



The value of cloud computing to outsourcers and their clients

About this paper

This paper explores the potential benefits of cloud computing for IT outsourcing companies and their clients. The benefits of the cloud for simplifying infrastructure and platform management have already been well documented; this paper instead focuses on the business value that the cloud can deliver for outsourced software development and service delivery.

“While cloud computing has the potential to reduce IT costs, its real strategic value is how it can enable companies to bring products and services to market faster with lower risk.”

Kishore Swaminathan, Chief Scientist,
Accenture

Executive overview

As cloud computing technologies mature, many outsourcing clients are considering moving part or all of their IT infrastructure into the cloud, aiming to reduce costs and improve time-to-market for new products and services.

Equally, many outsourcing providers are seeking to offer cloud-based services to their clients. Outsourcers increasingly see cloud computing as a low-risk way to differentiate themselves in the market, and to reduce the cost of delivery.

Cloud computing may also be able to resolve the traditional tensions created by outsourcing software development projects – governance versus agility, consistency versus rapid adoption, and quality versus time-to-market – by delivering the flexible infrastructure required to get development projects off the ground quickly, and the tools to enable constructive interaction between in-house stakeholders and the outsourced development team.

Moreover, by leveraging Web 2.0 technologies and developing software that runs entirely in the cloud – known as the software as a service (SaaS) model – outsourcers can provide better value to their clients by creating solutions which require minimal capital expenditure, low installation and administration costs, and little local infrastructure. At the same time, such solutions can exploit mashups, widgets and social interaction technologies to deliver information in new ways and provide a more responsive and personalised user experience.

With the availability of all these opportunities for cutting costs and improving delivery, analyst firm Gartner estimates worldwide cloud services revenue will surpass US\$56.3 billion this year, and will surge to more than \$150 billion in 2013.

Defining cloud computing

The concept of cloud computing has developed from earlier ideas such as grid and utility computing, and aims to provide a completely Internet-driven, dynamic and scalable service-oriented IT environment, which can be accessed from anywhere using any Web-capable device.

Cloud differs from earlier ‘on demand’ computing concepts because it is more comprehensive: the cloud not only delivers scalable virtualized operating environments (infrastructure as a service, or IaaS); it can also provide application design, development and management tools (platform as a service, or PaaS), and the applications themselves

Highlights

One of the defining characteristics of cloud computing is that applications run mostly on the server side, without the need to install client-side software; yet their user interfaces (UI) still deliver the usability and performance of traditional desktop applications.

(software as a service, or SaaS). Software and data is stored in the cloud and accessed via web protocols, eliminating the traditional need for client-side software deployment.

Cloud computing and infrastructure

Infrastructure as a service (IaaS) is a well-known and much-discussed concept: by eliminating in-house data centres and relying instead on IT resources hosted by an external provider and delivered on demand, companies no longer have to worry about capital expenditure on servers and storage, and only have to pay for what they need on an operational basis. Mature virtualization technologies enable hosting providers to provision new environments for their customers very rapidly, and decommission them immediately when no longer required; moreover, the economies of scale can lead to significant savings.

For more information about cloud computing and infrastructure, see the IBM white paper entitled ‘Seeding the Clouds: Key Infrastructure Elements for Cloud Computing’ [<ftp://ftp.software.ibm.com/common/ssi/sa/wh/n/oiw03022usen/OIW03022USEN.PDF>].

Cloud computing and Web 2.0

One of the defining characteristics of cloud computing is that applications run mostly on the server side, without the need to install client-side software; yet their user interfaces (UI) still deliver the usability and performance of traditional desktop applications.

This has been made possible by the advent of Web 2.0 technologies such as DHTML and high-function JavaScript libraries such as Dojo, YUI and jQuery, which enable the Web browser to do more than just render content to the screen, submit requests to the server, and then refresh with new content. It is increasingly common to see business logic and simple data validation being handled by the browser itself, and for Web applications to run with a minimum of page refreshes. For example, Facebook allows users to explore and comment on individual profiles without any page transitions; it is only when moving from one profile to another that the browser actually loads a new page.

In fact, at the leading edge of Web 2.0 it is now possible to build ‘single-page applications’ that do not require any page transitions at all. One example is Gmail, which acts much more like a desktop application than a traditional web application.

As single-page applications become more common, the business value of cloud computing will become clearer: these applications prove that it is

Highlights

Businesses are increasingly seeing mashups as a flexible way to take advantage of resources that already exist on the Internet and adapt them to serve new purposes.

“Web 2.0 is the business revolution in the computer industry caused by the move to the Internet as platform, and an attempt to understand the rules for success on that new platform.”

O'Reilly

possible for the cloud to deliver applications that are as easy and convenient to use as traditional desktop applications. As a result, companies will be increasingly keen on implementing such applications, and will look for outsourcers with the expertise to develop, run and maintain them.

