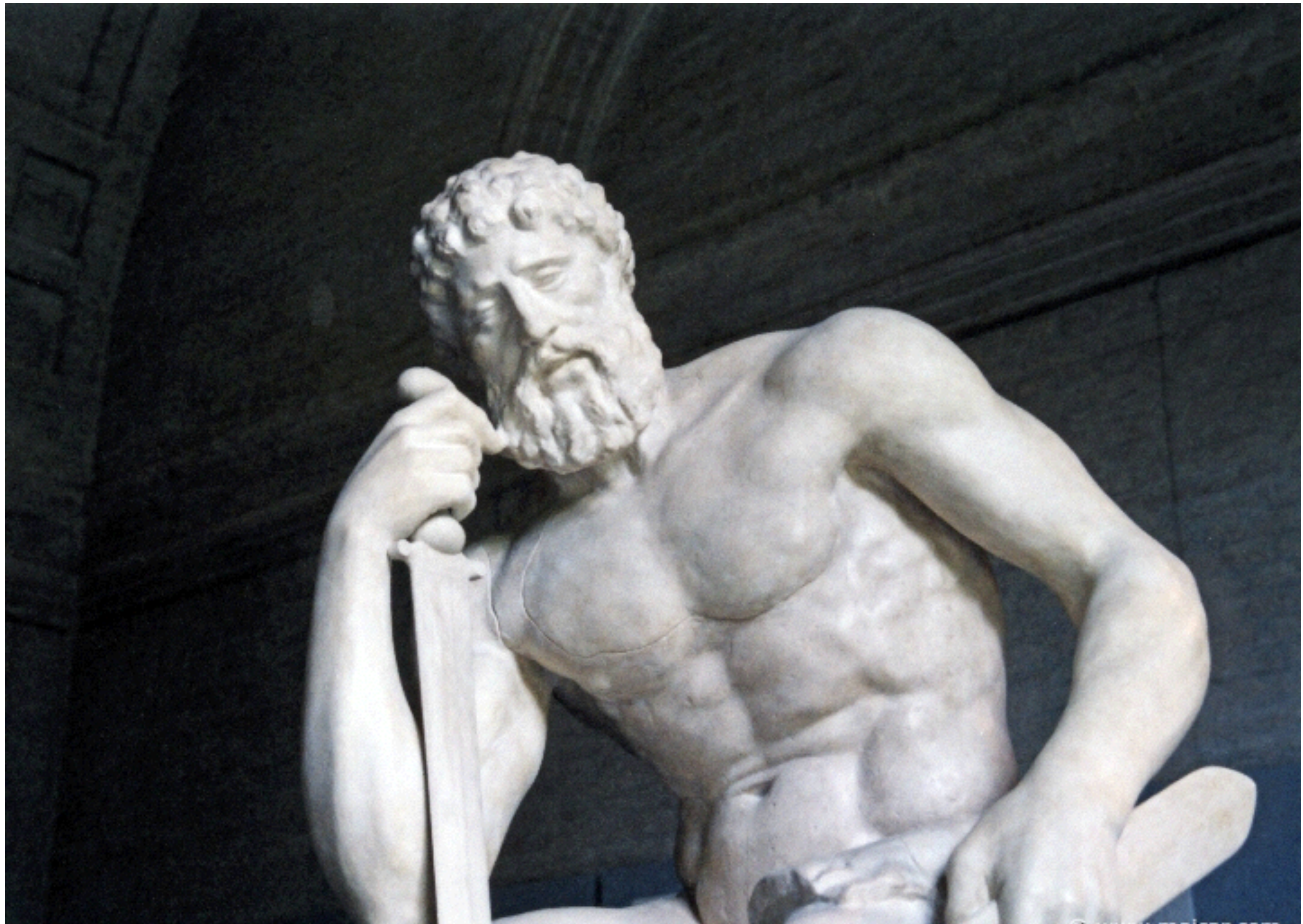


AJAX

Making the web seamless







HTTP REQUESTS IN THE BROWSER

- **Browser navigation**

- URL bar
- Links
- `window.location.href = "http://www.google.com";`

