The Future of Testing
How Testing and Technology will change

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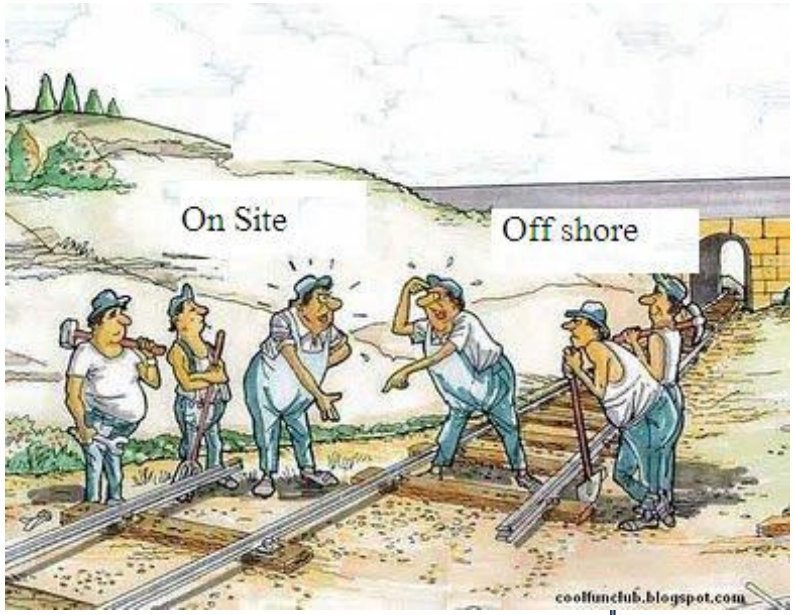
Micro Focus

Agenda

- The constant challenge of quality
- Evolution of the QA professional
- Test technology trends
- Testing in the agile world
- Summary

The Constant Challenge of Quality



If you've unboxed a shiny new iPhone 4S from AT&T today, you've most likely had an experience similar to many others who made the same purchase: frustration. It seems that the surge in activity from the release of Apple's new handset has reduced activation traffic on Ma Bell's network to a crawl. This isn't the first time the carrier has had issues on launch day -- but back then, it didn't have any competition. Now that Verizon and Sprint have joined the iPhone party, the pressure's on and AT&T's not looking good compared to the other carriers who don't appear to be having issues. As if that weren't enough for the folks in Cupertino, iCloud had a rocky debut this week as well -- from absent verification emails to an inability to backup data. Apple has documented all five of the new service's foibles via the coverage link below, but it appears everything's been peachy since early this morning. So, have you been waiting for your new iPhone to be more than a shiny new paperweight? Leave a comment, and let us know.

Quality… and Testing

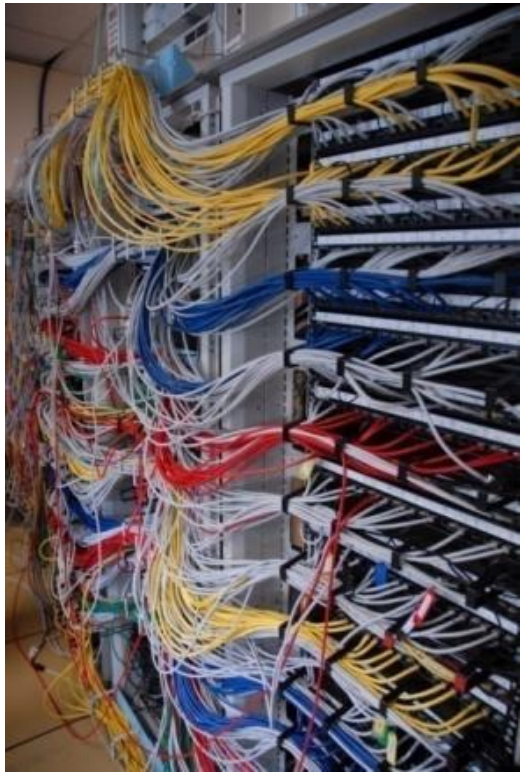
- **Quality** is the convergence of complete requirements, correct code and minimized defects that align to meet business goals.

