

Overview

Most enterprise applications installed in production are based on heterogeneous on-premise architectures (databases, application servers, messaging, directories...) Sometimes, this can make performance declines difficult to identify, complicate planning for growth and increase the difficulty to assess the financial impact for the company. An eventual evaluation and migration to cloud computing becomes all the more complex and, also, potentially risky.

At the same time, companies can no longer ignore the increasing importance of cloud computing when considering their strategy and planning their technological investments. They must weigh the options available on the market for public, private and hybrid clouds, understanding that these cloud offerings are not equally suitable for all businesses. Some environments may not be easily transferable and, in some cases, it may be risky, if not impossible, to migrate to the cloud without a fundamental transformation of the architecture and the accompanying processes within the organisation. Caution should be exercised when undertaking such an important transition.

*“One should consider cloud as a **business strategy first**, and a **technology second**. Doing this will demand a thorough evaluation of existing processes, of the legal and technological framework of the company, coupled with an action plan with clear, measurable goals and a communication plan for your staff detailing every step taken.”*

The focus of this white paper is to offer both business executives and IT executives insights into the key issues that they should consider when evaluating cloud services, paying particular attention to business and legal ramifications of moving to the cloud environment, whether it is private, hybrid or public.

Transformation in IT

For the last few decades, IT organisations have been the only option for provisioning IT resources for projects. Indeed, all new projects would involve IT, and the IT team was responsible for acquiring, architecting and delivering the solution that would sustain the application/project during its lifecycle, planning for upgrades along the way.

This led to silo-based infrastructures – and teams –, often designed for peak demand, without possibilities of efficiency gains between projects. The introduction of compute virtualization, first for test/dev and then for production, showed other options were possible and available and that by aggregating requirements across projects, IT could get significant efficiencies of scale and costs while getting more flexibility and speed to market, as provisioning a virtual server suddenly became a matter of days, rather than weeks or months.

Over time, IT started applying these same methods to storage and network and these showed similar flexibility, scalability and efficiency improvements. These gains, together with automation capabilities and self-service portals, were combined over time to become what we know as ‘cloud offerings’, as defined by the National Institute of Standards and Technology¹:

- On-demand self-service
- Broad network access
- Resource pooling
- Rapid elasticity
- Measured service

In parallel to this, IT, in some organisations, has become structured, organized, usually silo'd, and, unfortunately, somewhat slow to respond to business needs. This has led to a slow erosion of IT's power and influence over IT resources acquisition, delivery and management. Coupled with the existing commercial/public cloud options these days, capital is rapidly leaving the organisation for 3rd party public cloud vendors, also known as *shadow IT*. This raises concerns, not the least of which being that funds are sent outside the organisation to address tactical issues, typically without regard to legal implications, data security or cost efficiency. These issues highlight IT's necessity to react faster, become more customer driven, deliver more value and provide its stakeholders with flexibility matching that of public cloud.

“Essentially, IT needs to evolve to become a business partner; cloud computing providing the tools by which IT offers flexibility, scalability and speed to market that the business units are looking for in today's market.”

Impacts Across the Organisation

Business

Most markets are evolving faster than ever before, and the trend seems to be accelerating, so organisations globally need to adapt and change the way they go to market. From a business standpoint, the flexibility and speed with which new solutions can be delivered via cloud help enable the business units to react faster and better. So much so, that where IT organisations have not considered automating aspects of provisioning to provide more flexibility and faster access to resources, business units have started going outside of IT, to some of the public cloud offerings, for resources.

Planning for cloud should consider people and processes, as both will likely be directly impacted. From the requisition of resources, all the way to charging back the different business units for resources consumed, managed independently from projects' budgets, processes that were created and used before the advent of cloud in your organisation should be adapted, if not discarded and rebuilt from scratch. IT will need to change and evolve as it becomes an internal service provider (in many instances, a P&L entity) – and resources broker for the business units.

Considering the large capital investments IT has typically been getting as budget to 'keep the lights on', and considering that, until recently, this budget had been growing at double digits rate since the early days of mainframe; the switch from a capital investment model to an operational model can impact the way IT does business significantly. Indeed, we have seen the shift forcing IT to focus on what it can do better, review its relationships with the vendors, ultimately freeing up the valuable investment resources. In many organisations, this has also translated to enabling net new projects to come to life, in and out of IT.

