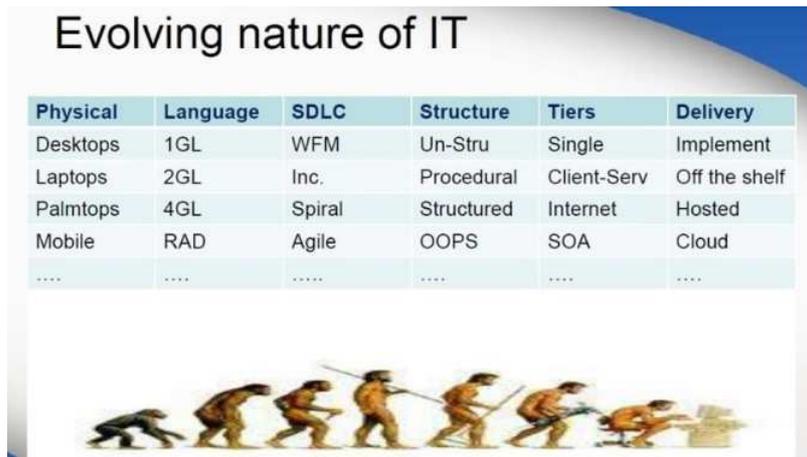


Agile, Cloud, Mobility, DevOps in Software Testing Career

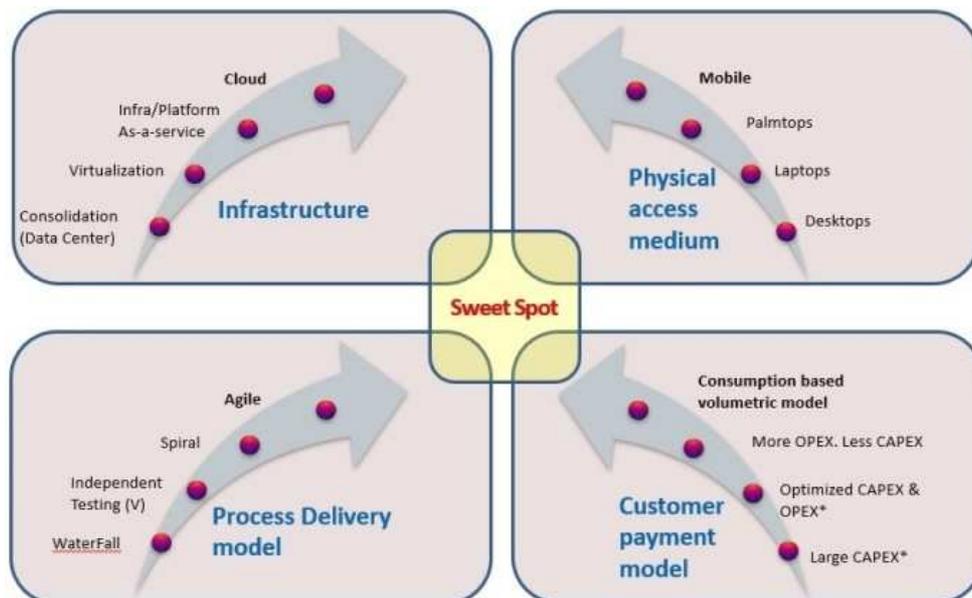
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IT industry is flooded with latest technologies and models. We have been learning and adopting the latest technologies and models such as DevOps, Agile, mobile and cloud in product development and testing. These technologies mostly adopted in isolation but not in totality. However, these models and technologies are inter-related, and it is important to understand their co-relation while thinking about the future of testing. Extending these lines and foot print of these technologies may tell us how testing will be after 5 to 10 years which can kind of give inputs to both academia and industry on what exactly to expect in testing career in the coming years. This article tries to map the evolution of these technologies and leads you with the imagination, which is worthwhile in shaping our career for the future. The idea of this article is not to elaborate on these technologies (as there are many resources in web for this) but to explain/perceive what in store for us in future.

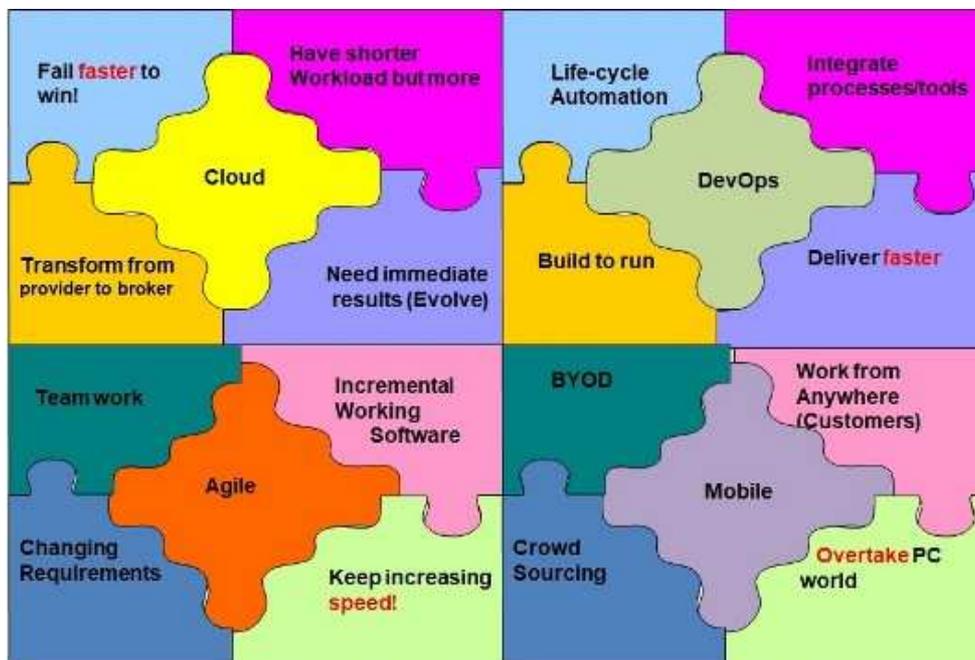


As you can see from above evolution above it is not just hardware (physical media), language/structure, development life cycle, architecture or delivery mechanism that evolved alone but they also had influence and impact on others. To give you an example, mobile devices do depend heavily on cloud to get latest apps (app store), storage/mails (cloud storage), updates (Cloud OS) ...etc, for it's mere existence. Having understood this, now it is time to add the dimensions of infrastructure and customer payment behavior to this evolution to get a complete picture on where it is leading us.



