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CS4500 – Operating Systems

December 8, 2011

Plan of attack.

For this project, we plan to implement the Best-fit memory allocation algorithm. To do so, we must alter the slob.c file located in the Linux source code. We must also change the kernel configuration to utilize the slob allocator. To show the difference between the best fit and first fit algorithms we utilize a system call to print the statistics.

Our understanding is that the algorithm does not need to find the overall smallest block(large enough to store the requested size) but it should find the first block that satisfies the Best-Fit condition. Since the slob\_alloc function attempts to allocate memory in the first page that has an amount of memory available greater than or equal to the size requested, we will not to alter this function. Instead we will make changes to the slob\_page\_alloc function.

In slob\_page\_alloc, we will first iterate through the page to find the smallest block which is greater than or equal to the size requested. If a block of this size is not found, the function will return null and slob\_alloc will find another page or allocate a new page. Otherwise, the function will fragment the block and insert it into the linked list or in the unlikely case where the size is exact fit, it will simply add the block to the list. Upon success, the function will return the allocated block to the slob\_alloc function which ends execution until called again.

only modify the slob\_page\_alloc function to find the smallest block available in a page. That is a block which is as big or bigger than the requested size. If a block big enough is not found, then null is returned and slob\_alloc will go to the next page to look for another block of the memory. When a block is found on a page that is big enough but the smallest block needed, the memory is allocated to the requesting process.

(describe the way to find the smallest block by duplicating the slob\_page\_alloc code.)

From the answer given after class that we do not have to worry about finding the overall smallest block, the algorithm does not look for the over all smallest block. If it was implemented, then slob\_alloc would be modified to look through all of the pages in memory to find the smallest block. After looking though all of the pages, the page with the smallest block in respect to the requested size, the slob\_page\_alloc is called with the page with the smallest block to allocate the memory.