Once this transformation is underway, you should start seeing some of the benefits other organisations have been enjoying, starting with faster speed to market on new offerings. Indeed, in this age of mobile everything, customers expect access to everything all the time, and your competition is likely launching new offerings every day. A move towards cloud enables projects to move forward at an accelerated pace, letting you go to market with updated offerings much faster.

Legal

"Location, location, location". We're more accustomed to hearing this in the context of the housing market. However, where your company's headquarters reside, where your company does business and where its subsidiaries are located directly impact how you need to manage sensitive information, such as strategic projects, HR/personnel information, etc.; essentially, IT needs to account for data sovereignty laws and regulations.²

"Various countries have already voted or are moving towards voting on more restrictive data sovereignty legislations that will control the transit of information out of border. For example, Canadian law (PIPEDA) already governs how IT organisations can collect, use and disclose personal information in the course of commercial business."

In addition, the Act³ contains various provisions to facilitate the use of electronic documents. Essentially, all personally identifiable (name, address, SSN, employee ID, etc.) information must stay in country, at rest and in transit, meaning that using a cloud provider in the US or any other country with said data could expose the company – and you – to a lawsuit, unless the cloud provider can guarantee no aforementioned data ever leaves the country at any time, including for redundancy/DR purposes.

While the previous Act covered what must be protected, the American law (the USA Freedom Act⁴, and its previous incarnation, the Patriot Act) enables the US government to access any and all data residing on its soil, without owner's authorization, need for warrant and without even the need to notice the owner before or after fact. The few data privacy provisions in the bill apply to American citizens and entities only. This means all data housed in the US are at risk, especially if said data is owned by an organisation whose headquarters are out of country.

European laws and regulations vary from country to country. For example, Germany has enacted one of the strictest data privacy regulations in Europe – and the world. Indeed, organisations must have policies, procedures, and controls in place to protect any personally identifiable information, including less obvious things like phone number, or computer IP address. Furthermore, individuals must explicitly allow (opt-in) the gathering of information, and an organisation must define and inform the user of how, where, how long, and for what purposes the user's data will be used. This imposes very strict rules on leveraging the cloud, in or out of country. Also, on October 6th 2015, the EU Supreme Court struck down the Safe Harbor Agreement between USA and Europe, arguing that "legislation permitting [American] public authorities to have access on a generalized basis to the content of electronic communications must be regarded as compromising the essence of the fundamental right to respect for private life."⁵

"Typically, data sovereignty should be a concern for most organisations when looking at cloud and, as the current trend is for countries to vote in more stringent laws, any and all cloud strategy should account for local, national and international regulations."

Technological

Not all software technology is created equal. Indeed, not every application will migrate gracefully to the cloud, some will never tolerate the latency, while others were never designed to have multiple smaller elements working together, rather than a few big servers. This means your business applications will need to be audited/evaluated for cloud readiness. Indeed, this is possibly the largest technological hurdle, but, as with all technology, this may prove to be easier to solve than some of the other organisational issues.

One should look at the application's architecture (n-tiered or monolithic), tolerance to faults/issues (e.g. latency, network errors, services down, servers down, etc.) and how the users consume the application (always from a PC, from the office, or fully decentralized, with offline and mobile access), to evaluate options for migrating an application to the cloud. Current growth rate and state of the organisation are often times mirrored in its IT consumption rate and requirements. Certainly, an organisation that's under high growth rates or launching a project where growth is not easily identifiable can possibly benefit significantly from a scalable, elastic cloud model, whereas an organisation with slower growth, familiar / standard projects and predictable IT requirements will not likely assess the value of cloud computing the same way. Accountability of resources and traceability of all assets in use may be of bigger concern.

“Architecture, applications and legacy environments are all technological considerations that should be factored in any cloud computing viability & readiness assessment, but that should probably not be the main driver for your cloud strategy.”

Human Resources

Resources in your organisation will be impacted by this change. Both on the IT side and on the business side. While helping companies move to cloud we have had to assist with adapting IT job descriptions, processes and roles within the organisation.

As the IT organisation moves into a P&L role, its success starts to be tied to the adoption by the stakeholders of the services offered. To do this, IT needs to get closer to the business units, understand their requirements and deliver access to resources on-demand. All this cannot happen unless things change within the IT group. As companies automate their practice, and create a self-service portal to provision resources, some job descriptions need to evolve. For instance, the new IT architect profile requires direct involvement with the lines of business (including business processes, requirements, opportunities, etc.), the negotiation of SLAs with providers, the capability to conceptualize and implement improvements for productivity, profitability and cost reduction and, finally, effectively market technology solutions within their business area.

