Project 4: The SLOB SLAB

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Group #39

Abstract

This document details our plan, worklog, and further documentation regarding the SLOB SLAB project.

I. Design Plan

Our plan began with researching how the current SLOB layer works within the Linux Kernel. The current algorithm that is used is the first fit. This algorithm finds the first page that has sufficient space to fit the current request and allocates that memory for it.

We want to change this algorithm to the best fit algorithm, which will cycle through the available pages and allocate the page that best fits the request.

Our first step is to view the current implementation in the *mm/slob.c* file. After some research, we found two websites that offer more explanation: http://classes.engr.oregonstate.edu/eecs/fall2011/cs411/proj02.pdf and https://courses.engr.illinois.edu/cs423/sp2011

The first thing these sources helped us learn was how to enable the SLOB allocator.

1) Replace CONFIG_EMBEDDED to CONFIG_EMBEDDED=y in the .config file
2) Run the command "make menuconfig"
3) Go to General Setup - Choose SLAB Allocator and choose SLOB

Next, we will create a program to compute the efficiency of both algorithms and compare the fragmentation. To do this, we will use system calls.

Next we will examine the *slob_alloc()* and *slob_page_alloc()* functions and implement the best fit algorithm within these two functions.

II. Work Log

Date	Time	Person	Event
November 28, 2017	6:30pm	Courtney	Started HW4 LaTeX file

III. Git Log

Detail	**Author**	**Description**

IV. Write Up

1) What do you think the main point of this assignment is?

2) How did you personally approach the problem? Design decisions, algorithm, etc.

3) How did you ensure your solution was correct? Testing details, for instance.

4) What did you learn?

5) How should the TA test your patch?