

TRANSFORMING THE DATACENTER INTO THE DELIVERY CENTER

By MICHAEL CRISTINZIANO, Vice President, Strategic Development & Member of the CTO Office Citrix Systems Inc.

Your organization's business is increasingly represented by the quality of its user-facing applications. Even in customer interactions that begin with face-to-face conversations, the agreed transaction is eventually represented within a business application which must be executed efficiently, securely and with a rewarding user experience. It is no exaggeration to say that applications are the lifeblood of the enterprise, and connecting users to applications is one of IT's most important missions. Enterprises that have embraced virtualized application delivery infrastructure not only reduce their operating costs, but they also experience improved business processes and customer satisfaction.

Virtualization is revolutionizing the way IT conducts its mission to provide infrastructure services to the business. The technology facilitates the sharing of critical resources and is the true enabler of IT cost reduction, improved information security and agility to rapidly meet dynamic business mandates. The traditional approach of binding software to a physical machine, one that created difficult-to-manage gaps between static architectural elements, is giving way to a vision where virtualization allows the elements to work in concert. Virtualization is a disruptive set of technologies that are turning this vision into a reality.

Enterprise growth demands that IT find efficient methods to deliver business applications to users. In many organizations, the application workload is distributed across Windows servers and desktops. Therefore, IT is focusing virtualization solution requirements not only on the datacenter, but also the endpoints and network infrastructure necessary to orchestrate a cohesive system. Restricting virtualization to point functionality in an application delivery network keeps IT services from realizing its full potential.

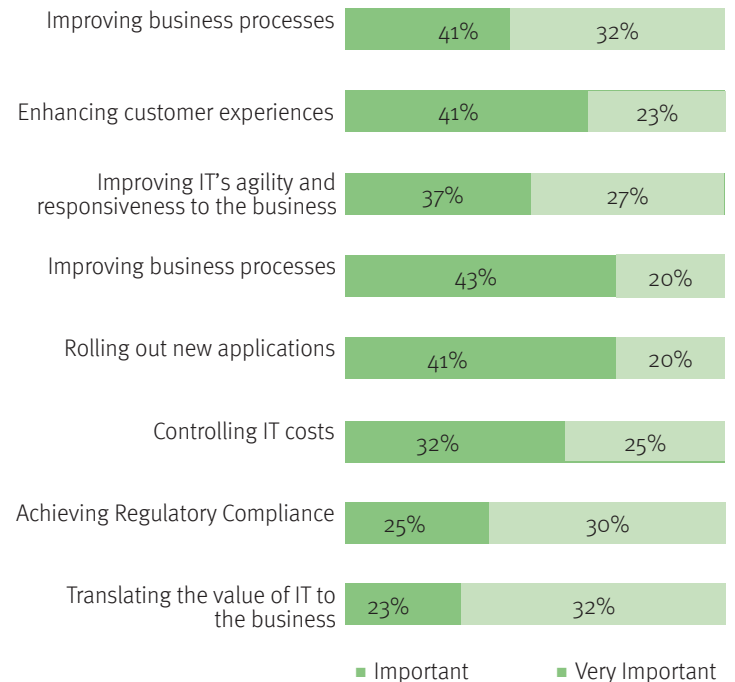
Orchestration embodies end-to-end intelligence in an application delivery infrastructure to effectively shift resources to where they can best meet the performance demands of the business. Ultimately, automating such end-to-end coordination is the optimal way to integrate diverse components into a vibrant application delivery system. Virtualization has already had a substantial impact on IT in the application development environment and in server consolidation projects. However, the virtualization revolution lies ahead – enabling IT to connect users and applications in a way that propels the business.

Overview

It is very important for an enterprise to be able to convert business opportunities without losing time due to retooling of the technical infrastructure. Virtualization technologies allow IT to meet business imperatives for quick mobilization of business initiatives. At Citrix, we find that our most strategic customers are clearly seeing the cost, security, performance and flexibility benefits of virtualized application delivery.

Citrix quantified these views in a worldwide survey of senior IT executives, where we asked them to rate the importance of various aspects of providing IT services. The results are enlightening and are shown in Figure 1.

Figure 1: Business Process And IT Agility Top The 2007 CIO Priority List



Base: 44 CIO and senior-most IT decision-makers

Source: A phone survey of 153 IT decision-makers and influencers across North America, Europe, and Asia-Pacific in March 2007 commissioned by Citrix and conducted by Forrester Consulting

The results indicate that IT is viewed in the context of business success. The top three priorities for IT are all expressed in terms of supporting the business – namely improving business processes, enhancing customer experiences, and improving IT's agility and responsiveness to the business. The days of viewing IT as an overhead cost center are long behind us.

Delivering on the vision of an IT organization aligned with business goals requires an end-to-end strategy of efficiently delivering business applications to users. For instance, application performance is a critical factor in enhancing customer experiences; where performance is dictated by processing at the endpoint, servers in the datacenter and everything in between. Application delivery infrastructure is the promising answer to an IT organization that is integrating the building blocks of an application delivery infrastructure into an adaptive orchestrated system.

