# HTTP Connections

Handshakes and packets

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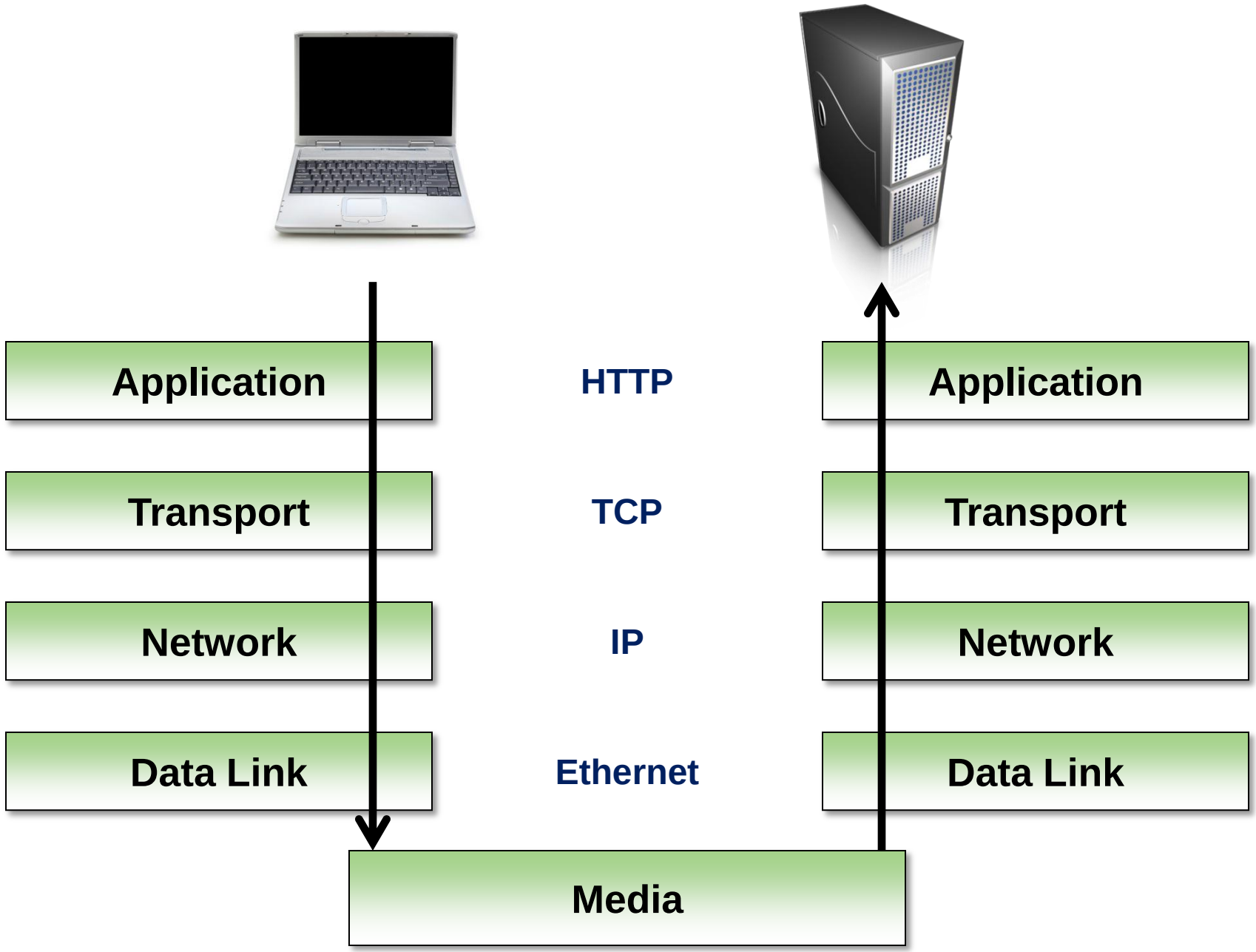
pluralsight
hardcore developer training


Application
HTTP
Application
Transport
TCP
Transport
Network
IP
Network
Data Link
Ethernet
Data Link
Media

open

close

Much later ….

