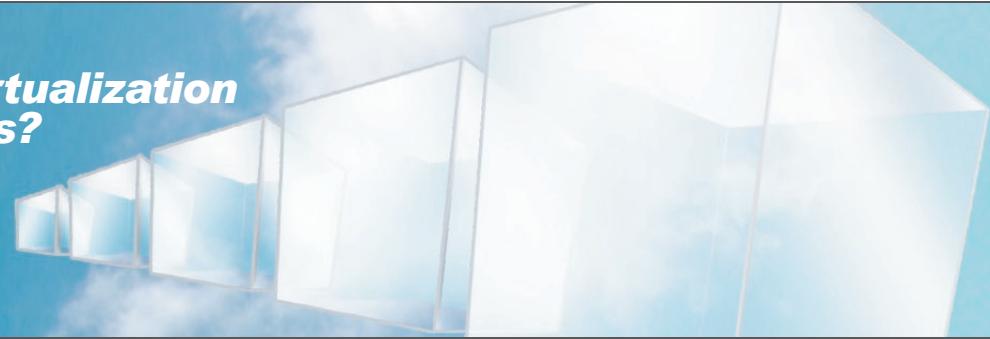


Connected Office Whitepaper: Is Server Virtualization Right for Your Business?



Over the past several years the term “**virtualization**” has become a key trend in the technology industry. At its core, virtualization means abstracting the actual operating system (O/S) of a server from the hardware. This allows the hardware to host many instances of an O/S and allows an instance of an O/S to be easily transferred from one piece of hardware to another. However, in practice, it means different things on varying levels. Adding to the confusion, virtualization is almost always used in conjunction with two other terms – “**cloud computing**” and “**cost savings**”. This ambiguity has led to a number of misconceptions about exactly how virtualization can be leveraged as a tangible solution by small and medium-sized businesses (SMBs). Leading technology vendors like Citrix® and VMWare® have virtualization products specifically targeted at this market, but cost/benefit for the average business remains elusive.

For our purposes, server virtualization has two types of implementations that must be understood – **Server Consolidation vs. Ease of Management** and **Onsite vs. Offsite**.

Server Consolidation vs. Ease of Management

In almost all instances where virtualization is discussed, especially in technology publications, it refers to the concept of **server consolidation**. The concept of server consolidation is advantageous in large data centers that operate many servers to deliver services to one or more customers. Often times the individual server resources are under-utilized along with the processing power and everything required to produce it. In these instances, the benefits of virtualization are significant. By consolidating physical resources and allocating them to the operating system that requires resources at any given time, you can use them much more efficiently. By doing this, you can take 100 physical servers and consolidate them down to 20 actual hardware servers and 100 instances of an operating system. Each operating system is able to access the resources it needs and the requirements in HVAC, electricity, space, hardware maintenance and availability become significantly lower. Multiply this by a thousand and you can see why datacenters are a great fit for server virtualization.

While benefits to datacenters and companies with large numbers of servers are obvious, the SMB typically does not have the infrastructure to consolidate in the same manner and therefore cannot yield the same benefits. The biggest benefit to the SMB is **ease of management**. By abstracting their operating systems from the hosting hardware, the support of the O/S is not tied to the hardware. Tasks such as upgrades, maintenance, hardware replacement and recovery from hardware failures do not affect the tasks of the operating systems. The challenge in this model is in making virtualization financially viable as the infrastructure required to move to a virtual environment is “redundant everything”. In a scenario where an SMB has four servers (Domain Controller, File/Print, Email (Exchange), Business Application) that they wish to have virtualized, any single point of failure will impact all four servers. As a result, planning this type of deployment comes with a lot of responsibility and the additional costs of redundancy.

Onsite vs. Offsite (Cloud)

Onsite vs. offsite is a bigger decision when it comes to virtualization for the SMB. When considering **onsite virtualization**, the factors in the previous section must be completely understood. Purchasing and deploying the hardware resources in your server room to offer the redundancy required can be expensive to acquire, implement and maintain. Without a high ratio of consolidation, this can be prohibitive. **Offsite virtualization** is a much more viable option for the average SMB and is referred to as cloud computing and includes servers, storage, and processing. (Note - “cloud” generally denotes that the service is operating offsite over the Internet).

The biggest benefit to offsite virtualization is the removal of the need to manage and maintain any hardware whatsoever and the customer can simply “**just use the service**”. Virtual Exchange is a great example of cloud computing. Microsoft® Exchange is a corporate-grade email and collaboration server/service that requires significant hardware resources, costs and a high level of expertise to manage, secure and backup. By subscribing to a Virtual Exchange service, SMBs can pay a flat fee per user monthly and access all of the functionality required without any other investment.

Offsite virtualization has its own constraints and requirements. When an SMB decides to go “to the cloud”, be it co-location of servers or offsite virtualization, they are moving their main applications outside their network and if all employees use this application there is risk. Mitigating this risk can be accomplished with redundant Internet connections and other improvements to Internet access (business class firewall, etc). A bigger constraint is the actual ability to access the server and its data. The typical SMB has broadband internet access and while these connections are often rated as 6Mb/second or 10Mb/second connections - the actual upload speeds are much slower (less than 1Mb/second). Therefore, when moving a server to a cloud server model, the application data transfer requirements must be evaluated:

For example, in order to save a 10MB file to a local fileserver it takes about 5 seconds, whereas saving that same file to a cloud server would take 4 minutes. When you multiply that by 25 users saving 15 files each, that is 25 hours per day waiting for files to save.

Some applications are easier to move to the cloud than others. Applications such as file/print sharing and domain controllers are very difficult to virtualize due to the nature of their communication on the network and high data transfer overhead. Client-server applications are much more viable to move to the cloud because the bulk of processing is done on the server and very little data is actually transferred to the client. Remote Desktop Protocol (RDP) and browser-based applications are the best examples of applications to move to the cloud as there is no client-side processing involved with their usage.

What are the Cost Savings/Benefits of Server Virtualization?

To an SMB in a domain model network with a single Small Business Server (SBS), the benefits are not significant and the cost of maintaining a virtual server will be difficult to justify. The key value indicators of a virtual server deployment are as follows:

1. Multiple locations that require access to server resources or applications.
2. No expertise on staff to manage hardware or applications.
3. Significant hardware, software upgrade required.
4. SMB’s customers need to securely access server.
5. SMB has poor availability (power, infrastructure).
6. SMB has concerns over physical and data security.

SMBs who need to address one or more of these requirements are great candidates for virtual servers. Cost savings for virtualization typically needs to be analyzed on a total cost of ownership (TCO) basis, including technology costs, implementation and ongoing maintenance.

In conclusion, assessing the applicability of a virtual server model means many factors to consider. In general, single task application servers are the best options to be virtualized in the cloud, while single server SBS environments are the worst. Everything else falls somewhere in between. To get started, contact an expert to help evaluate your requirements - the more key value indicators that are applicable, the better your case is for server virtualization.

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