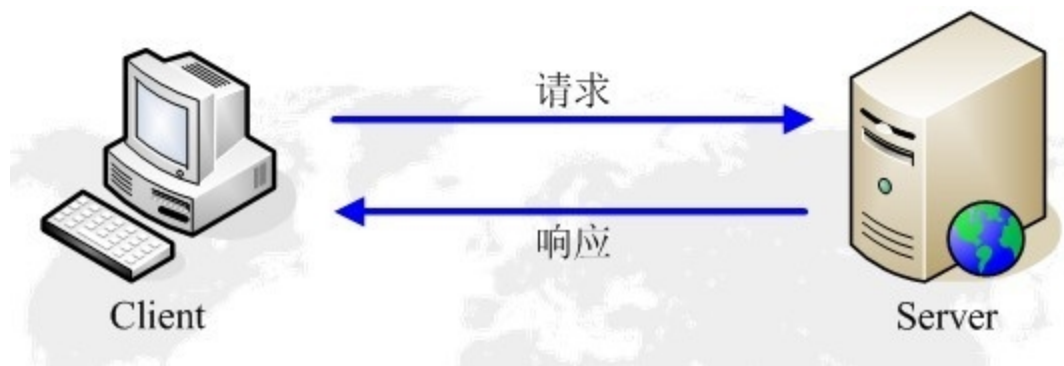# HTTP

The Hypertext Transfer Protocol (HTTP) is a stateless applicationlevel protocol for distributed, collaborative, hypertext information systems

web

Message Format

- HTTP-message = start-line
                          *(header-field CRLF)

                          CRLF
                          [message-body]

(a) Request message

```
GET /test/hi-there.txt HTTP/1.0

Accept: text/*
Accept-Language: en,fr
```

(b) Response message

```
HTTP/1.0 200 OK

Content-type: text/plain
Content-length: 19

Hi! I'm a message!
```

Start line

Headers

Body

start-line

- Request-line =

method SP request-target SP HTTP-version CRLF

- Status-line =

HTTP-version SP status-code SP reason-phrase CRLF

method

Method	Description	Message body?
GET	Get a document from the server.	No
HEAD	Get just the headers for a document from the server.	No
POST	Send data to the server for processing.	Yes
PUT	Store the body of the request on the server.	Yes
TRACE	Trace the message through proxy servers to the server.	No
OPTIONS	Determine what methods can operate on a server.	No
DELETE	Remove a document from the server.	No

GET / POST

- 1. □□□□□
- 2. □□□□□□
- 3. □□□□

Status code

3-digit integer code

1xx Infomational

2xx Success

3xx Redirection

4xx Client Error

5xx Sever Error

Headers

- request-header

Host: www.baidu.com
User-Agent: Mozilla/5.0 (Windows NT 6.0; rv:47.0) Gecko/20100101 Firefox/47.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: zh-CN,zh;q=0.8,en-US;q=0.5,en;q=0.3
Accept-Encoding: gzip, deflate, br
Cookie: BAIDUID=E29CEA509EE64DA88C5EB0C9F476610E:FG=1;
BIDUPSID=E29CEA509EE64DA88C5EB0C9F476610E; PSTM=1454499523; ispeed_lsm=8;
BD_UPN=13314252; H_PS_PSSID=20740_1445_18241_17946_19861_12443_20847_20856_20837_20771;
BD_CK_SAM=1; BD_HOME=0
Connection: keep-alive
Cache-Control: max-age=0

