The Right Path to Virtualization

A majority of companies have been virtualizing their IT infrastructure over the past several years, to the extent that virtualization has become the dominant paradigm. At the most basic level, this has been driven by the desire to reduce costs through consolidation of physical computing resources. Virtualization has enabled drastic reductions in the amount of actual computer hardware companies need to run their systems. This has saved capital costs, energy costs, support costs, site-related costs for multiple servers centers, and has enabled small IT staffs (with limited budgets) to achieve more with less. All of these things also contribute to greener IT.

Like any major change, the transition to a virtualized environment can be a source of apprehension and uncertainty. It's a major commitment and you want to get it right the first time around. In-house IT departments are typically able to carry out successful proof-of-concept implementations, but enterprise-wide implementations are another matter.

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TAKING THE FIRST STEPS TO VIRTUALIZATION

Instead of viewing virtualization as a sudden, jarring change—jumping into the deep-end—it's more useful to approach it as an open-ended process, or a journey in which your resources advance to ever more productivity and flexibility.

With expert guidance, a small or mid-sized enterprise can successfully virtualize in a gradual, phased manner, with careful planning at the start, performance evaluations along the way, and robust support for the long haul.

The usual starting point for the virtualization journey is at the server. You may already be familiar with the basic virtualization concept at this level: running a hypervisor above the hardware and below the OS, to present generic drivers to any number of different operating systems. This allows a single machine to operate at high utilization, hosting several independent operating systems, servers, and applications, instead of running only one application at low utilization. More servers and applications per machine results in fewer machines and drastically reduced costs.

Once you take this initial concept to its logical ends, a whole range of possibilities emerge. It is useful to take a holistic view of virtualization in the context of your IT infrastructure. Not only are you consolidating resources. You are really allowing a host of separate resources to function as a unified available resource pool. Properly implemented, virtualization renders moot the barriers that exist between disparate hardware platforms, operating systems, networks, and storage systems. **In this sense, virtualization can be regarded as a strategic stepping stone toward cloud computing.**

Virtualization brings with it a very different set of resource management techniques and tools. Imagine, for example an x86 hardware platform running the VMware hypervisor and hosting a variety of operating systems and applications. The VMware layer would be managed by the vCenter Server interface, but the underlying hardware still needs some sort of management interface. While it's possible to address these two parts separately, bundling them in a single tool offers significant advantages in efficiency and automation.

Now what if you have a variety of different hardware platforms, each of them virtualized (or virtualized differently, each using its own native virtualization scheme)? It makes sense to have a single higher-level management tool that lets you manage each of these from a single point, in the same way, even if the different platforms are running different hypervisors. Such an arrangement would further simplify migrations, for example, across heterogeneous virtualization platforms.

VIRTUALIZATION BEYOND THE SERVER

Now consider a multi-tiered architecture. To optimally manage a variety of services, each with different requirements, running over such a mixed set of platforms, a further set of management functions needs to be addressed. These include monitoring, dependency discovery, automation (of policies and actions), and availability.

What emerges from these examples is the ripple effect of virtualization, the potential for complexity, and the various layers of management tools that are implied. Various companies offer solutions, but IBM's expertise in this area reaches back forty years, to the very dawn of virtualization technology. IBM's Integrated Service Management platform includes a full range of software tools, including their Systems Director products and the higher-level Tivoli management suite.

The above is a brief overview of some major aspects of server virtualization. But servers are only one aspect of your IT infrastructure. The journey doesn't stop there. You also have your storage systems, your network(s) and all those desktops. Each of these IT components can benefit significantly from virtualization as well, contributing to an overall IT optimization strategy.

Depending on the objective, network virtualization can be a matter of expanding network capacity through the creation of numerous virtual nodes, or simplifying the network by combining several physical switches in one virtual node. Additional IBM Tivoli tools are available for network virtualization.

On the storage side, virtualization allows an array of different storage systems to act as an efficient, single system with centralized, standardized controls. Products such as IBM SAN Volume Controller and IBM Tivoli Storage Productivity Center provide the means to simplify and improve storage allocation, mirroring, disaster recovery, performance analysis, and many other aspects of storage management.

At the end of the chain is the individual user. Most people still have networked PCs on their desks, but that model is shifting. Server-based virtual desktops enable the use of “thin clients,” desktop machines that do not require storage or processing power. This creates addition opportunities for efficient resource management and power (and cost) savings.

It's clear, then, that virtualization has several facets and stages, each of which bringing with it new tools, processes, requirements, and considerations. But there is no need to do everything all at once, just as there is no single approach to virtualization. So what is the best approach for your company?

The experts at Nashen understand that each company has its own unique infrastructure, its own objectives, and its own time-line. So the first step is always listening to the client, and listening well. Only after we have fully understood where a client is and where that client wants to go, do we begin to assemble a tailored implementation plan.

The reality of your virtualization experience should meet or exceed expectations, with minimal disturbance to operations, so careful planning is critical. We will thoroughly assess your existing systems and work-flows, and then develop a step-wise implementation road-map to meet your goals in a seamless transition. And we will remain at your side with robust support as you proceed along the virtualization road.

Nashen has been delivering IT solutions for 28 years and is Canada's premier IT services provider. Partnering with IBM, the world's leading technology company, Nashen offers experience, expertise, and the low-risk solutions that depend on those.

Visit **www.nashen.com** for more information on how Nashen can help you virtualize successfully.