Agile Testing
Principles and Best Practices

Dr Ganesh Iyer, PhD,
Sailaja Pindiproli,
Kiran Kumar Angara,
Principal QA Engineer
Senior QA Engineer
QA Engineer,

Progress Software, Hyderabad, India
- Masters & Ph.D. from National University of Singapore
- **Interests:** Kathakali, Traveling, Photography, Cooking
- http://ganeshniyer.com

GANESHNIYER

- Rich QA experience; worked on most of the Progress Products
- Developed several automation frameworks and test approaches
- **Interests:** Painting, Cooking, Sand Art (Rangoli)

SailuPindiproli

- Masters in Artificial Intelligence from University of Hyderabad
- Working on Rollbase – OpenEdge Integration for last two years
- **Interests:** Dance, Traveling, Surfing

KiranAngara
Agenda

- The Software Saga
- Challenges in Testing with Agile
- Some Best Practices
- CI and Automation are Key
- Some automation approaches
- Conclusions
Our Evolution in Application Development

1961
Data Language Corporation pioneers the creation of application development and deployment tools.

1963
Relational Data Language unveiled as complex 4th generation language and integrated multi-user relational database management system.

1964
First Progress user conference. Co-founder and former CEO Joseph Alsop.

1966
Software product named "Progress"; first commercial release for UNIX and DOS.

1981
First Progress public (PRG) on NASDAQ.

1987
Company renamed Progress Software Corporation.

1993
Revenue exceeds $100M US.

1995
Progress implements object-oriented approach to real development.

1996
DataDirect introduces suite of JDBC drivers.

1998
Progress acquires data connectivity tools.

2001
OpenEdge 10 rebranded as "OpenEdge," delivers unparalleled mobility for users to leverage existing technology.

2004
Progress strengthens support for standards-based data access.

2007
Revenue exceeds $500M US.

2008
Progress acquires OpenEdge development toolkits for rapid development of ODBC and JDBC drivers and ADO.NET and OLE DB providers.

2009
1st OpenEdge Cloud application.

2011
OpenEdge 11, world’s first multi-relational database for the Cloud.

2018
Progress acquires Cordus, best-in-class business rules management tools.

2019
Progress acquires Rollbase and introduces Pacific Pass for building and managing "connected apps" on any cloud, mobile or social platform.

2012
Phil Read named President & CEO

2013
Progress announces Easycl, self-service data integration and collaboration tool.

2016
International Data Corporation recognizes OpenEdge as #1 pure-play embedded database management system for 5th consecutive year.
Command-line / GUI → Cloud and Mobile
Agile world!
7 Key factors for Agile Testing success

Source:
Whole Team
Automation

I CAN'T DEVELOP AN AUTOMATED TESTING SYSTEM BY THE ARBITRARY DEADLINE YOU SET.

TRY WORKING SMARTER, NOT HARDER, WITH A SENSE OF URGENCY, AND A BIAS FOR ACTION.

OR MAYBE YOU COULD DO SOMETHING DIFFERENTLY.

I'M NOT THE ONE WHO CAN'T GET HIS WORK DONE.

Source: goo.gl/BYiVSR
Agile Practices
Mindset Change
Collaborate with Customers
Big Picture View

VS.
Test Challenges with Agile Methodology

Frequently changing requirements

- **Thanks to Agile** → Changes can happen at any point of time during release cycle
- Requirements and Test Cases developed in parallel or test first strategy

Frequent releases

- **Progress DataDirect Cloud released new features every 9 days in 2015**
- Testing needs to happen Early and Often, Everyone needs to Test

Understanding and testing real world behavior

- How customers see the product behavior after a release?
- No SRS-level waterfall documents to drive testing plan

Multiple environments & differences for test and production systems

- 3rd party systems integrated to the product
- Raises a requirement for GoLive Testing → But in minimal time
Continuous Integration & Automation are Key in Agile

- Nightly / Weekly
- Combination of unit tests and regression tests
- Unit-tested

Dev-environment

Build Integration

Automation
Best Practices
That help us to solve many of these issues
24 x 7 Testing

What is 24x7?
• Running a set of test cases continuously 24 x 7
• Simulates real time customer behavior

How 24x7?
• A few parallel threads accessing the product
• Tests consisting of regression (or it’s subset) tests

