Testing-as-a-Service

Breaking Boundaries with “Pay-per-Use”, On-Demand Quality Model

by

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In one of Sydney's premier downtown department store, a young salesman went to meet his boss at around 6 PM after a long and arduous day.

"How many sales did you make today?

"Sir, Just ONE sale?

Only one sale? No! No! If you want to keep this job, you'd better be doing better than just one sale. By the way, how much was the sale worth?

Just $33335
Sir, this man came in and I sold him a small fish hook, then a medium hook and finally a really large hook.

Then I sell him new fishing rod and some fishing gear.

What! How did you manage that?

Then I asked him where he was going fishing and he said down the coast. So I told him he would probably need a boat, so I took him down to the boat department and sold him that twenty-foot schooner with the twin engines.

I then asked him where he'll be staying, and since he had no accommodation, I took him to camping department and sold him one of those new igloo 6 sleeper camper tents.
You sold all that to a guy who came in for a fish hook?

No Sir. He came to buy a greeting card for his wife, as she is going on a tour to San Francisco this weekend. I told him, your weekend is gonna be boring, so why don’t you go for fishing?

Many of us would have had similar experiences. We end up buying lots of allied items while trying to address a specific need.....This leads to an important question...

Is cost of Consumption getting higher??
Forces driving Today’s Quality Organization

I have a highly efficient and dedicated Testing Centre of Excellence (TCoE), but it gets challenged with

- Dynamic business giving rise to fractional QA needs
- Technology advancements requires faster reaction in building a new testing capacity every time (e.g. Mobile Testing)
- Additional spend on owning and maintaining Testing infrastructure
- Instances requiring last-mile Testing
- Need to test applications/infrastructure that is not specific to any BU/LoB (e.g. OS upgrade testing)
Defining Testing-as-a-Service

“A Transformational Shift to Testing Delivery

“Testing-as-a-Service is an on-demand testing capability delivery model that offers faster provisioning of services with lower capital cost. TaaS can be offered either through cloud based environment or the current on-premise environment.

<table>
<thead>
<tr>
<th>TaaS is not just</th>
<th>but is....</th>
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<tr>
<td>Online order management system of service providers</td>
<td>Automated Provisioning service platform capable of delivering testing services on outcome based model</td>
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<tr>
<td>Warehouse of Testing Tools or Frameworks</td>
<td>Ecosystem where methods, tools and people synchronize to deliver services</td>
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<td>Alternative to current testing model</td>
<td>An extended arm that addresses unique, niche &amp; fractional testing needs that arise</td>
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<td>One stop shop for all Testing needs</td>
<td>Testing ecosystem that promises higher levels of efficiencies</td>
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<td>Test Environment provisioning system on cloud</td>
<td>Gateway to leveraging proven cloud based testing techniques</td>
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TaaS – Next Gen Testing Delivery Platform

**TaaS & Cognizant**
- Cloud based Testing Delivery Platform
- Service Proximity and Componentization
- Crowd-on-Cloud and Service Virtualization

**Consulting Services**
- Quick Start Consulting
- Portfolio readiness assessment for cloud testing

**On-Demand Testing Services**
- Functional Testing
- Non-Functional Testing
- Specialized Services

**Test Infrastructure**
- Lab on Hire
- TEMS
- Testing tools
TaaS – Next Gen Testing Delivery Platform

TaaS – A Conceptual Model

What does TaaS mean to enterprises?

- Standardized Process Model with Predictable and Reliable outcomes
- Complete demand management from workload simulation, integration, provisioning, execution and management
- **On-demand** Testing Capacity leading to improved utilization translating to reduced unit costs
- **Flexible** options of test tools (commercial / open source) on a multi tenancy basis which otherwise would add to cost
- High Environment Availability and instant environment provision cycle
- Ability to **Reuse and Recycle** resources/environments. Test environments developed in one phase can be persisted with state and re-configured for next phase of testing
Towards complete Virtualization - Crowd-on-Cloud (C-on-C)

Correct: What suits best?
- Best suited to cater to sporadic testing demands from business groups
- Best suited to deliver specialized services including Automation, Non-functional testing, Environment management, Compatibility testing etc.

