Building Robust TCP/IP and HTTP/1.1 Libraries in Golang

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Abstract

This capstone project encompasses the creation of a sophisticated TCP/IP library and an HTTP/1.1 library, developed using Golang. The TCP/IP library is designed with a suite of robust networking functionalities, comprising static configuration options for network settings, dynamic host status detection and management, advanced routing capabilities, and an integrated support for the Routing Information Protocol (RIP) to optimize network routing efficiency. Furthermore, it incorporates a versatile traceroute utility, enabling detailed network diagnostics and path analysis for enhanced troubleshooting and optimization.

Complementing the TCP/IP library, the HTTP/1.1 library provides both client and server functionalities. It encompasses pivotal elements for web interaction, featuring comprehensive support for the HTTP GET method, enabling basic web requests and establishing server-client communication. Additionally, it integrates HTTP basic authentication protocols, ensuring stringent client authentication and bolstering security measures to safeguard against unauthorized access. This dual library suite demonstrates a deep understanding of network protocols and web communication, showcasing the ability to design and implement efficient and secure network solutions in Golang.