WhitePaper
Tavant Open Source Testing Platform: Helping You Cut Costs

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Introduction

According to a study report titled 'Open Source Paves The Way For The Next Generation Of Enterprise IT,' published by Forrester Research in November 2008, 87% companies which had moved from commercial to open source software for the study had succeeded in saving significant costs and 92% companies had been able to vastly improve their quality.

This whitepaper elucidates how open source software tools have become an integral part of our organization’s software offerings today. It also gives a fair idea about best-of-breed open source software for functional testing, performance testing, test management and defect reporting/tracking.

The paper also briefs on customizations to some well-evaluated open source testing tools and integration between them. It also discusses the numerous benefits of integration of the open source tools.

Challenges with Commercial Testing Tools

- High costs and inefficient utilization.
- Expensive global licenses required for end customers working from different geographical locations.
- High licensing cost for 100 users’ configuration for performance testing.

QTP/QC Licensing Model

QTP/QC license cost varies from country to country, depending upon the type of license required. HP QuickTest Professional (QTP) is available for Seat License, Site License, Area License and Global License.
HP Quality Center (QC) is available in three editions -- Starter, Enterprise and Premium, and for Site License, Area License and Global License.

For our research, we began analyzing open source software tools with features and functionalities similar to those of commercial tools.

Table 1 illustrates a few popular commercial tools and their open source counterparts.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Commercial Tools</th>
<th>Open Source Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirement and Test Management</td>
<td>HP Quality Center, Rational TestManager, Seapine TestTrack Pro</td>
<td>TestLink, Testopia, Redmine, RTH, XQual XStudio</td>
</tr>
<tr>
<td>Functional Testing</td>
<td>QTP, Rational Functional Tester, TestPartner, EggPlant</td>
<td>Watir, Selenium, Cucumber</td>
</tr>
<tr>
<td>Defect Management</td>
<td>Rational ClearQuest, SilkCentral Test Manager, TrackStudio</td>
<td>JIRA (least expensive), Bugzilla, Mantis, RedMine, Trac</td>
</tr>
<tr>
<td>Performance Testing</td>
<td>LoadRunner, SilkPerformer, Rational Performance Tester, QA Load</td>
<td>JMeter, Apache Bench (AB), WebLoad</td>
</tr>
</tbody>
</table>

Table 1: Few popular commercial tools and their open source counterparts

**Tavant Open Source Testing Platform**

At Tavant, we had been using commercial tools QTP and QC (formerly known as Mercury Test Director) for functional test automation and test management, respectively.

We wanted to cut our operation costs while improving productivity and consistency within the Quality Engineering team. Therefore, reduction in testing effort without compromising on software quality was one of our prime concerns. Since the cost of commercial tools was huge and they were not efficiently utilized, another objective was to reduce the cost of licensing.

However, we realized that using Watir for functional testing and TestLink for test management independently may not yield the desired results. Therefore, we decided to customize these open source tools to suit our needs and integrate them to derive the maximum benefits.

Subsequently, three and a half years ago (in mid-2007), we customized the open source software WATIR for functional test automation to best suit our needs and named it *Tavant Watir Automation Framework* (TWAF). We also customized TestLink for test management and titled it as *Tavant Test Management Solution* (TTMS). At the same time, we moved to JIRA for defect reporting and JMeter for performance testing.
Figure 2 depicts an integration of TWAF and TTMS — the Tavant Open Source Testing Platform — which overcame the challenges of distributed teams with collaborative, customizable solutions for testing, workflow control, tracking, and reporting.

Figure 2: Tavant’s Open Source Testing Platform

**Tavant Open Source Testing Platform: Integration of TWAF & TTMS**

Tavant Open Source Testing Platform, users would only need the test case number defined in TTMS during the creation of scripts. Once it is written in the test case, TWAF will do the rest. Once the script execution is over, the result would be passed to TTMS through an API specifically written for this purpose. The API would update the results in the TTMS database for the test case that is run. Through TWAF–TTMS integration, we moved away from commercial tools QTP and QC.

