Draft of proposed ideas

1. Big data analysis for network troubleshooting – The project will involve capturing a set of performance metrics (Bandwidth, latency, packet loss) by performing traceroute diagnostics from host to a set of internet sites followed by analyzing the routing behavior to identify trends in improving performance. The results should also be presented using appropriate network data visualization techniques.
2. TCP Congestion control for data centers – Implementation of D2TCP to handle burst behavior by considering both the deadline of the query and the congestion of the network. The project involves implementation of the protocol on ns-3 and comparing against the existing protocols.
3. Congestion control mechanism for Internet of Things – This involves investigation of congestion control protocols for IOT. Implement and evaluate the congestion control mechanism that is adaptive to the nature of the IOT network characteristics. (For example improvements on top of CoAP which imposes restrictions on the number of outgoing messages and parallel message exchanges)
4. SDN like rule based firewall for WSN networks: Implementation of firewall for WSN/IoT networks using SDN flow controllers. We hope to implement the protocol and deploy it on a small network that consists of a server, network of devices including one acting as a firewall.
5. Secure protocol for communicating between an implantable medical devices (IMD) and control server: Implementation of a protocol that enables a secure communication between an IMD and a server through the internet