CS-230

Professor Sarkar

Cheyenne Nave

February 14, 2024

Draw It or Lose It: Memory and Storage Management

Memory and Storage Management are vitally important when developing applications. Many aspects need to be considered for long-term use such as updates, expansion packs, and optional settings that could be customized by the user. For Draw It or Lose It, 200 high-definition images are going to be in a library that the application will access to use for the game. Each image is 8 mega-bytes. To ensure a smooth experience, these images need to be accessed fast and accurately. Virtual memory should be used because it allows memory to be increased in size relatively easily. It also helps the game run efficiently due to opening Physical memory on the OS which can drive the application. This occurs through a memory management system called Paging. Paging cures the need for continual allocation of Physical Memory by creating “pages” and running that secondary memory through the main memory.

When it comes to Storage Management, a few factors need to be considered. User-count is currently unknown, but it could potentially reach into the millions based on the success of the app. If this occurs, multiple OS will be used other than Android – which is already available. To ensure proper storage, I suggest a Storage Area Network (SAN) to be used for the application. SANs can be used across multiple operating systems and help to prevent network failures that would force an application to stop. Also, there are levels of data protection and security that come with SANs.

Between Memory management and Storage Management, Memory is stored in a way that can be accessed temporarily while Storage stores data that can be accessed over a long period of time (permanently). If one were to save a file to their hard drive, the data would be copied from memory and saved in storage so that the file can be accessed any time.

Citations

* Content Studio. (2023, December 18). *What is a storage area network (SAN) and how does it work?* https://www.purestorage.com/knowledge/what-is-storage-area-network.html#:~:text=A%20SAN%20can%20support%20a,that%20cause%20multiple%20application%20outages.
* GeeksforGeeks. (2023b, July 13). *Paging in operating system*. https://www.geeksforgeeks.org/paging-in-operating-system/
* Horowitz, D. (2023, May 30). *Difference Between Computer Memory vs. Storage*. HP® Tech Takes. https://www.hp.com/gb-en/shop/tech-takes/computer-memory-vs-storage#:~:text=Memory%20is%20what%20your%20computer,in%20order%20to%20use%20it.
* *What is a storage area network (SAN)? | SNIA*. (n.d.). https://www.snia.org/education/storage\_networking\_primer/san/what\_san
* Wright, J. (2022, April 2). The basics of application Memory Management - DVT Software Engineering - Medium. *Medium*. https://medium.com/dvt-engineering/the-basics-of-application-memory-management-19f060c2d0f