Mashups, where data from multiple separate applications is combined in new and interesting ways, are another valuable Web 2.0 concept that is contributing to the increasing demand for cloud computing. The ‘mashing’, which can occur either on the client or the server side, enables businesses to combine data by loosely coupling together different resources via open APIs, without having to explicitly tie applications together in a point-to-point fashion. Businesses are increasingly seeing mashups as a flexible way to take advantage of resources that already exist on the Internet and adapt them to serve new purposes. A standard example might be for a real estate company to mash up information about available properties from its own Web site with mapping data from a resource like Google Maps, to help customers locate properties easily.

The advantage for businesses is the ability to leverage and re-use existing public resources – avoiding the need to buy and integrate specialist third-party software or build new systems in-house. Outsourcers capable of developing mashup solutions are likely to be able to offer dramatic results to their customers at a relatively low cost – increasing their client’s competitive edge.

A hallmark of Web 2.0 applications that is a differentiator for cloud computing is their ability to bring people into an application space that they have never before inhabited. Applications like Facebook are the extreme example here, where the application is completely centred around interactions between people. But more lightweight interactions are also popular, for example:

- allowing people to make comments on resources that everyone can see
- enabling people to create user-defined ‘tags’ to dynamically classify content and resources
- showing presence information on who is interacting with an application
- sharing information between users.

“Cloud computing is a new model for constructing software that allows us to solve problems that have really been out of reach until now. We can meet business needs that traditional IT design and delivery models would tend to fail to address or under-deliver. The value of utilising cloud computing is that it allows us to go after those problems, to open new markets for the business, to improve differentiation in the market, and to contribute to the business goals of our clients. That’s what we at Capgemini think is exciting about the value of cloud computing.”

Andy Mulholland, CTO, Capgemini

The business value here relates mainly to knowledge management: by giving end users the ability to define, classify, rate and even edit online content and resources, companies can create online ‘communities of practice’ that contribute significantly to the knowledge base and share information more effectively than a traditional ‘top-down’ approach. This can be particularly relevant to software development projects.

Cloud computing and software innovation

By harnessing open and collaborative technologies, cloud computing has the potential to revolutionise software development – particularly outsourced software development projects.

Software delivery is a discipline of software economics that balances risks and opportunities. In a cloud environment, clients can obtain delivery and cost advantages quickly and reliably by utilising ‘packaged’ development environments – standardized toolsets packaged for rapid deployment on a virtualized infrastructure. Given that the parameters, integration and environment are already proven, the service management of the environment is de-risked from the outsourcer’s point of view. Full or partial development environments can be made available and decommissioned very quickly and easily, and clients only need to pay for them for as long as they are needed.

There are other specific advantages to software development in the cloud that are not available in traditional development. For example, having a standardised virtualised back-end infrastructure means that updates, patches and new capabilities can be introduced in a controlled manner. This again reduces risk, as the client and the client-facing team handle interaction with the development environment through a Web browser. The cloud can also provide the process enactment and measurement tools that are imperative for achieving agility at scale.

Equally, the principles of cloud computing enable outsourcers and clients to harness a new social or community model for software development and delivery. Faster on- and off-boarding for developers, testers and users in development environments means clients can work more closely and flexibly with their outsourced partners to combine their collective intelligence. They can very quickly become co-developers of the project, which should result in a better understanding of the target solution.

Software delivery requires a platform that is architected for automation, collaboration and reporting. By using a common development environment within a cloud, the client and the outsourcer no longer have

Highlights

By utilising a cloud environment, clients can monitor the progress of the outsourced development team more closely and improve project governance.

“Successful software development is essential to achieve business goals for a smarter planet. Outsourcers and their clients can leverage cloud environments to de-risk their software development partnerships. Together they can free up capital-intensive resources by leveraging a cloud-based development environment, enabling them to invest instead in business innovation.”

Alan Brown – IBM Rational CTO
EMEA

to investigate or debate which tools to use for each project. Instead, whether the tools come from one vendor or many, the baseline environments managed in the cloud are standardised, proven and stable.

This is an approach that has proved very successful in the open source community, and is increasingly being utilised in commercial development projects. Even in more traditionally-minded businesses, the trend in software development is to move development tools away from individual developers’ desktops and into a collaborative server environment. Cloud computing takes this one step further by sourcing the tools themselves from the cloud. The result is an increased ability to focus on business-level activities and to re-use existing resources by leveraging Web services.

The benefits for both outsourcing providers and their clients are clear: by utilising a cloud environment, clients can monitor the progress of the outsourced development team more closely and improve project governance. Meanwhile, the outsourcer is able to gain a closer insight into the requirements and preferences of the client, helping to deliver a better end product and reducing time wasted on developing unnecessary or unwanted features.