Why 24 x 7?
• Many things can’t be caught by regular functional testing
• Error handling and retries
• Product can be made more resilient and robust

Performance issues with web sessions over a time
Memory leaks that grow over a time
24 x 7 Testing

- **Batch Script**
  - Decides the frequency
  - E.g. run on an hourly basis
  - Run in an infinite loop 24x7

- **ANT Script**
  - Decides parallelism
  - We configure #Threads, #Tests to run in parallel
  - Tests can run on VMs / Build integration machines

- **VMs / Build Integration Machines**
  - Logs

- **Reports using Kendo UI controls**
  - Driver scripts send results to the portal
  - Machine stores the logs

- **SUT**
  - Progress products such as Rollbase
  - Uses any test environments
  - Existing test cases can be leveraged
24 x 7 Testing – Sample report
Same Sprint Automation

A story is marked as done only when it is automated

Helps to take into account automation efforts as part of sprint planning itself

Results in updated automation scripts at any point of time

Prepared for frequent releases;
Requirement changes are up-to-date in automation

Source: http://goo.gl/hu57Jd
GoLive Testing

Challenges & Our Practices

- Environmental differences
- Frequent releases
- Minimizing downtime during upgrades
- GoLive in less than 30 mins

Pre-golive: Account setup
Go Live: Integration testing
Post GoLive: To be tested after live

Pre-GoLive, GoLive and Post-GoLive Testing
GoLive Automation

Automation Time: 10 mins
Triage unexpected failures: 20 mins

Environmental differences are tested;
Frequent releases can be handled
Other practices

- Normally done more at the last sprints
- Examples include Auto fill issues

- Catch before they find
- Let them see what they get

- Different from typical A/B Testing
- We interpret as “Choose what to test and what not to test”

Exploratory Testing

Customer Scenarios Testing

A/B Testing
Agile Testing Mantra = Automate, Automate and Automate
Automation challenges and approaches – Case Study

**Integrated Systems**
- 3rd party systems
- Back office systems

**Automation involves**
- UI elements (product UI verifications)
- API calls (for 3rd party system calls)

**Need for Hybrid framework**
- Can we have a single framework which can solve this challenge?
Telerik Test Studio – A Brief Overview
Successful Agile Testing with Telerik Test Studio

Support to work in Agile environment

- Out of the box screenshots, failure reports etc
  - Helps Documentation team
  - Logging bug in a single mouse click
- TFS – Continuous Integration in place

Code maintenance

- Agile → Frequent releases and frequently changing requirements
  - Write and maintain functional test cases
  - Run your Load & Performance tests with same functional scripts

Hybrid support

- Automating UI/APIs
  - Works well even for complex test scenarios – Key for Agile
Various test types and the Mechanics
Functional Tests
Examples
Story Tests
Prototypes
Simulations

Exploratory Tests
Scenarios
Usability Testing
Doc. Testing
UAT / E2E
Alpha / Beta

Unit Tests
Component Tests

Performance & Load Testing
Security Testing
“ility” Testing
24 x 7 Testing

Conclusion

- **Continuous Builds**
- **Agile Testing**
  - Automate within same sprint
  - Make Unit Testing a Priority
  - Nightly Regression Testing
  - Automate Everything
KEY FOR SUCCESS = CUSTOMER FEEDBACK
Feedback Time

SESSION EVALUATION

Please take a moment to give us your feedback on the overall value of this session.

SESSION: Agile Testing
Speaker(s): Dr Ganesh Iyer, Sailaja, Kiran

1 = Poor to 5 = Excellent
Value/usefulness of information presented
Preparation/Knowledge of speaker(s)
Use of Examples
Retention of Interest
Handling of Questions
Handouts/Audio Visual materials

Comments:

Please leave completed evaluation form at the Registration Desk. Thank You!

Agile Testing: Principles and Best Practices

Who: Dr. Ganesh Iyer
KiranKumar Angara
Sailaja Pindiproli

When: 06/09/15 8:30 am
Where: Westford South
Code: 238

With Agile software development methodology followed by most companies in the recent past, software development focus has been changed to deliver faster releases. This also affect the way we test within the
Want to know about “Software Quality Analysis with Cloud?”

16:45 @ Concord today