**GPU File Systems**

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Problem Statement :- My plan is to augment the encrypted file systems with the computing power of GPUs, so that encryption and decryption can be done fast. Also, to implement a file system which will harness the GPUs for performing encryption and decryption. I will implement the parallel AES encryption and decryption methods for the GPUs. This File System will be hybrid in nature, in the sense that it will differentiate between the large and small writes and reads and routes the computation for the large I/O to the GPU and keeps the small I/O computation within the CPU. It does this because the latency in copying the data into the GPU for computation can dominate the speedup.

Challenge: -

1) Deciding a threshold to differentiate between large and small I/O. We will need to consider the I/O latencies and throughput of the Disk and these parameters coupled with the speed of the CPU, GPU and the number of cores, will decide when it makes sense to just use the CPU (for small reads and writes) and when to use a GPU.

2) Copy overheads: The GPUs have a separate memory space and we need to copy all the data into the GPU memory before we start the GPU computation. This can hurt the overall latency and throughput of the file system.

Goals: - My plan is to first show the correctness of our encrypted File System implementation - This demo will consist of writing a large document into our file system and later reading it and comparing with original.