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IT-365

Professor Hardikar

Module Four ‘Run The Code’ Questions

***Challenge Question One:*** *Consider a system that allocates pages of different sizes to its processes. What are the advantages of such a paging scheme? What modifications to the virtual memory system provide this functionality?*

The main advantage of using a paging scheme that allocates different size pages to its processes is, in my opinion, that it would more intuitively store large data arrays or code segments, which would help with the overall memory being used and storage required by the page table. To do this, the virtual memory would have to be modified to hold lists of pages comprised of different sizes and not one uniform size. This is turn also requires that a more complex code be written, for the interpretation of different page sizes.

***Challenge Question Two:*** *Explain why doubling the speed of the systems on an Ethernet segment may result in decreased network performance. What changes could help solve this problem?*

I think throughput is an important factor to keep in mind for this question. Doubling the speed of a system on an ethernet segment will not necessarily increase the throughput capabilities of the ethernet network (Silberschatz et al, 2009). Doubling the speed would only cause collisions along the way, which results in packets being dropped. This causes the packets to be resent which slows down processing rates all around. A viable solution to this issue would be adding more networks to even out the system to network ratio in a more favorable manner. Creating more networks for the systems to run on can free up some busy systems to accomplish more, quicker.

***Challenge Question Three:*** *In what ways is using a name server better than using static host tables? What problems or complications are associated with name servers? What methods could you use to decrease the amount of traffic that name servers generate to satisfy translation requests?*

Name servers can be beneficial to a company because they provide direct mapping, which can produce results quickly. By only storing minimal information, it also requires less space than a static system that requires many variables to be stored and requires a lot of space. Name servers can provide a company with great scalability options and handle many requests at a time. Updates on these servers are also much quicker and easier to perform because of the small amount of information stored on each client. Static tables require a very large file download and therefore, take much longer to update frequently. Some disadvantages of name servers begin surfacing when dealing with larger companies that need a larger number of requests per second. Also, if the server were to crash and the name of the server was forgotten, the user will be unable to connect to the host. Caching is a good solution to the problems with name servers. Instead of sending the packages back, the cache is used to store the information temporarily and relieve the throughput and translation requests.

Reference:

Silberschatz, A., Galvin, P. B., & Gagne, G. (2009). *Operating System Concepts with Java* (8th ed.). John Wiley & Sons.