Headers

- ## Response-header

响应头：

```
BDPAGETYPE: 1
BDQID: 0xdcb37e530005b325
BDUSERID: 0
Cache-Control: private
Connection: keep-alive
Content-Encoding: gzip
Content-Type: text/html; charset=utf-8
Cxy_all: baidu+e77dc1976813bdb583011aade1504449
Date: Sun, 14 Aug 2016 14:25:27 GMT
Expires: Sun, 14 Aug 2016 14:25:16 GMT
Server: bfe/1.0.8.14
Set-Cookie: BDSVRTM=0; path=/
BD_HOME=0; path=/
H_PS_PSSID=20740_1445_18241_17946_19861_12443_20847_20856_20837_20771; path=/;
domain=.baidu.com
__bsi=15006780267591538685_00_28_R_N_3_0303_C02F_N_I_I_0; expires=Sun, 14-Aug-16 14:25:32
GMT; domain=www.baidu.com; path=/
Strict-Transport-Security: max-age=604800
```
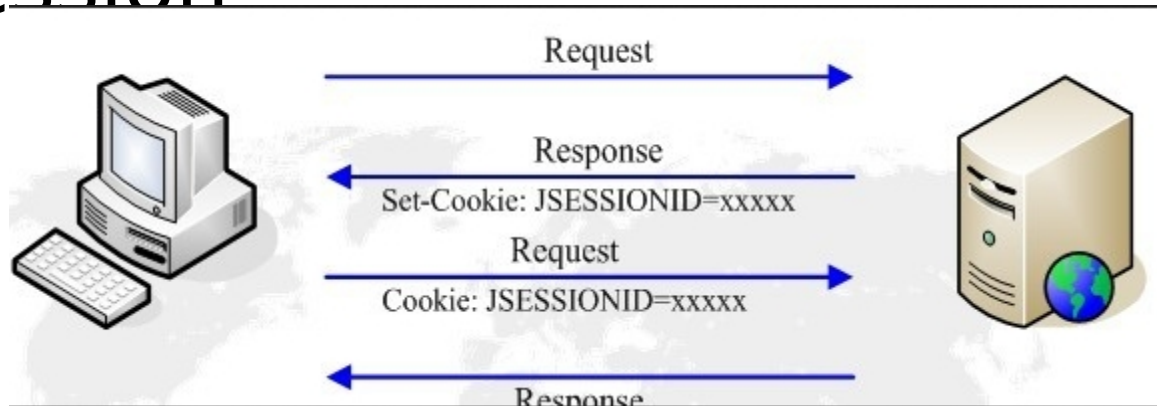
Connectcion
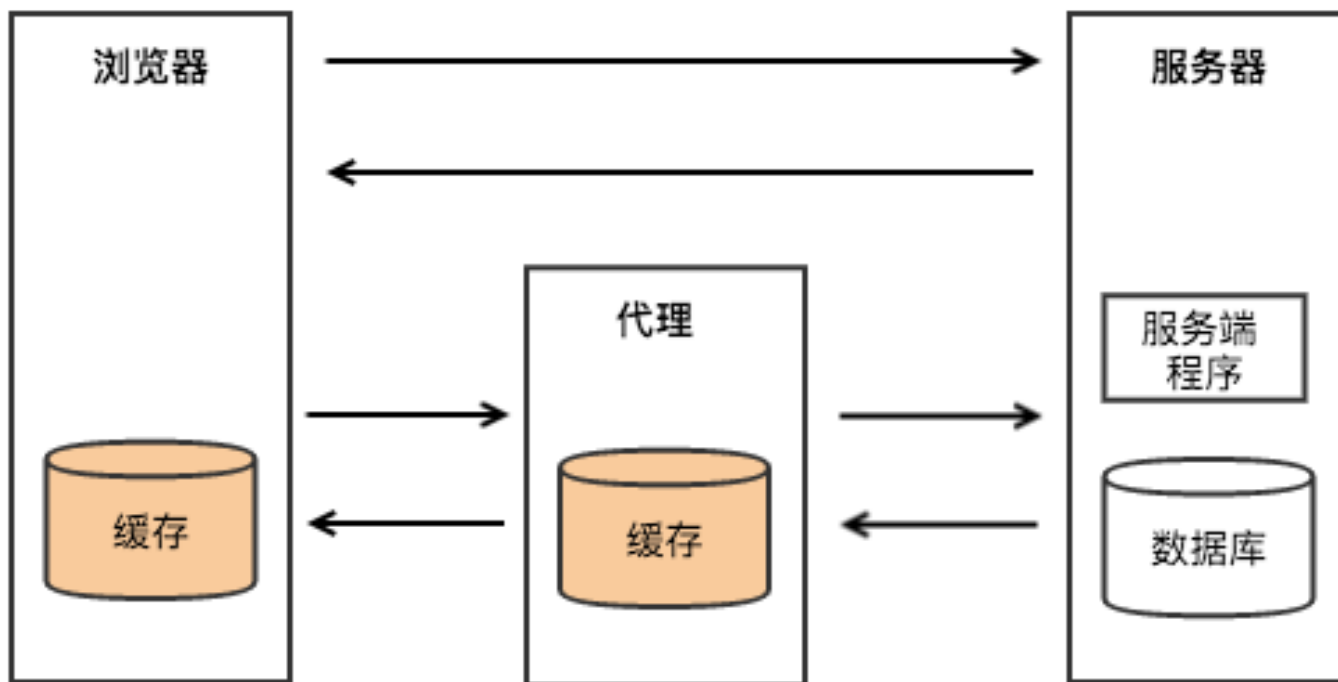
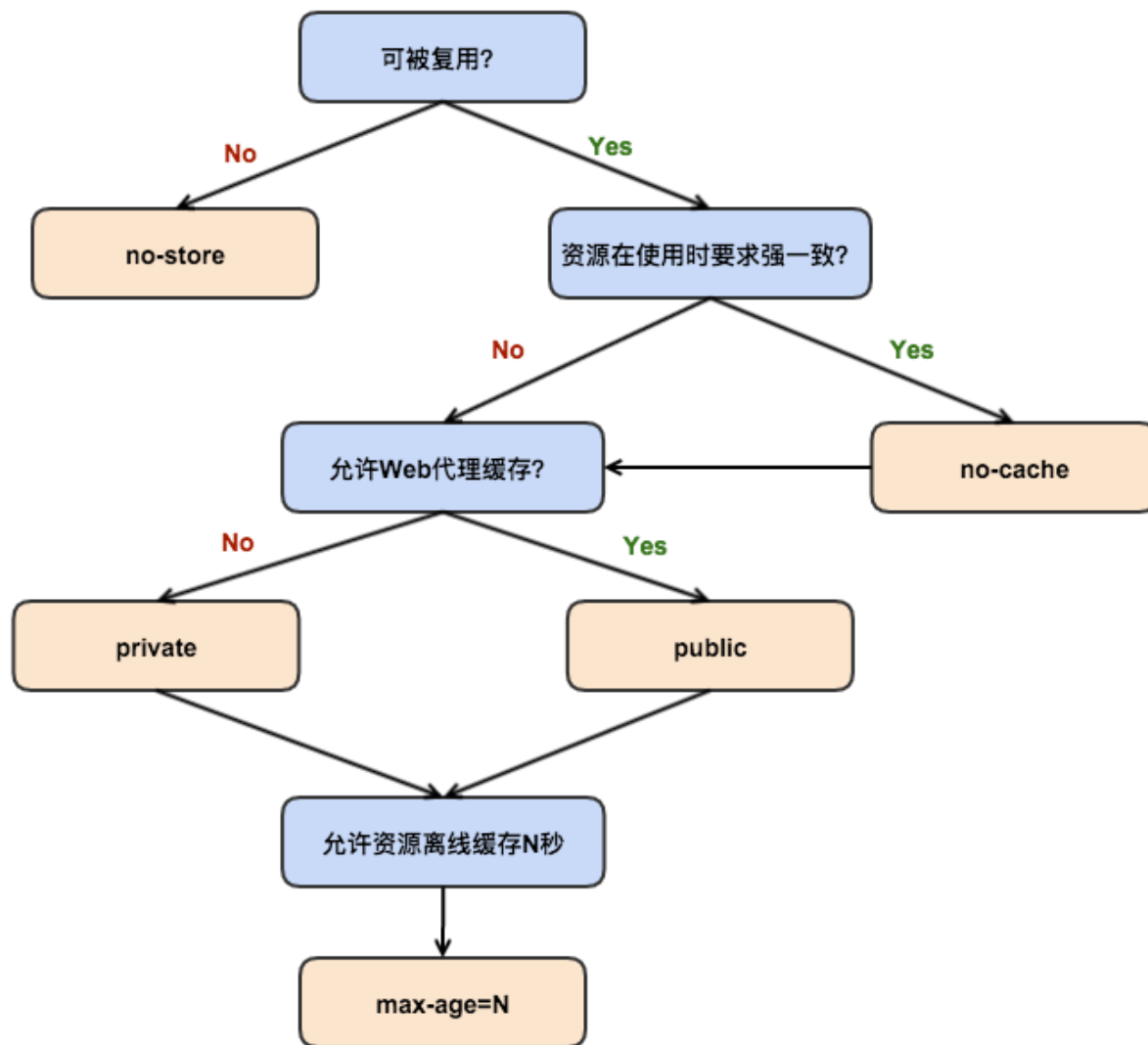- persistent connection
- Pipelining

Cookie

cookie -----------------------
- session

cache

Http协议设计时对缓存考虑十分完善：无论浏览器，代理服务器，还是服务器.

cache

- Cache-Control

- If-Not-Match
- ETag

```mermaid
graph TD
    A[可被复用?] -->|No| B[no-store]
    A -->|Yes| C[资源在使用时要求强一致?]
    C -->|No| D[允许Web代理缓存?]
    C -->|Yes| E[no-cache]
    E --> D
    D -->|No| F[private]
    D -->|Yes| G[public]
    F --> H[允许资源离线缓存N秒]
    G --> H
    H --> I[max-age=N]
```

- Content-Type
- Content-Length
- Content-Encoding

THX