Summary

Windows disk alignment is a recommended practices based on application requirements when used with the Compellent Storage Center.

Introduction

With Windows Server 2003 and previous versions, partition alignment was a best practice to provide optimal performance for an application based on the type and amount of data being written to the volume. For example, the Exchange Server best practice for partition alignment was 32K.

With Windows 2008, partitions 4GB or larger are automatically aligned at a 1024KB offset. For partitions smaller than 4GB, Microsoft uses a default 64KB offset. This also includes the system disk, which was not possible in the past versions.

Technical Solutions has tested the 32K offset as well as the 1024KB offset to determine if there is any impact in performance. Testing was conducted using a “File Server” profile which consisted of 4K, 8K, 32K, and 64K block sizes. Variations of reads and writes, as well as sequential and random access were tested.

As previously tested, it was determined that non-aligned partitions (default) provided equivalent performance as aligned partitions on a Compellent Storage Center. The most recent test compared a partition aligned at a 32KB offset with a partition automatically aligned by Windows Server 2008 at a 1024KB offset. The partition aligned at a 32KB offset compared to 1024KB only produced 10 IOPS more overall while providing equivalent bandwidth and response time.

Compellent still recommends users follow specific application recommendations for partition alignment.

Applies To

- Windows Server 2003
- Windows Server 2008
- Compellent Storage Center (All Versions)

Document History

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<th>Date</th>
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