Orchestrating a Virtual Infrastructure for Application Delivery

Connecting users to applications with the performance to ensure a productive user experience is achieved through integration of components at the endpoint, branch, gateway, front end and

datacenter. Each element of the architecture contributes to enhancing the overall user experience that is so crucial to a successful business. The architecture has to be a well-orchestrated system, otherwise the user experience degrades as performance and integrity problems in the infrastructure become noticeable.

- The datacenter is where the virtualization story begins. Advances in hardware support for virtualization and the acceptance of multi-core technologies allow applications to share server resources. The higher utilization of fewer servers translates directly into cost savings in equipment, real estate, power and cooling. Furthermore, IT can more easily provision new servers with application VMs, patch and upgrade applications, and enact controlled business continuity processes. Cost savings are quickly realized while IT gains some flexibility in adapting to changes in the business.
- The endpoint is responsible for coordinating the user interface and for presenting views of the application to the user. Desktop virtualization permits the application to actually execute in the secure datacenter, while preserving the look and feel of a locally executing application. This enhances the security of confidential data since it always remains in the datacenter, and helps IT control desktop configurations as those are also centrally stored in the datacenter.
- In between the datacenter and the endpoints are application delivery components at the front end of the datacenter, gateway to the network and in the branch location. These technologies work in concert to provide services such as authentication and access control to sensitive applications; load balancing of traffic to assure predictable performance; application acceleration to improve application performance and response times; and WAN optimization to maintain high levels of service when delivering information over the Internet.

Orchestration of these components into a seamless, integrated application delivery system is mandatory in meeting the priorities identified by IT executives. While best-of-breed components are desirable, the ability to virtualize workloads across the components gives IT the agility required to power the business. Each component in an orchestrated virtual infrastructure is responsible for sharing intelligence within the system. For instance, envision an endpoint that reports feedback on performance degradation. That report may be acted on by launching new application instances in virtual servers and adjusting load balancers to direct traffic to take advantage of this increased capacity. This whole process can be automated for a truly dynamic virtual infrastructure that can quickly adapt to changes. It all begins with the end-to-end orchestration of the entire virtual infrastructure.

Virtualization techniques are the underpinnings to the improvements in delivering applications to users. The ability to abstract applications, security mechanisms and optimize methods from the shackles of physical devices provides IT the tools to dramatically reduce the total cost of ownership in delivering applications. Centralized control of applications and data eases the burden of administration; on-demand availability of desktops for end-users lowers hardware costs with easier to maintain endpoints; and orchestration across the system makes

it easier for IT to align application resources with the business.

Standard non-IT business practices provide for the generation of operational metrics used to measure business process quality, support compliance mandates and generate business intelligence that is leveraged across all departmental functions. Application delivery orchestration brings these accepted best practices to IT. The IT organization can automate the orchestration or exercise complete control with manual procedures. The important point is that orchestration allows all of the critical components to operate collectively to deliver the best business process, customer experience and IT service to the business.

Conclusion and Recommendations

A virtualization infrastructure that spans from the datacenter to the desktop is the leading method for delivering applications to users. The ability to orchestrate the functional components at the datacenter, front end, gateway, branch and desktop assures that the system has the required intelligence to adapt to dynamic business requirements. Through effective orchestration of end-to-end application delivery, IT will be able to instill lasting improvements in security, performance, and flexibility.

Orchestration of the architectural elements is the key to unlocking the potential of a virtualized environment. Applications that are executing on virtualized servers are of limited value if users cannot easily and securely connect to them. There are many moving parts in an effectively implemented virtual environment. Those organizations that best meet the challenges of orchestrating the architectural elements into a cohesive application delivery infrastructure will be best positioned to use IT as a competitive asset. This is best accomplished with these recommendations:

- Integrated virtualization technology is an essential ingredient of an IT strategy to deliver applications to users. Now is the time to start moving to an orchestrated approach for application virtualization from the datacenter through to the desktop.
- Start gaining valuable application virtualization experience with focused projects. The technology exists to connect users to applications that are hosted in a virtual datacenter. Maximize the business benefits of datacenter consolidation by extending the virtualization strategy to include users and endpoints.
- Measure the efficiencies gained in competitive advantage, agility of IT responsiveness and reduced overhead expenses in orchestrating the technical infrastructure. Your applications should be able to readily adapt to changes in workload demands, while simplifying administration complexity with centralized control in the datacenter.

A tighter IT spending environment means there will be fewer IT projects you will be able to conduct. The projects with technologies that best support the business will receive a greater priority and realize a better chance of success. The benefits in application agility, security and end-user experience give virtualized end-to-end application delivery solutions a cost of ownership advantage that can be sustained for a number of years. Those organizations that can best orchestrate a virtual infrastructure will realize the competitive advantage that results from transforming their data center into a delivery center.