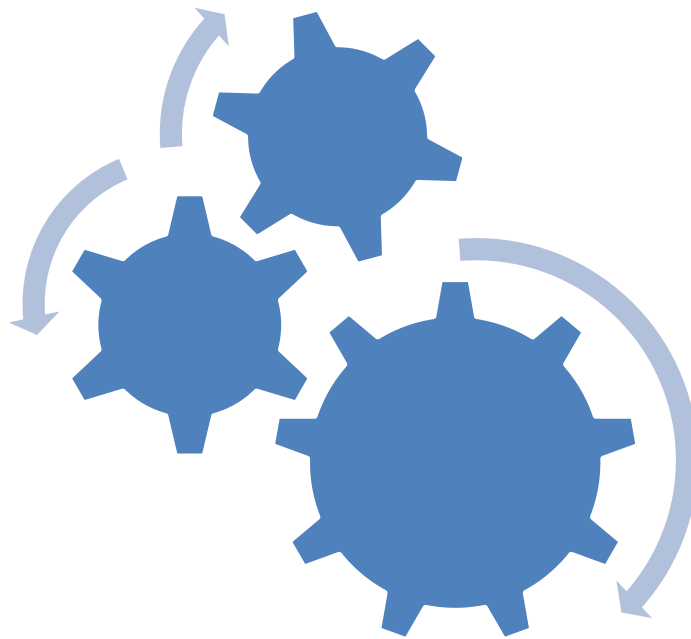


Business Briefing

An Introduction to Virtualization

This briefing introduces Virtualization and its many benefits that can help your company reduce IT spend and maximize current investments in software and hardware



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Introduction

Stable, reliable and responsive IT systems are imperative to a successful business and should be the first goal for any business management. Without such systems your business is at a competitive disadvantage. A well designed system delivers organizations a much better working environment where productivity is enhanced, collaboration is encouraged, the business is agile to trial and launch new ideas and profitability is maximized.

This document is an introduction to Virtualization

Virtualization

Virtualization can be described as using software to emulate physical machines as virtual machines, allowing one or more virtual machines to run on a single physical server, but in reality it is much more than that.

"Use of virtualization technologies in servers will dramatically improve server utilization rates, increase server flexibility and reduce the overall spending required for servers."

Gartner Group

For people too busy to keep up with the latest technical developments, Virtualization has been a huge buzz for at least the last 3 or 4 years, though it is debatable that only now is it really hitting the mainstream and becoming a useful tool to organizations of all sizes.

What is Virtualization?

In a nutshell, virtualization is the creation of one or more operating environments that functions separately from the host system it is running on. Each operating environment can then run an Operating System and applications without clashing with other virtual operating environments.

There are many flavors available from Server to Desktop to Application and a number of players in the market, the main ones being Microsoft, VMware and Citrix.

Why Your Company should be Interested?

There are many benefits but here are a few key benefits to your business that are game changers when using Server virtualization.

1. A physical host server can run many virtual machines all running different operating systems and different applications. One server, for example, could run 8 separate virtual machines that you would have had to host on 8 separate physical servers. This one benefit means a reduction of 7 servers in your server room, 7 less machines to power and 7 less machines generating heat that you would have to spend yet more money on to keep cool. We have 7 less pieces of hardware to maintain and 7 less sets of components to fail. You get the idea.
2. Software vendors generally recommend that applications run on their own dedicated server performing a single function – virtualization allows you to achieve this dedicated environment at no extra cost and the benefit is less time troubleshooting shared function servers and more reliable applications and increased security.

3. If your business needs to deploy a new application, lab or throw more resources at an existing system, virtual servers can be brought online in seconds and made ready to service the business demand. Your infrastructure becomes dynamic and can be matched to changing requirements. No longer do you need to purchase more hardware; wait for the systems to be assembled delivered, racked and then prepped. Resources can be made immediately available.
4. Have you still got an old NT4 or Windows 2000 server running a key application on a dusty server that you know is going to fail at a critical moment? By using physical to virtual conversion, you can have the system up and running on a virtual platform in no time and that old system can finally be removed along with the legacy support issues and specialized support.
5. Most servers run at low utilization and could be doing more. By making a server pull its weight you get a much better ROI on any server hardware investment, a reduction in electricity bills, which could be cut to 20% of what they were and the green credentials that go with it.
6. If you were to render a virtual system inoperable, you can have a new one back up and running in seconds without impact to your users. No system rebuilds necessary or long outages (assuming you keep backups and haven't corrupted your data, but that's another story!)
7. If you mix Server Virtualization with a few other technologies like iSCSI, you can have a fault tolerant, highly available system that used to be the realm of the biggest organizations for next to nothing in expenditure.

What Types of Virtualization Are There?