HTTP REQUESTS IN THE BROWSER

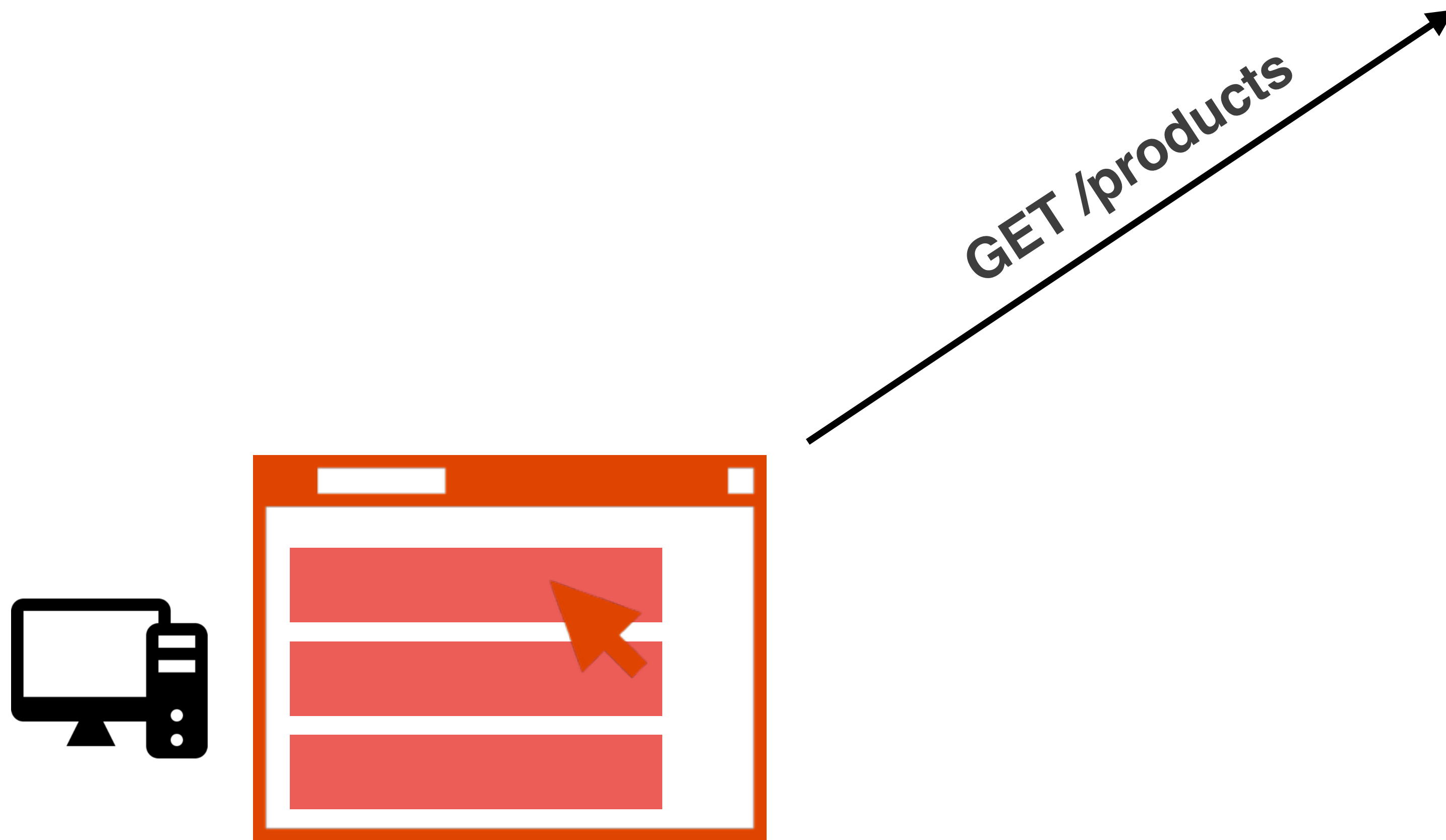
- **Browser navigation**
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- **Submitting forms (POST/PUT)**

