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Lifecycle Quality Solutions

Wag the Dog: Driving SPI Through System Testing

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WBE Certified GSA Contract GS-35F-0108T

The Formula for Success in System Testing

System Testing Success =

(Technical Excellence)

+

(Nurturing Front-Loaded Quality)

where:

(Technical Excellence) >0

(Nurturing Front-Loaded Quality) >0

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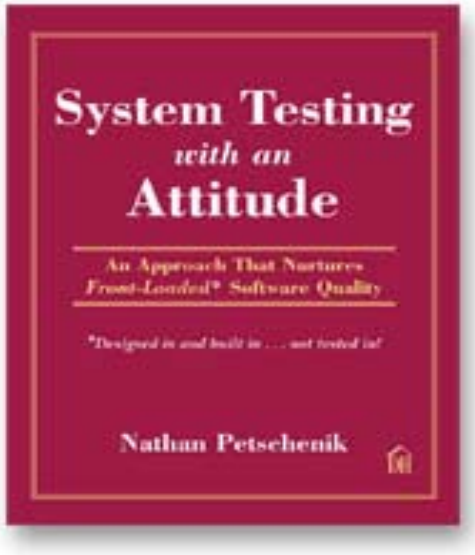
Main Source



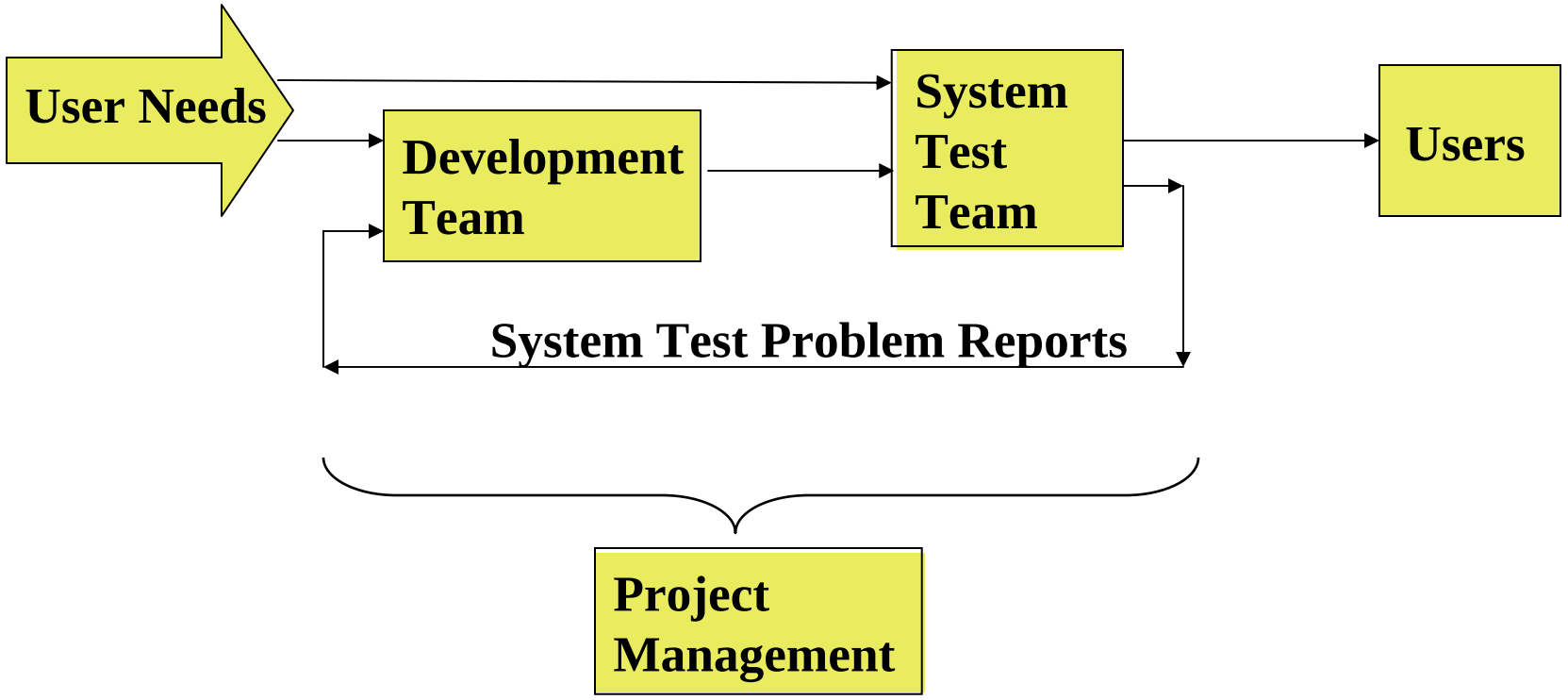
System Testing with an Attitude

An Approach That Nurtures
Front Loaded Software Quality

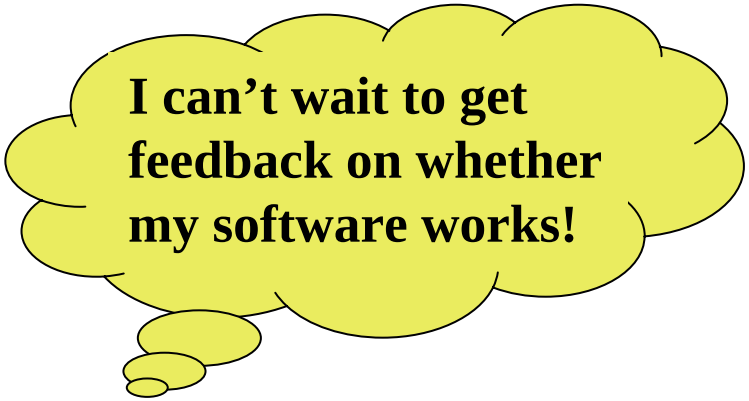
by Nathan Petschenik

ISBN: 0-932633-46-3
Dorset House, New York

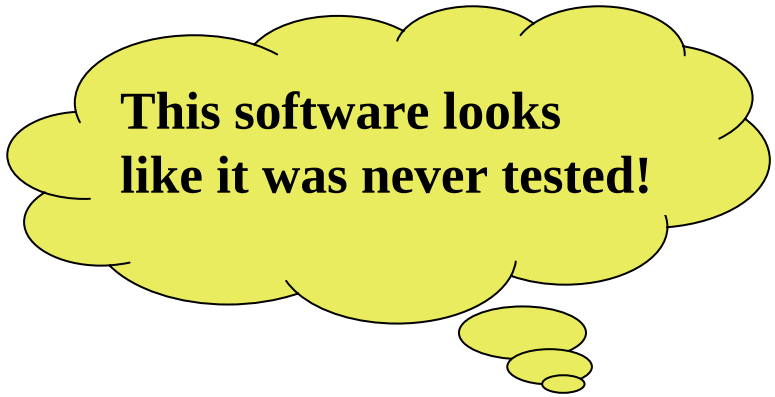
Model of System Testing



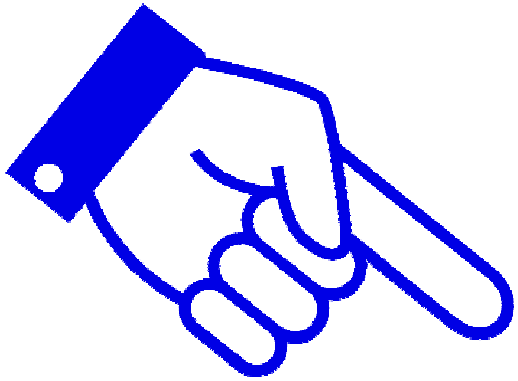
Misunderstanding Between Developers and Testers

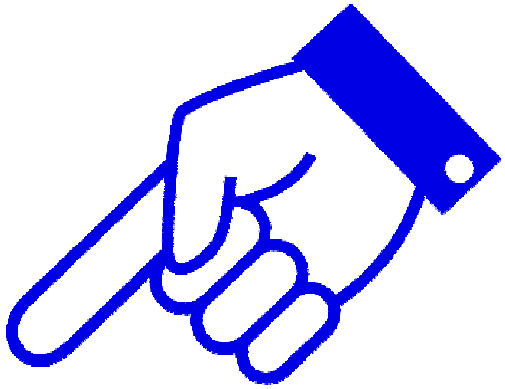


Developer

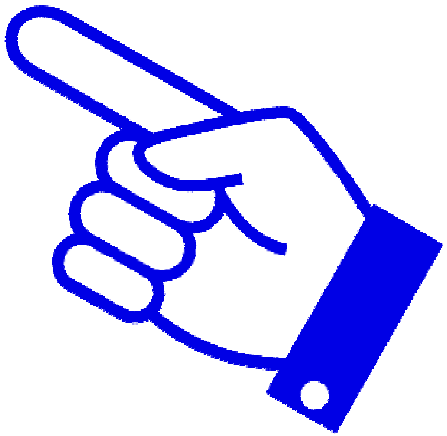


System Tester





How could you have missed <u>that</u> problem?



