Web Application Architectures

Module 1: Introduction and Background
Lecture 2: What is a Web Application?

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Web Applications

- This course is about modern web application architectures.
- Next we will consider, at a very high level, the architectural model that all web applications are based upon.
- This will be refined significantly as the course progresses.
- Based upon the models described here, we can begin to consider the most basic web protocols and standards.

Client-Sever Model

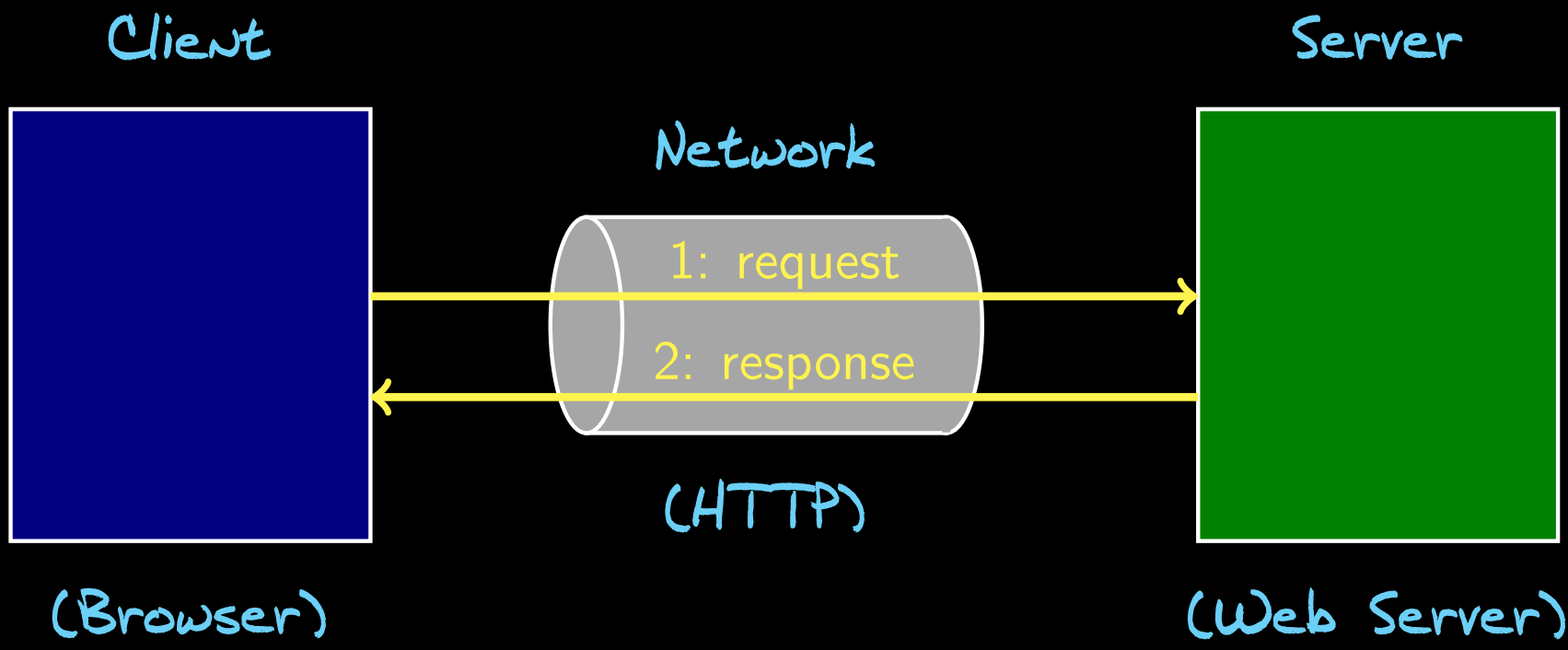
The client-server architecture is the most basic model for describing the relationship between the cooperating programs in a web application.

The two parts of a client-server architecture are:

- Server component – "listens" for request, and provides services and/or resources accordingly.
- Client component – establishes a connection to the server, and requests services and/or resources from it.

Client-Sever Model

There is a request/response protocol associated with any client-server architecture:



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Definition (Web Application)

A web application is accessed by users over a network, uses a browser as the client, and consists of a collection of client- and server-side scripts, HTML pages, and other resources that may be spread across multiple servers. The application itself is accessed by users via a specific path within a web server, e.g., www.amazon.com.

Ex. Webmail, online retail stores, online banks, online auctions, wikis, blogs, document storage, etc.

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There's a bit more to it:

Network –

- The Internet, a global system of interconnected computer networks.
- Uses the standard Internet protocol suite (TCP/IP).

Web (World Wide Web) –

- A system of interlinked documents (web pages) accessed via the Internet using HTTP.
- Web pages contain hypermedia: text, graphics, images, video and other multimedia, along with hyperlinks to other web pages.
- Hyperlinks give the Web its structure.
- The structure of the Web is what makes it useful and gives it value.

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Advantages —

- Ubiquity and convenience of using a web browser as a client.
- Inherent cross-platform compatibility.
- Ability to update and maintain web applications without distributing and installing software on potentially thousands of client computers.
- Reduction in IT costs.

Disadvantages —

- User experience not as good as standalone (workstation/PC) applications — increasingly not the case.
- Privacy and security issues associated with your data.
- From a developer's perspective, difficult to develop and debug — there are a lot of moving parts!