Lecture 4: 01/30/2020

Lecturer: ***Prashant Shenoy*** *Scribe:* ***Mayank Jha (1st year)***

4.1 Minix - Process Hierarchy

A major difference between Minix and Linux is that instead the process hierarchy has three different levels instead of two. (User Process) -¿ (System Process) -¿ (Kernel Process). The SYS task runing in the Kernel layer, is what is used by the System Processes to invoke actual system calls. System processes and User processes both run in user-space. User processes cannot directly reach the kernel layer.

4.2 Minix - Process Manager

As the name suggests this is responsible for doing the scheduling of processes and also maintaining the lifetime of processes. The CPU scheduling is a bit clunky in terms of the code and is a bit spread out across various folders.

This place should contain a discussed

4.3 Minix - Memory Manager

This makes the memory management independent of the hardware architecture. Some of it is implemented in the process manager.

Minix - File Server This layer implements the VFS (Virtual File System) or the VFS switch similar to one we find in Linux. VFS is an interface layer for the user processes to interact to and make **read**, **write** and **open** calls. The various file system implementations (ext2,ext3,iso,fat etc) sit below this layer. If one wants to write his/her own filesystem, once can implement it and attach it to the VFS layer, recompile the kernel and be done with it. This kind of architecture makes it flexible in terms of the user processes not needing to be aware of the actual filesystem implementation.

FUSE filesystem An interesting filesystem which allows one to write their file systems in the user space. If FUSE is the selected filesytem the VFS forwards the request to FUSE module in the kernel. The FUSE module then redirects the request to the User process doing the actual implementation of the file system.

4.4 Minix - Reincarnation Server

It does the job of maintating the fault tolerance of the system level processes. It becomes the parent of all the system level processes. It is similar to inetd in linux.

4.5 Minix - Data Store

This stores data/state for system processes. It is also a naming service for the IPC endpoint. Since it is responsible for naming, it listens to a well-known address.