open

close

open

open

close

close

www.odetocode.com

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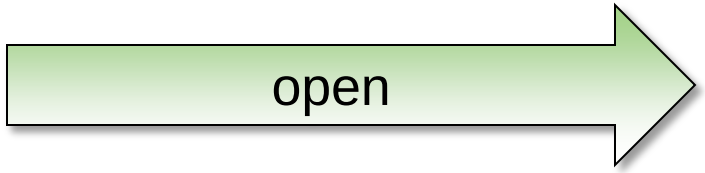
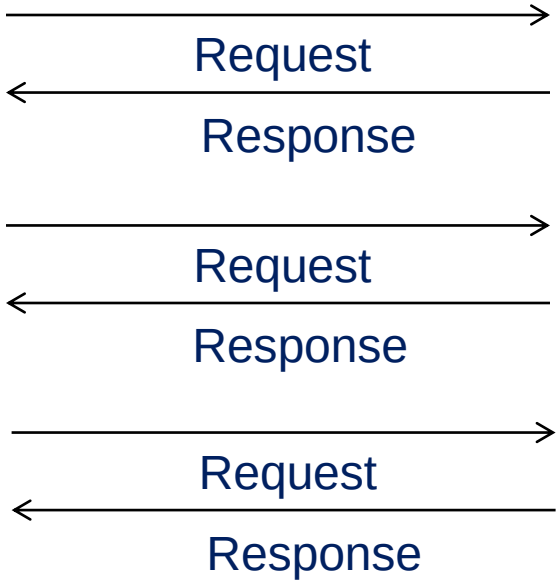

open


Request
Response
Request
Response
Request
Response

open

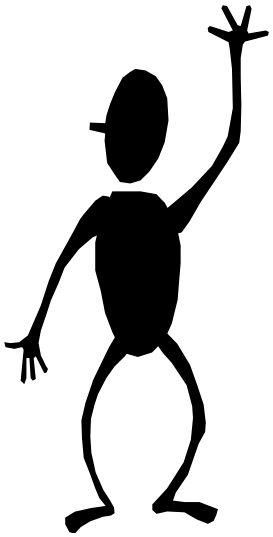
Request

Request

Response

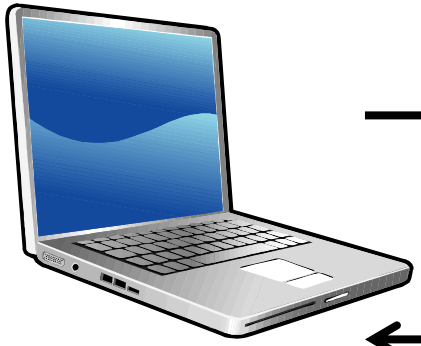
Response

Lounge 3



Ydych chi'n gwybod yr amser?

