CS 451
Fall 2024
Assignment 4

a) What was the purpose of the NFS server? What happens if you run hello world from a non-shared spot?

The NFS server is used to provide a shared file system across all the nodes in the cluster. This ensures that each compute node can access the same code and data, making it easier to coordinate tasks. If we ran the hello world program from a non-shared spot, each compute node would not have had access to the necessary files or might use different versions, causing inconsistencies and errors in program execution.

b) How are the different instances of the same program communicating?

The different instances of the same program communicate through the Message Passing Interface (MPI). It provides a set of communication protocols that allow instances running on different nodes to exchange data. The communication is handled through functions like MPI_Send and MPI_Recv for point-to-point messaging or MPI_Bcast for broadcasting data to all nodes, using the underlying network interconnect.

c) How might the interconnect affect the speed of an MPI program?

The interconnect, which refers to the networking hardware and protocols connecting the compute nodes, has a significant impact on the speed of an MPI program. A high-speed, low-latency interconnect enables faster data transfer and communication between nodes, reducing the time spent waiting for messages. A slower or higher-latency interconnect (like standard Ethernet) can introduce delays, limiting the overall performance and scalability of the program.