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Applying Thought

The Cloud Way

How to choose a business-led model that is best for you.

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Introduction

Cloud technologies will continue to gain attention through 2013. This is largely due to the fact that we seem to have reached a tipping point in terms of benefits through advanced technologies like cloud, mobility, collaboration, Big Data and analytics. Each of these is now adding considerable value to different businesses.

The concern over adopting cloud technologies now gives rise to the question - will the initial gains sustain over a period of time?

This paper intends to address the issue mentioned above, along with other related questions so that both current and future investments in cloud technologies continue to provide much needed benefits to corporations.

However, before we go down that path, let us take a step back into the past.

The problem has been building over the last two decades (it must be solved now)

Businesses soak in diverse environments like economic, financial, geographic, competitive, sociocultural, regulatory and technological environments. These are 'stimuli' and cannot be easily changed. However, products, services, processes, procurement, pricing and promotions ('responses' as I would like to call them) are within the span of control of a business. These are the vectors that drive decisions around infrastructure and applications that support the business. In a certain way, we are referring to the lowest common denominator for overall growth and competitiveness among organizations.

However, over a period of time, businesses accumulate vast legacy systems. This is also true for Information Technology (IT) investments. The sprawl can become so vast that often organizations lose track of what they actually own. Worse, development takes place in silos and over a period of time, applications do not/cannot talk to each other due to a lack of linkages. Organizational information is frustratingly difficult to access across departments and even more difficult to act upon. Systems and processes become dangerously cemented, preventing businesses from addressing change quickly enough. Let's admit it – IT doesn't have the time to look back and fix anything; today, given the pace of change, it is on a treadmill with no stop-button.

Mainframes to client-server to cloud: the road to flexibility and agility

To understand the shifts within IT systems and to be able to respond with a sustainable, long-term solution, one needs to understand how IT systems have evolved over time to meet business needs. The rigid mainframe era from the mid '60s to the late '70s made it almost impossible for businesses to address change.

The mainframes led to the client-server era (power to people). By the '90s the Internet proved to be a major accelerator for client-server architecture (power to 'more' people).

The 'democratic' nature meant that multiple systems emerged within organizations, each one functioning within a silo. Each of these used a stove-pipe approach, building its own stack of applications, data stores and back-up solutions. What we got was 'spaghetti' where no one really knew how it all added up. Sporadic and isolated attempts were made to connect these systems with limited success.

Moreover, the laws of diminishing returns kick in fairly quick in the client-server era. The architecture which is supposed to produce positive results begins to cripple it rather than support it. And then, the question pops up, can something 'actually' get us out of the mess?

Cloud to the rescue

Let's revisit the problems we have seen in the previous section:

- How can there be better business and IT alignment? How can there be linkages between systems so that information is shared across the organization?
- How can organizational agility be improved? Can we ensure that infrastructure and applications can be dynamically enhanced, scaled, replaced or retired?
- How can IT utilization be improved/optimized to lower cost?

Cloud technology presents demonstrated potential to solve the problems faced by IT. The low-capex, quick-provisioning, self-service, scalable and pay-as-you-go model of cloud for applications as well as infrastructure does offer hope and many studies do allude to the same. IDC predicts that by 2016 the mature APeJ markets will have over 50% of enterprises locating more than half their IT assets in third-party data centers. By 2016, over 60% of enterprise-class storage will ship to cloud service providers.

An August 2012 survey done by Google called The Business Value of Cloud Computing suggested that 71% of CFOs in the US thought that cloud technology could reduce the time required to bring new products and services to market. In Europe, the survey pointed out, 69% of CFOs think it improved the IT department's ability to innovate. This emphasizes the belief that cloud technology can improve an organization's ability to respond to market change as well as to innovate internally to meet those demands.

A key aspect in the above examples is that there is more cloud adoption on the consumer side than ever before and it may not be unusual to see businesses and governments responding with the same acceleration. Look around and you will see that everyone is adopting cloud in some form or another. We may not always realize it, but everyday millions of us use cloud for collaboration, storing images and documents, banking, social networking, messaging and shopping, which is a powerful indicator of the trust in cloud technologies.

Think before you adopt: prioritize, prioritize, prioritize

We have witnessed a rush to move infrastructure and applications to cloud in a bid to make business agile, responsive and cost-efficient. In the hurry to migrate to cloud, organizations have forgotten a critical part – its processes. It is a well-known belief that automation applied to an inefficient process is counter-productive.