Role Awareness Seminars

Objectives:

- Build awareness of system testing issues
- Clarify expectations
- Change attitudes
- Influence behavior

Technique:

- Small groups of developers, system testers, and project managers
- 12 True/False Questions
- Open discussion of answers

Sample Questions from Role Awareness Seminar

The role of the System Test Team is:

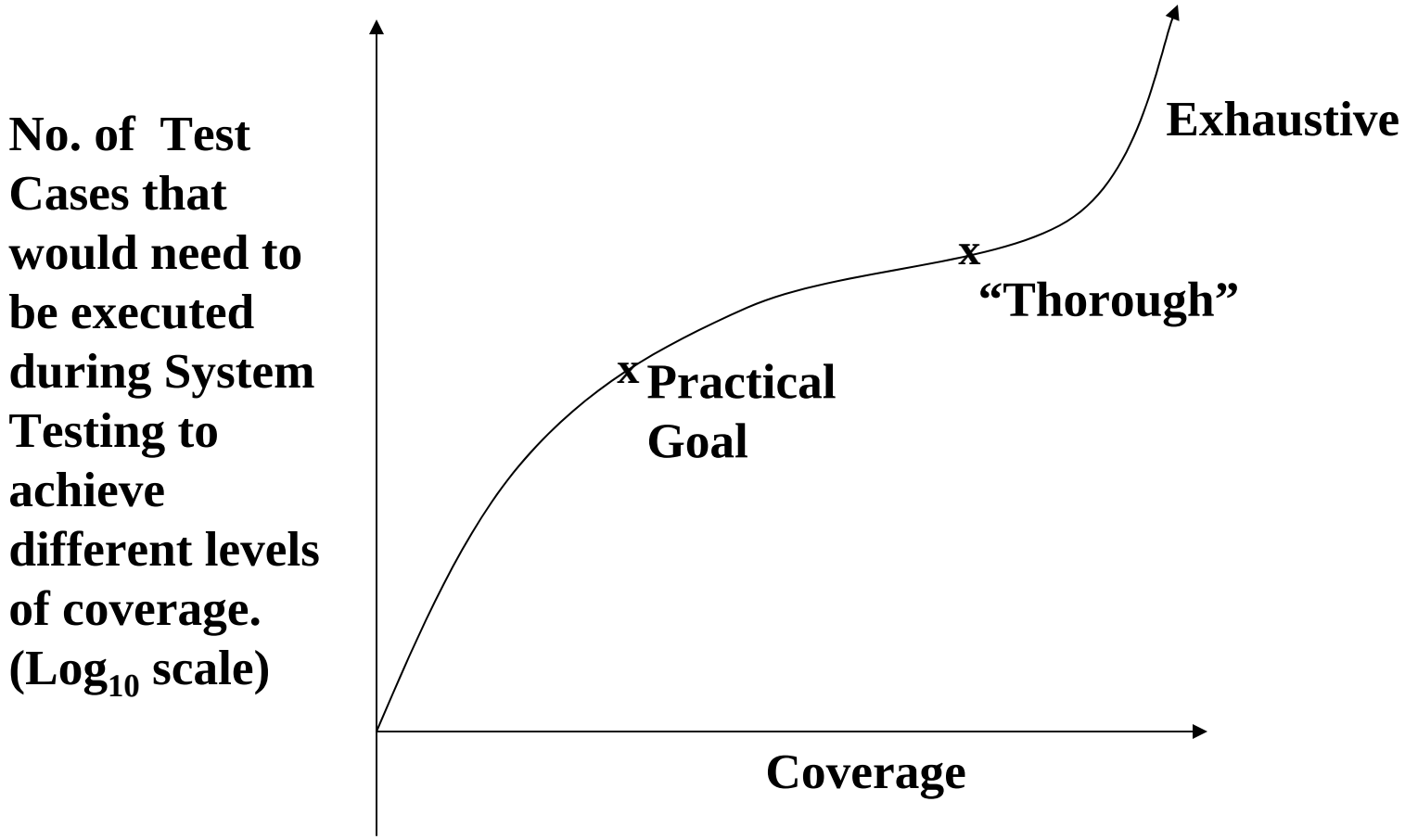
to supplement the testing done by the developers so as to achieve *exhaustive* coverage of the system.

