Do You Want Business Agility?
Start with Virtualization

The data center of the future has now arrived and we see significant improvements in power distribution, cooling efficiency and overall environmental impact. All this is good news for companies that wish to reduce their carbon footprint and reduce their electricity bill at the end of each month.

Today's data center managers are under greater pressures to maintain this innovative way to keep infrastructure cool and running 99.999% of the time. They are still the gatekeepers to the data center but are now beginning to refuse entry to infrastructure that is not "efficient". Clearly, modern servers, storage and networking equipment are far superior to legacy equipment; however, many are now concerned by the utilization of such devices. No data center today would consider the intake of new servers that are not highly virtualized.

No longer is the data center about space, it's about compute per square foot, power usage efficiency and elasticity. The data center is becoming cloudy and very adaptable to changing scale and relocating its services.

As this new form of data center appears in a city near you, many CIOs are facing a mountain of challenges to transform an ocean of IT infrastructure that is today unsuitable for such an environment. Many companies are still only 30 percent virtualized with low consolidation ratios and aging hardware (greater than 5 years old) that a data center manager would rather place in a skip than their new data center.

The transformation on the horizon is driven by the dynamic business environment that we find ourselves in following recent years of keeping the lights on. Growth, agility and flexibility are key attributes that must be built into infrastructure to provide quicker time to market and adaptability to business change.

Get me there NOW: the evolution of virtualization

Everyone has virtualized something over the past years. Many smart CIOs have benefited from the reduction of capital expenditure that virtualization provides. Today we see a bigger challenge in reducing operational costs (which are a greater percentage than the capital costs) and providing business relevance and agility.

The challenge is now less about which technology I should use but how I can obtain all the benefits. Most transformations have taken a technology approach, often neglected the business user and failed to educate an organization about the benefits in the years to come. How does the virtualization of servers fit into an IT/Business strategy for information technology? Cloud computing strategy helps us with a framework but it is the detail within the next two years that is important.

Virtualization as the foundation

Transformation is a series of steps and the first step for agile, efficient infrastructure is virtualization, which has emerged as a powerful, game-changing technology in the past

decade, transforming countless data centers and IT environments along the way. Its significant technological achievements, however, shouldn't obscure its ability to drive real *business value* for organizations. Virtualization accomplishes this by providing the foundation for cloud computing, a revolutionary new way to deliver IT-as-a-Service.

IT-as-a-Service enables IT organizations to operate in a more business-like fashion, moving beyond a siloed IT infrastructure towards an efficient pool of elastic, self-managed virtual infrastructure, consumed as a service, at the lowest possible cost. Best of all, IT-as-a-Service delivers what the business needs—flexibility and agility—without compromising control.

This service-based approach enables organizations to more nimbly respond to challenges and opportunities in the marketplace, providing an important competitive advantage—and virtualization is at the heart of it all.

A highly virtualized infrastructure creates an IT environment with the following characteristics:

- **Scalability:** application performance is the same whether there's one user or one thousand users and provides consistent service-level characteristics—creating the illusion of infinite capacity.

- **Abstraction:** applications are not constrained to hardware or locations due to abstraction of the infrastructure.

- **Elasticity:** no forward planning or forecasting is required to rapidly scale up and down with near instant availability.

- **Accessibility:** access to applications and information is available from the network and on any device.

- **Pay-as-you-consume pricing:** a pay-as-you-go usage model for IT service allows you to only pay for what you use with minimal up-front investment costs.

These technological characteristics translate into clear business advantages: they provide a more efficient, flexible and cost-effective model for computing and enable IT to operate much more efficiently and respond faster to business opportunities.

Additionally, this cloud foundation helps organizations to achieve lower Total Cost of Ownership (TCO) while minimizing unnecessary IT infrastructure investments, management and maintenance resources, and system lock-in. Customers move towards a zero touch, highly automated infrastructure that is self-monitoring and self-optimizing, greatly simplifying IT management.

The cloud can take the form of several distinct delivery models, each with a slightly different relationship between the service provider (IT) and the service consumer (the end user or enterprise that actually uses the service):

For *Software-as-a-Service (SaaS),* the provider installs, manages and maintains the software. The provider does not necessarily own the physical infrastructure in which the software is running. Regardless, the consumer does not have access to the infrastructure; they can access only the application.

For *Platform-as-a-Service (PaaS),* the provider manages the cloud infrastructure for the platform, typically a framework for a particular type of application. The consumer's application cannot access the infrastructure underneath the platform.

For *Infrastructure-as-a-Service (IaaS),* the provider maintains the storage, database, message queue or other middleware, or the hosting environment for virtual machines.

The consumer uses the service as if it were a disk.

Regardless of the specific delivery model, the net result is the same: a more efficient way for the business to consume IT services.

Pitfalls in the journey to virtual infrastructure

The strategy for any virtualization transformation is not about virtualization but about IT-as-a-Service. The latter requires a holistic approach to transformation as you increase the percentage of virtual infrastructure within the data center.

Many CIOs have found themselves with a blockage at 30% virtualized, preventing them from capitalizing on the total benefits of virtualization. The virtualization journey can get blocked for a number of reasons, including:

- Last minute engagement of business users within virtualization projects
- Lack of strong benefits messaging within projects
- Poor project governance and quality controls
- Conflicting agendas within a large organization, e.g. infrastructure ownership distributed within a large corporation
- Pure technology physical-to-virtual (P2V) projects that lack holistic transformation of operations
- Too much focus on Proof of Concepts (POCs) and discovery of infrastructure
- Lack of budget for transformations due to short-term cost reduction strategy

For many CIOs the key reason has not been technology but the challenging economic times as businesses focus on day-to-day needs, rather than the development of a long term IT strategy. Virtualization becomes seen as a short-term capital expenditure reduction rather than a platform that can provide the basis for agile IT services.

