The Power of 'Crowd' Testing

Executive Summary

The prevalence of social media, along with easy access to the Internet through multiple channels including Web and mobile devices, has ensured that it is easy for a group of individuals to share their thoughts, initiate discussion and even enforce action on areas of common interest.

Conversely, the easy access to such a crowd enables organizations to leverage these individuals in achieving business goals. Crowdsourcing as a concept is not necessarily new. However, the Internet and mobile devices have acted as catalysts that have triggered a chain reaction, increasing their effectiveness and ROI. This white paper will discuss how cloud-enabled crowdsourcing fits into the full testing lifecycle.

Where Crowd Testing Applies

Testing essentially validates that the final product meets the targeted quality standard. This necessitates the testing of a large number of intuitive as well as esoteric test scenarios. Crowd testing, in many cases, becomes a broad, but effective means of ensuring that all bases are covered. Of course by leveraging the crowd, testing moves from a focused activity aimed at a few individuals to a "hit it all" approach.

Crowd testing can be leveraged regardless of the underlying development methodology. In fact, it is viable in both agile and waterfall scenarios.

However, one cannot yet replace traditional testing with crowd testing.

If organizations focus only on crowd testing, the quality assurance process becomes more of a game and is no longer a science with predictability. And if application stability has not been ensured through early lifecycle testing, a vicious loop of ever-increasing defects can ensue. Also, challenges often arise in effectively using crowd testing for specialized requirements, such as services testing. Thus, organizations need to adopt a strategy that blends traditional and crowd testing approaches to get the maximum ROI.

Crowd Testing: A Key Element of the Testing Lifecycle

There are four approaches to handling the blending of traditional and crowd testing approaches.

- **As an add-on to testing:** Crowd testing can be used as a complementary add-on prior to production release. This will be effective in catching any residual UI and configuration defects. Options like VDI (Virtual Desktop Interface) access can be considered if security or privacy concerns prevent the organization from letting the crowd access the site through the Internet.

- **For specialized testing scenarios:** An example is multivariate testing where end-users can be used to select Web site components or

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controls from a set of choices available as part of tests based on the response. Performance testing is also an increasingly leveraged option.

- **Leverage based on risk and priority:** Use crowd testing for those applications that have a higher Defect Exposure Factor (DEF is defined as Number of Releases/yr * Average number of daily critical stakeholder visits) and high business criticality. This results in prioritizing the use of discretionary budget in areas where it will make the highest impact (see Figure 1).

- **Crowd testing integrated into overall testing, and TaaS strategy:** Treat crowd testing as one of a basket of services used in combination with the optimal tool, infrastructure and test type combinations as dictated by the overall test strategy. As organizations and the industry mature, crowd testing will gradually permeate into the testing community, further reducing the need currently fulfilled through dogfooding and domain SME-led testing.

Pricing

Current pricing models largely tend to be a combination of a fixed-based price and a variable component that is dependent on the number of defects uncovered in each run.

We have increasingly found that it is more effective for our clients if we bundle this as part of our overall Testing as a Service (TaaS) cloud-based offering. While it is still an option to provide defect-based pricing, we believe that crowd testing as part of an overall bundled service or pricing model dependent on the application test strategy is more optimal for most companies.

Future Trends

Extinction of pure-play crowd testing seems to be a foregone conclusion. Niche vendors are scrambling to expand their service offering by entering into alliances with similar players offering specialized testing services such as performance testing. We believe that crowd testing will soon become synonymous with community testing. Our BA – QA model, which ensures that there is a domain-driven viewpoint applied to all testing engagements, married with the large and experienced testing resource pool, enables us to provide crowd testing delivered by testers who are both competent in rigors of QA and knowledgeable of the client's business unique requirements.

Social media is already a critical lever in crowd sourcing. We foresee greater integration between social media and crowd test execution. Special interest groups, including those within Facebook and Twitter that are business focused, will help build knowledge and efficient handover across releases even in a crowd testing scenario. This will further enhance the integration of crowd and community testing.