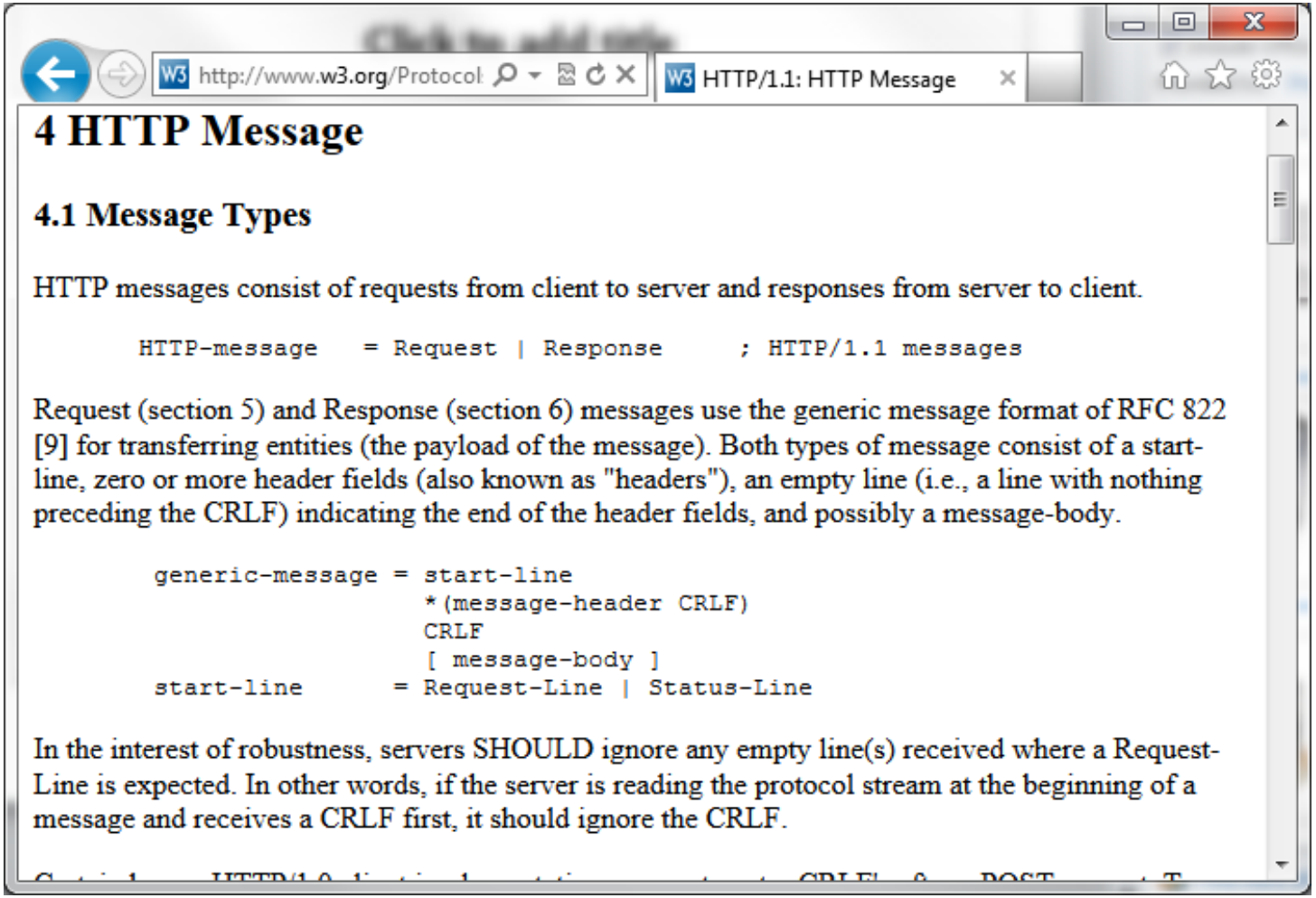
What? Is that Welsh?



1001001 CAN I HAS PAGE.HTM? 1001001

FATAL ERROR

http://www.w3.org/Protocols/rfc2616/rfc2616-sec4.html#sec4




# 4 HTTP Message

## 4.1 Message Types

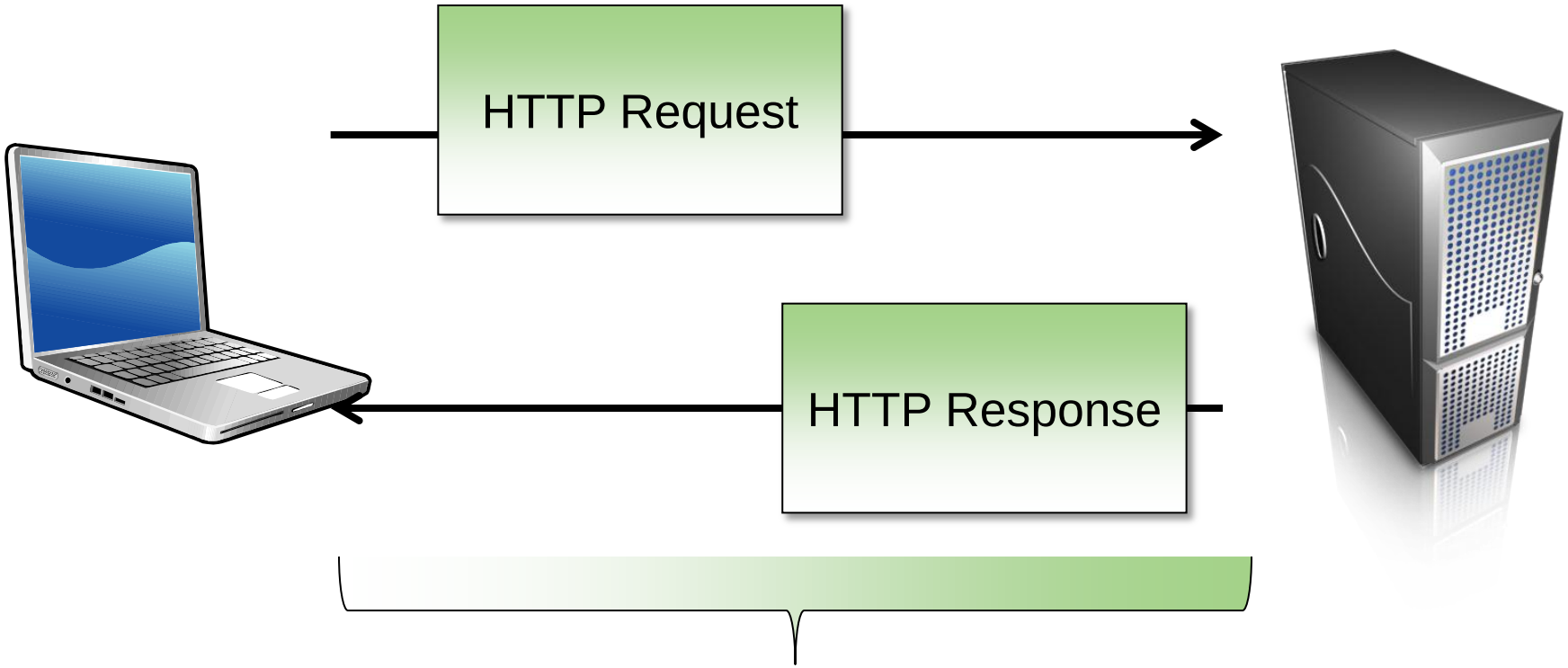
HTTP messages consist of requests from client to server and responses from server to client.

```
HTTP-message   = Request | Response     ; HTTP/1.1 messages
```