This excessive operational focus can stifle innovative thinking. Many IT organizations spend 70% or more of their resources on simply "keeping the lights on"—leaving little time for innovation or strategic projects.

Even those businesses that take a strategic, long-term view of virtualization can be hindered in their efforts if they fail to align the business internally to support this new IT model. If there is a lack of focus on servicing the business in an agile pay-as-you-go manner, efforts to move forward will stall.
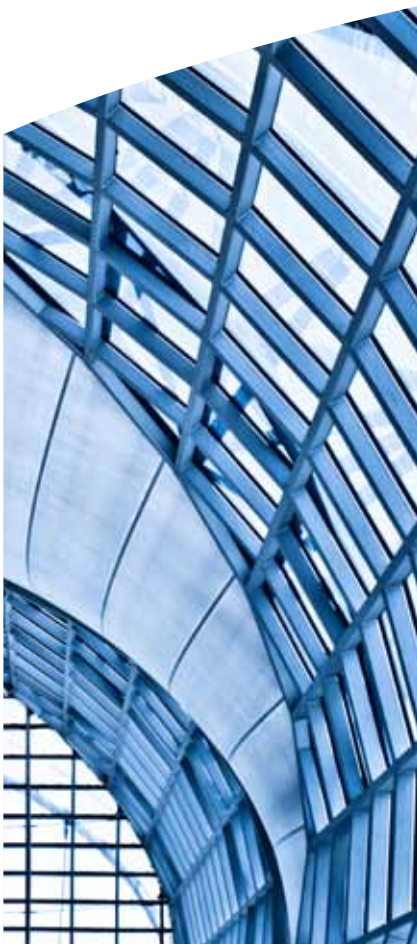
Best practices for continuing the journey

There is growing desire on the part of organizations to continue their journey, and increasing the use of server virtualization remains a leading IT priority among mid-size and enterprise organizations. The issue, then, is not one of *not wanting* to move forward; rather it's one of being unsure of where to start.

The IT organizations that will be most successful in transitioning to the cloud will be those that approach the task strategically and methodically. The journey to the cloud requires customers to think holistically about any transformation of infrastructure. It's not just about converting physical machines to virtual machines—there are other transformations that need to occur in parallel to effect meaningful business change.

The following are some best practice steps towards building a foundation for agile IT services:

Leverage unified infrastructure: In the most successful virtualization efforts, individual infrastructure components are highly unified, combining server, storage, and networking. Technology vendors are making giant leaps in the level of collaboration of development, services, and partner enablement that reduces the amount of effort required by companies to install, configure and maintain complex infrastructure.

Virtualize at least 70% of applications (the majority):
Since virtualization is the foundation for cloud computing and IT-as-a-Service, any organization transitioning to the cloud needs to virtualize the majority of its environment—at least 70% including business critical applications. Companies should analyze their portfolios and prioritize the applications that would benefit most from a cloud computing approach. The best candidates are those applications most frequently requested by users, which tend to be transient applications (such as those that are temporarily required for setting up a staging environment), elastic applications (which have large variances in the amount of resources they require), and "long tail" applications which never get prioritized by IT organizations. Applications such as these will benefit considerably from being served out of a cloud environment and can drive immediate value to the business.

Transform the business consumption model for IT:
Companies must turn their IT department into an agile and user-friendly internal service provider/store. This requires exposing IT services to internal users through web-based portals as a fully automated, catalog-based service. Whenever internal users need IT services, they should be able to get them as easily as buying an e-commerce item online. Conversations with the business should be about service, not the technology. Business users with a little knowledge of IT can be a liability for the CIO's budget.

Govern the private vs. public cloud strategy within your organization:
IT services may be deployed via a private cloud, a public cloud, or a hybrid model that leverages some combination of the two. Organizations should place workloads in the optimal location while fully retaining the ability to move workloads between or across private and public cloud infrastructure.

Public clouds can become the CIO's biggest competition; tight governance of their useage in partnership with the business users is critical.

Align internal processes:
Consider the change management in IT, lines of business and procurement that will be required to support the move to cloud computing, including changes in roles, education, training and certification procedures.

Many organizations have already taken positive steps in these areas, while others are just getting started. By asking the right questions and taking a holistic approach as outlined above, organizations can overcome any current barriers and continue their virtualization journey towards IT-as-a-Service.

Now is the time
Business agility is completely dependent on *IT agility*, no excuses. IT agility provides the cheapest price point for business technology services.

It is no wonder, then, that cloud computing, and its promise of delivering IT services on demand, is attractive to IT departments and businesses alike.

A highly virtualized environment simplifies the infrastructure by moving from discrete, siloed infrastructure components to pooled infrastructure that can be managed holistically and flexibly delivered to meet and anticipate the needs of the business. By establishing this bridge to agile IT services, companies are poised to better align IT investment with business value, paving the way to today's IT of the "Now".

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For more details, contact

Martin Snellgrove
Global Virtualization Lead
martin.snellgrove@capgemini.com
www.capgemini.com/virtualization.

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