

AFFECTING PRINTER INSTALLATION SUCCESS IN THE CONSUMER MARKET

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October 19, 2010

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WHO AM I?

Kathleen Naughton – Hewlett-Packard Test Architect

Kathleen has over 20 years experience in the technology industry implementing a parts ordering system on one of the first nation-wide WANs for Tektronix, verifying graphical software development kits for CA, designing testing for streaming multi-media cell phone software with Packet Video, and most recently, printer and scanner test designer for Hewlett-Packard's Imaging and Printing Group. She has been the printer installer test lead for over 5 years, co-chaired the Install Success Taskforce, and directed multiple programs and studies performed to reduce the install call rates. She is an active member of the Anita Borg Institute's organizing committee for the Grace Hopper Celebration of Women in Computing conference as well as a regular presenter at that conference.



KEY TAKE AWAYS

Testing can influence requirements

- Specific, persistent problem being addressed
- Analysis of the faults and failures of previous attempts to address the persistent issue
- A little imagination—“outside the box” creativity
- Test lab offers unique test objectives
- Simple design
- Persistence and luck



PERSISTENT PROBLEM

- Problem that doesn't seem to improve—no matter what has been tried to address it
- Problems that have executive level awareness
 - Costs, brand damage, customer escalations
 - iPhone 4 antennae
- Call Center – “Install” bucket metric
 - Measure of warranty costs
- What are some of your persistent problems?



ANALYSIS OF RESOLUTION ATTEMPTS

Data Gathering

- Analyzed problem
 - 1st day experience definition
- We tried a series of different tools
 - Embedded tools in the installer
 - Customer—based programs
- Gave us a lot of data but did not seem to reduce call center call rates
 - Created new/additional problems like increased install times
 - Could not reproduce issues in the lab
 - Technology changing– USB-Wireless space, Win 98 – Win 7



ANALYSIS OF RESOLUTION ATTEMPTS

Problem Characterization

- Aligned on a 3 tiered definition of success
 - Technical Success
 - Time Success
 - User Experience Success
- Figured out how to describe factors contributing to success/failures
 - PC Hardware
 - PC Software Environment
 - User Experience
- What are ways that have been used to resolve your persistent problem?
- How would you characterize the problem differently after the resolution attempts?



OUTSIDE THE BOX CREATIVITY

- Existing testing was meeting release criteria needs
 - Specification—based testing
 - Theory of isolation—based testing
- Examined customer-based programs for inspiration
 - Wanted to create real customer environments in the lab
 - Looked for ways to leverage existing lab equipment
 - “Luck of the draw” approach
- Wanted to facilitate lab-based reproduction, root cause analysis, verification of fixes, and test early in development cycle
- Focus on lab—type success factors: technical and time
- **What are ways you could look at your persistent problem resolution approaches differently?**



UNIQUE TEST LAB OBJECTIVES

- The most basic objective of the test lab:
 - Replicate customer—based testing programs in a lab environment
 - Primarily looking for technical issues—not user experience issues
- Add value – not duplicate other testing efforts
 - Did not want to have extensive feature testing
- Reduce the need for frequent customer—based testing programs
- Think of how you would define your current test lab objectives
- What is a unique objective that would add value to your testing that could help address your persistent problem?



SIMPLE DESIGN

- 20 PCs -- ~10-20 unique images created for each PC
- Simple test script: Install, quick print and scan to verify install
- Test run is always 50 install attempts
- Random selection of PC images for each test run
 - This makes each test run unique
- Consistently held to core design principles
 - Resisted pressure to change environment, test approach
- “Sour the pot” whenever possible
- What are some simple lab designs you could use for your own solution?



PERSISTENCE AND LUCK

Retrospective

- Persistence and patience essential part of the process
 - From first “install success” group to first program running through lab – 5 years
- Luck is also a factor
 - Management ready to invest
 - Lab equipment re-commissioning at the same time that ideas were coming together
 - Ended up in the right committees, right task assignments, could see the opportunities
- What are ways that you have or could “keep the faith” and/or increase your luck?



RESULTS OF THE ANALYSIS, CREATIVITY, PERSISTENCE AND LUCK

Test service created

- Initial target products: consumer inkjet printer
- Laserjet printers
 - Heard about the testing and request test runs
 - Now includes even the enterprise printers

Sample requirements from testing

- 80% install time
- Software environment compatibility checking
- Release criteria



SUMMARY

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Q&A