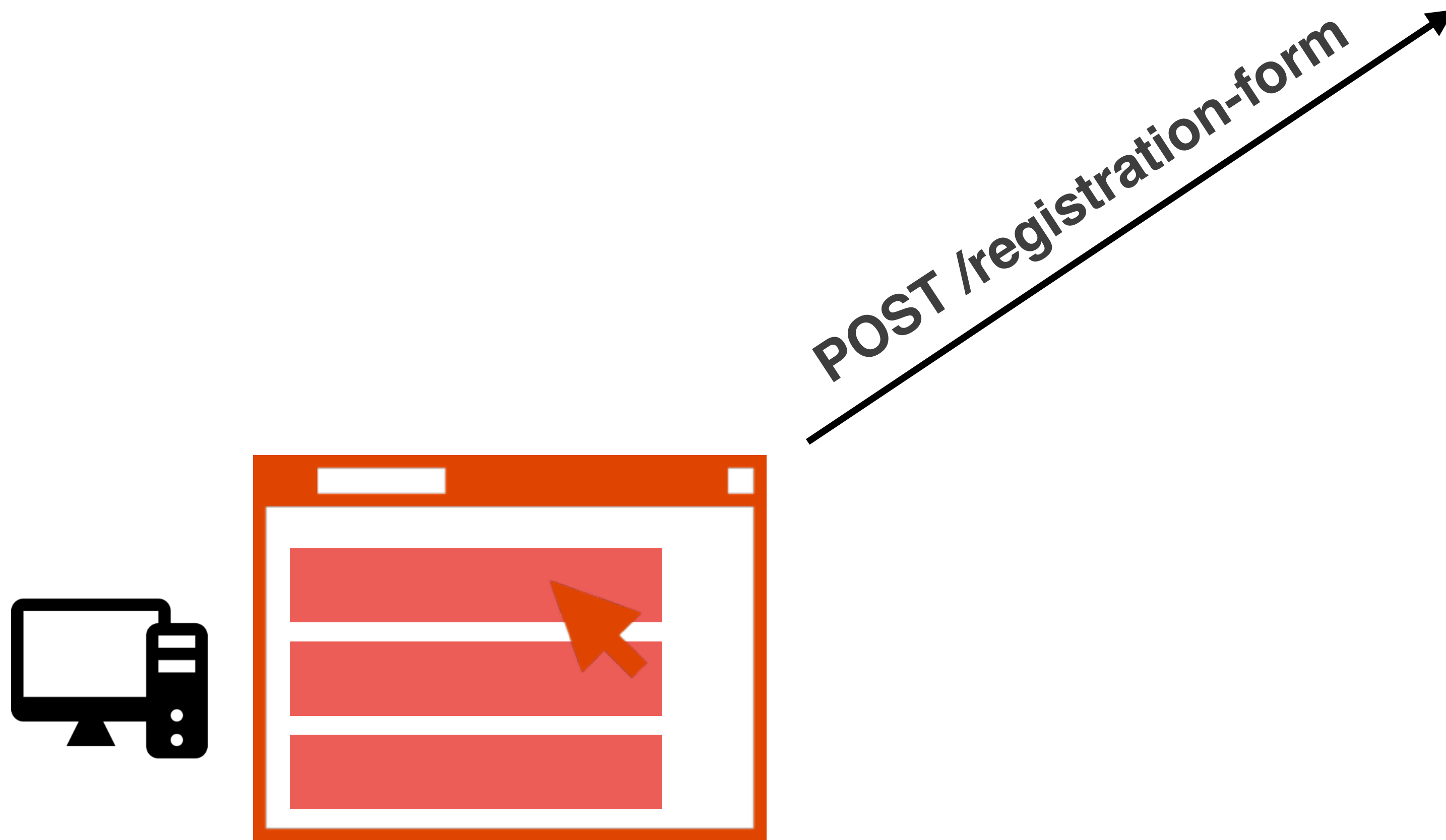
HTTP REQUESTS IN THE BROWSER

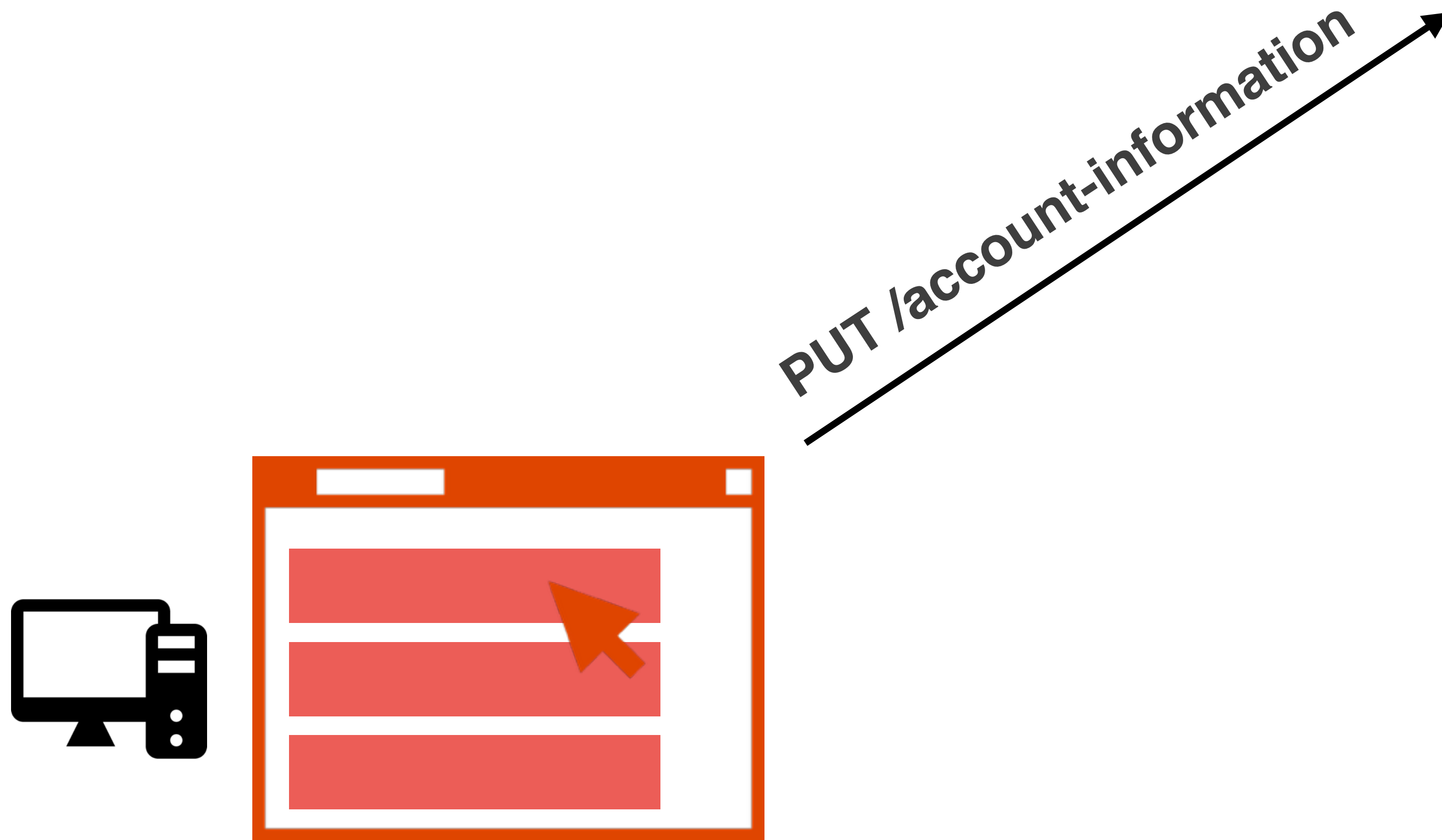
- **Browser navigation**
 - URL bar
 - Links
 - `window.location.href = "http://www.google.com";`
- **Submitting forms (POST/PUT)**
- **All the above makes the browser navigate and retrieve new documents.**

