CLAIMS

~~1. An method of efficiently storing data where there is a plurality of data storage devices with a hierarchy of data storage speeds comprising:~~

~~receiving data to be stored on a lower speed data storage device;~~

~~storing the data in a high speed memory;~~

~~collecting additional data in the high speed memory until a preferred amount of data is stored that is destined for a particular lower speed data device;~~

~~storing the data in high speed memory until it is of a size that is appropriate write size for a particular storage device; and~~

~~once an appropriate write size of data for the particular device is stored in the high speed memory device, writing the data to the lower speed device.~~

~~2. The method of claim 1, further comprising keeping the data in high speed storage until a determination is made that the data no longer is needed in high speed storage.~~

~~3. The method of claim 1, wherein the data to be written to the low speed storage device is backed up on an additional low speed storage device.~~

~~4. The method of claim 1, wherein the low speed device is a flash storage device.~~

~~5. The method of claim 4, wherein the write size is the erase block size of the flash.~~

~~6. The method of claim 1, further comprising waiting until a period of low system activity to write to the low speed storage device.~~

~~7. The method of claim 1, further comprising warning a user that the data has yet to be written to the low speed memory device when a low speed memory device has been removed from the system before the data has been written from the high speed memory device to the low speed memory device.~~

~~8. The method of claim 7, wherein the user is presented the option to write the data from the high speed memory to the low speed memory before the low speed memory device is removed.~~

~~9. The method of claim 1, further comprising organizing the data in the high speed memory such that the write to the low speed memory is more efficient.~~

~~10. The method of claim 1, further comprising analyzing the data in the high speed memory to determine if any of the data has been replaced with newer data before the data is written to the low speed memory.~~

~~11. The method of claim 1, further comprising analyzing the data in the high speed memory to determine whether any of the data to be written to the low speed memory is duplicate data wherein the older duplicate data is not written to the low speed memory device.~~

~~12. The method of claim 1, further comprising invalidating blocks in the high speed memory when write operations impact those blocks before they have been committed to the low speed memory.~~

~~13. The method of claim 1, further comprising moving the data from the high speed memory to an additional memory that is lower speed that the high speed memory but higher speed than the low speed memory.~~

~~14. The method of claim 1, further comprising keeping an index of data in high speed memory that is to be written to low speed memory and if the data written to be written to the low speed device is resident in the high speed memory, serving read requests for the data from the high speed memory without regard as to whether the data has been written to low speed memory.~~

~~15. The method of claim 1, further comprising testing the low speed memory to determine the preferred write size for the low speed memory.~~

~~16. The method of claim 1, further comprising calculating the preferred write size to be related to the preferred erase size of the low speed memory.~~

~~17. A computer readable medium with computer executable instructions for efficiently storing data where there is a plurality of data storage devices with a hierarchy of data storage speeds, the computer instructions comprising:~~

~~receiving data to be stored on a lower speed data storage device;~~

~~storing the data in a high speed memory;~~

~~collecting additional data in the high speed memory until a preferred amount of data is stored that is destined for a particular lower speed data device;~~

~~storing the data in high speed memory until it is of a size that is appropriate write size for a particular storage device;~~

~~analyzing the data in the high speed memory to determine if any of the data has been replaced with newer data before the data is written to the low speed memory; and~~

~~once an appropriate write size of data for the particular device is stored in the high speed memory device, writing the data to the lower speed device.~~

1~~18~~. A~~The~~ computer system ~~readable medium of claim 17, further~~ comprising:

~~testing the low speed memory to determine the preferred erase and preferred write size for the low speed memory.~~

a higher-speed memory device configured for operating at a higher speed than a lower-speed memory device;

an additional memory device that is configured for operating at a lower-speed than the higher-speed memory device;

the lower-speed memory device configured as removable storage media;

the computer system configured for:

receiving data designated to be stored on the lower-speed memory device;

testing the lower-speed memory device to determine a preferred write size of the lower-speed memory device;

storing on the higher-speed memory device an amount of the received data that matches the preferred write size of the lower-speed memory device;

backing-up the amount of the stored data to the additional memory device;

writing the amount of the stored data to the lower-speed memory device in response to the storing and to a period of low activity of the computer system.

