

# Open Source Test Automation Tools Beat Licensed Ones



Author: **Jayanth Krishnan**, Independent Testing Services

Practice Head: **Janaki Jayachandran**, Testing Director

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## Role of Automation

In the world of competitive business, software solution providers are keen to get new products and features to the market, well before their competitors. The ever evolving nature of technology has triggered the need for frequent updates, changes and new features to be made available for customers, to stay on top of their charts. This trend among the companies to release products faster and more frequently to market has resulted in automation becoming a key part of the testing process. Once a decision has been made in the requirement of an Automated Testing solution, the first crucial part is selecting the tool for automation. Tool selection, whether it is commercial or open source is critical to the success of any solution.

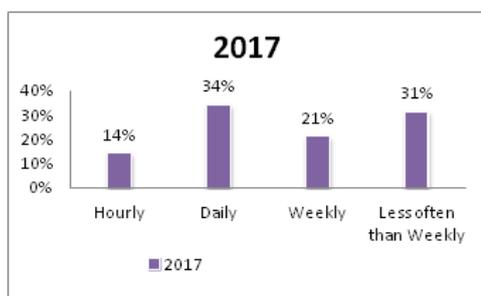
Open source software is turning into the most remarkable "emerging" sensation of the entire Information Technology panorama.

## What's down the line for Software Solutions?

There was a time when Desktop Applications meant the word Software product, and almost every software solution was in the form of a Windows Desktop Application. Most of the Test Automation tools of this time were paid tools, with very limited supported platforms.

Growing demand for software solutions and endless possibilities of networking gave way to Web Applications & APIs. Decreased resource utilization, easy one point installation, seamless scalability, maintenance and multi-platform access have made Web applications & APIs to completely take over Desktop applications over the decade. Release cycles were smaller, meaning new features and improvements were delivered in short intervals. Yet another important advantage of Web applications was that Software Piracy was made obsolete.

Below is an indication of the Build frequency among software service providers, based on a recent survey.



This increasing need for releases in short time intervals, has had a huge impact to the term functional testing, by bringing in more parameters into consideration, like testing in multiple platforms, testing integration with other applications, APIs & Services. This marked the beginning of Open Source Automation tools era. With paid Automation tools, that were mostly platform dependent, they struggled to meet the expectations that rose due the above changes.

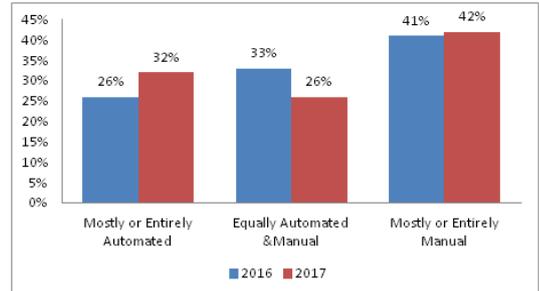
## Present and Future of Test Automation

Regression testing is the key part of every release from a QA perspective that ensures the quality of the product is unaffected due to the release. Regression testing typically covers all the basic functionality of the software solution that is being released. Regression tests do not require to be modified very often and they are required to be executed quite frequently in very strict timeframes. These two requirements are the key for automation and this is where automation fulfils the purpose of executing a huge number of test cases with accuracy within a short burst of time. Despite the advantages, not every test case is automated. The limitation of what has to be automated is only affected by two parameters. So if the test case under consideration is not expected to change frequently, then the only deciding factor is how much effort it requires. Also, it is now realized that a Test Automation solution can make use of multiple tools and frameworks to deliver an efficient and promising solution.

Let's look at the evolution of Test Automation tools & frameworks.