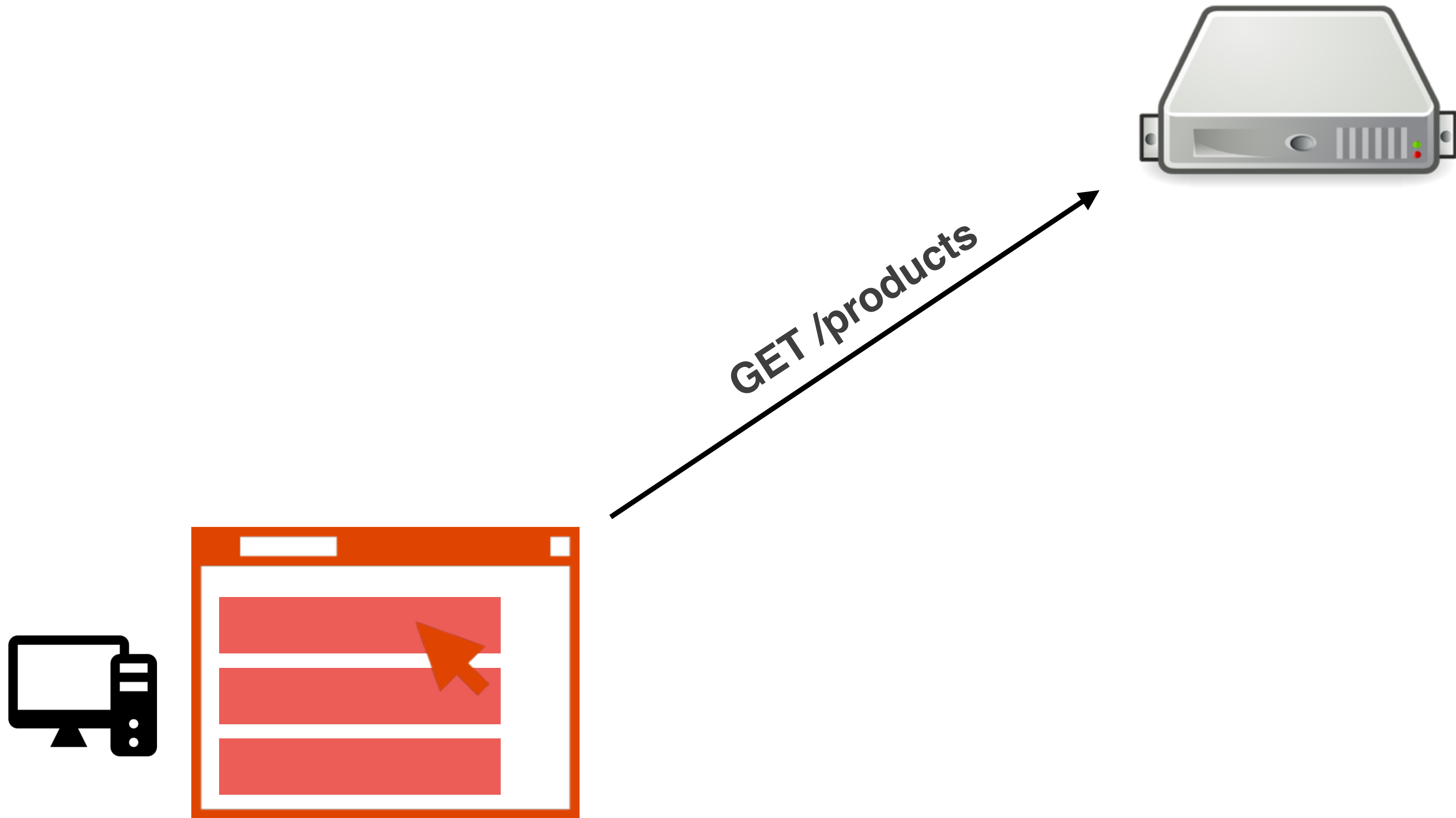


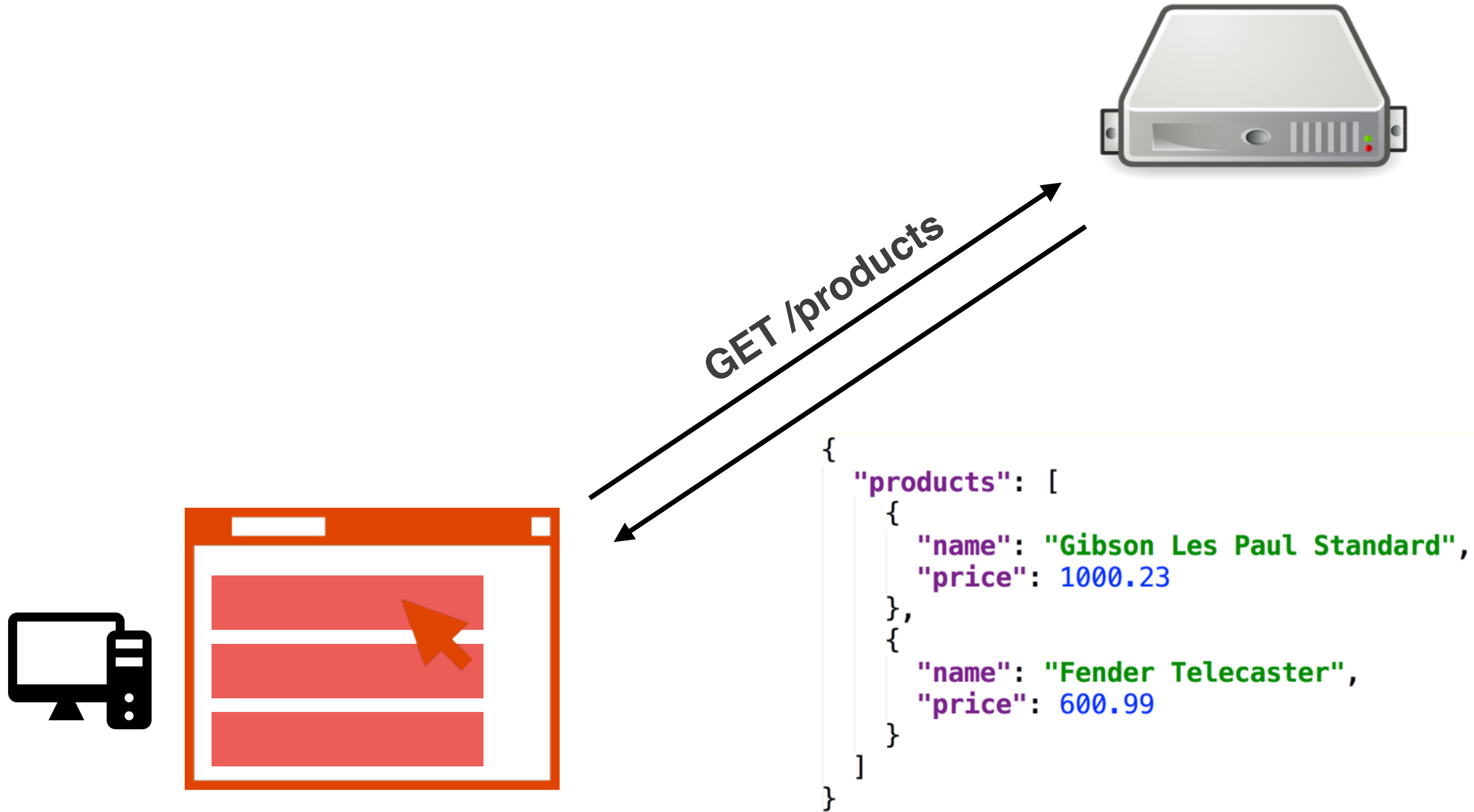


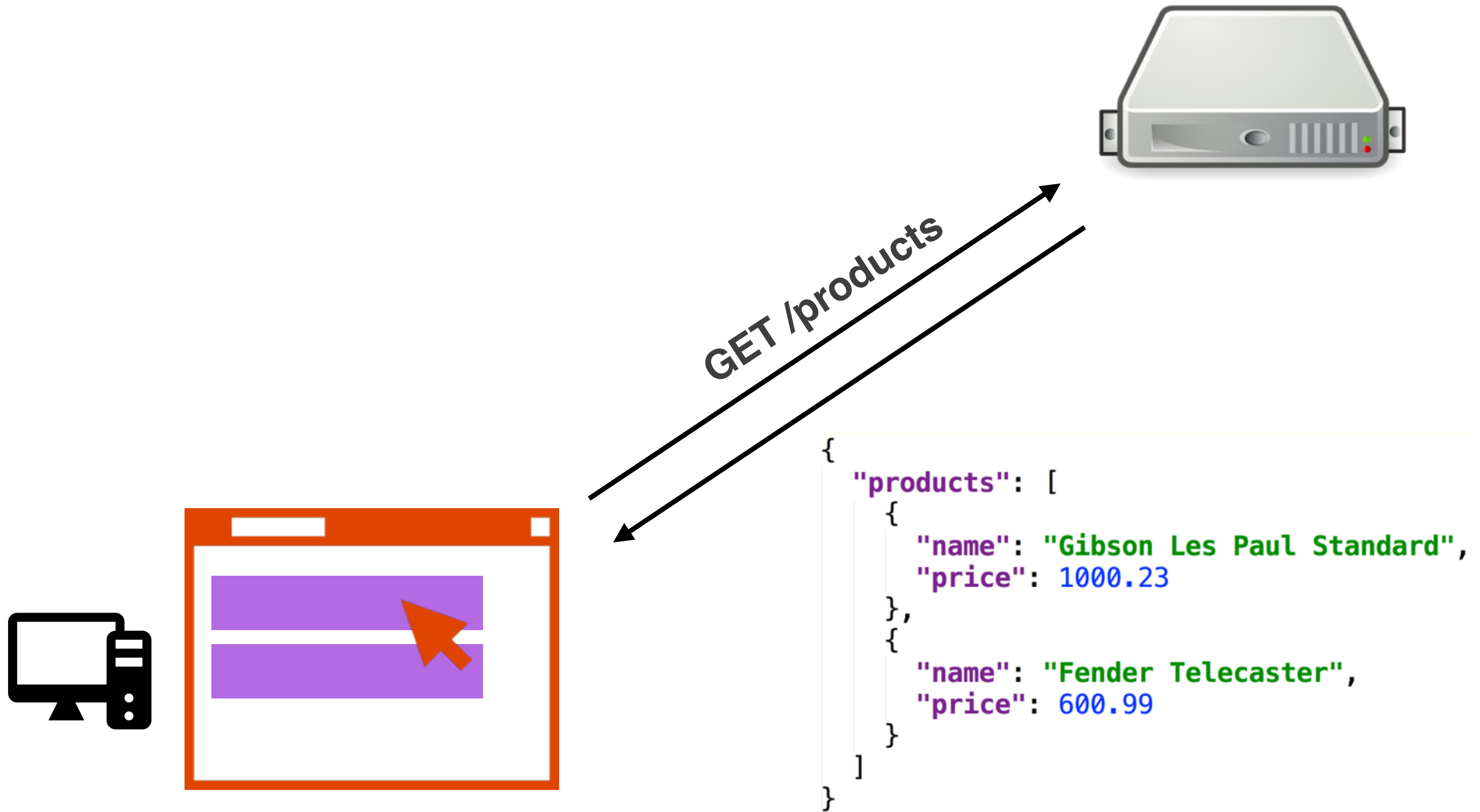












BASICS OF AJAX

- **Making background HTTP requests using Javascript**

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- **Making background HTTP requests using Javascript**
- **Handling the response of those HTTP requests with Javascript**
- **No page refresh necessary**

HOW DID WE GET TO AJAX?



1996

MICROSOFT INVENTS

<iframe>

1996-2002

Microsoft awkwardly implements background HTTP with ActiveX. Mozilla/Safari/Opera begin to implement standard XMLHttpRequest.

Largely unimplemented except for some Microsoft Outlook applications.

2002-2005

Google makes a huge step forward by implementing standard XMLHttpRequest in their new products: Gmail and Google Maps.

Kayak.com also implements what the developers coined at the time as “the xml http thing”.

2005