An example from banking may serve to illustrate the point. When banks began to opt for branch automation in the '80s, manual processes such as entering customer cheque details, validating signatures and paying out cash were replicated using computers. There was hardly any change in the process – just a dramatic shift in record keeping methods. No wonder, the user experience went from bad to worse till banks decided to standardize and simplify processes.

In other words, businesses are rushing into cloud and the following error messages keep flashing:

- Error #1: Businesses migrate to cloud, but forget to look at how this impacts infrastructure
- Error #2: Businesses migrate to cloud but forget to look at how this impacts processes
- Error #3: Businesses migrate to cloud but forget to look at how this impacts applications

These three are prime considerations for choosing a cloud model that businesses must adopt.

At the time of considering cloud adoption, businesses must ask themselves: What should we migrate to cloud? Which processes are dependent on others and need to be migrated to the same cloud?

You could argue that and ATM service provided by a bank is seasonal in nature and hence can leverage the benefits of cloud computing; did we look at its dependence on core banking processes which may never be a candidate for cloud adoption?

The linkages, relationships and dependencies between processes are what matter.

There is also the matter of timing. What does a business prioritize for migration to cloud and when? Our proposed model for the retail industry provides a simple way of understanding this:

Cloud Adoption Priorities: Learning from Retail

Front Office	Core Business	Back Office
Mobile Shopping/E-commerce	Category Management	General Ledger
Marketing + Social Media	New Product Planning/Private Label	HR Processes + Employee Training
Loyalty Management/CRM	Inventory Management	Payroll Processing

Key: When to move to cloud — Early — Medium — Late

Moving towards the right cloud: business considerations that count

Once a business has prioritized its migration of processes, applications and infrastructure, a series of concerns must be addressed. The key amongst these are:

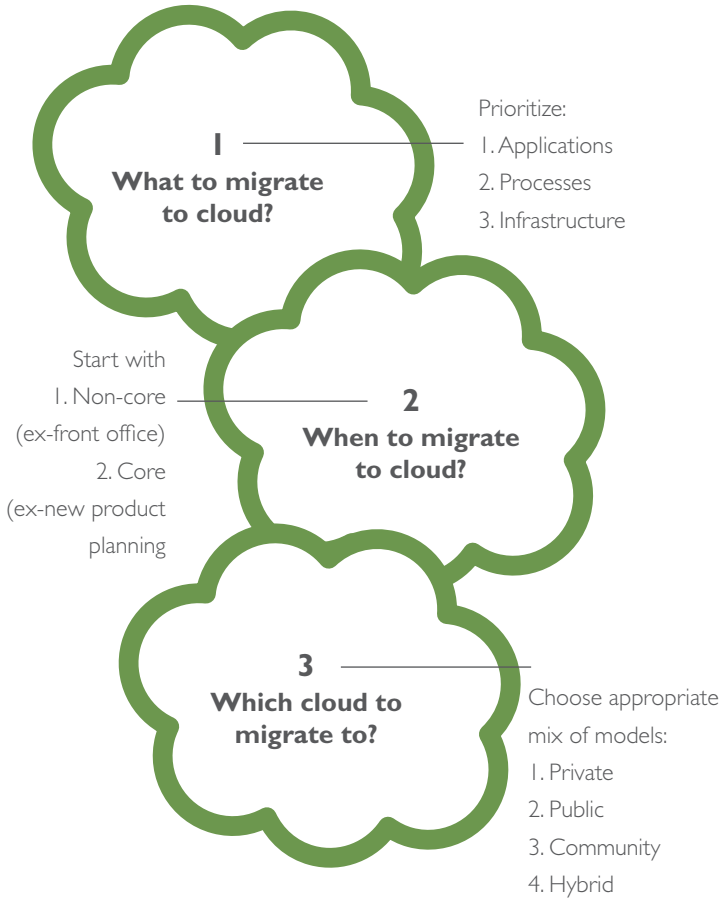
- Agility
- IT enabling business transformation
- Cost

The other concerns to look into are:

- Security
- Reliability
- Resilience
- Availability
- Scalability

Choosing the right cloud deployment model

Three steps to cloud selection



Based on the response to the demands of business, a cloud model must be assembled. A business may decide on one or a combination of models to address its needs:

- **Dedicated on-premise private cloud model:** The on-premise model is the equivalent of owning a private jet – exclusive but expensive. An on-premise private cloud is built for a specific purpose, has a high level of security and is always available. One of the more attractive features is the degree of control the organization has over a dedicated on-premise private cloud. This is offset by its inadequate scalability, restricted ROI because of constraints on economies of scale and significantly limited resilience because of a dearth of resources.

