

## Re: SBS 2003 Installation Drives – Folders

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- *From:* "John" <nospam@xxxxxxxxxxx>
  - *Date:* Sun, 12 Feb 2006 23:01:45 -0500
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My responses are inline.

"SuperGumby [SBS MVP]" <not@xxxxxxxxxxx> wrote in message  
[news:%23OrMBxBMGHA.2696@xxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:%23OrMBxBMGHA.2696@xxxxxxxxxxxxxxxxxxxxxxxxxxxx)

I think your plan is crazy.

Should you move the application installation points you will reduce the space required on the OS partition significantly. A 20GB partition has enough space to accept the default program installation points.

And yet there are many applications that can only use the space on the C: drive for maintenance functions, many times the requirements are multiples of the space that the application actually takes up itself. An example of this would be Goldmine where I typically ensure 4X the amount of free space vs. the combine Goldmine file size is available on the C: partition. This even when the application is installed on X:. The same is true for many patch installations.

There is

also reason to practice caution about moving the installation point of the major SBS applications, SBS is tightly integrated and by moving the application installation point you may experience a problem when, say, a service pack comes out.

So the SBS installation process which provides for locating the applications and data on other drives does not provide the correct registry entries for the service pack or other integrated software updates to follow? Then why did MS make the change option part of the install?

The system is overpartitioned. Please explain the benefit you perceive by using these additional partitions.

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Well, I would start with the ability to easily transfer data to a larger drive in the future by using the same drive letter. If SBS supports spreading volumes across multiple server these would be even more reason.

The plan does not account at all for:  
companywide shared data (either sharepoint or the 2000 style 'company shared folder')  
private user shares  
roaming profiles or folder redirection (if implemented)  
Though you mention CRM is to be installed you seem to have already run out of space by dedicating it to other tasks.

As indicated in the post you responded to, we already have a file and print server. We also have a Windows NAS that would provide more than enough space for the majority of the data you mention. Does Sharepoint require that the data reside on the application server itself? I am still spreading the installation across 140 Gb. which matches the amount of space, but not the organization which you mention below. With 6 drive bays the hot spare is still available.

I would create a single RAID 5 array using 3 HDD's and the fourth as hot spare. Total usable space 140GB partitioned as 20GB for OS/Program installation point and a single DATA partition using the rest, all DATA (exch/sql databases included) would reside on this partition. I \_may\_ move the logfiles to this partition as well.

Raid 5 suffers from a significant performance decrease on it's write process. In reviewing the Exchange and SQL group the majority of the postings I read indicate that separating the Application and Data on different set of drives provides for improved performance. They also offer strong agruments for using Raid 1 vs. Raid 5 in an Exchange implementation. I believe thae same reasoning would apply to SQL as well.

One of the most cohesive descriptions of the differences was posted on the Excahnge group on Feb. 4th. I have pasted it below.

<snip>

The performance hit for mirroring is far less than the performance hit for RAID 5. RAID 5 is good for applications that require a lot of space, but have little IO. For IO intensive applications (read Exchange) you want the best write performance possible. So, to help you understand, let's do the math.

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P = performance in IOPS of a single spindle. Lot's of people like to use the number 130 for a 10K SCSI spindle. This number is obtained by taking the average seek time plus the rotational latency and dividing 1 second by the total. This number does not account for how long each IO will take, nor what overhead the filesystem takes (NTFS is a journaling filesystem). I always associate a target IO response time with an IOPS per spindle number. For a 10K SCSI spindle, if I'm targeting 20ms IOs, that number is 85. for 40ms IOs, that number goes up to 100. At the 60–80ms IO range, yeah 130. Exchange needs "average 20ms writes with no spikes lasting more than a few seconds over 50ms". This is quoted from "Optimizing Storage for Exchange Server 2003" ans is what MOM and other monitoring tools set their alerts for. So, for a 10K RPM SCSI spindle, P=85 at a target 20ms IO.

N= number of spindles in the array.

N'= number of data spindles in the array. You get this by subtracting the number of parity spindles from N.

For RAID 5:

read performance =  $P*N'$

write performance= $P*N'/4$

For RAID 1/10/0+1

read performance= $P*N$

write performance = $P*N/2$

A RAID 5 set with 3 10K spindles will see read performance of 170 IOPS and write performance of 42.5 IOPS at a target 20ms IO.

A mirror with two 10K spindles will see read performance of 170 IOPS and write performance of 85 IOPS at a target 20ms IO. That's 100% better write performance.

I hope this helps you get your mind around the performance differences between RAID 1 and RAID 5.

</snip>

I've been waiting for proponents of the seperate partition for Exchange/SQL databases to pull me up on a point (I've been involved in more than a few such discussions), a point I have ignored but thought about recently. The effect of large database files on Shadow Copy. I haven't thought this through completely but at 'first level' it would seem sensible to have such large databases on partitions excluded from Shadow Copy, relying on the underlying database technology to 'roll back' or 'recover' data rather than allowing them to consume your Shadow Copy allowance. If this 'pans out' in the manner I'm thinking I may well change my position to '20GB for OS (turn off shadow copy), xGB for specifically

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Shadow Copy excluded files, remaining GB's for Shadow Copy enabled partition (DATA)'. The partition which holds the files excluded from shadow copy could also hold the shadow copy data from the standard DATA partition.

I am not sure on Exchange but for SQL I typically setup a daily backup procedure within SQL itself to an IDE drive within the machine or on a shared resource, then perform an offsite backup of that backup file. I am not knowledgeable enough about Shadow Copy to debate it's merits or best implementation.

"John" <nospam@xxxxxxxxxx> wrote in message  
[news:uiCpRqrLGHA.1180@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:uiCpRqrLGHA.1180@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx)

Is there a document that describes the optimal installation locations for an SBS 2003 Premium installation.

I am setting up a new server. I anticipate creating two hardware mirrors of approx. 70 Gb. each. I have 6 drive bays available but I would prefer to keep the 2 open bays for hot spares. If the performance increase justified it, I would give up one of the spare drives to act as a dedicated swap file location.

We run an additional server for File/Print/RDP so SBS will primarily be used for Exchange and SQL, with the addition of Microsoft CRM 3.0. on this installation.

I do not intend to install ISA right now but could add it in the future for learning purposes. We currently run an external firewall with VPN connections to multiple networks.

I guess my question(s) is really how I should break up the drives for OS, Exchange Components, and SQL Components. My original plan was to allocate as follows:

Mirror 1

First Partition = 20 Gb. for OS

Second Partition = 25 Gb. for SQL Application and other applications except Exchange.

Third Partition = 25 Gb. for Exchange Application and Exchange Logs.

Mirror 2

First Partition = 40 Gb. for Exchange Mail Storage.

Second Partition = 30 Gb. for SQL Database.

Am I going about this correctly or should I be using a different configuration?

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Thank you.