Popular technologist Jesse James Garrent coins the term AJAX, an acronym for Asynchronous Javascript and XML.

```

function makeRequest(url) {
    if (window.XMLHttpRequest) { // Mozilla, Safari, ...
        httpRequest = new XMLHttpRequest();
    } else if (window.ActiveXObject) { // IE
        try {
            httpRequest = new ActiveXObject("Msxml2.XMLHTTP");
        }
        catch (e) {
            try {
                httpRequest = new ActiveXObject("Microsoft.XMLHTTP");
            }
            catch (e) {}
        }
    }

    if (!httpRequest) {
        alert('Giving up :( Cannot create an XMLHTTP instance');
        return false;
    }
    httpRequest.onreadystatechange = alertContents;
    httpRequest.open('GET', url);
    httpRequest.send();
}

```


2006

jQuery 1.0 released, providing abstraction for cross-browser implementations of AJAX, igniting its mass popularity across the internet.

```
$.ajax({  
    method: 'GET',  
    url: '/product'  
})  
    .then(function (response) {  
        // use response data  
    })  
    .catch(function (error) {  
        // handle the error  
    })
```

TODAY

We live in an era of single-page applications that rarely refresh and leverage AJAX heavily to provide a quick user experience.

ASYNCHRONOUS JAVASCRIPT AND XML

DATA SERIALIZATION

DATA SERIALIZATION FORMATS

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- How real data is conveyed using text in a human readable format.
- Translates complex objects into a format that can be stored and reconstructed later for delivery of data over limited transports, like HTTP.
- Examples: JSON, XML, YAML

ASYNCHRONOUS JAVASCRIPT AND XML

ASYNCHRONOUS JAVASCRIPT AND JSON

RECAP

- **AJAX is the method of sending background HTTP requests with Javascript**
- **jQuery is not necessary for AJAX, but it is a helpful abstraction for easy use**
- **The Network tab in Developer Tools is your friend**



!!CODE EXAMPLE!!

