

Give a simple heuristic for finding two paths through a network from a given source to a given destination that can survive the loss of any communication line (assuming two such paths exist). The routers are considered reliable enough, so it is not necessary to worry about the possibility of router crashes.

Find the shortest path first, and then delete all edges that belong to the shortest path, and then find another shortest path.

Both UDP and TCP use port numbers to identify the destination entity when delivering a message. Give two reasons why these protocols invented a new abstract ID (port numbers), instead of using process IDs, which already existed when these protocols were designed.

Process IDs are dependent on the operating system of a pc. Thus, process IDs would mean these protocols become OS dependent. Also, a process can form different transmission channels. Consequently, a single process ID cannot be used to identify between said channels. While identifying already established ports is viable, already known process IDs are not.