- **Software testing** is an activity used to help identify correctness, completeness, security and quality of developed computer software.

- **Testing** does not equal quality… but it is a crucial activity of the lifecycle quality process!

Familiar problems

- Late lifecycle testing
  - Finding the majority of bugs late in the day
  - Defects are extremely difficult and expensive to fix
- Limited testing
  - Very high percentage of manual tests
  - Mostly unit testing, limited functional testing, almost no performance testing
- Poor quality requirements
  - Requirements drive projects, and thus the testing
  - Changes are not reflected in testing
- No alignment with business needs
  - Performance and scalability does not come naturally



Evolution of the QA professional

Traditional roles and responsibilities

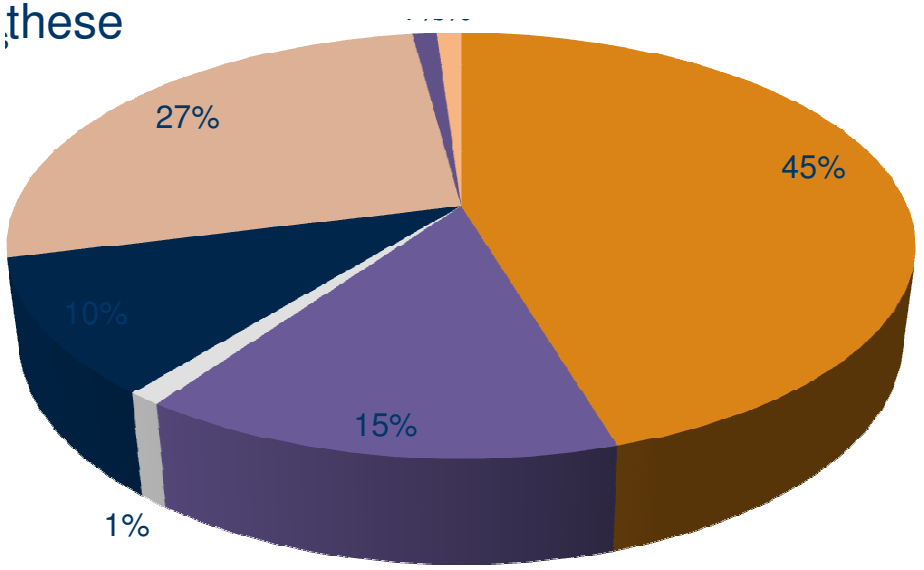
- Test Manager
  - quality and test advocacy, resource planning and management, and resolution of issues
- Test Analyst
  - Identifies and defines the required tests, monitors testing progress and evaluates the overall quality experienced as a result of testing activities.
- Test Designer
  - Defines the test approach and ensures its successful implementation including identifying the appropriate techniques, tools and guidelines
- Tester
  - Implements, sets up and executes tests, logs outcomes and verifies test execution, analyzes and recovers from execution errors.

New testing paradigms

- Alignment with business needs
  - Alignment of business needs and engineering needs from the start
  - Build in value from the very start of each product development
  - Not just focused on developing code but on the full life cycle
- Evolution of the testing approach
  - Today and in the past - engineering heavy approaches
  - Emerging - approach of a risk based/quality conscious view
- Deliver increasing value in highly specialized skill areas
  - Test Automation, Performance Testing and Security Testing.
- Agile development
  - Dramatic increase in agile approaches
  - Test automation will be indispensable in such environments
  - Roles will shift as part of an agile transformation

How will QA's role change?

