Thin and Trim provisioning

Microsoft Hyper-V has always had the ability to use thinly provisioned storage. When a thinly provisioned virtual hard disk (VHD) is initially created, the underlying VHD or VHDX file consumes less than 1 GB of space, regardless of its overall capacity. The VHD does not consume any additional physical storage space until data is added to the virtual hard disk. Upon doing so, physical storage space is consumed on an as-needed basis.

The main benefit of storage thin provisioning is that it helps an organization to efficiently use storage resources without having to skimp on VHD space. An organization can create multi-terabyte virtual hard disk files as a way of accommodating future data growth, but without reserving physical storage exclusively for that virtual machine (VM).

But storage thin provisioning isn't perfect. Although a thinly provisioned VHD file claims physical storage space on an as-needed basis, it does nothing to release the storage that is no longer needed. For example, if a user temporarily copies 100 GB of data to a thinly provisioned VHD, the physical footprint of the VHD would increase by 100 GB. However, when the user deletes the 100 GB of data, the VHD will not shrink back to its original size.

This is where the Windows Server 2012 R2 automatic trim feature comes into play. Using this feature, if a user were to delete 100 GB of data from a thinly provisioned disk, the underlying storage that is no longer being used is unmapped from the VM. This allows the physical storage device to reclaim the newly available storage space and use it for a new purpose.