The following types of virtualization can be applied at various points in the software infrastructure, however, they don't solve the same problems and don't all offer the same benefits:

Server Virtualization

Server virtualization creates a separate operating system environment that is logically independent from the host server but to an end user or applications installed they will not know any different. This is the most common form of virtualization with the biggest benefits to be gained.

Desktop Virtualization

Desktop virtualization (VDI) can come in several styles; the first allows you to run the actual desktop system on a server and the users access it by using a remote protocol, so all your desktops are in one place even if your users aren't. In its second guise, a user can have a virtual machine running on their desktop which gives them a second system (or more) to use for a particular application. This is popular with Mac owners who run a version of Windows in a

Parallels box on MacOS. The first type introduces as many problems as it solves and organizations should beware that it is potentially a solution looking for a problem. Hardware vendors love VDI as it will mean large investments in new equipment at the datacenter.

Application Virtualization

Products such as Microsoft App-V use an idea where each application runs in its own cut down environment or sandbox, that is, in a layer separate from the host OS. It can remove the issue of conflicts, multiple installs, and relentless updates on each PC as instead it can be managed in one central place and delivered on demand locally or remotely.

Presentation Virtualization

The final type is actually Terminal Services with a new name, where the desktop or application is run on a shared server and only the screen images and mouse and keyboard are sent between the user and server. It is a great choice for remote working but should not be confused with a desktop replacement product or as a tool to remove the desktop management problem.

Some of the above options deliver different benefits that suit specific situations. It is important to remember that if the system isn't designed and managed carefully it can easily introduce a new set of issues and increase the cost of ownership just as the physical device would.

Virtualization benefits are many-fold, from reduction in hardware, electricity costs, server costs, CO2 emissions, management costs but also giving your business infrastructure a dynamic edge and agility that can be switched on in an instant.

Benefits of Virtualization

Virtualization enables businesses to perform production server consolidation, stop server sprawl, increase recoverability and decrease downtime for critical business applications. Virtualization enables you to migrate legacy applications and operating systems onto new hardware without needing to rebuild the server or redeploy the application.

Key Issues:

- Too much time spent on managing existing infrastructure
- Legacy hardware platforms
- Underutilized servers
- High hardware maintenance costs
- Need to reduce power and cooling costs

- Need to reduce server sprawl
- Lack of agility when deploying new infrastructure
- Inconsistent approach to disaster recovery

How Virtualization Can Benefit Your Business

Virtualization can help all businesses no matter how large or small. Here are some of the ways in which virtualization can help you:

1. Better Utilize Existing and New Hardware

Hardware improvements over the last few years have meant that most server systems are currently underutilized, with applications and operating systems sometimes only using a fraction of the hardware capabilities. Virtualization allows businesses to better utilize their existing hardware by hosting multiple virtual machines on a single physical server.

2. Increase Production Server Consolidation

Server Consolidation provides businesses many benefits, reduced power and cooling costs and less money spent on maintenance contracts are just two examples. Virtualization increases server consolidation by running multiple virtual machines on a single physical server without sacrificing performance or reliability. In some organizations a reduction in physical servers by 50% or more has been seen.

3. Improved Business Continuity

Virtualization delivers improved business continuity by removing the mapping between production and disaster recovery hardware. Businesses no longer have to maintain DR contracts for legacy hardware, reducing the cost of business continuity. Virtualization can be used to provide high levels of continuity even if multiple physical servers are unavailable.

4. Migrate Legacy Applications and Operating Systems

Does your business have legacy applications running on old operating systems and hardware? Virtualization can help you migrate these applications onto newer, more reliable hardware without the need to rebuild servers. Do you have trouble finding hardware which supports legacy operating systems? Virtualization removes this problem by providing emulated hardware with drivers for legacy operating systems.

5. Streamline Test and Development Environments

Virtualization can help businesses consolidate test and development environments onto fewer physical servers reducing the footprint of each environment. The use of self service portals for developers or test environment owners reduces the cost associated with building test and development environments and alongside deployment services means automated provisioning of environments with multiple operating systems is possible.



Conclusion

There are many ways to cut costs and increase effectiveness at the same time and there are many opportunities to do this with the software products and hardware you already have at your disposal. The right guidance in implementing or revisiting how these systems are set-up can yield measurable benefit.

Virtualization is one of the most beneficial and important ways that companies can and are improving their technology standing.

Squeeze Technology

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Squeeze is a Microsoft Certified Partner and a Microsoft Small Business Specialist and has a strong pedigree in delivering high quality solutions to customers small and large with experience in most industry sectors.

If you are interested in finding out how the technologies discussed above could relate to your business, or would like general consulting or support then please email info@squeezetech.com or call **949-287-4500**.