



Веб-разработка: Введение

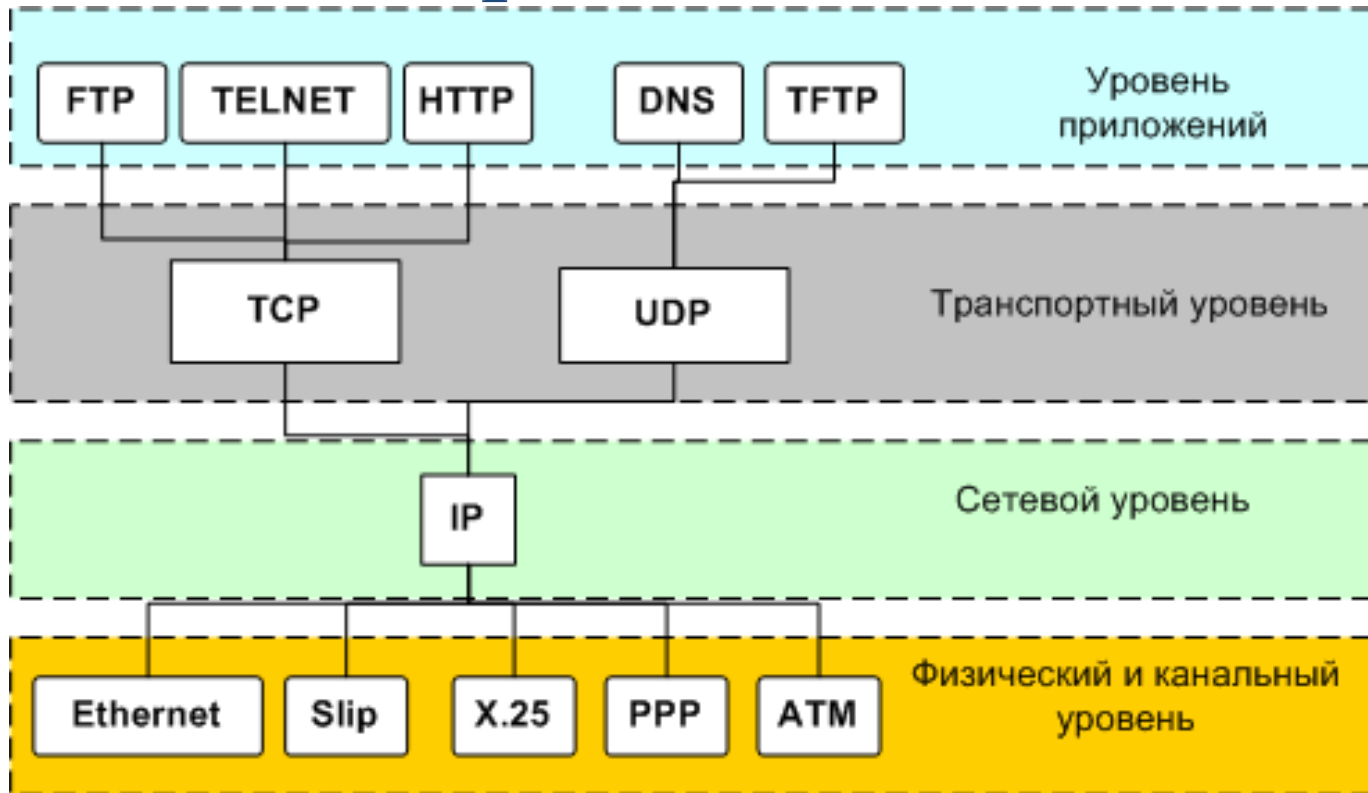
Яцканич Андрей Иванович
Программист компании Фогсофт



