

Project Report

Title - Custom Traceroute with Bandwidth and Geolocation

Group Number - 15

Project Description

Our project involved the development of a custom traceroute tool with enhanced functionality. The core features of our custom traceroute tool include:

1. Custom Traceroute: We created a custom traceroute command in C, which allows users to trace the path of network packets from the source to the destination, displaying information like RTT for the intermediary routers.
2. Bandwidth Estimation: We implemented real-time bandwidth estimation for each hop along the network path. This feature provides users with an estimate of the available bandwidth at each router, which can be valuable for network analysis and troubleshooting.
3. Geolocation Information: We integrated a geolocation functionality that retrieves and displays information such as the country, city, region and organization and approximate geographical location of each router. This information is obtained using curl library and http get request to [https://ipinfo.io/\\${ip}](https://ipinfo.io/${ip}).
4. Status of Ports: In addition to standard traceroute functionality, our custom traceroute implementation includes a feature to detect the status of ports on the routers along the network path. This feature uses the Nmap command to scan and report the status of ports, indicating whether they are open (up) or closed (down).

Conclusion

Our custom traceroute tool with bandwidth estimation, geolocation information and information about status of ports enhances the traditional traceroute command by providing users with valuable insights into network paths. It allows users to understand not only the route packets take but also the quality and location of routers along the way. The project was successful in achieving its objectives, and it can be a valuable tool for network administrators, developers, and anyone interested in network diagnostics.

Group Details and Contributions

Name	Enrolment No.	Contributions
Anupriya Dey	21114014	Research work, core traceroute functionality, geolocation information for routers, made readme file
Himani Panwar	21114041	Research work, core traceroute functionality, bandwidth estimation & enhancements, made report
Komal Gupta	21114052	Research work, core traceroute functionality, bandwidth estimation & enhancements, made report
Naqiyah Kagzi	21114064	Research work, core traceroute functionality, geolocation information for routers, made readme file