

coverity®

A Synopsys Company

FORTIFY®

An HP Company

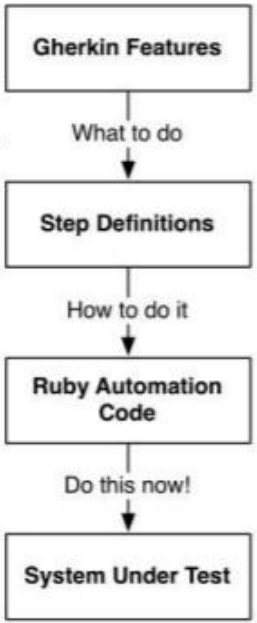
Automated Acceptance Testing...the BDD Way

Cucumber Testing Stack

Gherkin:
1. Specifications from plain-language text files called **features.**
2. Each **scenario** is a list of steps for Cucumber to work through

Step Definitions:
Map the business-readable language of each step into Ruby code to carry out whatever action is being described by the step.

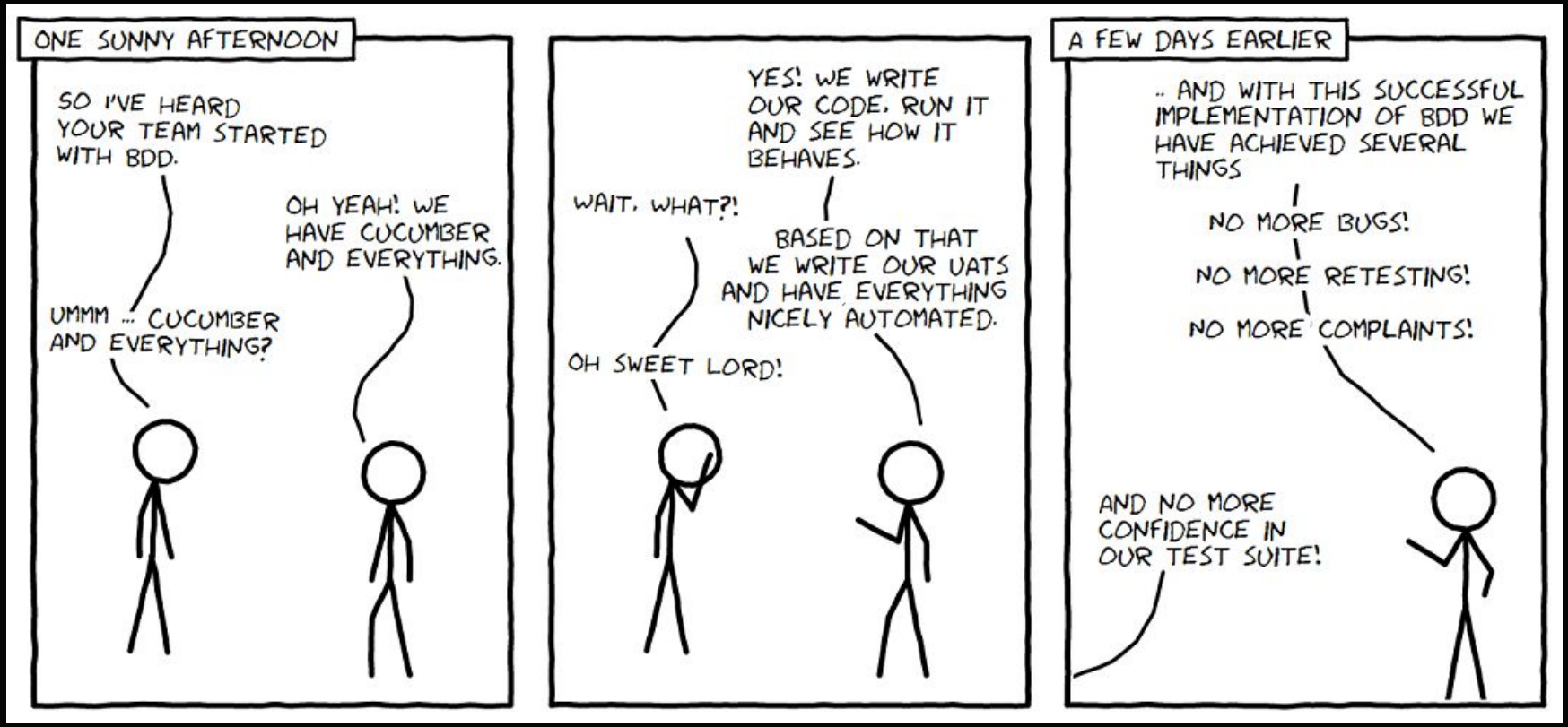
Automation library:
One or two lines of Ruby that delegate to a library of support code, specific to the domain of your application.




```
# language: en

Feature: Addition
  In order to avoid silly mistakes
  As a math idiot
  I want to be told the sum of two numbers

  Scenario Outline: Add two numbers
    Given I have entered <input_1> into the calculator
    And I have entered <input_2> into the calculator
    When I press <button>
    Then the result should be <output> on the screen

    Examples:
      | input_1 | input_2 | button | output |
      | 20      | 30      | add    | 50     |
      | 2       | 5       | add    | 7      |
      | 0       | 40      | add    | 40     |
```

*Supports multiple implementation languages...including Java

Proceed with Caution…..



Demonstration: Simple App with Simple BDD

Group Exercise: Lean Coffee

1. Each table has a facilitator.
2. The facilitator has a short introduction.
3. Everyone write down questions or topics for discussion on the subject. Place them in the middle of the table.
4. The group votes on each question or topic by placing a dot on the card. 3 votes per person.
5. Cards with most dots goes first. Set a timer for 5 minutes and discuss.
6. After 5 minutes, either vote (thumbs up/down) to keep going or move on to the next card.

October Experiment: No Table Topics…"Free for All" Lean Coffee!

DevOps Resources

https://www.meetup.com/DevOps-for-Defense/
https://github.com/jondavid-black/DevOpsForDefense
devopsfordefense@gmail.com

Books / Publications:

- The Phoenix Project
- The DevOps Handbook
- Continuous Delivery
- Lean Enterprise
- Lean Startup
- The State of DevOps Report
- Turn the Ship Around!
- Drive

Conference Presentations (YouTube):

- DevOps Enterprise Summit (DOES)
- IT Revolution
- Velocity
- GoTo