~~19. A computer system comprising a processor, an input output device and memory, the processor executing computer executable instructions and the memory storing computer executable where the computer executable instructions are for efficiently storing data where there is a plurality of data storage devices with a hierarchy of data storage speeds, the computer instructions comprising:~~

~~receiving data to be stored on a lower speed data storage device;~~

~~storing the data in a high speed memory;~~

~~testing the low speed memory to determine the preferred erase and preferred write size for the low speed memory~~

~~collecting additional data in the high speed memory until a preferred amount of data is stored that is destined for a particular lower speed data device;~~

~~storing the data in high speed memory until it is of a size that is appropriate write size for a particular storage device;~~

~~analyzing the data in the high speed memory to determine if any of the data has been replaced with newer data before the data is written to the low speed memory; and~~

~~once an appropriate write size of data for the particular device is stored in the high speed memory device, writing the data to the lower speed device.~~

~~20. The computer system of claim 19, the computer executable instructions further comprising keeping an index of data in high speed memory that is to be written to low speed memory and if the data written to be written to the low speed device is resident in the high speed memory, serving read requests for the data from the high speed memory without regard as to whether the data has been written to low speed memory.~~

2. The computer system of claim 1, wherein the lower-speed memory device comprises flash memory.

3. The computer system of claim 2, wherein the preferred write size is a preferred erase block size of the flash memory.

4. The computer system of claim 1 further configured for warning that the stored data has not yet been written to the lower-speed memory device in response to the lower-speed memory device being removed from the computer system prior to the stored data being written to the lower-speed memory device.

5. The computer system of claim 1 further configured for presenting an option to write the stored data to the lower-speed memory device.

6. The computer system of claim 1, the writing excluding older duplicate data of duplicate data of the amount of the stored data, where the older duplicate data is older than other duplicates of the duplicate data.

7. The computer system of claim 1 further configured for invalidating, prior to the writing, the amount of the stored data on the higher-speed memory device in response to a previous writing impacting the amount of the stored data.

8. A method comprising:

receiving, by a computing device, data designated to be stored on a lower-speed memory device configured as removable storage media, where the computing device comprises the lower-speed memory device, a higher-speed memory device configured for operating at a higher speed than the lower-speed memory device, and an additional memory device that is configured for operating at a lower-speed than the higher-speed memory device;

testing, by the computing device, the lower-speed memory device to determine a preferred write size of the lower-speed memory device;

storing, by the computing device on the higher-speed memory device, an amount of the received data that matches the preferred write size of the lower-speed memory device;

backing-up, by the computing device, the amount of the stored data to the additional memory device; and

writing, by the computing device, the amount of the stored data to the lower-speed memory device in response to the storing and to a period of low activity of the computer system.

9. The method of claim 8, the writing excluding older duplicate data of duplicate data of the amount of the stored data, where the older duplicate data is older than other duplicates of the duplicate data.

10. The method of claim 8 further comprising invalidating, prior to the writing, the amount of the stored data on the higher-speed memory device in response to a previous writing impacting the amount of the stored data.

11. The method of claim 8, wherein the lower-speed memory device comprises flash memory.

12. The method of claim 8, wherein the preferred write size is a preferred erase block size of the flash memory.

13. The method of claim 8 further comprising presenting an option to write the stored data to the lower-speed memory device.

14. The method of claim 8 further comprising warning that the stored data has not yet been written to the lower-speed memory device in response to the lower-speed memory device being removed from the computer system prior to the stored data being written to the lower-speed memory device.

15. At least one computer storage device storing computer-executable instructions that, when executed by a computing device, cause the computing device to perform a method comprising:

receiving data designated to be stored on a lower-speed memory device configured as removable storage media, where the computing device comprises the lower-speed memory device, a higher-speed memory device configured for operating at a higher speed than the lower-speed memory device, and an additional memory device that is configured for operating at a lower-speed than the higher-speed memory device;

testing the lower-speed memory device to determine a preferred write size of the lower-speed memory device;

storing, on the higher-speed memory device, an amount of the received data that matches the preferred write size of the lower-speed memory device;

backing-up the amount of the stored data to the additional memory device; and

writing the amount of the stored data to the lower-speed memory device in response to the storing and to a period of low activity of the computer system.

16. The method of claim 15, the writing excluding older duplicate data of duplicate data of the stored amount of the received data, where the older duplicate data is older than other duplicates of the duplicate data.

17. The method of claim 15 further comprising invalidating, prior to the writing, the amount of the stored data on the higher-speed memory device in response to a previous writing impacting the amount of the stored data.

18. The method of claim 15, wherein the lower-speed memory device comprises flash memory.

19. The method of claim 15, wherein the preferred write size is a preferred erase block size of the flash memory.

20. The method of claim 15 further comprising warning that the stored data has not yet been written to the lower-speed memory device in response to the lower-speed memory device being removed from the computer system prior to the stored data being written to the lower-speed memory device.