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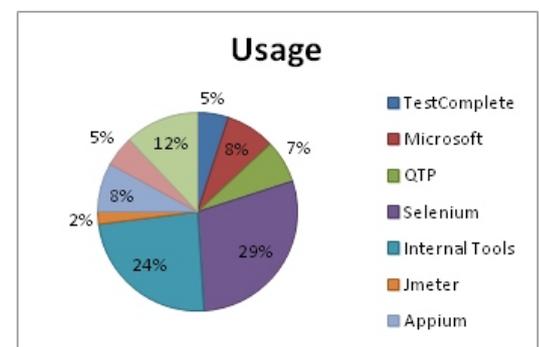
A recent independent survey “Testing Trends in 2017: A Survey of Software Professionals.” was conducted by Dimensional Research regarding the place of automation in Test Automation. The summary of the result was an astonishing 6% increase in automation test coverage under the mostly or entirely automated category.



## Current Market Share of Open Source & Paid tools

There is a huge number of Open Source and paid tools in the market, however not all of them are being widely used. Below chart represents the current usage of the popular automation tools that are used by the majority.

The whole of paid automation tools only adds up to 20% of the overall Automation tools. Out of this 20%, majority of its usage contributes to the Automation of Windows Desktop applications.



## Demands, that paid tools fail to meet

We recently had a scenario, where a market leader in providing Enterprise Content Management (ECM) solutions, started off as a Windows Desktop only Client–Server application model. Hence TestComplete, a paid tool that specialized in automation of windows Desktop applications was preferred. This proved to be the perfect solution until a Web & Mobile Application were brought into the same product to stay on the business edge. As there was an existing Automation solution in-place, Automation team decided to try the same paid tool for the web & mobile apps, before analysing any other available tools.

After a few trials and thorough evaluation, an Open Source tool for automating the web & mobile apps, was preferred even when there are existing resource and skills for the paid tool, due to the below reasons:

- ➔ Cost of tool
- ➔ Lack of Multi-platform & Browser support
- ➔ Support and Solutions
- ➔ High Infrastructure requirements
- ➔ Limited Integration with other tools
- ➔ Impractical Distribution & Parallel Execution

## Where Open Source makes the cut

The current and the next generation are moving towards Web & Mobile apps. When it comes to testing Web & Mobile sites & apps, Open Source tools pack the full features that will satisfy the essential requirements of testing. Here is a brief view of where Open Source tools made the cut, whereas the paid tools struggled to do so.

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## Cost or Investment

### ➔ Paid Tools

It is just not the obvious reason of a paid tool requiring a huge initial investment, there is more to the story.

Automation tools have to be updated from time-to-time to ensure they can work with the latest products. And these updates are not free

Most paid tools come with a number of individual modules, for instance a tool will have separate modules to test mobile applications, which will not be included in the tools' basic cost.

Even after the completion of developing the test scripts, the tool will have to be updated regularly for maintenance.

### ➔ Open Source Tools

The first selling point of Open source tools is that it is free and users are given the freedom to customize the tools as per their requirement.

Due to the massive work base, Open source tools are frequently updated to work with new technologies and support new platforms or browsers.



## Multi-platform & Browser support

### ➔ Paid Tools

Paid automation tools have no or very minimal support for multiple Operating Systems as they are platform based. Even the most popular paid tools only support limited versions of the commonly used browsers. This leaves a huge gap in device / browser coverage for testing, which is very crucial for testing Web & mobile apps.

Moreover paid tools only focus on Windows operations system, leaving out Mac OS & Linux Operating systems that take a considerable amount of customer base for web & mobile apps.

### ➔ Open Source Tools

Open Source tools are known for cross-platform and cross browser support. Since the tools are not Platform dependant, Open Source tools can run tests on different operating systems with ease.

## Support and Solutions

### ➔ Paid Tools

Paid Automation tools have dedicated tech support teams, who are available to help with installation, licensing and tool trouble shooting, but for issues regarding automation there is very limited support as the number of people using the tools are limited and it is not likely that people would have faced similar issues.

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## ➔ Open Source Tools

Open Source tools have a massive online community of real-time users. This makes a vast crowd sourced support available. Most of the issues are questions that will have already been raised and resolved.