Request (section 5) and Response (section 6) messages use the generic message format of RFC 822 [9] for transferring entities (the payload of the message). Both types of message consist of a start-line, zero or more header fields (also known as "headers"), an empty line (i.e., a line with nothing preceding the CRLF) indicating the end of the header fields, and possibly a message-body.

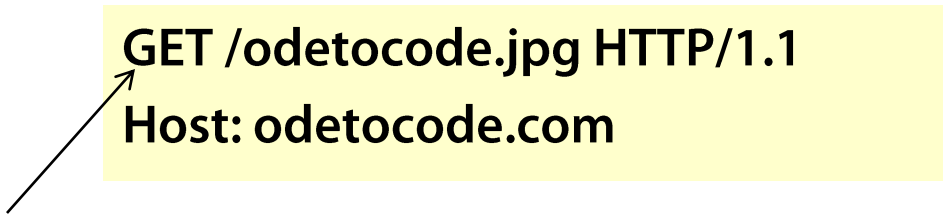
```
generic-message = start-line
                  *(message-header CRLF)
                  CRLF
                  [ message-body ]
start-line      = Request-Line | Status-Line
```

In the interest of robustness, servers SHOULD ignore any empty line(s) received where a Request-Line is expected. In other words, if the server is reading the protocol stream at the beginning of a message and receives a CRLF first, it should ignore the CRLF.




A Single HTTP Transaction

# HTTP Request Methods




| Method | Description |
| --- | --- |
| **GET** | **Retrieve a resource** |
| **POST** | **Update a resource** |
| PUT | Store a resource |
| DELETE | Remove a resource |
| HEAD | Retrieve the headers for a resource |

# Safe versus Unsafe

Safe

**GET**

Unsafe

**POST**

# Request Messages

```
[method] [URL] [version]
[headers]
[body]
```

```
GET http://server.com/articles/741.aspx HTTP/1.1
Host: odetocode.com
Accept-Language: fr-FR
Date: Fri, 9 Aug 2002 21:12:00 GMT
```

# Common Request Headers

| Header | Description |
| --- | --- |
| Referer | The URL of the referring page |
| User-Agent | Information about the browser |
| Accept | Preferred media types |
| Accept-Language | Preferred language |
| Cookie | Cookie information |
| If-Modified-Since | Date of last retrieval |
| Date | Creation timestamp for the message |

# Full Request

```
GET / HTTP/1.1
Host: server.com
Connection: keep-alive
User-Agent: Mozilla/5.0 (Windows NT 6.1; WOW64) Chrome/16.0.912.75 Safari/535.7
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Referer: http://www.google.com/url?&q=broccoli
Accept-Encoding: gzip,deflate,sdch
Accept-Language: en-US,en;q=0.8
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.3
```