Correct: What are the pre-requisites?
- Controlled crowd build within an organization or restricted to selected vendor groups
- Cloud based delivery platform for Crowd to operate and deliver services
- Service componentization and Adoption of Assembly line concepts for service delivery

Correct: What does this mean to QA Organizations?
- Move from project-based groups to skill based groups to improve utilization
- Move from resource based costing to value costing
- Investments (tools, infrastructure, training etc.) can be restricted to specified pockets as against spreading across the organization
- Better management of available capacity resulting in higher Testing ROI
- Agility with least business impact

“Crowd brings a variety of skills not restricted to domain or Technology”

“Cloud brings wide range of choice with respect to testing infrastructure and tools”
So the Value proposition is...

- **Slogan** - “Eat Fresh” – Consume when you need and consume it fresh (healthy)
- **Variety & Flexibility** – Custom sandwiches tailored to your needs and tastes
- **Proximity** – Stores available anywhere and everywhere

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**Testing-as-a-Service**

- **Consume on-demand**
  - Its faster – rapid service provisioning & defect simulations for quick fixing
  - Its Better – Production like features
  - Its Smarter – Pay-as-you-go
- **Variety & Flexibility** – Tools, Assets and Framework of choice
- **Proximity**
  - Web-based – accessible anywhere & everywhere
  - Virtual & Global
What was solely responsible for drop in sales for Airlines around the world and is all set to CHANGE the travel landscape?

A. Increased Competition
B. Reduced Airline Service
C. Economic Recession
D. Air Safety Regulations
E. All of the Above
F. None of the Above

Answer: F. None of the above

“Video conferencing and tele-presence services catered to shrinking travel budgets and reduced the need for travel”

Technology help unveil newer ways to build efficiencies
Evaluate TaaS for....

- Testing demands that are more fractional in nature
  - Performance, Security and Usability Testing
  - Browser Compatibility Testing
  - Operational Acceptance Testing

- Testing needs that requires complex infrastructure (Tools & Environment)
  - Devices Testing
  - Mobile Applications Testing
  - SOA testing, CoDA Testing

- Testing scenarios where no dedicated testing groups/capacity is available
  - OS upgrade Testing
  - Internal applications (Payroll, HCM systems etc.)
  - Data Center Migration Testing

- Test Asset Management & Increased Capacity Utilization through Shared Infrastructure
  - TEMS on Cloud
  - Tools Provisioning
  - Test Packs and Test Data Management
Scalability Validation in Cloud

Client Requirements

- To **assess the scalability** of an e-Commerce application for an expected **two-fold increase** in user load

Challenges

- No performance testing environment available as application was hosted by a third-party ISV
- Need to provide a **cost-effective and sustainable solution** that caters to the current assessment and proposed **quarterly test cycles**

Proposed Solution

- To use Amazon cloud as the test environment.
- Host HP load runner injectors on the cloud.
- Payment based on usage of infrastructure

Realized benefits

- Application setup on Amazon cloud in less than 2 weeks
- Able to instantaneously scale the application layer, by provisioning and cloning 4 additional Apache instances from Amazon EC2 within 2 hours time
- More accurate scalability models derived as the model is based on more comprehensive tests with additional servers, rather than extrapolate from a minimum number of tests

Cognizant Value-Adds

- Expertise on cloud computing and Amazon EC2 for rapid provisioning of machines
- Cognizant Load Runner ELA licenses that can also be used to test an application that is hosted on the cloud

Technologies and Tools

- Application stack consists of Apache, MySQL, PHP, Magento running on Linux
- The testing tools included Load runner, MySQL, monitors, native Linux monitoring tools
How does the Market view TaaS?

- Extracts from IDC report on Testing-as-a-Service**

The ability to supplement existing inhouse QA teams with **scalable cloud based solutions for function test, performance test, load test** is viewed extremely optimistically by a 2010 IDC outsourcing services survey sample.

Cost effective **test tool licensing** formats for TaaS (not requiring on-premise licenses, deployment and support costs) will be critical to building out demand and usage of these environments.

Ease of **provisioning test labs and immediacy of access to testing infrastructure and quality management capabilities** is expected to reduce the presence of unused QA tool shelf ware within enterprises - thus contributing to budget rationalization of QA spending.

The concept of "**crowd sourcing" for testing will continue to gain traction**, as cloud based testing providers and traditional outsourcers look to find more productive ways to leverage idle bench capacity or engage with globally distributed teams who have a diverse set of skills.
Thank you