COP701 A4: Distributed NFS

September 30, 2024

1 Problem statement

The **Network File System (NFS)** is a distributed file system that allows a user on a client computer to access files over a computer network much like accessing local storage. It also supports strong security. The protocol builds on the Open Network Computing (ONC) Remote Procedure Call (RPC). The specification of NFSv4 can be found in the RFC 7530 document.

FUSE (Filesystem in Userspace) is a user-space file system framework. The FUSE project consists of two components: the FUSE kernel module and the *libfuse* user-space library. It lets non-privileged users create their own file systems without editing the kernel code.

Your task is to implement a distributed NFS from scratch using the FUSE library. You should implement nfsd, a daemon process that runs on a server accepting connections. You are required to demonstrate a client being able to mount to your file system (on top of FUSE) and access the data by connecting to your nfsd implementation.

2 Logistics

- The **deadline** for this assignment is **22/11/2024 at 11:59 PM**. It is a hard deadline and will not be extended.
- This is an optional assignment to be done **individually**.(40 Marks)
- You can only use C/C++ in this assignment. You are not supposed to use any other programming language.
- You need to create a private git repository either on https://git.iitd.ac.in or github. Git commit history will be checked during evaluation.
- ANY form of **plagiarism** will not be tolerated.
- Submission will be made on Moodle. You need to submit all your code and a pdf format report. Compress all these in a tar file with the name $< entry\_number1 >$ *.tar* and upload on Moodle.
- You will be graded on the working of the distributed NFS, the coding style and your viva/presentation. Marks distribution: Coding style (including unit tests and git commits) - 25%, Demo - 75%
- Any doubts regarding the course/assignment should be asked on Piazza.