RedHat Linux Kernel Internals Laboratory Exercises

Lab 13b: The Virtual Filesystem

Objective: In this lab you explore the /proc file system and build a simple LKM that allows a user to read/write to the LKM via its /proc entry.

In Linux, there is an additional mechanism for the kernel and kernel modules to send information to processes --- the /proc file system. Originally designed to allow easy access to information about processes (hence the name), it is now used by every bit of the kernel which has something interesting to report, such as /proc/modules which provides the list of modules and /proc/meminfo which stats memory usage statistics.

The method to use the proc file system is a structure is created with all the information needed for the /proc file, including pointers to any handler functions (in our case there is only one, the one called when somebody attempts to read from the /proc file). Then, init_module registers the structure with the kernel and cleanup_module unregisters it.

```
[root@localhost ~]# cat /proc/anrc_vfs
Hello World
[root@localhost ~]# echo test > /proc/anrc_vfs
[root@localhost ~]# cat /proc/anrc_vfs
test

[root@localhost ~]# exit
```

1. The LKM creates a /proc entry in its initialization. Complete the code to read and write to the /proc entry using the comments provided. The file “anrc_fs.c” located in your Lab13b folder should serve as a starting point.