The Impact of Cloud Computing on Enterprise Architecture

Cloud computing is set to revolutionize the way enterprises consume IT. In this article, David Bressler of Progress Software investigates the implications of cloud computing on application delivery within the enterprise and outlines best practices for a successful foundation to cloud computing.

Introduction to cloud computing

It's not a recent discovery that integration is IT's biggest challenge, and the difficulties associated with this obstacle have become more significant as a result of the increasing amount of information that is traveling across infrastructures.

Frequently, this difficult situation is exacerbated by non-technical managers who are not aware of all the effort necessary to integrate data properly. As a result, a potentially dangerous and costly domino effect ensues: these executives overlook or ignore the difficulties associated with integration; underlying architecture is sacrificed for speed, yet still many projects are deployed too quickly; users' first experiences are negative; and ultimately, the development team is left in a permanent state of catch-up. This approach only masks the underlying integration effort necessary for proper integration and the complexities of doing it right, the first time.

Another confounding factor revolves around budget. Unfortunately, it's not uncommon for a majority of the money on IT projects requiring significant integration efforts to be spent well in advance of revenue (or benefit) generated by an application. As a result, there is a mismatch between when spending occurs and when the offsetting benefits or revenue accrue, an accountant's nightmare. Albeit indirectly, these "cultural" and financial obstacles are among the main difficulties of integration projects.

Fortunately, cloud computing – essentially an offering where infrastructure is provided as a service - promises to help businesses overcome these challenges. Briefly, integration initiatives based upon cloud technologies see more immediate results, as they do not mandate a time-consuming infrastructure build-up process. Costs ramp up more slowly because companies are charged per user, and don't need major hardware and software investments upfront.

Businesses that leverage cloud computing will be able to capitalize on bringing data together in ways not previously possible, because their data is available through standardized interfaces. This, in turn, will enable them to create more innovative applications around the use of their data. Business users with better access to relevant information can make more informed and faster business decisions. This new method of uniting data and teasing out new relationships between information will become the focus of enterprise application development, and revolutionize the way corporate knowledge, which is currently hidden inside systems, is used to assist in making important business decisions.

With an understanding of the potential of cloud computing established, the question arises: what are best practices to successfully impact enterprise integration?

Mediation is a secret weapon

The importance of a mediation layer is not unique to cloud computing. Creation of a mediation layer protects the enterprise from provider changes. It's the single most critical architecture enhancement a company can make when using the cloud, because it enables the enterprise to change on their own terms and not be dictated to by the external provider.

Continue to consider service level management

Mediation also serves a second key benefit, that of control and policy enforcement. Adding a mediation layer provides the enterprise with visibility into how the cloud is being used and control to assert enterprise standards. Visibility is critical to determining risk and optimizing business relationships.

Finally, mediation enables monitoring of the vendor's service level agreements to validate that they're delivering as promised in ways that are meaningful to the business.

Keep a focus on security

Understandably, security is IT executives' biggest objection associated with cloud computing. All the obvious components of security with an outside vendor apply, but cloud computing magnifies the problem, and the fear.

To address security in the cloud, data security must move up the stack, the same way that IT value does. IT needs to focus on data-layer security, since the lower layers are beyond it's control.

Companies that start the move to the cloud will find that security has been tightly integrated with their infrastructure stack (at the network layers primarily), to the point where it becomes difficult to tease security and infrastructure apart. However, by moving to the cloud, the fine level of control over the network is lost, and security at the higher layers must take over.

It should go without saying that cloud computing is still immature. As a result, organizations should avoid putting information in the cloud without having a copy elsewhere. Just like everything else, investment in a contingency plan, including testing the plan, is critical.

Be cautious but don't fear mistakes

Mistakes are important learning experiences. Since there is so much less investment up-front for cloud computing, mistakes are easily forgiven. Businesses leveraging cloud computing can change course because they don't have so much to "throw away." This also gives businesses some good leverage over their cloud vendor. The situation certainly becomes more complicated once an investment is made heavily, but no more complicated than switching software vendors after a COTS purchase.

The hidden disease, IT culture

If infrastructure is moved and IT becomes about application integration and delivery instead of "infrastructure babysitting," the IT organization itself will have to undergo a metamorphosis to meet this new model of enterprise computing. This transformation will require leadership, clarity, and education; without which, the results will be less than optimal.

Map out a strategy for success

Having a plan is necessary to aim investments at the right target. Envision cloud-based computing as enabling the "network" to be a single application-delivery platform delineated by service interfaces between components. Data is freed from application silos, and accessible through open and well-defined interfaces.

IT can then focus on delivering an innovative synthesis of data to the end users in ways that enable them to make better decisions, and have a greater impact on their business.

This ability is so important because it reduces costs, but improves both alignment with the business, and agility. Ultimately, IT will be able to contribute real and measurable results through collaboration with the business. In turn, this should help the business better understand the value of IT and how to effectively use IT as a competitive weapon.

Summary

We've discussed some best practices that can be used as the foundation to a cloud computing strategy. To ensure the success of cloud computing initiatives, it's important to discriminate between the hype and the reality but also realize the barrier to entry is low. Don't worry about mistakes, but make small ones first! With this strategy as a foundation, IT executives are able to revolutionize the consumption of enterprise applications within their business, while at the same time, significantly reducing the cost barriers to entry of new ideas. In short, cloud computing will manifest a streamlined business, focused on meaningful results, at a lower cost.