Creating Dynamic Business Networks: Removing IT Silos to Create Smarter Computing

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Introduction

The world of Information Technology is changing from a set of disconnected silos to a dynamic foundation that supports a more agile and flexible business environment. To support the need for business change demands that IT assets become a pool of resources and integrated information sources. This new emphasis on leveraging assets is directly tied to economic transformation across increasingly important business networks. Companies are beginning to understand that their competitive value in the markets they serve are directly related to the way they empower their ecosystem of customers, partners, and suppliers. Traditional techniques of managing these relationships are becoming too costly and inefficient. At the same time, companies are recognizing that their survival depends on their ability to innovate and offer new products and services that leverage their intellectual property. This innovation has to be achieved in the context of flat or declining budgets.   In this paper, we will provide an overview of IBM's Smarter Computing initiative and how it recognizes the changes taking place within the IT paradigm.

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Organizations that are transforming themselves are moving away from thinking about IT as a backroom activity. These companies are thinking differently about the use of IT by putting it in the forefront of change. IBM is addressing this customer requirement with a new imperative it calls Smarter Computing. What does this mean? In brief, IBM intends that Smarter Computing provides the context for optimizing and leveraging all IT resources across the organization to create a flexible and scalable platform for innovation and transformation. Cloud computing - one of the underpinnings of Smarter Computing - is one of the most important drivers of this new approach to IT.

Setting the definitions: What is cloud computing?

Before we talk about how to achieve this change it is important to define terms. Cloud computing is both a technical and business model that leverages the Internet as a means through which everything from computing power, infrastructure, and storage (called Infrastructure as a Service); applications and software services (known as Software as a Service); middleware, development processes and tools (known as Platform as a Service), and unified business process across these environments. To support these workloads, there are both public and private clouds. A public cloud is a service that is available to any customer able and willing to pay for use of a shared service. A private cloud, in contrast, is an automated and standardized environment, supporting self-service that is located behind a company's firewall. When these models are combined they are considered to be a hybrid cloud.

The cloud has four essential characteristics including:

- Ubiquitous support for network access to resources no matter where the user is physically located.

- Support of automation and standardization so that users can have self-service, on demand access to resources.

- Support for elasticity of resources so that companies can scale up or down their use of IT depending on the business need.

- The ability to effectively manage the hybrid environment as a whole. This virtualized environment has to be measured, monitored, and managed in an automated manner.

What cloud computing means to the changing dynamics of IT

Transforming IT from a traditional operational model to a dynamic set of resources that support innovative business requires that IT be executed without boundaries or silos. The most important issues faced by companies are the need to have total connectivity and data integration across silos both inside and outside the company to support partner initiatives. Once connectivity is addressed, companies need an efficient way to consume business services including payment services or analytic engine services, for example. Innovative companies are those that break down boundaries between business units, subsidiaries, partners, suppliers, and even customers. For decades organizations have been looking for ways to leverage their existing assets so that they can expand their business reach. It has been incredibly hard because of the seemingly arbitrary boundaries implemented because of the inefficiency of IT. With changes in emerging technology enablers companies are finding new ways to break down these artificial barriers. The impact is that companies now want to be able to leverage their business rules and processes buried inside line of business applications. They want to be able to manage the myriad of data sources as though they were a single pool of information. This aspirational goal can only be achieved if the workloads that control all of these IT sources can be managed efficiently and cost effectively.

The requirements for action: Connecting and Integrating

What does it mean to leverage the cloud in order to support this new way that organizations are preparing to compete in the future? The first step is for management to begin understanding that the value of information technology is based on the ability to integrate and connect with internal and external resources. By focusing on linking resources together rather than isolating them, IT can become the engine of business change. For example, organizations might decide to use a Software as a Service platform to manage sales leads. However, once those leads become customers, business leadership wants that information to be managed privately. In addition, many companies are leveraging a variety of

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public and private cloud services and linking them together with sophisticated middleware that is operated within a private cloud environment. To accomplish this goal requires that management focus on three key elements:

- Create a hybrid cloud computing environment to support flexibility, elasticity, and connectivity between applications, data, and computing resources based on best practices.

- Implement cloud based technology that encourages collaboration between constituents.

- Provide a consistent approach to managing, monitoring, and governing this hybrid environment.

