**Discuss where physical memory is being used in everyday aspects of your life this week?**

Physical memory can be likened to human working memory, which is fast but fleeting and enables what has been learned in the short term the chance to become a long term memory. Similarly, a computer’s physical memory is fast and considered “volatile”, in the sense that unless data is stored to the hard drive, it can be lost (Martindale, 2018). Based on our coursework, we know that from the moment, you turn on your computer, physical memory is being used and any time a new program is loaded, or a new tab is opened, memory is being allocated to those processes. Memory helps the system to run faster than it could with just storage memory by keeping the data of multiple high-speed processes within easy reach so that the operating system can perform fast context switches (Arpaci-Dusseau & Arpaci-Dusseau, 2012; Martindale, 2018). According to Arpaci-Dusseau & Arpaci-Dusseau (2012), even though a single CPU can still only perform one process at a time, having the data for multiple process available in memory allows the operating system to switch between individual processes to increase efficiency; and this time-savings can be even larger with multi-core systems. As a result, having more physical memory allows us to run multiple programs at once without impacting performance.

References

Arpaci-Dusseau, R. & Arpaci-Dusseau, A. (2012). Operating Systems: Three Easy Pieces. Madison, WI: University of Wisconsin-Madison. Retrieved from <http://pages.cs.wisc.edu/~remzi/OSTEP//>

Martindale, J. (2018). What is RAM? Digital Trends. Retrieved from https://www.digitaltrends.com/computing/what-is-ram/

**Discuss the weeks activities and your observations**

This week was interesting. We read about why we have both RAM and a hard drive. That is, we learned that it would be wonderfully fast to always use physical memory; but, as it is more expensive than disk storage (and volatile), the OS has to page data into a disk’s swap space (which is slower, but bigger and persistent). Considering paging to disk is slower than simply using memory, we also discussed ways to speed up the paging process, including paging algorithms and even changing our system settings to do paging more efficiently. For our programming assignment, we used the NTFSInfo utility to see how the hard drive volume we are using can be divided up into page-sized areas. In doing so, we found out that there is a way to adjust the page size/cluster size of a system so that memory management can be more efficient. We also converted a decimal number to hex, which was easy enough but I am not sure what the point of that task was. Lastly, this week I am focusing on reviewing old material toward studying for the final.