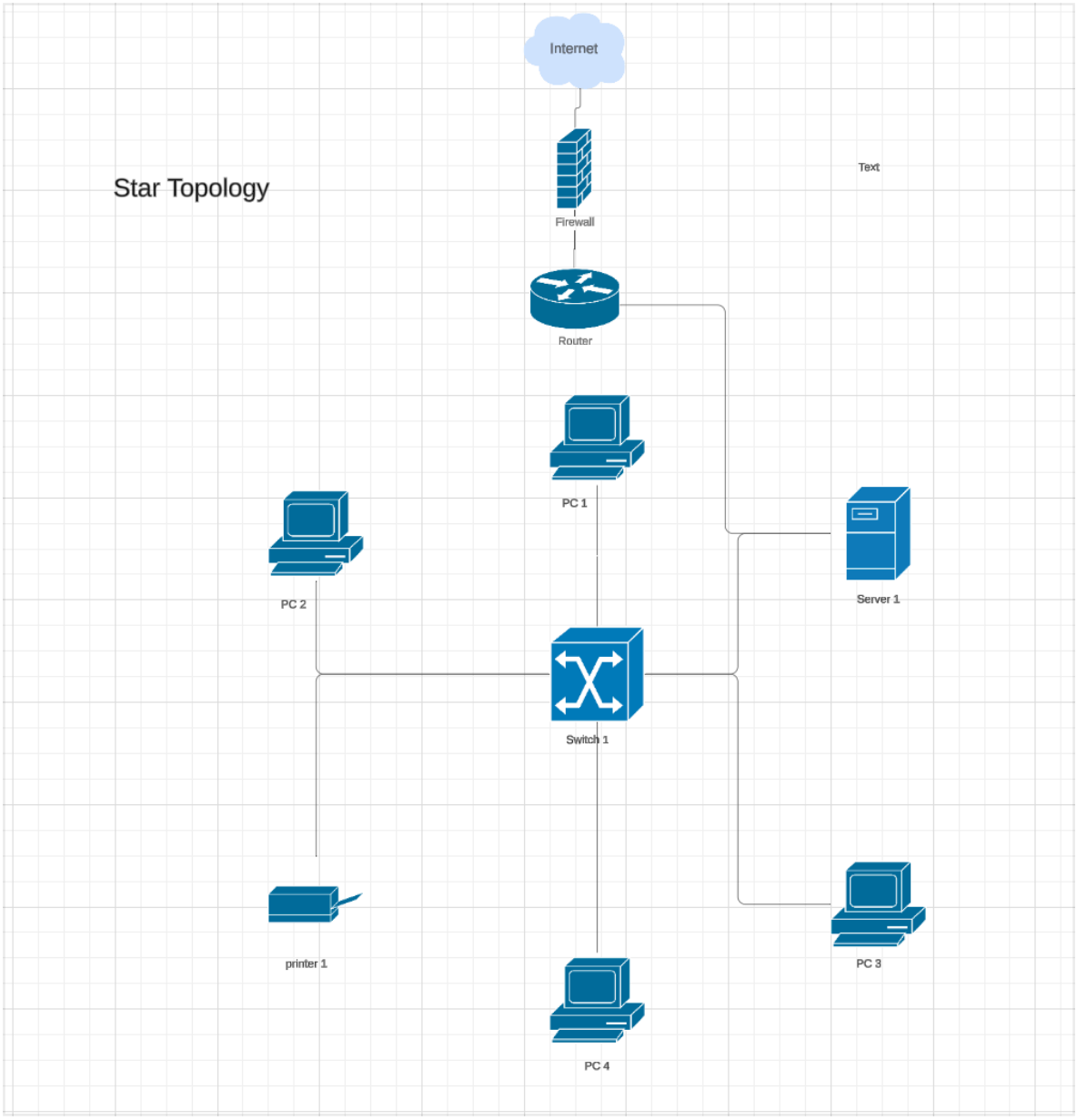
Network Topologies



Why This Topology is Good

1. Centralized Management:
   - With all devices connected to a single switch, it is easy to manage the network. Any network changes or monitoring can be done centrally.
2. High Performance:
   - A switch ensures that data packets are sent directly to the intended device rather than being broadcasted to all devices. This reduces network congestion and improves performance.
3. Scalability:
   - New devices (e.g., additional PCs, printers) can be easily added by connecting them to the switch without disrupting the existing setup.
4. Security:
   - The inclusion of a firewall and the centralized nature of the topology

makes it easier to implement and manage security policies.

- VLANs can be implemented on the switch to segment traffic if needed.

5. Fault Isolation:

- If one device or connection fails (e.g., a single PC), it does not affect the rest of the network. Only that device will lose connectivity, ensuring overall network reliability.

6. Ease of Troubleshooting:

- Since the topology is centralized, identifying and isolating issues becomes easier. Problems can usually be traced back to the switch or the affected device.

Suggestions for Further Optimization

1. Redundant Connections:

- To increase fault tolerance, consider adding a secondary switch or backup link between critical devices (e.g., the server) and the switch.

2. Switch Capabilities:

- Ensure the switch has sufficient ports and supports features like QoS (Quality of Service) to prioritize traffic.

3. Server Placement:

- The server is well-placed in this design, connected directly to the switch for low-latency communication.