As you can see from above picture the sweet spot is in the intersection of Infrastructure, process, payment models, and access medium. It is important to understand that the customers and their expectations are changed along with these evolutions, where they have moved away from investing large amount of money (Capital expenditure) to “pay per use” or “pay per volume” or “pay as you go”, where consumption units drive the price (only operational expenditure). This is not just for services alone but for the whole infrastructure, product, services and solutions that are involved as one bundle. This behavior makes the companies to bundle infrastructure, products, integrations and physical media into one and provide them, to customers on “pay per use” models where the price spent by customers is constant month on month and leads to predictable budget. This makes the existence of the companies very difficult that focus on just one of these evolutions in isolation and not in totality. This makes the big fish companies eat small fish, as investments needed initially for bundled solutions is huge and to get the ROI, one must really be cheap and utilize returns only on big volume consumptions on long-term usage by the customers. Customer retention is also the key here. Small and medium companies can still exist in this scenario, providing technology pieces to provider companies which intern sell bundled solutions to customers, and keep looking at technology innovations, but not in the space of selling bundled solutions to customers at volumetric pay per use models.

Now let us look at common parameters of Cloud, DevOps, Agile and mobile with a different look (Below picture). Agile as a word is coined from Agility which means speed. DevOps as a concept is all about how a product in development can be moved to Ops (production) in less speed using automation and continuous integration. The concept of mobile is miniaturization of large sized PC and summarization of other equipment’s that people use, in to the hands of customers so that they can quickly do their business fast enough. The picture below (with speed marked in Red) illustrated this nice little intersection in those technologies which ultimately percolates down to time-to-market and time-to-profits of companies.



Now let us come to the topic of testing and career of test engineers, extending the line of these evolutions and imagine what can happen:

- Test engineers are expected to be masters in testing the complete solution that involves skills in hardware medium, Language, Process models, delivery, Complete Infrastructure, payment models so they can test the bundles for industry and customer expectation changes.
- Days are not far where test engineers will be only paid for productivity/volumetric pricing (per test case, per defect, per release (on-time), per unit of customer satisfaction/quality index) and permanent jobs may slowly vanish or reshape
- Outcome based payment model is going to hit the life of test engineers where only successful products in the customer space will provide them bonus (based on satisfaction index of products tested) and not the longevity or time-period
- Automation and DevOps will happen automatically as this is the only way productivity (throughput) of test engineers and developers can be improved and paid for their time. Automation/DevOps then becomes essential

commodity of all resources in IT companies and manual testing will be the thing of the past over time. Companies may consider using robots for manual/mundane testing

- With technologies being implemented fast, quick time to market gives first mover advantage to companies and that will drive the retention of test engineers. Some one who adopts a lean process, finds & fixes defects quickly with high throughput, has a knowledge on all pieces of the bundle to reproduce and simulate problems fast enough to help fixing will go long way forward compared to others
- Testing on the go – With the advent of mobile & cloud, everything is available everywhere and good amount of testing can happen while people are on the move and multiplexing it with other activities of the day. Test engineers may also venture into development and support to improve their earnings as now they have knowledge of all evolving dimensions.
- Crowd sourcing of voluminous students to test mobile/cloud applications (stress/load testing) will bring enough competition to industry testers through cheap labor and differentiation of industry testers may only be based on outcome/quality of testing delivered
- Marathon testers Vs Sprinters: Speed becomes essential commodity in every test engineer and they are expected to think and deliver the quality product in quick time mostly overnight (eg. follow the sun model with different engineers in different time zone as a team developing and delivering 24x7). Quality doesn't come by "repeated testing and iterations" but with the focus on defect prevention with only one qualification round called acceptance testing. The word "Test Cycle" will mean to multiple product releases and not just one.

Summary: Schools main job may become guiding the students with right resources on the web rather than teaching, organizations may become virtual with the advent of internet & cloud, employees may then will have a choice of working for any organization in the world that do not have local offices. Like-wise the role of testers may also change, and they will do testing on the go while on mobile with a mobile in hand, and parameters like throughput, speed, outcomes, quality may determine the mere existence of testing engineers, while robots and students test community (through crowd-testing), may give tough challenge to freelance testers and industry testers. Adoption of technology in totality and differentiation is going to be the key.



About the author: Mr. Srinivasan is a hands-on software engineering professional in the area of product development, testing and production support. He works as Managing Director at Rolling Rock Software and has been in the Product development field since 1988 (three decades). He has authored the one of the best-selling book "Software Testing: Principles & Practices". He has served as Honorary Advisor in the Boards of many testing companies based in India. He has to his credit two patents -- one filed and another published. He has developed courseware part of pedagogy initiative of HRD ministry of Govt of India and received "Thought Leadership" Award from Test2009.in for his contribution to academia and Industry on software testing. He is a founder member of STeP-In Forum that conducts international conferences on testing and is currently serving

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