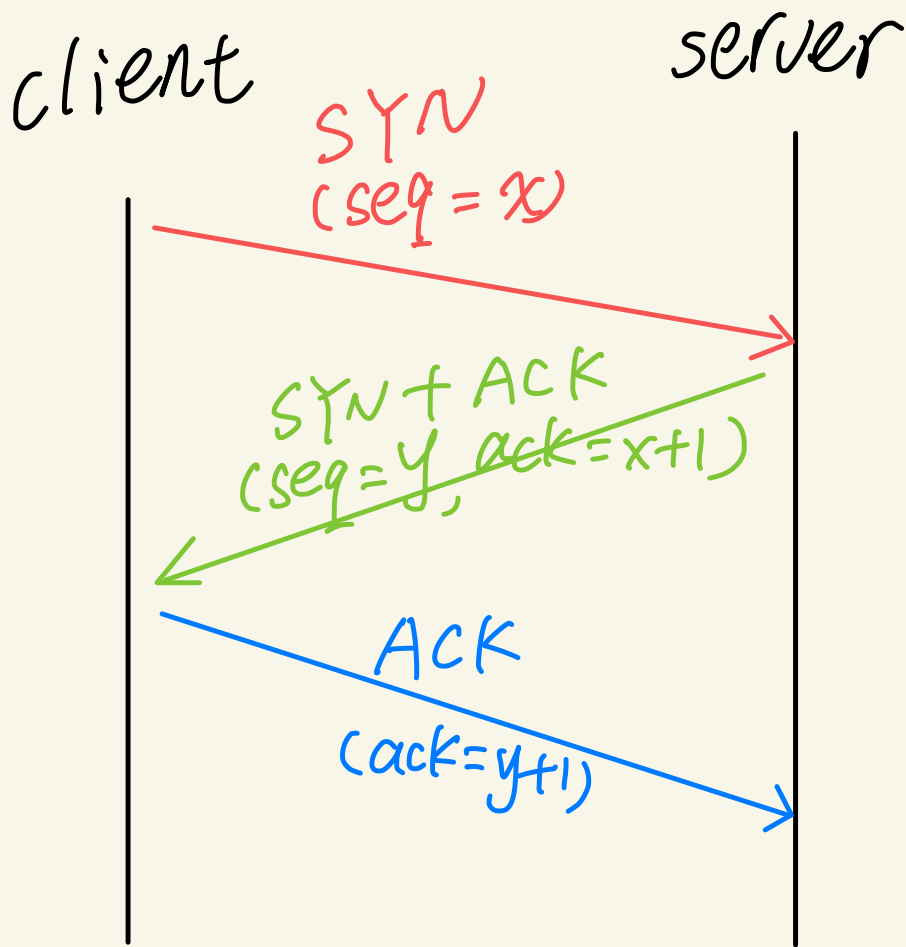


06.23 TCP 3-way handshake process



TCP uses the 3-way handshake process to establish a secure and reliable communication between the client and server.

① client sends the SYN to the server with SYN Flag as 1, means client wants to establish a secure connection with the server. $seq = x$, which is a random number, assigned to the first bit of the data.

② Server receives the SYN from client, sends SYN + ACK to the client, with SYN and ACK Flag as 1. ack number is set as $x+1$, tell client that the server has successfully receives the previous SYN from the client. Another seq is set as y which is a random number, assigned to the first bit of the data.

③ Client receives the SYN+ACK from the server, send an ACK to the server, with ack number set as $y+1$.

After the 3-way handshake the TCP connection is established.

06.22

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06.21 Describe what happens when you click on a URL in a browser

- ① You type the URL, for example, `www.leetcode.com` into the browser.
- ② The browser, will contact the DNS (domain name system), to convert the human-readable URL into the numerical IP address.
- ③ With the IP address, the browser can send an HTTP request to the server.
- ④ If the server receives the HTTP request from the browser, it will parse

the request, and send an HTTP response to the browser.

⑤ After receiving the response, the browser will render the HTML encoded in the response. If there are additional resources embedded in the HTML, steps 3~5 will be repeated.

4 layer cache:

browser, OS, router, ISP

recursively request the IP address

Root DNS

Top-level

.com

Second-level

microsoft.com

Third-level

download.microsoft.com

TCP connection, 3-way handshake