## Infrastructure requirements

### ➔ Paid Tools

Paid automation tools are generally massive and have high system requirements to run. This adds up to the investment cost.

### ➔ Open Source Tools

Open Source tools are small and modular, users can only use the ones that are required. Open Source tools also have a number of options for IDE, that users can pick based on requirements.



## Integration with other tools

### ➔ Paid Tools

Paid tools have limited connectivity to other tools such CI, Defect Management & Quality Management tools. And the ones they do fully support are also paid tools.

### ➔ Open Source Tools

Most open source tools don't have in-built integrations with different CI or defect management systems, but the fact that it is Open Source has led to development of several plug-ins and add-ons for such integrations



## Distributed & Parallel Execution

### ➔ Paid Tools

Paid automation tools are very expensive to be used for parallel execution, as each machine to be used for execution requires the tool to be installed and licensed.

### ➔ Open Source Tools

Parallel execution is the key to achieving the full potential of automated test execution, as the test turn-around time is reduced exponentially. With open source tools it is possible to schedule parallel and distributed executions in the same machine as well as across different machines with different operating systems & browsers.

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## The Other Side of Open Source Tools

While it is impressive to see how Open Source tools stack up against paid automation tools, there are some areas in which paid tools still get the job done. It is important to be aware and consider these areas. Below is a brief comparison of such areas.

Feature / Consideration	Feature / Consideration	Feature / Consideration
Windows based application support	<p>Open Source tools have very limited or no support for working on Windows base applications.</p> <p>Even the most popular Open Source automation tools cannot handle the Save or Open dialogs of windows, which are part of most web app testing.</p>	Paid tools have a strong support for working with windows based applications, as it is their area of expertise.
Reporting	Open Source tools can be configured to generate customised reports in any expected format, but these require the work of the automation team to code or add additional plug-ins	Paid tools have their own premium default reporting systems. Though the options are limited, it is ready to use out of the box.
Required Skill set	Requires people with good technical capabilities. This is due to the requirements to not only code, but also to integrate with different frameworks or plug-ins.	Another consideration is that Open Source require more time and knowledge for initial set-up before coding can begin Paid tools are easy to install, there isn't much to set-up and only requires minimum coding capabilities to develop test scripts
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Security	Open Source Automation solutions involve working with different frameworks and plug-ins developed by various organizations or individuals. Therefore there is always a question of Security and Standards.	Paid tools are created and maintained by business organizations and by default are certified and regulated by governing agencies for quality & Security

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## The Verdict

Even after the considering the above shortcomings, Open Source tools still makes its way through to next generation requirements of automation by handling the most important of all considerations that are time, multi-platform coverage and cost.

As long as Web & Mobile apps continue to dominate the Software solutions market, it is safe to say that Open Source tools will continue to lead over paid tools in Test Automation.

## Conclusion

The distance between Open Source & Paid tools is growing closer, having recognized the features of Open Source tools and the role it plays in the current market, even several Paid Tools have started supporting Open Source tools. An example of such adaptation is TestComplete & UFT (QTP) now supports the execution of Selenium.

Just while we are half-way towards migrating to Mobile Apps and sites for software products, the next era of wearable devices and augmented reality has already begun. And automation is yet to take on this new era. Considering how Open Source tools have taken over the show from Paid tools for Web & Mobile apps, it is obvious that - **Open source, drives next gen test automation.**

## References:

1. <https://saucelabs.com/news/sauce-labs-releases-third-annual-state-of-testing-survey-results>



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SINGAPORE  
+65 3163 3050

NORTH AMERICA  
+1 630 368 0970

EUROPE  
+44 203 170 6115

INDIA  
+91 44 6740 4000

MIDDLE EAST  
+971 50 658 8831

For more info contact  
info@aspiresys.com or visit www.aspiresys.com

