Examining the Benefits of Cloud Technologies

Dr Lorraine Morgan and Dr Kieran Conboy highlight the key findings of their research into the benefits to organisations of using Cloud Technologies

Introduction

The rapid emergence, prevalence and potential impact of cloud computing has sparked a significant amount of interest amongst IS and IT industry and research. In wide ranging surveys of CTOs worldwide, cloud computing first appeared on the list of "Key Technology Applications and Investments" at 17th in 2009, but jumped to 2nd place when the same survey was carried out a year later (see Luftman and Zadeh, 2011).

Reports of the size and value of the cloud computing services market vary, but despite the rapid emergence of cloud computing, the academic literature surrounding the benefits of cloud adoption is quite limited, as despite a small amount of research, the body of knowledge relies heavily on anecdotal evidence found mainly in white papers, web articles, technical reports and practitioner papers. In addressing this gap, we draw on a field study of ten organisations to provide an insight into cloud computing adoption by focusing on the key benefits associated with implementation in organisations.

The Field Study

Our field study was conducted based on the perspectives of two different groups – (i) service providers who we believed could provide a better understanding of benefits of adopting cloud computing, based on their own interaction with, and feedback from clients, and (ii) organisations that have adopted cloud computing solutions who could also provide us with information regarding benefits. Data gathering took place between October 2011 and April 2012 with ten companies and was primarily personal face-to-face interviews.

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Table 1: Description of Organisations studied

	Description	Industry	Size of Co.
SERVICE PROVIDERS			
Co1	Management consultancy firm advising on environmental health and safety and information security management systems.	Consulting (SaaS offering)	12
Co2	Network and IT infrastructure provider and consultancy on IT managed services, networking and communication solutions.	IT and Networking Solutions (IaaS offering)	5500
Co3	Provides tools to evaluate new suppliers, cope with tender responses & implement best practice procurement processes.	Procurement software (SaaS offering)	21
Co 4	An Irish owned and operated business technology consultancy that specialises in building solutions to help clients gain better value faster from investments in Microsoft technologies.	Business Technology Consultants (SaaS offering)	30
Co 5	Provider of SaaS, IaaS and PaaS infrastructure and business offerings that span handheld devices to supercomputer installations.	Information Technology (SaaS, IaaS, PaaS)	4000

	Description	Industry	Size of Co.
CUSTOMERS			
Co6	A European based business unit of a larger multinational organisation. Cloud software used for project management and reporting/communication across all 17 projects within business unit.	Consulting	112 in business unit
Co7	The company has adopted Co1 e-sourcing system in their procurement environment.	Public Sector Body (Food and Drink)	200
Co8	Public sector client of Co1. The company offer a number of clinical and diagnostic services to hospitals throughout the country	Public Sector Body (Health)	630
Co9	A customer of Co2, specialises in the delivery of customized and integrated GPS vehicle tracking systems and fleet management solutions for leading businesses in over 30 countries worldwide.	Electronics	16
Co10	A customer of Co2, this company provides modern, high volume software applications for middle office, back office and corporate actions automation within the global financial markets industry	Global Securities Processing	250

Benefits of Cloud Computing

The adoption of cloud technologies result in significant **time savings** in terms of implementation and once installed, drives down administration costs. Several of the companies interviewed were able to implement applications within 24 hours compared to traditional IT systems implementation of up to six months or more. In other cases, administration time was cut by up to 65% once the system was implemented. **Cost reduction** was also cited as a key benefit, in particular the move away from perpetual capital expenditure to operational expenditure. The fact that users can pay-as-they-go, for what they need, rather than paying on an ongoing basis for excess capacity, was viewed as extremely beneficial. Study participants explained how they were able to significantly reduce hardware costs, as well as license costs, maintenance costs, back-up costs of tapes, electricity bills and air-conditioning bills. The study also revealed that there is much value in the ability to streamline and **improve internal processes** as a result of cloud adoption. One study participant pointed out that they could instantly deploy new versions of applications and templates for test functions, development functions and support functions *"in a matter of minutes"* compared the *"three to four days"* prior to cloud adoption.

Perhaps the most significant benefit cited in our study was the **increased collaboration and openness** that transpires across organisational boundaries, as a result of cloud adoption. All study participants explained that the adoption of cloud has resulted in more collaboration along their supply chain, improved team engagement and communication inside firms, more learning and information sharing. For example, one study participant explained how it was crucial to actively engage with partners and customers in various cloud efforts while others explained how they welcomed feedback from customers, as well as new ideas on how to improve their cloud-based systems. With the adoption of cloud computing, collaboration technologies are tools that enable employees to operate on a whole new level. Thus, encouraging them to use the collaboration technologies, such as wikis (i.e. websites that allow its users to edit or add content), on a wider scale. This is key to effective communications and information sharing. Interestingly, several of the service providers explained that they want to make their systems more intuitive to user needs so that they will become *'internal facebooks'* of sorts.

Scalability was viewed by most study participants as being extremely valuable with the adoption of cloud solutions. For example, two study participants explained that they had gone through a large growth pattern in the last year and were continually absorbing the resources available to them in-house. However, migrating to a cloud infrastructure has provided 'elastic resourcing' in that they can provide services ad hoc on a scale that they need for a particular time. Similarly, several other study participants agreed that the cloud gives companies scalability insofar that they can just start out with one server and *"then if it proves to be popular you can keep going and going and going".*

The study also revealed that cloud capabilities such as **traceability** enables the usage of every information service within an organisation to be tracked. The ability to trace the history, location, or application of an item through recorded documentation is vital for ensuring that companies conform with internal and external constraints. Many of the study participants need to show an audit trail of where data is stored for regulatory and legal purposes. Thus, the ability of vendors to provide a traceable and transparent audit trail demonstrates compliance and data integrity.

Concluding Remarks

It was evident from the study that the cloud presents a number of benefits for organisations. These are (i) time savings, (ii) cost reduction, (iii) internal process improvement, (iv) increased collaboration and openness, (v) increased scalability and (vi) a more traceable and transparent audit trail. In particular, the potential of cloud computing in facilitating more collaboration and openness was a benefit we did not foresee at the outset of the study. The cloud introduces a shift in the way companies interact with external sources such as customers and even in the way employees interact with each other inside the organisation. This has the potential to leverage more innovation and facilitate engagement and collaboration along a company's supply chain. Additionally, cloud computing offers a way of collaborating with different partners in the same industry, whereby users can share information and knowledge, co-create services and products and hence, reduce costs. Nonetheless, it is important to explore the barriers to more widespread adoption amongst business and this will be the subject of our follow up study.