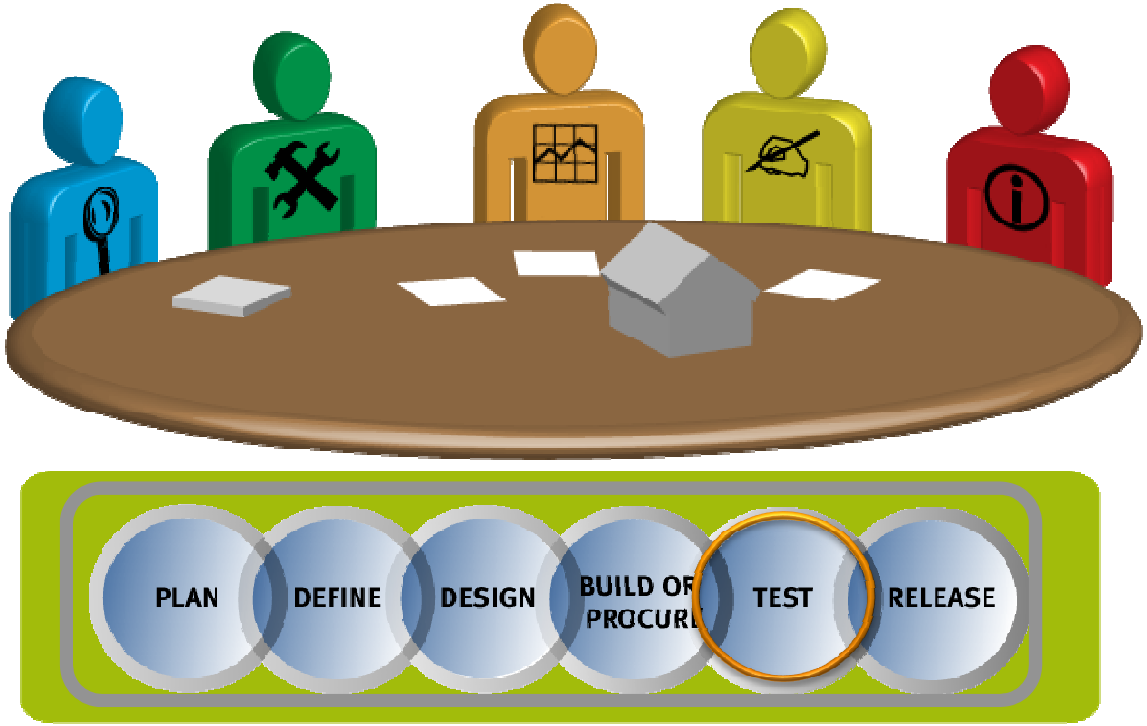
- 45% - Tester - integrated part of development team
- 15% - QA focus on user experience and regression testing
- 1% - Performance testing core throughout development process
- 10% - Automated frameworks enabling collaboration and rapid change
- 27% - Automated testing as key component to Agile teams
- 1% - None of these
- 1% - Others



Expanding the tester skill set

- Core responsibilities will remain
  - Identifying the most appropriate implementation approach
  - Implementing, set up and execute individual tests
  - Logging outcomes and verifying test execution
  - Analyzing and recovering from execution errors.
- Need to embrace new technologies
  - Testing frameworks
  - Open source and commercial tools
- Need to adapt to agile development practices
  - Become member of “the team” – Dev/Test barrier gets removed
  - Develop programming skills
  - Get involved in test conception from the beginning

Responsibility and accountability for quality



Everyone is accountable!

Test technology trends

Test automation

- It has been around for some time in the areas of
  - Performance, scalability, reliability, and stress testing
  - Functional and regression testing
  - It can not, should not, always be applied
- Still offers great potential today
  - Lessons have been learned
  - Tool sets are maturing
  - Tools need to be used in the right context
- New trends offer new potential in the future
  - Agile development
  - Outsourcing
- Performance testing is impossible without automation

