

## The Economics of the Cloud: A View from the Field

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*Cloud computing is being hailed as the biggest change in business IT since client/server. But what are the hard facts about the economics of the Cloud and what is happening at pioneering sites?*

### Executive summary

If you follow enterprise IT you will have heard a great deal about the latest hot trend — cloud computing. Hailed as a genuine breakthrough in achieving business alignment, supporters say the Cloud provides accelerated projects, reduced risk, resource elasticity, lower capital expenditure and financial uncertainty, reduced administration and staffing, and lower power and space requirements.

However, until a recent report called ‘The Economics of the Cloud’ few have been willing to put their names to identifying hard numbers for prospective benefits. That paper went a long way to nailing down the possible savings to be made in the journey to the Cloud but what it lacked was detail of what is happening at the sharp end among pioneers deploying IT systems in the Cloud.

This new article by a writer from Microsoft’s Enterprise Strategy consulting practice summarises the economics paper but adds details of the challenges faced by those who are moving elements of IT to the Cloud, including the complexity of measuring current and future IT performance, cultural issues, the issue of connectivity in some regions, and how to plan and time a phased move to a new way of provisioning effective IT capabilities to meet demand cycles.

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In a recent paper entitled *The Economics of the Cloud* (1), authors Rolf Harms and Michael Yamartino of Microsoft favorably reviewed the proposition that cloud computing provides highly significant and positive economic effects for IT buyers. The paper looked at both demand-side and supply-side issues along with quantitative metrics and total cost of ownership (TCO) data. This article provides a summary of the paper but adds important field perspectives and provides details of emerging best practices from the field.

Traditional outsourcing providers are looking to create private clouds — cross-company virtualised internal systems operating on a utility basis — to achieve the benefits of high utilisation and flexibility. However, the public cloud offers a significantly larger market share opportunity for current suppliers and new market entrants because service providers can create efficiencies based on scale and the ability to smooth out geographical, cross-industry, and other variables across organisations, thereby increasing utilisation and elasticity and without the risk to buyers of over-investing in IT capacity.

The Cloud is disruptive in terms of the potential impact on business, existing outsourcing contracts, IT practices, budgets and skills. In many consulting engagements, customers see the Cloud as a cost-reduction exercise or as outsourcing under another name, but increasingly they are taking a more strategic view that evaluates potential benefits as part of wider business goals and technology roadmaps. Certainly, organisations like the ability to subscribe to a service that avoids the peaks of IT refresh activity while at the same time enabling new business capabilities. This contrasts sharply with the traditional inflexible outsourcing model that is based on a fixed service level over years, or an on-premise model that may be limited by IT investment and inertia to remain aligned with business needs.

The ability to achieve longer-term benefits will be accelerated as barriers to adoption are overcome and costs fall, driven by yet greater scale, improved operations and a superior user experience.

The Economics of the Cloud authors view cloud computing as a new paradigm that is creating a transformative impact, but one that is not yet fully understood or leveraged. This, they argue, is analogous to another transformation dating back 100 years: at the time of the introduction of the motor car, designs often followed the conventions of horse-drawn carriages and adoption rates were expected to be limited by constraints such as the lack of roads and number of chauffeurs available. The Cloud is seen as a similarly disruptive for IT and business with value delivery today at an early stage and higher benefits over the next few years hard to define.

Even at this stage, however, some advantages are clear:

- **Minimised power, space and operational costs** are gained through large-scale dynamic datacentres built on commodity hardware and managed through best practices.
- **High utilisation rates and the ability to withstand variability in computing resources demand** are achieved via aggregation of customers across industries in multi-tenant environments
- **More reliable systems** can be built as suppliers bring deep expertise to datacentre management, business continuity, security and reliability

The long-term game-changing factors for business agility in the Cloud are also clear:

- **Elasticity.** The Cloud facilitates the ability to scale up and down. For example, retailers can scale up in busy periods and then scale back, thereby gaining both a potential industry advantage as well as lower overall costs over the course of the year because capital is not invested to meet peak demands. Users can better accomplish complex tasks and experiment without being prohibited by cost, skills or time constraints.
- **Elimination of capital expenditure and reduced risk.** The Cloud allows organisations to avoid large upfront investments and grasp new opportunities, but it also lowers the risk profile of projects as applications and services can be removed when no longer needed.
- **Self-service.** In the Cloud, web portals enable rapid provisioning and integration of services without the need to go through traditional procurement processes, approvals and deployment chains. This allows projects to be begun and completed in less time and speeds up time to business benefit.
- **Business agility.** Predicting and planning compute capacity is a perennial challenge as buyers cannot always know the future needs of their organisations, how quickly the organisation will grow or contract, what skills will be needed and so on. With the Cloud, there is flexibility to add and subtract IT services and a much reduced dependence on internal staff. There are customers who are using the Cloud to enable faster and lower-cost merger and acquisition and divestment activities that directly impact business performance.

The potential disruptions are startling in prospect. For example, in the original Economics of the Cloud article the authors looked at several metrics and scenarios associated with service, computing resource demand variability, TCO trends and scale. For example, the TCO of a 100,000-server datacentre was found to have an 80 per cent lower TCO per server than a 1,000-server datacentre.