**TTMS-JIRA Integration**

During test execution, when a particular test script fails, user has to provide the reported defect ID through JIRA to ensure complete defect traceability. TTMS, when integrated with defect tracking tool JIRA, assumes almost all features and functionalities of HP Quality Center. TTMS also includes a very simple requirement management module, thus bringing it closer to QC standards.

JIRA offers customizable workflows, issue types, screen schemes and mandatory fields to users. When customized, JIRA is easy to use and involves low training overheads. The cost of an unlimited license of JIRA is usually a fraction of that of other issue tracking tools.

JIRA worked well for us as we had numerous diverse needs. We used it for facilities, technical support, IT helpdesk, software engineering, and defect reporting and metrics. Customized JIRA dashboards right on the home page were a blessing to everybody in the project team as well as senior management as they helped in better and faster decisions-making.
Performance Testing Using JMeter

We have seen JMeter outputs very detailed logs of all test data such as HTTP responses, response time, header info, deviations of response times, etc. JMeter has an excellent threading engine to examine how a system can handle simultaneous execution of the same test ‘X’ number of times.

JMeter provided nice graphs, which we shared with customers and users to illustrate test output. Using its exceptional features, we eventually moved away from LoadRunner.

Results and Benefits

We used Tavant Open Source Testing Platform for several testing projects across different application domains, and it helped us reduce costs and risk, increase quality, and lessen the number of testing cycles.

Tavant Open Source Testing Platform also helped our QA teams turn quality into a competitive advantage and realize significant benefits, such as:

> Real-time visibility of requirements coverage and associated defects to paint a clear picture of business risk.
> Enabled us to manage the release process and make more informed release decisions, using TTMS’s real-time metrics and reports.
> Helped the senior management to measure progress and ensure effectiveness of quality activities.
> Allowed QA teams, developers and business analysts to collaborate toward the quality lifecycle.
> Enabled us to manage automated testing assets centrally.
> Facilitated standardized testing and quality processes through workflows and alerts that enhanced productivity.
> Allowed us to lower costs by capturing critical defects before they reached production.

In our continual experience for the past three and a half years, executing test automation using Tavant Open Source Testing Platform, we have been able to reduce our testing overheads from 25% to 8%. We have also improved the time-to-market through improved communication within project teams.
Conclusion

As software technologies get more complex, they pose a great challenge to quality assurance teams in assisting development teams to release products with higher quality standards, capable of complying with user needs and fulfilling expectations. Tavant Open Source Testing Platform can help the quality assurance teams meet these requirements. This platform not only allows engineers to provide faster and more accurate results for their projects, but also helps test teams achieve test automation effortlessly and seamlessly. At Tavant, the platform has been in use for over three and a half years for several projects across different application domains. The platform’s functionality can be extended to suit project-specific needs. Since it is based on open source software, it also helps organizations save huge costs involved in licensing of commercial tools.
About Tavant Technologies

Tavant Technologies is a specialized IT solutions & services provider that leverages its expertise to provide impactful results to its customers. We have leveraged our unrivaled capabilities and domain insights to create game changing results for leading businesses across chosen industry micro-verticals. We are known for our long-lasting customer relationships, engineering excellence and passionate employees. Founded in 2000, we are headquartered in Santa Clara, California and service customers across North America, Europe, and Asia-Pacific.

About the Author

Pravin Kawware is a Senior Lead – QA at Tavant Technologies. With over 10 years of experience in software testing and quality assurance, Pravin has managed a variety of test projects across varied domains, including manufacturing, healthcare and banking, by testing both standalone and distributed applications.

At Tavant, Pravin oversees most of the product testing and release processes. He has a sound knowledge of diverse testing tools, automation techniques and methodologies on various platforms as well as CMMI® processes, test process and methodologies, and Software Development Lifecycle (SDLC). He is passionate about software testing and equally adept at functional, performance, security, usability and compatibility testing, both for system test and system integration test.