

## View Point



### Begin Cloud Adoption with QA Environments

A detailed evaluation of the benefits associated with Cloud Based QA Environments

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#### Abstract

The inherent challenges associated with traditional QA environments, along with external market forces like the prevailing weak economic conditions, shrinking IT budgets, and competition are driving organizations to explore new ways of maximizing returns from their investments in existing or diminishing resources. Cloud is a pertinent solution that can help an organization address all the mentioned challenges successfully.

In the previous paper<sup>1</sup> of this series, we had discussed the challenges associated with traditional QA environments and how cloud can be adopted as a solution to overcome these challenges. However, 'where exactly to begin the cloud adoption journey' is a question often left unanswered by most thought leadership papers or point of views. In this paper we talk just that. We provide insights that would aid organizations to understand the reasons as to "WHY" QA environments are an apt place to begin their cloud adoption journey.

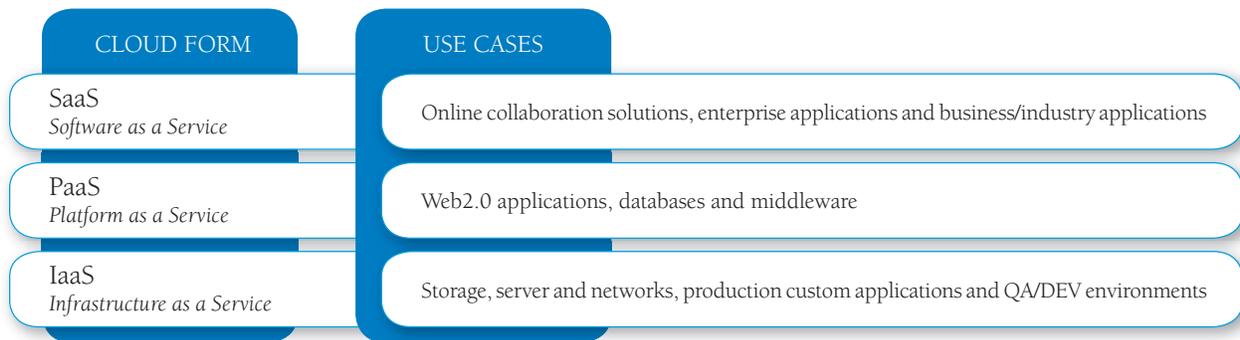
## Introduction

The current dynamic needs of business and volatile economy have led to organizations demanding CIOs to meet increasing business demands successfully, with shrinking budget allocations. In line with the same, every CIO has started focusing and analyzing each and every IT division operation, significant investments made and subsequent ROI generated. One of the most significant elements that gets noticed and scrutinized is the QA infrastructure cost. This is because nearly 30 to 50% of servers in the organization are utilized by the QA teams<sup>2</sup>. Hence if these assets are underutilized, the investments in them are also underutilized, significantly impacting ROI.

The evolution of cloud has made organizations sit up and start thinking about how they can leverage the advantages of cloud as an infrastructure or as a platform or even as software, to overcome the challenges of today's dynamic business and IT needs. In our earlier paper<sup>1</sup>, we had discussed the challenges associated with traditional QA environments and how cloud was a solution to overcome these challenges. In this paper, we shall attempt an in-depth analysis of the various factors and comprehend the benefits that make QA environment the perfect place to begin cloud adoption.

## Use Case Evaluation for Cloud Adoption

Infosys recently embarked on a research which evaluated the popular cloud use cases against parameters like business risk, business value, relative simplicity and cloud technology maturity for cloud adoption. The analysis covers the following cloud use cases in the forms of cloud as a software, platform and infrastructure:



The table below rates the typical cloud cases as High (H), Medium (M) or Low (L) against each parameter - business risk, business value, relative simplicity and cloud technology maturity.

Table 1: The use case evaluation for cloud adoption

Typical Cloud Use Cases		Risk	Business Value	Relative Simplicity	Cloud Tech Maturity	Overall
SaaS	Collaboration	M	M	M	H	M
	Enterprise Applications	M	H	L	M	M
	Business / Industry Applications	M	H	L	M	M
PaaS	Web 2.0 Applications	L	M	H	H	M
	Databases	M	M	L	H	L
	Middleware	L	M	L	M	L
IaaS	QA/DEV Environments	L	H	H	H	H
IaaS	Storage, Servers, Networks	M	M	M	H	M
	Production Custom Applications	H	M	L	L	L

By evaluating the ratings for each parameter, we will be able to deduce the most optimal use case for cloud adoption, from an overall perspective.