Also, although the authors do not cover sustainability, there is an obvious and increasing focus among many organisations to meet targets for reduced carbon emissions, whether those targets have been set by governments or internally. Here again, the Cloud is a highly significant force for the good. A recent Accenture/WPS study (2) called Cloud Computing and Sustainability: The Environmental Benefits of Moving to the Cloud suggested that moving to a Cloud solution can reduce CO<sup>2</sup> IT emissions by between 30 and 90 per cent versus an on-premise implementation, depending on service, size and maturity of the organisation.

### **Public clouds and private clouds**

The authors also compare the pros and cons of private and public clouds along with associated impact and cost-reduction opportunities based on TCO per server, (although from a field perspective, the metrics of most interest and impact are those of cost per user for a service).

A public cloud offers the greatest cost reductions and elasticity, based on increased scale and the ability to amortise the variability of services across many organisations to maximize utilisation. For other organisations, a private cloud is preferred to ensure specific functionality and compliance needs can be met, perhaps until a public cloud can provide the required level of service.

The authors consider today's balance of public and private cloud usage and how this may change in the future, as barriers fall and economies of scale increase. As organisations become increasingly comfortable with public cloud security and reliability, the authors predict a persistent shift towards the use of public clouds.

### **Planning and timing**

Finally, the authors look at the implications for organisations considering a move to the Cloud. A long-term strategy and roadmap ensuring strategic alignment with business needs will be required, together with evaluation of barriers and constraints. Planning will also be needed to identify the best time to move to the Cloud: delays may result in lost opportunities and different groups starting to adopt their own solutions, with associated risk and duplication. On the other hand, moving too soon may create risks which need to be mitigated.

Certainly, consulting experience shows that customers often delay and miss opportunities to deliver value and save costs. In fact, there are situations where the business case provides visibility of missed benefits per month as well as organisations incurring increasing on-premise costs by falling into further licensing and on-premise refresh cycles.

This emphasises the need to develop not only a strategy for the journey to the Cloud, but also the need for effective execution and stakeholder commitment to enable change and the adoption of new services and financial models. However, it should be acknowledged that demonstrating superior TCO and return-on-investment metrics can be a difficult exercise where there are multiple vested interests.

Even establishing current costs can prove very difficult to calculate, making comparisons problematic.

Our consulting experience has established that in most situations a hybrid solution of Cloud and non-Cloud will be implemented, because most organisations are not green-field sites. There will be existing on-premise and/or outsourced capabilities, contracts in place and refresh cycles planned while there may also be constraints in geographies that do not have access to reliable connectivity.

Add in the issues of security, compliance, application compatibility, required levels of service and specific government issues and it is clear that the implications of moving to the Cloud become more complex.

These factors only underline that the transition needs to be planned and executed over time.

The authors suggest that to lead a transition the organisation should consider a team or person responsible for guiding the strategy and timing of service and application migration to the Cloud, including integration with remaining on-premise services.

The Cloud is not just a focus for IT, but should be part of a wider stakeholder discussion in order to align with business goals and create scorecards.

## **About the author**

*Paul Lidbetter is Enterprise Architect at Microsoft Services, working within the UK Enterprise Strategy practice covering all industry sectors with a focus on strategic planning and business alignment/ value realisation, cloud strategy and emerging business model development. He also works in collaboration with partners, consortiums and academic institutes on achieving value, innovation and sustainability. Before his 14 years in consulting he spent 20 years in industry working in pure research, product development, innovation process improvement, sales and marketing and senior management positions.*

## **Next Steps**

The journey to the cloud is more than a TCO story or short-term tactical discussion. More and more, it involves both IT and business stakeholders in decisions that affect the provision of capabilities to meet current and business needs in a flexible, transparent service that contributes to achieving business goals.

To help you establish strategic alignment and business case options for your journey to the cloud, the Microsoft Enterprise Strategy practice can provide an engagement based on Microsoft's experience of working with customers and providing online services.

Such an engagement can review and deliver strategic realisation and high-level architectural plans as may be required and a financial business case designed to accelerate and support effective decision making and alignment of stakeholder requirements.

The engagement can be structured to meet your needs and is aimed at reducing both risk and timelines for your journey to the cloud and delivery of change and value, by also linking to other aligned services such as architectural and migration proven practice and guidance to maintain your journey to the cloud.

For further information, visit

[www.microsoft.com/services/strategy](http://www.microsoft.com/services/strategy)

## **References:**

The Economics of the Cloud

[www.microsoft.com/presspass/presskits/cloud/docs/The-Economics-of-the-Cloud.pdf](http://www.microsoft.com/presspass/presskits/cloud/docs/The-Economics-of-the-Cloud.pdf)

Cloud Computing & Sustainability: the Environmental Benefits of Moving to the Cloud

[https://microsite.accenture.com/sustainability/research\\_and\\_insights/pages/environmental-benefits-moving-to-the-cloud.aspx](https://microsite.accenture.com/sustainability/research_and_insights/pages/environmental-benefits-moving-to-the-cloud.aspx)