The business benefits of the new IT

What can a business achieve if IT services were suddenly a set of services that could be applied to any business problem, opportunity, or innovative idea? Let's look at a business scenario that could shed some light. Imagine that a large retail corporation is looking for new ways to create innovative partnerships that would allow the company to leapfrog the competition. Retail is a highly competitive market with low margins. It is difficult to differentiate one company from another. Simply being the low cost provider will not support growth. The company decided that as a differentiator it must introduce innovation on various levels. First, the company decided that it would offer a way to create new retail partnerships with complementary products. The company created a private cloud environment that it could use to accomplish two goals: it could create and test new innovative offerings without huge investments and it could offer these new offerings as a service to its partners, suppliers, and customers. The private cloud became an extension, and in fact the driver, of new innovative business offerings. As the private cloud emerged, the company was able to incorporate Software as a Service element to enrich the platform. Now this hybrid environment became the nexus for nurturing new partnerships. The company was also able to remain competitive by collecting data from a variety of online information sources and social networks to determine the receptivity of the market for these new offerings. The company used a Platform as a Service to build, test, and deploy the new commerce site with the right set of connectivity and middleware capabilities so the site could be linked to the data center and to third party payment services. Once the site was ready to launch, the company used Infrastructure as a Service so that when there was a peak in customer demand, the site would not suffer from service outages or service slow downs.

By establishing this sophisticated private cloud-driven environment, this innovative retail leader was able to instantly scale the environment when it discovered new partners that dramatically expanded to scope of their original go to market strategy. Through the use of analytics services, the company was able to analyze customer needs across their entire partner ecosystem. This meant that the company was able to anticipate new market offerings before any competitors could react. The resulting hybrid environment supported end-to-end visibility to applications (both in the data center and in the cloud),

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access to a variety of services both inside the data center and in the public and private cloud, and dynamic access and connectivity to partner resources. One of the major benefits of the new hybrid cloud structure is the ability to provide sophisticated data integration services between different services within the hybrid cloud environment and between the cloud and partners information sources.

Without this flexible hybrid IT model, the company would not have had the time or resources to take the risks it was able to do. This way of architecting IT as a pool of services and resources that are implemented in a flexible cloud-based model is the way companies will compete in the future. The combination of flexible cloud computing models, the ability to easily leverage and integrate analytical data, and the requirement to optimize workloads across systems are the foundation of IBM's Smarter Computing initiative. The ability of companies to focus on the economic benefits by tuning and architecting their computing assets can make the difference between business as usual and a dynamic IT-driven strategy. Companies that remain tied to ineffective computing models will be unable to compete with competitors that adopt this more dynamic computing model.

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Getting started in this new world

While this emerging model tears down boundaries between traditionally stove piped systems, it requires a set of steps to execution. This approach is intended to flexibly allow disconnected environments and services to collaborate in a federated manner. Federation means that different environments can be linked to each other rather than permanently integrated together. It is not a single action that makes this possible. There are six aspects of this model that are required to allow companies to leverage their IT assets in a flexible manner.

- **Seamless integration of existing IT with new cloud based delivery models.** Breaking down the stovepipes between existing applications in the data center and cloud based services requires a sophisticated approach to integration via federation. Moving data across environments requires metadata mapping that ensures that the integration is accomplished in a meaningful manner.

- **Migration to flexible IT and business process.** Processes are designed within and across applications throughout the company and across a supply chain. By separating processes from the underlying implementation, companies can gain better leverage of intellectual property. With this approach it is possible to codify proven and repeatable processes for easy reuse.

- **Creating a new model that is holistic so the underlying services are accurate when used in a new context.** A holistic model is imperative within a cloud computing delivery model. The new emerging model is to create a set of services that can work together to solve many problems.

- **Creating a lifecycle approach is imperative.** Establishing a more flexible method of managing workloads in different cloud and on- premises delivery models requires that organizations look at the lifecycle of the elements within each environment.

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- **Ensuring manageability across all of the new delivery models.** New delivery models have to be dynamically linked with data centers as well as delivery models from partners and suppliers. All of these services are now the new definition of the IT organization. Therefore, all of these services have to be managed as if the composite were a single integrated environment instead of a highly distributed environment.

- **Providing a predictable level of service across all traditional and emerging cloud models.** Once an organization has taken an architectural approach to creating a hybrid computing model based on a combination of many different delivery models, it is much easier to create a consistent level of service.

Building a successful cloud based strategy to support innovation and growth

The journey to Smarter Computing to support these new and emerging business models does not happen over night. It requires a roadmap and successful planning between IT and business. To be successful with cloud in this new model of leveraging IT to transform the business requires organizations to focus on best practices both within their industry and across cloud delivery models. Creating successful models requires more than simply accessing cloud services. These models demand a rethinking of the way IT is delivered in order to optimize flexibility, scalability, manageability, and predictability in rapidly changing business environments.

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