T ( ) F( )

to test and retest the system *thoroughly* during the system test phase of the project.

T ( ) F( )

Levels of System Testing



Selecting Test Cases for System Testing

System testers select test cases using factors not considered in white box and black box coverage methodologies

- System Testers are looking for “important” problems that must be fixed before the system is provided to users
- System Testers are looking for the types of problems that may have been missed in the testing performed by developers prior to System Testing

Practical Priorities in System Testing

Rule A: Testing the system's capabilities is more important than testing its components.

Rule B: Testing old capabilities is more important than testing new capabilities.

Rule C: Testing typical situations is more important than testing unlikely situations.

Sample Question from Role Awareness Seminar

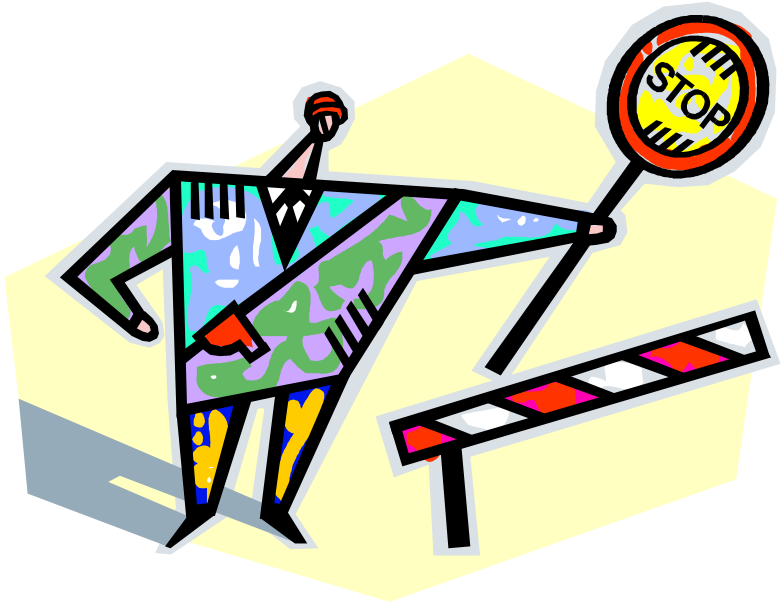
The role of the System Test Team is:

to help developers complete their testing.

T ( ) F( )

My Entrance Criterion to System Test

Developers must believe that the software is ready for users on the day that the software enters the system test phase



Obstacles to Meeting My Entrance Criterion

- Staff?
- Schedule?
- Lack of a stable integration testing environment?
- Lack of training in testing?
- Tools?
- Holes in Requirements?

Results of Breaking Down Real and Perceived Barriers to Quality

- Better developer testing
- Higher quality software to System Test
- Higher quality software to Users
- Productivity increases
- Non-tangible benefits

Ways for a System Test Leader to Nurture Front Loaded Quality

- Conduct Role Awareness Seminars (and stimulate action on follow-up items)
- Formalize Entrance Criteria to System Test
- Infiltrate the SDLC
- Champion the need for static testing techniques throughout the SDLC
- Be the collector and interpreter of measurements
- Become a role model for accountability

What does it mean for a System Test Team to Achieve Technical Excellence?

- Team consistently prevents important problems from reaching users
- Team members share a common approach, process, and/or methodology for addressing the technical challenges of system testing

Elements in the Science of System Testing

1. What system tests need to be developed?
2. How do you design system tests?
3. How do you make a test repeatable?
4. How do you solve cycle acceleration problems?
5. How do you leverage an existing test to cover additional data variations?
6. What should you measure?

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What should you measure?

$$\text{System Test Team Effectiveness} = \frac{\text{Defects Avoided X 100}}{\text{Defects Avoided + Defects Missed}}$$

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