SAND2018-4852C

The Evolution Of Testing… The Transition From Manual To Automated

PRESENTED BY

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Our Story

Scope:

The transition from manual testing (using Deployment Team) to automated testing (using scripts) to test the changes for the Computing Support & Services (CSS) departments before they are implemented into the production environments.

Brief History:

- The Deployment Team testing started in mid-2011 and only tested Windows changes (expanded over time).
- Team Structure
  - Team is made up of 30 desktop technicians (Service Desk, Field and Specialty Teams) – # of testers varies depending on the type of test
  - Members from different sites
- The question you need to ask is, "not what has passed the testing, but what issues have you found, fixed and re-tested?"

Our Goals for Deployment Team Testing

Stabilize the production environment

- By thoroughly testing all items before they are implemented

Improve user experience

- By testing the changes multiple ways (consistency)

Improve the supportability of the item

- Create Knowledge Base (KB) articles for known issues (workarounds, etc.)

Continue to improve the process and procedures

- **Led us to automated testing**

Selecting the **Right** Product for Your Environment

Develop evaluation criteria

- What are you looking for and why?
- Understand how the product works
  - How easy is it to learn – learning curve (coding)?
  - Does it work across platforms (Win, Mac, Linux and iOS)?
  - Security concerns
- Support/Training
- Reporting Capabilities
- Cost

Do research

- What's currently available in the market?
- What niche are they serving? Review their list of customers, etc.

Selecting the **Right** Product for Your Environment

Compare each selected product against your criteria

- Schedule demo's with the top couple of vendors
- Have your technical staff participate in the demo's
- Document Pros and Cons
- Down select

- Ask for a temporary license(s) to test the product in your environment

- Use their support and KB's, etc. to see how well they answer your questions/issues

Training the Script Developers

Determine your requirements for training on the new product

- What training does the vendor offer?
- What is the scope of the training course provided?
- Does the training cover all the topics you are looking for immediate training on?
- Is the vendor training worth the investment?

We purchased a 5 day Kick Start onsite training course from the vendor

- The vendor assisted with setting up & configuring their products within our Sandia environment
- Hands on training was provided
- The vendor included training videos, training documents & sample scripts
- Once the training was completed. We scheduled vendor support calls weekly(initially) and then changed them to bi-weekly

Introducing Automated Testing - Pilot

Build a test pool of machines

- Our test pool started out with 5 VMs & a couple of physical machines
- The machines were built with different operating systems and different OS versions
- Software was installed on the test pool machines that was similar to machines in the environment

Start out small

- We started out scripting deployment tests for Windows first
- As we built scripts we were able to reuse a lot of the scripts we created or pieces of the script
- This helped us to be more efficient in our scripting

Compare results from manual & automated testing

- We ran side by side testing for 4 months
- Results we saw were similar to the manual testers results or ours were even better

Testing – In Production

Expand your pool of testing machines

- We have now grown our test pool of machines to 50
- Our test machines are located in several locations, NM, NV, CA and Washington D.C. and are built with different variations of software
- We acquired used machines, because we wanted to simulate what's in production

Set requirements for your automated test runs

- Automated software must be implemented with controls and within a controlled environment
- Each test that is scripted includes a video capture of the deployment automation test
- Each deployment test requestor must review the video and approve before we run the test on additional machines
- Each requested deployment test is run on a minimum of 15 machines, in all state locations and on a mix of physical & virtual machines.

Implementation Across Multiple Platforms (Windows, Mac, Linux and iOS)

Expanding deployment testing, gather requirements

- Scheduled a meeting with the vendor to gather requirements for expanding testing to a new platform
- Run through same process as initial pilot
- We have successfully expanded testing to MACs, iOS devices and Linux

Measure Success

- Percentage of tests you have been able to automate vs manual?
- What is the savings and value of the automation & results?

Our Success

- We have been able to automate 82% of our deployment tests
- Gained efficiencies by reducing the staff needed to perform deployment tests manually
- Automated testing has identified additional errors in the side by side testing that the manual testers did not catch
- Testing requirements are now complete vs. a dependency on manual testers participation in testing
- Improved reporting/testing results

Obtaining Stakeholders Buy-in

- Shared the selection criteria used to select the product
- Ran automated testing **in parallel** with manual testing and compared results (for months) – proving the reliability of the testing
- Explained how much **technicians time** would be saved (can be used to support our customers)
- Demonstrated how much faster testing would be completed
  78% faster (so far)

Note: Manage their expectations. There will be some changes that you will not be able to automate (test needs to be completed when not connected to the network, something physical (like a badge, etc.) is needed.

What's Next?

- Continue to expand the usage for testing
- Automate routine tasks (with controls)
  - Complete the tasks faster
  - Make staff available for more impactful work
  - Improve customer service and satisfaction

Questions & Answers

Presenters

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