Noah Meeker

CS 480 Operating Systems

RED ID: 821272563

Assignment 2: Non-Programming

1. The OS architecture that comes to mind when discussing this problem is monolithic. Due to the monolithic architecture fundamentally being one program that runs all the drivers together. If one driver fails, the entire system collapses. According to the question, I/O drivers were updated and crashing of the operating system followed. Due to probable faulty code in the drivers, the monolithic system fails to properly build and execute.
2. 1. There is a possibility for inconsistency and/or incoherency with the L1 cache. Inconsistency describes the scenario of an address in cache does not hold the same value as the those in either L2, L3, or even RAM. This could happen if the system fails to periodically update L1’s successors to make sure they are on the same page. Incoherency is when multiple cores and their cache, in this case L1 cache, do not hold the same value in each cache present. This can potentially lead to incorrect data being manipulated and incorrect data being stored. Both don’t happen often if so rarely. However, there is always a possibility.
   2. The loop provided only accesses the CPU’s registry. These registers are not changed throughout the loop in terms of where they are accessing memory. A CPU’s registry is typically separate from the cache so if the cache is disabled, the registry is still there. The registry is typically where very small sets of data are stored whether its instructions or memory location.

|  |  |
| --- | --- |
| Address | Value |
| 0x8000 |  |
| 0x7FFE | 0x4000 |
| 0x7FFA | 0x1000 |
| 0x7FF9 | 0x6000 |