

If it's gonna break don't fix it



Sarah Saltzman of Compuware explains how traceability should prevent large failure caused by correcting small defects

At a time when IT budgets are shrinking and developers are under pressure to deliver faster, testers need to ensure that development projects are staying on track and that initial requirements are being met. So how can this be done?

Many of us in the testing arena become so immersed in the tests we are performing, that we end up only thinking about the part of the project we are working on, and almost forget that it forms part of a much larger initiative. Although this is a problem we are all aware of, it is a trap that we can all too easily fall into. This is evident when we look at testing. Many people working in our field will perform a test, but only trace the results of it back to the specific part of the application they are testing – this isn't good enough, tests and defects should be traced back to requirements as this will enable them to assess the true impact the issue has on the project overall.

Definition

Requirements need to be defined at the outset of a development project to enable testers to track back to initial requirements. This definition process has to include everyone involved in the project from customers, to business sponsors and technical developers. Once defined the requirements will form a key part of any project, with all development and testing work stemming from them. However this isn't always the case as often a requirements document will be drafted and agreed, and then filed away never to be seen again. This is a bad practice – without referring back to initial requirements, how will developers know they are writing code that meets the project specifications? How can testers know if their test plans provide adequate coverage against the original requirements?

One way to ensure that requirements are always at the heart of a project is to use a requirements management tool. All work carried out on the project should stem from the requirements that are set within the tool. When setting requirements, business analysts and project managers should include all associated data in order to assist the tester in tracing tests back to requirements later in the project. This

data should include information like the priority of the requirement, its status, information on the business sponsor who requested it, and the particular software release the requirement is associated with. Essentially it is very important to spend time and effort defining and prioritising requirements as they will not only feed into test plan generation, but also shape the whole development project.

Test plan generation

Test plan generation can often be difficult, especially with large-scale development projects. With many different facets to an application, deciding where to start testing can be tricky. Do you start by testing the customer facing part of the application, or do you start with the numerous reports and interfaces? This is a dilemma that test managers face day in day out; where should their test plan start and where should it end? The answer is simple, the test plan should be generated from the prioritised requirements set at the start of the project. Test managers should look at the highest priority requirements and build their test plans around them. The test plan should place a high degree of effort on these high priority requirements to ensure their reliability and stability.

“Where should the test plan start and end?”

Issue/defect generation

Once a test plan has been generated and is being executed it is almost inevitable that issues and defects will arise. This is often the point at which testers make mistakes by not considering the impact of the defect they have found on the whole project. By tracing back to the requirement and looking at the priority information, testers will be able to understand whether there is an urgency to resolve the test failure. If they are using a requirements

management tool they will also be able to analyse whether there any similarities to defects found by other testers. By tracing a path back to the requirement, the testers will be able to see what impact the failure will have on other elements of the project. The tester can then feedback this information to the project manager and developer responsible for the requirement, so that they can make adjustments to the code written or maybe even revise the initial requirement.

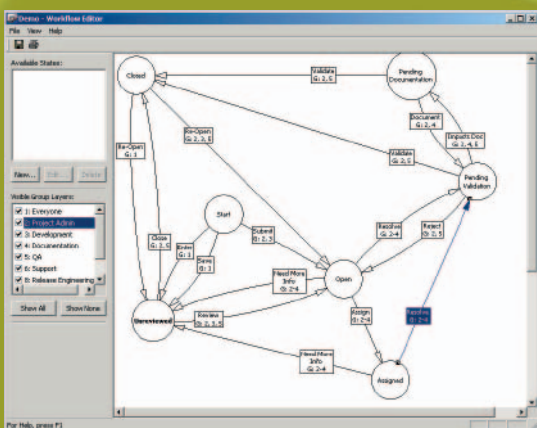
Impact Analysis

Once a defect is found, the development team will make changes to the systems and code in order to rectify the problem. The development team will then pass this 'fix' to the testing team, to run tests to prove its reliability and stability. It is at this point that tracing test defects back to requirements really shows its worth. By tracing both the defect and the 'fix' back to the original requirement the team can gain a thorough understanding of the impact the 'fix' will have on the system. The test team can then prepare and run tests on all impacted parts of the system. Without tracing defects and fixes back to requirements it is very difficult for testers to ensure that they are testing all parts of a systems that have impacted by a fix.

Conclusion

By tracing test defects back to requirements and by putting requirements at the centre of any development project you can ensure that your test teams think more laterally about the impact of the tests they perform. Tracing back to the requirement not only ensures that you keep the project focused on meeting the goals agreed from the outset, but also that testers analyse how a test defect can impact a number of requirements due to their interdependent nature. There have been many high profile failures in recent times, with some stemming from developers trying to rectify a small problem without considering the over impact that 'fix' will have. By tracing back to requirements, test teams can help developers ensure they don't try to solve one small problem and create another much larger one. PT

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