How VSS Is Used By CDP

Question

How is MS Shadow Copy (VSS) used by CDP?

Answer

Microsoft Shadow Copy, also known as Volume Snapshot Service or VSS, is used by R1Soft CDP for Windows.

Shadow Copy is a technology included in Windows Operating systems that allows for taking manual or automatic backup copies or snapshots of data, even if it has a lock, on a specific volume at a specific point in time over regular intervals. It is implemented as a Windows service called the Volume Shadow Copy service.

MS Volume Shadow Copy Service is a facility that can be used for many different purposes. One feature of VSS is the ability to take a block level point-in-time snapshot of a disk Volume. VSS guarantees that the file system is consistent when a snapshot is performed.

Most Windows CDP applications (R1Soft is an exception) use MS VSS for shared folders. These applications do not delete the snapshot when done and instead must keep the snapshot and perform copy-on-write the entire time until the next backup operation. This is because the method of computing deltas (VSS for shared folders) works by comparing two Volume Shadow Copy snapshots.

R1Soft uses Volume Shadow Copy Service to take cluster level point in time volume snapshots of the running volume/disk.

The process of making a file system snapshot usually takes less than a second and if done correctly is never noticed by users or running applications. MS VSS usually takes around a second but can be delayed by Writers (notified applications) taking too long to become consistent for the backup operation.

Contiguous blocks are needed by VSS and really any other snapshot technology. A user space daemon (the VSS System Service Provider) creates a contiguous file in the file system in the hidden SYSVOL folder and gives the block range to the VSS device driver in the Windows kernel. The Windows kernel then writes cached blocks needed to maintain the snapshot directly to disk, bypassing the file system.