

# *Testers of 2015 and Beyond*

*Positioning Yourself for Your Coming Career*



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# *Introduction*

- ⊕ Software testing is evolving rapidly
- ⊕ What are some important trends?
  - ⊞ Virtualization and cloud computing
  - ⊞ Agile methods
  - ⊞ An explosion in the test configuration space
  - ⊞ Huge volumes of production data
  - ⊞ Proliferation of open-source testing tools
  - ⊞ Tester certification
  - ⊞ An uncertain world
- ⊕ Testing and quality matter more and more
- ⊕ Keep current or get left behind
- ⊕ Let's look at some ways to position yourself for success in 2015 and beyond...



# *Virtualization and Cloud Computing*

- ❁ These trends are two-edge swords for testers
  - ❁ Can complicate test environments
  - ❁ Can simplify generation of short-term test environments
- ❁ Having knowledge of implications is key
  - ❁ Performance and reliability testing can be done in production-like environments
  - ❁ Background loads can be significant when hardware is shared
  - ❁ Reconfiguration of production environments can have unanticipated impacts



# *Agile Methods*

- ✦ Agile methods are in the mainstream
- ✦ They offer both challenges and opportunities for testers
- ✦ Agile does not mean one thing, but a collection of many related things
- ✦ Practice and theory remain different...as has always been the case for other lifecycles
- ✦ Integration of testing best practices into Agile methodologies remains a challenge
- ✦ Is less measurement really a good idea?



# *Test Configurations Explode*

- ❖ “The cubic meter of devices”
  - ❖ What versions of OSes, browsers, security software, Java, etc., need to be tested?
  - ❖ What configs are most important (risk-wise)?
  - ❖ Do you need to test combinations (e.g., pairwise)?
  - ❖ Is equivalence partitioning enough?
- ❖ “Walled gardens” create compatibility bubbles for testing
- ❖ Outsourcing to compatibility labs can save time and money



# *Production Data Explodes*

- ⊕ The era of “big data” has arrived
- ⊕ Disparate related data repositories abound
- ⊕ Generated data may give false confidence in data coverage
- ⊕ Testers must consider how these affect testing
- ⊕ Can you use production data for testing?
  - ⊞ Size considerations
  - ⊞ Anonymization considerations
  - ⊞ Distributed testing conditions of big data
  - ⊞ Production data is inherently “dirty”
- ⊕ If generated data is required, testers must address realism of the generated data



# *Open-source Tools Galore*

- ❖ Agile methods have spun off many useful open-source test tools
  - ❖ X-Unit
  - ❖ Cucumber
  - ❖ Fitnesse
  - ❖ Selenium
- ❖ Test automation skills are essential to take advantage of these tools
- ❖ Integrated development environments often include related or similar tools
- ❖ Programming skills are typically useful to talk to developers about their automation
- ❖ Testers need to understand white-box coverage (which most programmers don't)



# *Tester Certification*

- ⊕ Tester certification has existed since the 1980s
- ⊕ The ISTQB program brought openness, inclusivity, and global reach
- ⊕ ISTQB certifications exceed 300k now
- ⊕ Certification is not about training
- ⊕ Certification is about establishing knowledge
- ⊕ ISTQB program includes a career path
- ⊕ Certification will lead, ultimately, to an agreement on best practices throughout testers' careers
- ⊕ Certification is part of professionalization





## *Whither the World?*

- ❖ The global financial crisis continues to inject uncertainty
- ❖ Regional hot-spots erupt regularly but unpredictably
- ❖ Globalization and falling barriers to labor continue
  - ❑ Infrastructure is a key competitive advantage
  - ❑ Legal frameworks can enable or retard trade advantages
- ❖ Those entering their working careers now may well compete against one billion new entrants to the global economy before they retire



# *Testing and Quality Matter*

- ⊕ Research firm Forrester estimates \$50B in annual spending on testing
- ⊕ Forrester estimates \$20B spent on outsource testing services
- ⊕ However, Gartner estimates about \$4T in annual spending on IT
  - ⊕ Testing is typically much more than 1% of IT budgets
  - ⊕ Avoidable costs of failure often run to 10-25% of IT budgets
- ⊕ These numbers are growing
- ⊕ As technology continues to grow exponentially, wasted costs of failure will attract more and more interest
- ⊕ Avoidable costs of failure sap money available for innovation



# *We're Engineering, but Not Yet Engineers*

- ⊕ Engineering is the building of useful things
- ⊕ Science is the search for truth
  - ⊞ Close enough is not good enough for science
  - ⊞ But good enough is a key part of engineering
  - ⊞ Perfect software is impossible
  - ⊞ Software that is fit for use is
- ⊕ So, we are engaged in engineering
- ⊕ Are we working like engineers?
- ⊕ No, we need to work toward the mathematics, standard materials, and generally accepted best practices of other engineering fields
- ⊕ The next fifty years will take us there
- ⊕ Some of you in the audience will see that point



## *Key Emerging Themes*

- ❖ Testers must have deeper understanding of these trends
- ❖ In a global market, skills trump location
- ❖ Let's work on agreeing about what best practices are, intelligently adapted to different situations
- ❖ Connecting to changing needs and trends is an essential part of success



# *Conclusions*

- ⊕ We've examined seven important trends in testing
- ⊕ These trends are here now and will continue through the next decade and beyond
- ⊕ It's a great time to be a tester (and a software engineer)
- ⊕ Testers can guide organizations and their profession through these trends
- ⊕ Remember that pioneers leave a trail that persists
  - ⊕ Be a constructive, positive contributor to the profession
  - ⊕ Work constructively with your fellow testers
- ⊕ We're all working towards a better software testing profession



# *To Contact RBCS*

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