Preparing for the cloud

Cloud computing impacts the entire enterprise, so organisations are looking at how they can structure themselves to get ready for it. The challenge is to understand the enterprise architecture – the underlying logic of an organisation that spans its strategy, resources, processes and supporting IT infrastructure – and to optimise it for a services-based cloud approach. There is a need for tools to visualise, analyse and communicate the enterprise architecture.

Once the architecture has been mapped and understood, the client will need to decide whether its new cloud architecture should be public or private – that is, whether the management, deployment and access of the cloud will be via a traditional public environment (generally, the Internet), or hosted on a private network.

This decision is largely based around security. Outsourcers can help their clients understand whether security issues necessitate a private cloud; if so, the client may either work with the outsourcing partner to build, run and manage a new private cloud, or simply deploy into an existing one. More often, a traditional public network will provide sufficient security, and the outsourcing partner will recommend a third party to host, run and manage a public cloud environment to which both the client and the partner can connect.

Highlights

Using proven and pre-integrated capabilities de-risks the implementation for the client and makes the service management more predictable for the outsourcer.

“Many of today’s root-cause issues in terms of quality and cost of service will persist with on-demand services unless a focus on consistency of data, effective feedback to maintain data, and a holistic approach to tools and methods is taken. Only then will it be possible to leverage the benefits of multisourcing and variable-cost consumption models. This is where we will achieve the value of cloud computing.”

Mark Skilton, CTO for CSC
Outsourcing EMEA

Dependence on a networked infrastructure (possibly running through a public network) can also cause anxiety for clients, so outsourcing providers need to be able to provide reassurance. It is critical for the outsourcing partner to be able to monitor the entire IT stack (application, database, system, security and network performance) against agreed SLA thresholds, and for the infrastructure to be supported with redundancy and capable of rapid recovery in the event of a disaster.

Finally, it is vital to create and foster a sense of community and involvement with cloud development within both the client and outsourcing organisations. Without engagement from both sides, the benefits of the social interaction mechanisms built into the cloud development model will not be realised, and many of the problems associated with traditional development models can resurface.

Benefits of the cloud for service provision

Compared with previous development models, cloud computing provides a better method of dynamically provisioning and scaling runtime environments that provide everything needed to develop and test code. But utilising cloud computing also brings with it new challenges in managing the IT environment.

The dynamic dependencies between cloud services and the applications, data and infrastructure that underpin them add a new twist to delivering on Service Level Agreements and managing change. The value of cloud for service management comes as outsourcers create loosely coupled service offerings from existing proven assets. Using proven and pre-integrated capabilities de-risks the implementation for the client and makes the service management more predictable for the outsourcer.

The combination of infrastructure, platform and software as services delivered from the cloud enables an ‘on demand’ approach to service provision that benefits both outsourcers and their customers:

- Predictable ‘anytime, anywhere’ access to IT resources
- Flexible scaling and optimisation of resources
- Rapid, request-driven provisioning
- Lower total cost of operations

According to analyst EMA, “30% or more of IT organizations have already moved to a service management paradigm with another 50 to

60% in the process,” and that “without it, dynamic infrastructures and cloud computing environments cannot exist.”

Once in place, a cloud environment helps to provide the enhanced application functionality and high service levels that clients demand from their outsourcing partners; it also enables the use of new, more flexible costing models such as pay-as-you-go or utility-like charging.

Conclusion

Utilising the principles of cloud computing can add value for outsourcers and their clients in both software development and service delivery.

Cloud computing is about more than cutting costs: it is about the ability to re-use proven solutions, the ability to start projects more quickly and manage them more responsively, and the ability to get a faster return from outsourcing contracts. It enables new resources and people with new skills to get working more quickly, and makes it possible for development projects to add value to the business sooner.

It is inevitable that a continued focus on economic constraint will encourage more organisations to consider outsourcing to cloud offerings in order to reduce costs; but it is the flexibility and simplicity of management provided by cloud environments that will deliver the business value that is most desired by companies and their outsourcing partners.

More information

For more information on cloud computing solutions from IBM Software Group, please visit:

ibm.com/uk/software

or

ibm.com/ibm/cloud

Author

James Hunter, CITP, FBCS, Certified IT Specialist,
james.hunter@uk.ibm.com



IBM United Kingdom Limited

76 - 78 Upper Ground
South Bank
London
SE1 9PZ

The IBM home page can be found on the Internet at **ibm.com**

IBM and the IBM logo are trademarks of International Business Machines in the United States, other countries, or both.

Other company, product and service names may be trademarks or service marks of others. References in this publication to IBM products or services do not imply that IBM intends to make them available in all countries in which IBM operates. Copying or downloading the images contained in this document is expressly prohibited without the written consent of IBM. This publication is for general guidance only.

© Copyright IBM Corporation 2009

All Rights Reserved.