### [Business Risk](#)

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The business risk associated with migrating live applications into cloud right away is quite high for organizations. If a failure occurs, it would have a direct and immediate impact on the business of the organization. However, cloud adoption with QA environments would be far more appropriate for organizations as the business risk associated with such an adoption was found to be comparatively lower when compared with other cloud use cases.

### [Business Value](#)

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It is quite evident that business value of cloud adoption is quite high with the SaaS model when it covers enterprise applications such as CRM, ERP, etc. Organizations usually stand to gain immediately with SaaS as they get a ready to go market solution with a very short turnaround time. However, as per the table (Table 1), organizations also gain significantly with the SaaS model when leveraged in the form of cloud for their QA environment needs. This is because of the increased asset utilization, reduced proliferation, greater serviceability and greater agility with provisioning that cloud is able to provide for QA/Dev environments.

### [Relative Simplicity or Ease of Implementation](#)

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SaaS and PaaS use cases require integration; secure authentication and secure policy enforcement which increases the complications during implementations. However, cloud adoption in QA environments stands out due to the relative ease in implementation.

### [Cloud Technology Maturity](#)

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Cloud technology has high maturity levels across

- SaaS in the form of online collaboration solutions
- PaaS in the form of Web2.0 applications and Databases
- IaaS in the form of storage, server and networks, and QA environments

The evolution of Salesforce CRM (form of SaaS), Windows Azure (form of PaaS), Amazon EC2 (form of IaaS) implies that cloud technology is mature because of the dynamic convergence of information technology, business model and consumer experience. These use cases are a good place to begin cloud adoption from a cloud technology maturity perspective.

### [Overall Recommendation](#)

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The one use case that stands out distinctly and strongly,

across all parameters, is the adoption of cloud in QA/Dev environments. Advantages such as increased asset utilization, reduced proliferation, greater agility in servicing requests and faster release cycle times, position QA environments as the most optimal use case for cloud adoption from an overall recommendation standpoint.

## [Benefits Delivered By Cloud Based QA Environments](#)

Let us now look into the key benefits delivered by cloud based QA environments:

### [Dynamic and Scalable Provisioning](#)

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With cloud based QA environments, organizations can quickly provision/de-provision virtual machines on demand drastically reducing the provisioning time from several months to a few minutes. This ability to scale gives organizations an edge with high quality services and diverse QA environment requirements. It also helps business focus on core areas, by reducing the time spent on procurement operations.

### [Reduced Time to Market](#)

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Test cycles have always been seen as critical paths for release to production. Cloud adoption in QA environment facilitates faster on-demand provisioning of resources, increase in productivity and shorter lifecycles for application development and testing, which significantly contributes to faster time to market. Interestingly in traditional QA environments, 30% of defects in production phase for an application were primarily due to wrongly configured test environments<sup>2</sup>. Cloud eliminates this, thus reducing time to market immediately.

### [Greater Environment Control](#)

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With the cloud adoption for QA environments, multiple channels requesting QA environments for various projects are consolidated into a single channel, significantly reducing server and application sprawl. This leads to a better control over the environment.

### [Reduced TCO & Improved Resource Utilization](#)

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The capability to share environments due to virtualization improves resource utilization, thus reducing associated costs of hardware and software licenses. Cloud based QA environments bring in significant cost savings of almost 50% on IT support costs<sup>3</sup>, helping organizations move from a CAPEX to an OPEX mode.

## Conclusion

There is no doubt that the QA environment is an apt place for organizations to begin their cloud adoption journey. It is recommended that organizations explore and evaluate their internal QA environment infrastructure for conversion into a secure private enterprise cloud. In the event of unavailability of internal infrastructure, organizations need to partner and engage with an external cloud service provider, with the ability to provide the infrastructure for QA as a service in a pay as you use model. Cost savings achieved through such infrastructure optimization exercises can be reinvested by the organization into core business projects to bring in the much needed innovation to drive overall enterprise sustainability and market relevance.

### References:

1. Common Concerns with Traditional QA Environments: Is Cloud the Answer? by Infosys, September 2011
2. Cloud computing: Innovative solutions for test environments by IBM Global Services, April 2009
3. Reducing Server Total Cost of Ownership with VMware Virtualization Software by VMware, 2006

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## About the Author

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