# Response Message

```
[version] [status] [reason]
[headers]
[body]
```

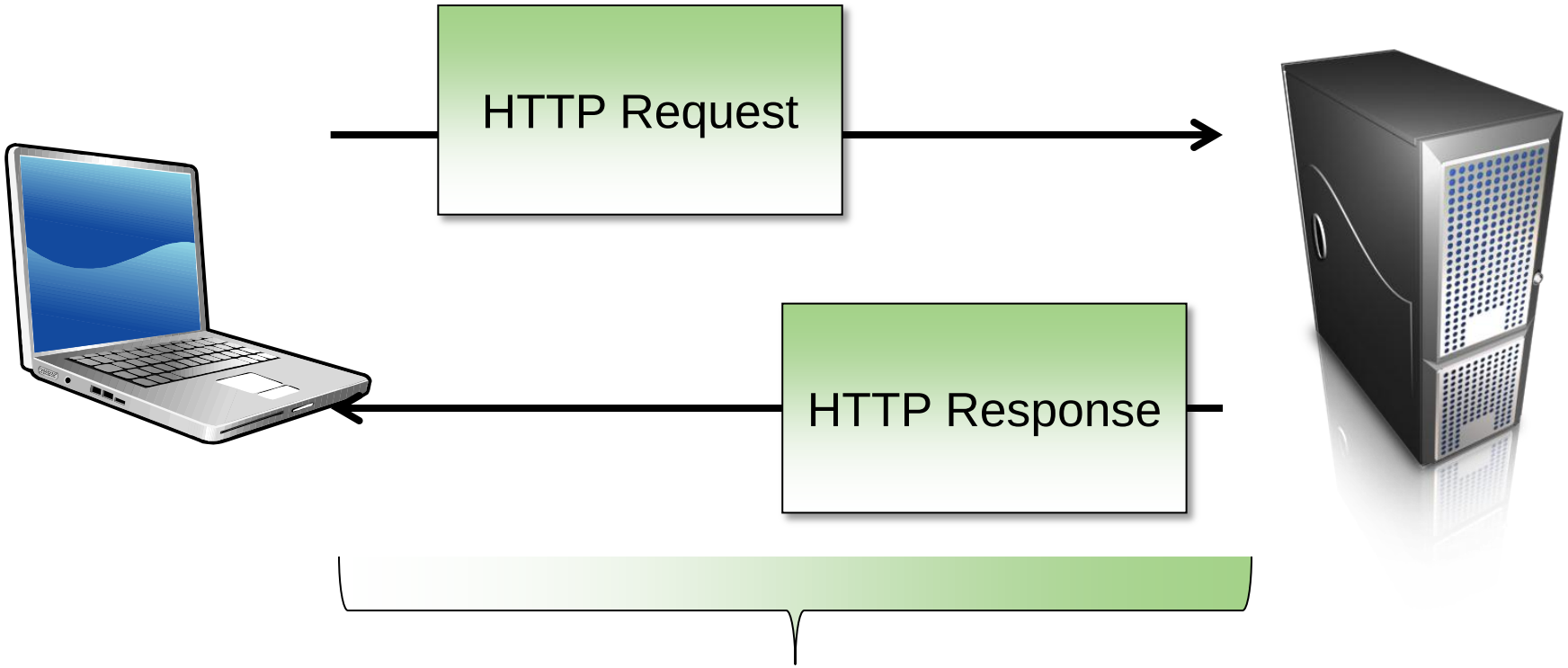
```
HTTP/1.1 200 OK
Cache-Control: private
Content-Type: text/html; charset=utf-8
Server: Microsoft-IIS/7.0
X-AspNet-Version: 2.0.50727
X-Powered-By: ASP.NET
Date: Sat, 14 Feb 2003 04:00:08 GMT
Content-Length: 17151

<html>
    ... content ...
</html>
```

# Status Code Categories

| Range | Category |
| --- | --- |
| 100-199 | Informational |
| 200-299 | Successful |
| 300-309 | Redirection |
| 400-499 | Client Error |
| 500-599 | Server Error |

# Popular Status Codes

| Code | Reason | Description |
|---|---|---|
| 200 | OK | Success! |
| 301 | Moved Permanently | Resource moved, don't check here again |
| 302 | Moved Temporarily | Resource moved, but check here again |
| 304 | Not Modified | Resource hasn't changed since last retrieval |
| 400 | Bad Request | Bad syntax? |
| 401 | Unauthorized | Client might need to authenticate |
| 403 | Forbidden | Refused access |
| 404 | Not found | Resource doesn't exist |
| 500 | Internal Server Error | Something went wrong during processing |
| 503 | Service Unavailable | Server will not service the request |




A Single HTTP Transaction