Did you know? Cost of NOT testing

These numbers are from 2012

Testing later in the lifecycle = costs go up

- 1 in 10
  - 2012 Olympics seats left empty due to ticket website crashes

- $1 B
  - Lost in the past 20 years in aerospace industry

- $59 B
  - Annual cost for software failure to economy

1 10 20 30

Dev QA Pre-prod Post-live
Yep.. This really happened

Healthcare.gov plagued with issues

*This happened 5 months after the initial failure.*
*I guess they didn’t learn from their mistakes.*

Politico reports that HealthCare.gov was down for *six hours* on Monday morning. Health and Human Services officials told ThinkProgress that the multiple website issues have now been resolved. “The tech team monitoring HealthCare.gov in real time identified an issue with users creating new accounts.”

http://thinkprogress.org/health/2014/03/31/3421103/obamacare-site-glitches-deadline/
Yep.. This really happened

A $440 Million Test “Glitch”

It took only 45 minutes for the software to cause an entire day of bad trading across 130 stocks

Knight Capital, a firm that specializes in executing trades for retail brokers, took $440m in cash losses Wednesday due to a faulty test of new trading software. This morning reports were calling it a trading “glitch”, which isn’t nearly as accurate as the term I’d use: “****ing disaster”.

http://www.theregister.co.uk/2012/08/03/bad_algorithm_lost_440_million_dollars/
Eschew Obfuscation

What The ....

**Eschew**

*verb*  
\e-\'shū, i-; es-\'chū, is-; also\n
e-\'skyū\n
: to avoid (something) especially because you do not think it is right, proper, etc.

**Obfuscate**

*verb*  
\äb-fə-,skāt; äb-\'fəs-,kāt, əb-\n
: to make (something) more difficult to understand

Eschew Obfuscation = “avoid making things more difficult to understand”.
About Load and Performance Testing:

- The Art
- The Science
- The Myths
Test and Attack

“Testing With the Customer” instead of “Testing For the Customer”

- The Art
- The Science
- The Myths
The Thrill of Victory

- NORAD Santa Tracker
- HALO Reach launch
- The 7 Terabyte Switch
- The Suspect Simulator
- The “Whiteboard” test plan
And the Agony of Defeat

- You say Tomato, I say Tomahto.
- Man, that’s a heavy test harness.
- All we care about is throughput.
- Let the System Tell You
- Too Fast
- The 3.5 minute delay (TcpTimedWaitDelay to the rescue)
What is really true Grasshopper?

- Visual Studio must be broken (*The 90-Percentile conundrum*)
- Garbage Collection run Amuck
- It’s a bird....
  - No, it’s a plane....
  - No, it’s a bad requirement!
- A requirement without a consequence is just a desire.
- An SLA is NOT a goal.
Test and Attack – The Process
Process and Methodology

Plan
- Goals
- Schedule
- Load Profile
- Environment

Goals
Schedule
Load Profile
Environment
Process and Methodology

Plan
Goals
Schedule
Load Profile
Environment

Prepare
Automation
Test Data

Results
Findings
Feedback
Process and Methodology

Plan
- Goals
- Schedule
- Load Profile
- Environment

Prepare
- Automation
- Test Data

Execute
- Test
- Analysis
- Remediation

Feedback
- Findings
- Results
Process and Methodology

Plan
- Goals
- Schedule
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Prepare
- Automation
- Test Data

Execute
- Test
- Analysis
- Remediation

Remediate
Test
Test & Attack
Analyze

Alleviate bottlenecks *during* testing *and* validate
Process and Methodology

Plan
- Goals
- Schedule
- Load Profile
- Environment

Prepare
- Automation
- Test Data

Execute
- Test
- Analysis
- Remediation

Report
- Results
- Findings
- Feedback

Alleviate bottlenecks *during* testing *and* validate
The Science – The Process Details
Plan
Define goals and requirements

Task: Develop detailed written test plan:
  - Goals and success criteria
  - Test scenarios, use cases, load profiles
  - Test environment(s)
  - Key metrics
  - Initial daily plan for execute phase
  - Schedule and task assignments for subsequent phases

Key Outcome: Test Plan
Key Participants: Business Partners, Key Stakeholders, Development and Test, Infrastructure Support
Typical Duration: One to two weeks
Test Plan Document

1. Executive Summary
2. Engagement Criteria
3. Testing Criteria
4. Data and Load Considerations
5. Application Information
6. Real World Use Cases
7. Test Harness Use Cases
8. Action Items List
9. Appendix
Prepare
Create artifacts and prepare for Execute phase

Tasks:
- Test automation
- Test data
- Tools and processes
- Application setup process
- Refine test plan

Key Outcome:
- Test Plan
- Test Automation

Key Participants:
- Development and Test
- Infrastructure Support

Typical Duration:
- Two to eight weeks
Data

Is the harness:
- Pre-Populated?
- Self Feeding?
Execute
Test sprint to implement the test plan

Tasks:
- Execute test
- Analyze data and results
- Make changes
- Track progression
- Update bug database

Key Outcome:
Test Results
Bugs and Fixes

Key Participants:
Development and Test
Infrastructure Support (for initial setup)

Typical Duration:
Two to three weeks
TORs and Break/Fix Runs

- Test of Record
- Break/Fix

“Give me a ping Vasili. One Ping Only.”
“Fire in the Hole”

- Pre-Flight Checklist
  - Servers Restarted?
  - SQL DMVs Cleared?
  - Data Restored?
  - Test Rig reset?
  - Data Collection enabled?

- “Fire in the Hole”
“Today’s In-Flight Movie”

- Main Key Metrics Graphs
- Summary Data
- Time Remaining
- Etc.
“Pack ‘em, Stack ‘em and Rack ‘em”

- After the run completes:
  - Data collection
  - System Cleanup
  - Data Processing
  - Results Analysis
“Graphs, Tables and Data Points, Oh My!”

- Graphs – For Trending
- Tables – For Criteria Comparison
- Data Detail Points – For Diagnosing
Daily Standup

- 10 minutes max
- On track?
- Need to shift focus?
- Plans for the day?
Report
What was learned and accomplished

Task: Develop final report:
  Key finding and changes
  Detailed test results
  IP developed during engagement
  Additional application recommendations
  Testing process recommendations
  Feedback to improve future efforts

Key Outcome:
  Engagement Summary Report

Key Participants:
  Development and Test
  Business Stakeholder(s)

Typical Duration:
  One week
The Art – Managing the Process
Caveats

- Discipline
- Scope Creep
- Time
Resources

- Documentation on Test Planning
  https://blogs.msdn.microsoft.com/geoffgr/category/planning/

- Documentation on VS Load Test Results
  https://blogs.msdn.microsoft.com/geoffgr/category/understanding-results/
Questions?