# How Does Virtualization Work with SQL Server & What Are The Benefits?

Virtualization has been used for years by organizations looking to liberate their software resources from the bonds of specific hardware devices and instead embrace a more flexible approach that meshes with their need for increased agility.

SQL Server is just one of the modern solutions that can be virtualized, so here is a look at how this can be carried out and why it might be desirable for certain use cases.

Picture 1 of How Does Virtualization Work with SQL Server & What Are The Benefits?

*Image Source: Pixabay*

## The basics

The good news is that SQL Server virtualization functions according to the same fundamental principles as any other project of this kind.

Rather than a single server having sole use of a specific set of hardware, instead several layers of software are set up so that hardware resources can be shared between multiple virtualized servers.

## The best practices

When it comes to the virtualization of a SQL server, there are a few things to keep in mind in order to sidestep some of the most obvious pitfalls.

First and foremost, you need to assess your needs and determine the kinds of workloads that any virtualized servers will be expected to handle, so you can work out just how much of the shared hardware pool should be assigned to a given instance.

Secondly you need to think about the prospect of the host hardware being taken out of action for whatever reason, and what contingencies you put in place to ensure continuity, as well as the roadmap to recovery.

Finally you should give adequate training to the end users who will be either managing the virtualized database or making use of its features so that this migration away from a more traditional approach to server hosting does not compromise productivity.

## The benefits

Once you have overcome the initial complexities of SQL server virtualization, you can begin to reap the benefits that it brings to the table.

One of these is the ability to save on software costs, since if you are already paying for one of Microsoft's premium SQL Server packages, you will likely have the ability to create several virtualized databases without needing to change to a different tier or increase any of your licensing expenses.

Hardware costs can also be kept to a minimum, because rather than needing to splash out for an entirely separate physical server when you need to add a new database instance, you can instead make more efficient use of your current resources, portioning out untapped CPU, storage and memory bandwidth to maximize the efficiency of your original investment.

As mentioned, flexibility is also part and parcel of the SQL Server virtualization process, since you can tweak your configuration according to your needs and alter the allocation of hardware resources based on the peaks and troughs of usage that particular virtual servers undergo over time.

Interoperability and cross-platform compatibility can also be seen as a privilege that comes with using virtualization in combination with SQL Server, as it means that you can install this software on a platform which might not normally support it natively. This is a good way to get a database up and running on a Linux-based setup, for example, even if Microsoft's support for non-Windows ecosystems has improved in the last few years.

Hopefully you now have an idea of why SQL Server virtualization is an appealing prospect for so many organizations, and that it is actually a comparatively straightforward step to take. So long as you are aware of the potential problems as well as attuned to the benefits, it should be simple to justify making this move.