Looking Ahead

Crowd testing is fast growing as a viable test option. However, it is a complementary testing-

Leverage Achieved via Risk and Priority.
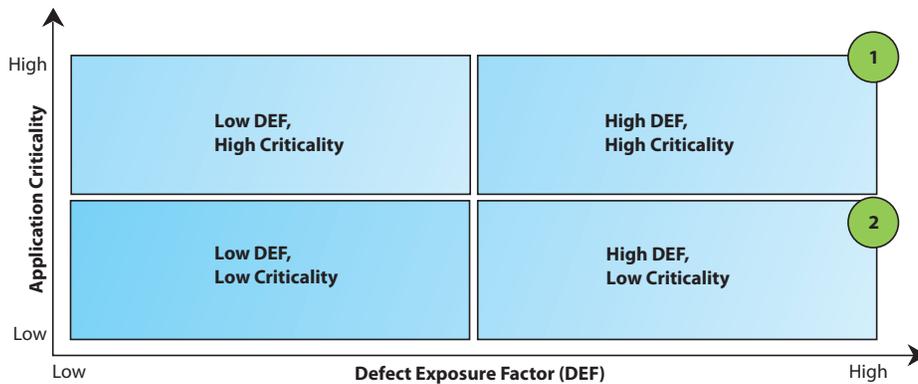
*Focus crowd testing on areas with a high Defect Exposure Factor. DEF measures immediate customer exposure post release.

Figure 1:

service – organizations need to integrate crowd testing as part of their overall testing strategy. We offer crowd testing as part of our TaaS platform and believe that this approach can quickly and cost-effectively eradicate defects if properly integrated into the overall testing lifecycle. As the marketplace becomes crowded (pun intended), global services players are differentiating by providing more testing services either alone or in partnership with key vendors. Similarly, we have made significant investments and are leveraging our domain knowledge and large testing resource pool to enable us to bridge the gap between crowd testing and community testing.

'Crowded' Crowdsourcing

As organizations increasingly adopt crowdsourcing, we are also seeing emergent service differentiation. The market has come a long way from the undifferentiated few that existed in 2009. Broadly speaking, this sector can be split into six segments:

- **Competition Hubs:** Organizations like Threadless rely on competition among the participants to churn out competitive products that already have a captive customer base.

- **Idea Platforms:** Cognizant's iZone relies on individuals to propagate and rank ideas that can then be converted into products.

- **Service Bazaars:** These organizations leverage the crowd for services. A leading example is Crowdspring.

- **Content Aggregators:** Wikipedia, for example, utilizes the wisdom of the crowd to write and fact-check published articles.

- **Finance Option Providers:** These organizations provide Web-enabled micro-financing services. An example is Kiva.

- **Feedback Channels:** Operations such as I Digg provide a place where the crowd can provide its thoughts on articles, events and products.

About the Author

Manoj Narayanan is Cognizant's Director of Testing Services. He manages the QA delivery and client relationships of Cognizant's retail, travel & hospitality and capital markets industries in North America. In his current role, Manoj provides thought leadership and implementation assistance to clients as they transition in QA maturity. During his 14 years in the IT services industry, Manoj has successfully played multiple roles including that of Performance Services Evangelist, Program Manager and Transition Advisor. Prior to Cognizant, Manoj was a management consultant with A T Kearney with primary focus around business process re-engineering and risk optimization. He can be reached at manoj.narayanan@cognizant.com.

About Cognizant

Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process outsourcing services. Cognizant's single-minded passion is to dedicate our global technology and innovation know-how, our industry expertise and worldwide resources to working together with clients to make their businesses stronger. With over 50 global delivery centers and more than 104,000 employees as of December 31, 2010, we combine a unique global delivery model infused with a distinct culture of customer satisfaction. A member of the NASDAQ-100 Index and S&P 500 Index, Cognizant is a Forbes Global 2000 company and a member of the Fortune 1000 and is ranked among the top information technology companies in BusinessWeek's Hot Growth and Top 50 Performers listings. Visit us online at www.cognizant.com for more information.

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