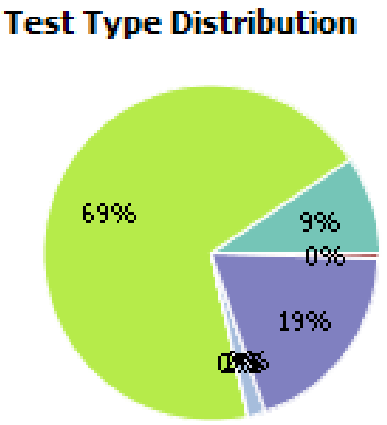
Open source

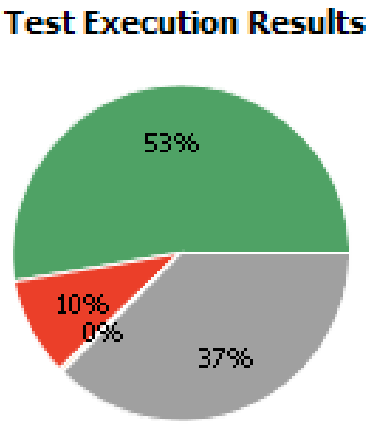
- Open source tools
  - Free - but free can really be expensive
  - Lots of open source projects are abandoned
  - Countless tools – which one to choose?
- Commercial tools
  - Hard to keep pace with changing technology
  - Don‘t always do a good job of facilitating collaboration
  - High cost – depends on how much they are really used
- But - It is not one or the other
  - Commercial and open source tools will integrate a lot more
  - Open source will even become absorbed in many tools
  - Use the tool that fits best!

Test Development and Integration

In the future we will see

- Concentration on core competencies by vendors
  - Functional testing
  - Load testing
  - Test case generation
- Leveraging and incorporating existing solutions
  - Testing frameworks
  - Additional technologies
- Better integration in
  - Test management solutions
  - Business management solutions
  - Reporting





Test Management

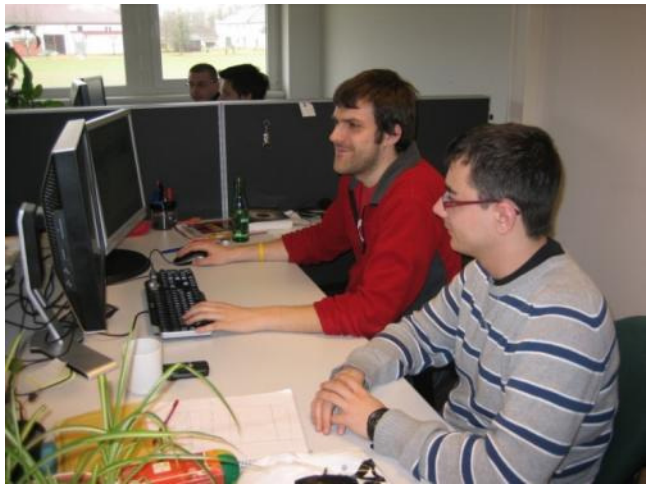
In the future we will see

- Support for different processes
  - Waterfall
  - Iterative
  - Agile
- Tighter integration with
  - Requirements management systems
  - Testing tools (open source and commercial)
  - Source control systems
  - Testing frameworks and agile team tools
- Convergence with Business management systems
  - Valuable metrics and increased visibility into the SDLC

Testing in the Agile world

Agile development and testing

- Agile best practices
  - Generalism - generic vs. specific skill sets that are scarce
  - Daily kickoff and review of goals
  - Short release cycles
  - Responsive Development



- Agile testing
  - High value features first
  - Test/behaviour driven development
  - Automation of unit, functional, acceptance & performance testing
  - Continuous build and integration extends to testing
  - Pair programming (developer and tester)

Test Automation - speed and repeatability

- Accelerate the code-and-test process by supporting fast, automated test scripts
- Ensure the repeatability of tests, to ensure regression testing from sprint-to-sprint, iteration-to-iteration.
- Enhance test efficiency further via robust, yet flexible, test management processes
- Avoid the inherent inaccuracies that manual processes inject in to the process – particularly when time is tight.
- Lighten the workload of testers and eliminate the need for late night and weekend testing marathons that can burn teams out.

