# Windows File Copy Speeds Part 2

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## **Agenda**

- Review of factors to consider in measuring file copy performance
- Results from Demartek test lab
- Conclusions
- Other interesting things to test

## **Factors**

- Hardware factors in source and target
  - Number of processors and cores
  - Memory in system (affects file system cache)
  - NIC cards and features
  - Disk storage access speeds
- Network Factors
  - Latency of network
  - Number of hops between switches
- Software and file system factors
  - Number of files
  - Size of files



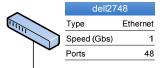
## **SMB Versions**

- SMB 1.0
  - MS-DOS, Windows 3.x, 95, 98, Me
  - Windows NT, 2000, XP, 2003
- SMB 2.0
  - Windows Vista RTM
- SMB 2.0 + SP1 improvements
  - Windows Vista SP1
  - Windows Server 2008



## **Test Configuration – LAN**

Gigabit LAN with round-trip latency < 1 ms





#### DMRTK-SRVR-C

 Model
 Dell PowerEdge 2900

 CPU
 Intel Xeon

 Total CPUs
 2

 Total Cores
 8

 Clock (GHz)
 2.33

 Memory (GB)
 32

 Disk type
 SAS array



#### DMRTK-SRVR-D

 Model
 Dell PowerEdge 2900

 CPU
 Intel Xeon

 Total CPUs
 2

 Total Cores
 8

 Clock (GHz)
 2.33

 Memory (GB)
 32

 Disk type
 SAS array



#### DMRTK-SRVR-E

 Model
 Dell PowerEdge 2900

 CPU
 Intel Xeon

 Total CPUs
 2

 Total Cores
 8

 Clock (GHz)
 2.33

 Memory (GB)
 12

 Disk type
 SAS array



#### DMRTK-SRVR-F

 Model
 Dell PowerEdge 2900

 CPU
 Intel Xeon

 Total CPUs
 2

 Total Cores
 8

 Clock (GHz)
 2.33

 Memory (GB)
 12

 Disk type
 SAS array



#### DMRTK-DENNIS1

 Model
 Dell Precision 490

 CPU
 Intel Xeon

 Total CPUs
 2

 Total Cores
 8

 Clock (GHz)
 1.86

 Memory (GB)
 8

 Disk type
 SATA disk



### DMRTK-SRVR-A

 Model
 ASUS P5WDG2-WS

 CPU
 Intel Pentium D

 Total CPUs
 1

 Total Cores
 2

 Clock (GHz)
 3.4

 Memory (GB)
 8

 Disk type
 SATA disk



 CPU
 Intel Xeon

 Total CPUs
 2

 Total Cores
 8

 Clock (GHz)
 2.33

 Memory (GB)
 32

 Disk type
 SAS disk

### DMRTK-SRVR-H Model HP Proliant

 Model
 ML350

 CPU
 Intel Xeon

 Total CPUs
 1

 Total Cores
 2

 Clock (GHz)
 3

 Memory (GB)
 1

 Disk type
 SATA array



Model	Whitebox
CPU	Intel Xeo
Total CPUs	2
Total Cores	2
Clock (GHz)	2.4
Memory (GB	) '
Disk type	SATA disl

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## **Results**

Link to spreadsheet: <u>Demartek\_FileCopyTests-results-2008-07.xlsx</u>



## **Conclusions**

- Vista SP1 and Server 2008 give better performance than previous Windows versions
- 64-bit and large memory allows for larger file system cache, improving performance
- Disk storage matters
  - SAS (and Fibre Channel) disks are much faster than SATA disks
  - Striping across many disks (spindles) is better

# Other Interesting Tests (for a future presentation)

- Compare network file copy speed with Jumbo Frames enabled/disabled in switches and NICs
- Compare performance of various serverclass NICs and desktop NICs
- Compare XP to XP with Vista to Vista on same hardware
- Run same tests over WAN connection
- Run same tests on 10-Gigabit network



## **Contact me**

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