This report briefly outlines the RMI and UDP protocols and compares them in terms of their pros and cons in terms of reliability and difficulty to implement.

UDP (User Datagram Protocol) operates by sending data in the form of datagrams, which are self-contained objects that are capable of being sent from a source to destination without the need for external factors. The datagrams are sent over the internet from the source to destination, but there is no virtual direct connection between the two computers, and hence messages may be lost. However, as there is no handshake required between the two computers, UDP is very useful for implementing low latency connections that can tolerate possible loss of data.

One of the reasons why UDP packets are lost, or arrive in the wrong order is because unlike TCP the datagrams may take various different paths to reach the destination, and the protocol is unable to (natively) detect and retransmit lost packets.

Packet loss through the internet protocol (IP) is the main reason why datagrams are lost. The IP is designed as a ‘best-effort’ delivery service, which attempts to keep the logic that routers use as simple as possible. Hence routers will drop packets if the it or the network is too busy to deliver the data. This can be shown in the comparison of sending the data within the same machine and sending the data over a Wi-Fi network:

|  |  |
| --- | --- |
| Transfer within machine | Transfer between two machines over Wi-Fi |
|  |  |

Wireless networking

First use of the port causes losses