Test Often and Early

- Performance trend information across builds
  - Transaction response times, page times, custom measures

Properties | Parameters | Data | Chart | Report

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Date To (DD-MON-YYYY)	01-Dec-2008
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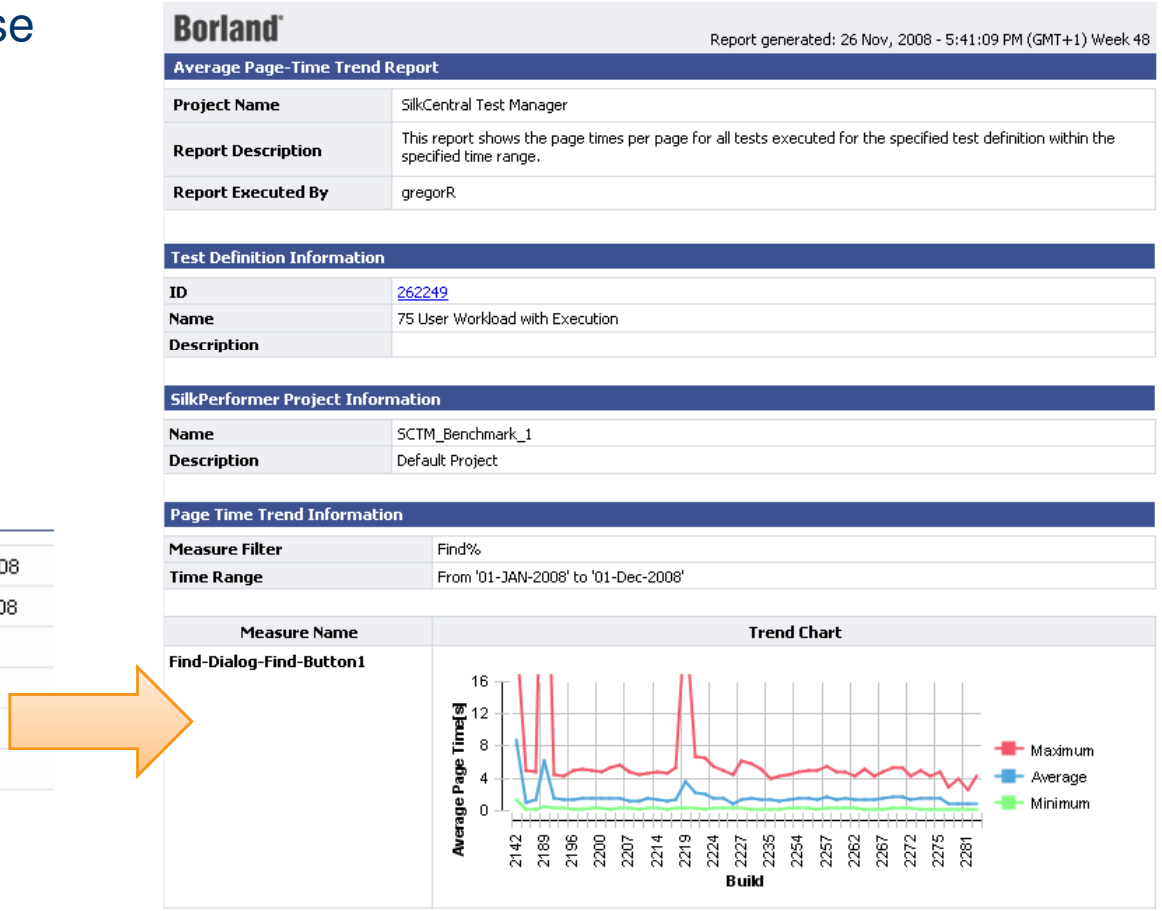
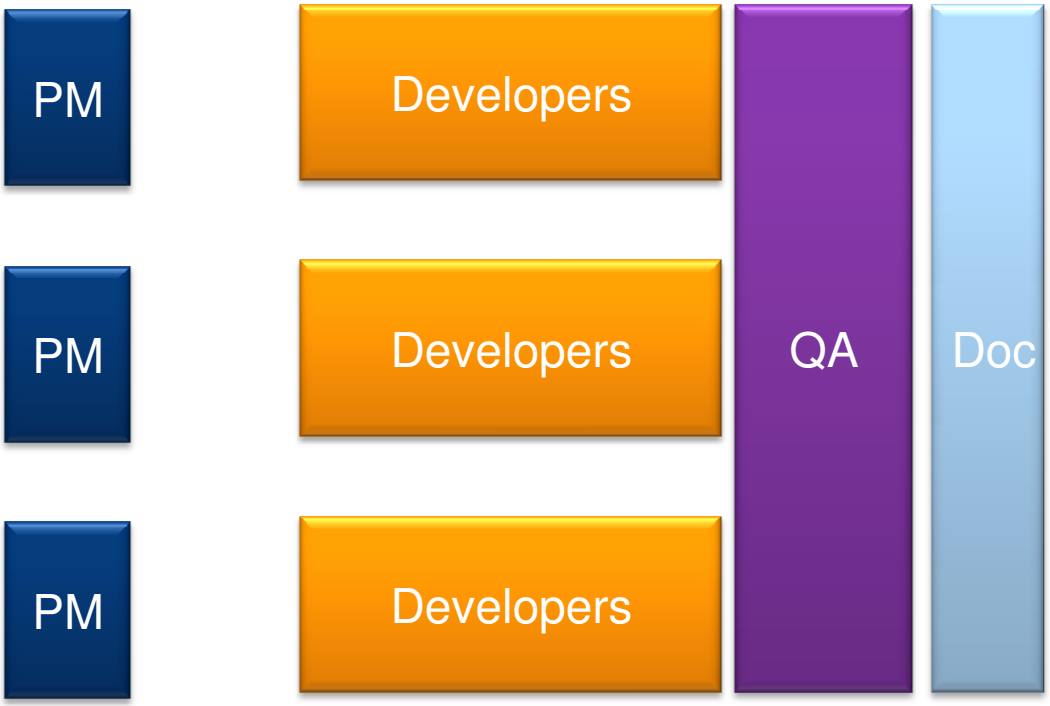