“These new roles are very different from the System Admin role. This means your teams will need to transform and adapt, and where transformation is found, so is resistance to change.”

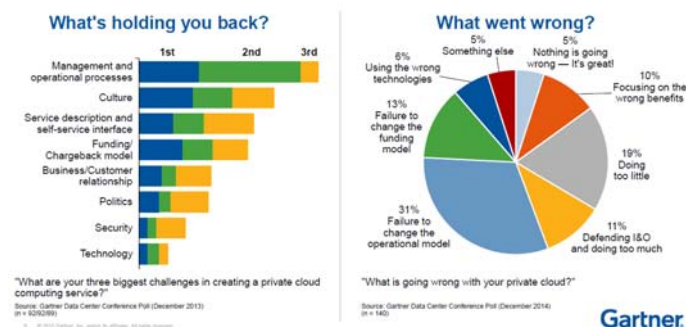
A strong and clear communication plan with set milestones helps employees understand the changes coming to the organisation, and involving them in the decision process will go a long way to assist in the transition. We have seen that IT organisations with a clear communication plan at the onset that involved their employees in the process had a much easier transition, and faster adoption rate than those who did not.

Our experience helping customers with cloud computing shows that cloud alters significantly IT's role and relationship with the business, and employees' roles need to evolve. Training, staff engagement in the transition and constant communication will help your organisation significantly move to this new paradigm.

Building a Cloud Strategy

When considering & building a cloud strategy, organisations need to consider business objectives/outcomes desired, quantifiable and time-bound goals as well as identify specific initiatives that the enterprise can and should undertake in order to execute the strategy and achieve the goals set. As Gartner shows below, process and culture are likely to be big hurdles in any move to cloud. Therefore, involving all aspects of the business and gathering the right information can assist in building the right strategy and identify potential problems ahead of time.

Private Cloud Inhibitors and Mistakes



The first concrete step to take to building this strategy is to gather the data points to identify/define those objectives, goals and initiatives for the enterprise in the near - and mid - terms. Once the data is collected, you can review, analyze and identify the business outcomes desired, set the (quantifiable) goals and define the specific initiatives you want to put in place to achieve them.

Data Collection

Based on our experience helping customers with assessing their options for cloud, we strongly feel that considering moving to cloud should address all the aforementioned aspects (business, legal, technological and HR). This should not be a strict price or technology evaluation.

The data points needed will have to come from various parts of the organisation (the various business units, finance, HR and IT). Some of the information required may take the form of datasheets and files, but a lot of the required information will reside with your staff directly, and so interviews should be a part of the data collection process. These interviews should take up to a few hours each and focus on the interviewees functions, processes used and required/desired business outcomes, to provide insight into the actual impacts to the business before creating your cloud strategy.

Strategic	Financial goals & profitability (ROI)	Risk management	Governance & Compliance
<ul style="list-style-type: none"> Business IT 	<ul style="list-style-type: none"> Cost management Taxation (including insurance, taxes & duties) Operations 	<ul style="list-style-type: none"> Security Risks (tolerance, integrity, access) Legal Canadian framework Business continuity 	<ul style="list-style-type: none"> Vendor management Required SLAs Compliance

With these data, you will be in a position to account for all aspects touching cloud computing, to see what it will affect and how, to evaluate its effect on the balance sheet (positive or negative) and decide on your strategy moving forward.

Conclusion

Creating your cloud strategy requires mapping out goals and initiatives while involving your staff and updating/modifying your business processes to allow for more flexibility and more synergy between the business units.

The legal system within which the organisation operates also has a direct impact on your strategy and needs to be considered when moving applications to a cloud.

Your IT will most likely need to adapt, and a proper communication and training plan should help everyone understand the (r)evolution your organisation needs to go through to improve its speed to market.

To help with building this plan, you can look to IT specialized organisations (like ESI Technologies) within your territory to assist with the assessment, information gathering and planning. These firms often have helped many customers go through the same process and have built know-how and intelligence that you can leverage.

¹ <http://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-145.pdf>
² <http://techcrunch.com/2015/12/26/the-clouds-biggest-threat-are-data-sovereignty-laws/>
³ https://www.priv.gc.ca/leg_c/leg_c_p_e.asp
⁴ <https://www.congress.gov/bill/114th-congress/house-bill/2048/text>
⁵ <http://curia.europa.eu/jcms/upload/docs/application/pdf/2015-10/cp150117en.pdf>