**0x11. What happens when you type google.com in your browser and press Enter.**

Ever thought about what goes on when you enter "[https://www.google.com](https://www.google.com/)" and press Enter? Let's simplify it.

1. **DNS Inquiry**: It all commences with a DNS (Domain Name System) inquiry. Upon inputting "www.google.com" in your browser, your computer initiates a DNS request to find the associated IP address with that domain name. The DNS server then responds with Google's server IP address.
2. **TCP/IP Connection**: Armed with the IP address, your computer establishes a TCP (Transmission Control Protocol) connection with Google's server. TCP ensures the reliability and integrity of data exchange between your computer and Google's server.
3. **Firewall Examination**: Before establishing the connection, it might traverse through a firewall, acting as a security barrier. The firewall scrutinizes incoming and outgoing traffic to ensure compliance with predefined security criteria.
4. **Secure Connection (HTTPS/SSL)**: The "https" in the URL signifies a secure connection through SSL (Secure Sockets Layer) or its successor TLS (Transport Layer Security). This encryption safeguards the exchanged data from interception or manipulation by malicious entities.
5. **Load-Balancing Distribution**: Given Google's expansive service provision, it likely employs load balancers to evenly distribute incoming web traffic across multiple servers. This ensures optimal performance and reliability by preventing overload on any single server.
6. **Web Server Handling**: Post load-balancing, your request reaches one of Google's myriad web servers. These servers handle HTTP requests, process them, and generate suitable responses. In this instance, the web server furnishes the Google homepage HTML document.
7. **Application Server Interaction**: In complex web apps, the web server communicates with an application server. The app server runs code, fetches data from databases, and creates dynamic content before sending it to the web server.
8. **Database Utilization**: Behind the curtains, Google's services likely depend on databases to store and retrieve vast data troves. When you perform a Google search, for instance, your query undergoes processing against their indexed web page database to generate search results.

Typing "[https://www.google.com](https://www.google.com/)" initiates a complex process involving various technologies like DNS, TCP/IP, security measures, load balancing, servers, and databases, enabling seamless access to information.