Improving the testability of applications

- Develop with testability in mind
- Improve testability by
  - instrumenting existing interfaces with testability hooks
  - adding attributes that can be used for testing
- Testability hooks make it easier for testing tools to
  - understand the interface from both tool's and tester's perspective
  - consistently recognize and call actions
  - verify actions and responses
- Collaborative effort between testers and developers and needs involvement of the architect.

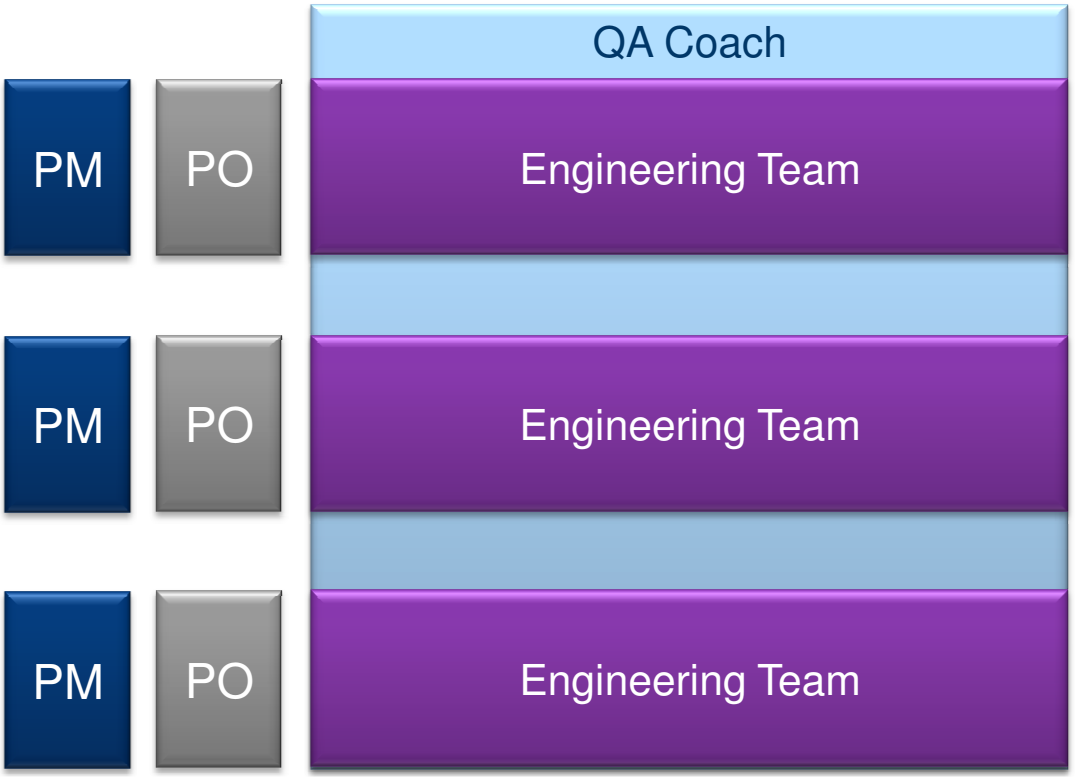
Agile transformation – existing state



Starting point

PM ... Product Manager

Agile transformation – existing state



Today

PM ... Product Manager

PO ... Product Owner

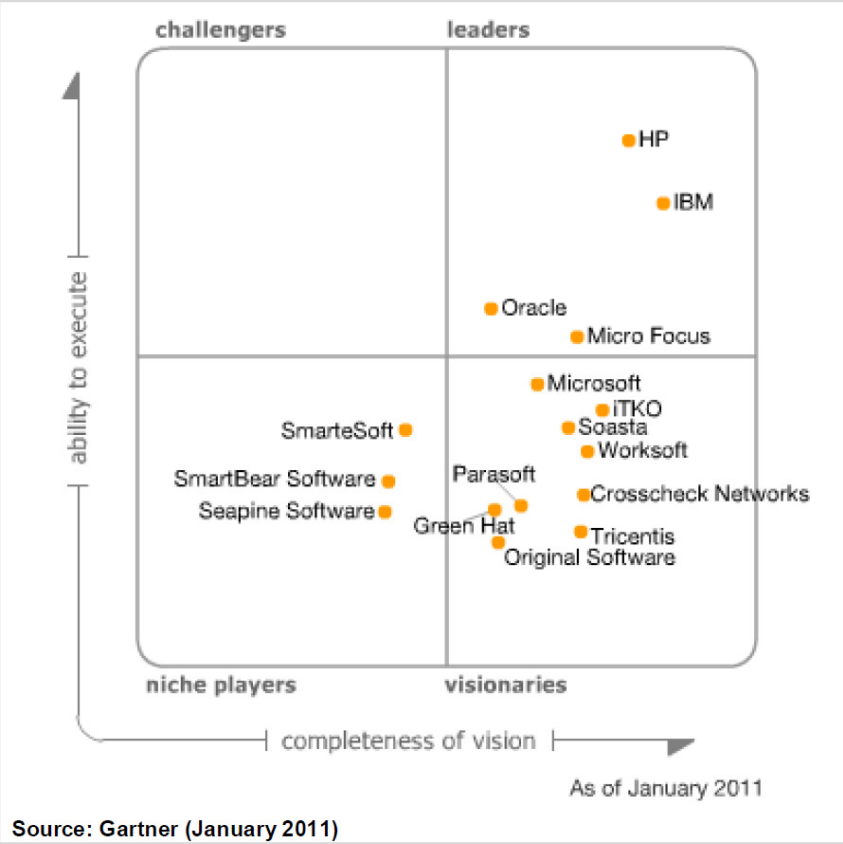
Summary

- Testing will be more aligned with business needs
- Quality will become everybody's responsibility
- Test Automation will become more important
- Vendors will concentrate on core competencies
- There will be a tighter integration of toolsets
- Adoption of the Test early and often principle
- Need to improve testability of applications
- Developers and testers need to collaborate
- Transformation - Monitor progress and adapt

Micro Focus positioned as Leader in the Gartner Magic Quadrant for Integrated Software Quality Suites

"Testing software can be an expensive process, but poor software quality leads to user dissatisfaction, as well as increased development and maintenance. Therefore, having a well-defined set of tools and practices to drive software quality will positively affect the overall business bottom line."

Gartner, *Magic Quadrant for Integrated Quality Suites*, January 31, 2011



This Magic Quadrant graphic was published by Gartner, Inc. as part of a larger research note and should be evaluated in the context of the entire report. The Gartner report is available upon request from Micro Focus.

Questions & Answers

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