- **Public remote co-tenanted cloud model:** The remote co-tenanted public cloud is available to everyone, regardless of business type or geography. By implication, the cloud provider must operate on a significantly large scale, offer lower costs and, in several instances, support the service with cutting-edge technology to ensure that compute, storage and management resources can be dynamically reassigned on demand.

  By the very nature of its service a public cloud must be spread across geos in order to guarantee better resilience and insurance against local exigencies (power outages, floods, earthquakes, civil disturbances, war). The public cloud could present a risk to compliance and security needs, especially because it is co-tenanted (the very reason it offers lowered costs). Public cloud providers, however, are growing sensitive to compliance requirements across regions and industries and can ensure that the required standards are met.

- **Community cloud model:** The community cloud is a subset of a public cloud. The model ensures that services are aligned and maintained to meet the needs of specific communities.

  For example, governments or educational institutions can create email services that are specific to their needs and sharable across departments. The community cloud, however, is best suited for highly regulated industries.

  Cloud infrastructure aimed at the healthcare industry, on the other hand, could incorporate regulatory requirements and data security standards specific to the industry (possibly compliant with regulations such as the Health Insurance Portability and Accountability Act). Cloud infrastructure for financial institutions, as another example, may be built for higher transaction volumes and very low latency. It is apparent that community cloud is not a way of offering technology to users, but rather a way of aggregating users to bring down costs. The risks associated with community clouds remain identical to those of public clouds.

- **Hybrid cloud model:** The hybrid model is a combination of the above (private, public, community) in varying mixes. Each of the cloud units may run their own technology but are bound together by standardized protocols that enable data and application portability. An organization may choose to store production data on a public cloud but retain sensitive customer data on a private cloud.

  The model allows businesses to leverage the cost benefits of a public cloud without exposing sensitive or mission critical data/applications to vulnerabilities. While a hybrid cloud may deliver against security, scalability and performance needs, it may be low on reliability. But the bigger issues associated with a hybrid model are the capex implications and the overheads of managing diverse cloud environments.

Key cloud model selection criteria

If business requirements do not dictate your cloud adoption roadmap, it is time to put a halt to your cloud initiative. Since there is no one-size-fits-all approach, businesses should consider working with a technology partner who has adequate domain expertise to understand industry requirements, regulatory needs and competitive pressures to architect your cloud infrastructure. But working with a partner who has the expertise in cloud management/deployment is not adequate. Organizations must ensure that functions aside from technology and finance, such as legal, commercial and marketing help create the business case for cloud. Aside from ensuring that the right model is chosen by the business, such a mix of functions also ensures that the correct applications are migrated to cloud and provide the best ROI with the least risk of any kind to the organization.

It is our belief that, for the moment, most organizations will need to plan to live with a mix of all models. These models are likely to co-exist for some time before organizations find the technological maturity and operational comfort with finer definitions of their cloud requirements.

Conclusion

Cloud adoption is inevitable. Fortunately, there is a cloud model suited to every business. The technology presents an almost limitless opportunity to:

- Improve IT utilization and efficiencies
- Improve the organization's ability to scale on demand
- Keep pace with changing technology without capex commitment

The key to success is to let business needs dictate the model for your business.

[i] *http://www.idc.com/getdoc.jsp?containerId=prSG23816312#.UQO6nr8qZ0g*

[ii] *http://lp.google-mkto.com/CFOCloudComputingResearch.html*

About the Author

Atul Sood

Atul Sood is the General Manager and Global Head of Cloud Enablement, Wipro Technologies. He has 17 years of experience in various leadership positions which have resulted in game-changing outcomes for eco-system players – employer, customers and partners. By effectively blending strategy, speedy execution and collaboration, Atul is able to build a platform for successful outcomes. He is recognized for his ability to see "what's next" and create a methodical approach for an organization to traverse a path to future success, visionary foresight into new technologies to analyze business needs, define opportunities and develop optimized solutions.

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WIPRO TECHNOLOGIES, DODDAKANNELLI, SARJAPUR ROAD, BANGALORE - 560 035, INDIA TEL : +91 (80) 2844 0011, FAX : +91 (80) 2844 0256, email : info@wipro.com

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