Operating Systems
Spring Semester 2020

Greg Witt
greg.witt625@gmail.com

L-18: Chapter 6 Powerpoint Terms

- Multi-Processor Load Balancing: if the System is Symmetric multiprocessing - each processor is self scheduled, all processes are placed in a common ready queue, each has its own private ready queue, then the Multi-processor load balancing method relies on keeping the CPUs loaded for efficiency in the ready queue and the Multiprocessor Scheduling for Load Balancing is suppose to keep the workload evenly distributed. This means that there are systems that will pus/pull processes to delegate an even distribution to the CPUs
- Multi-Processor Process Migration: With the recent adaptation for Computer Markets offering multi-core systems the trend has become common place to place the cores on the same Chip. This allows for advantages in speed and memory allocation to retrieve data asynchronously, while additional processes can be run in the background.
- Soft real-time systems: Provide no guarantee as to when a critical real-time process will be scheduled they guarantee only that the process wil be given preference over noncritical processes.
- Hard real-time systems: these have stricter requirements, a Task MUST be serviced by its deadline. Service after the deadline has expired is the same as no service at all.
- Process scheduling - priority based: A priority number integer is associated with each process for the differentiation process to be determined by the dispatcher. The smallest integer is yielded the highest priority for the CPU. the problems with this model are that low priority processes may never execute in the next CPU burst. The

Round Robin Method seems to designate 10-100 milliseconds and has on average a higher better response time from CPU utilization.

- Process scheduling -earliest deadline first: Scheduling dynamically assigns priorities according to assigned deadline on the instance of the process creation and dispatch, the higher the process the earlier the deadline for the process, the later the deadline the lower the priority.
- Process scheduling - completely fair scheduler: this is the latest Linux Kernel. This is based on a Scheduling Class system. Rather than using strict rules that associate a relative priority value the length of the CFS scheduler a portion of the CPU time to the process, which is calculated based on a NICE value.

Slide #53 - 56 Analysis:

Windows 10 Applications-

Windows 10 Scheduling uses a Multilevel Feedback Queue Algorithm. In this implementation a process is assigned to a queue and it is assigned to that queue until it is granted access to the CPU. The Processes do not move from between queues and the ready queue is itself assigned various priority values for the scheduler to interpret. This number in priority is calculated from the system's Process Burst it will consume.