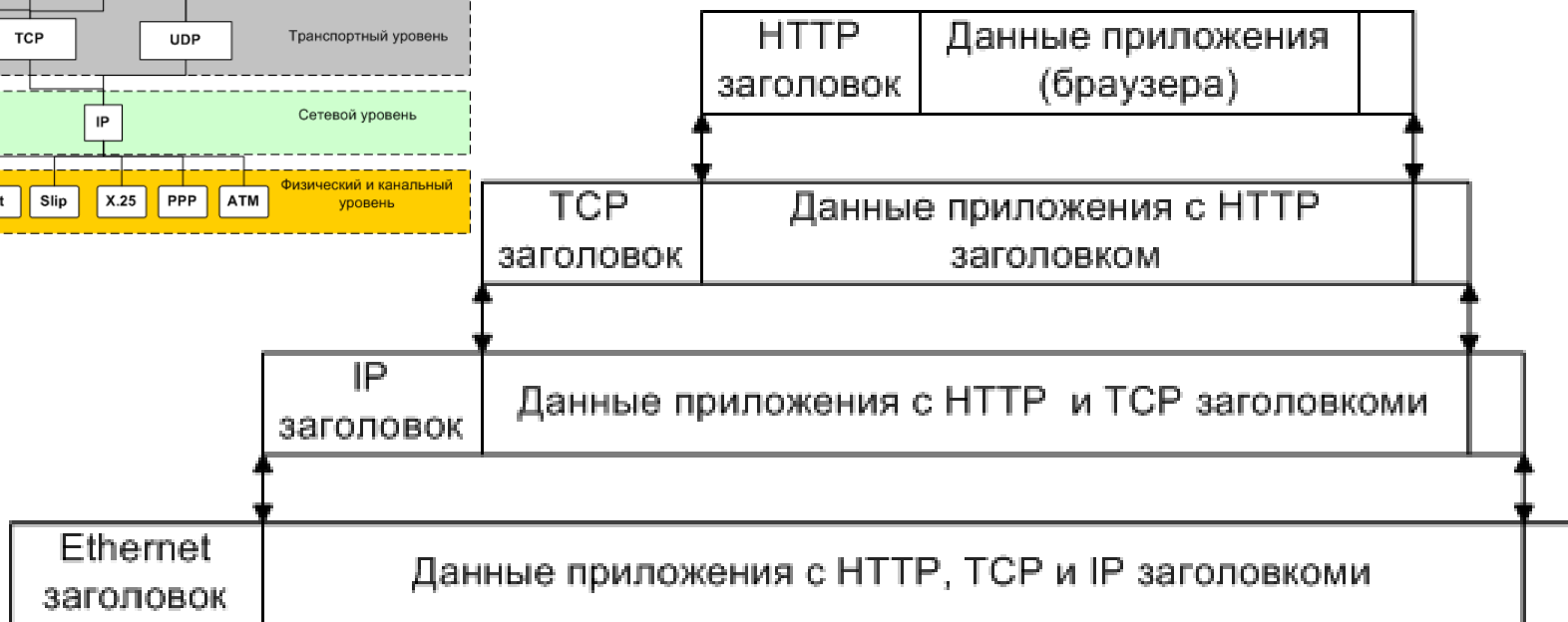
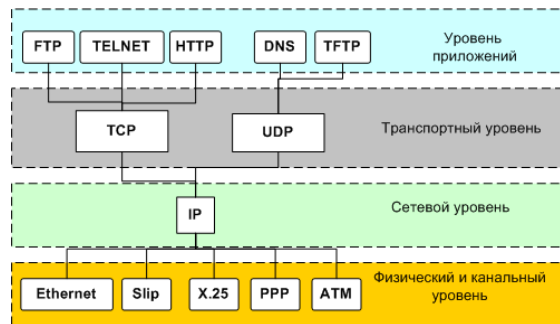
C#

- Сетевые протоколы
 - Устройство сети интернет
 - HTTP/HTTPS
 - Fiddler/WireShark
- Web-серверы
- Архитектура клиент-серверных приложений
 - MVC
- Git
 - Основы
 - Инструменты

Сетевые протоколы



Инкапсуляция сетевых протоколов



Передача данных: IP-адрес, подсети

IPv4 адрес (десятичный формат)

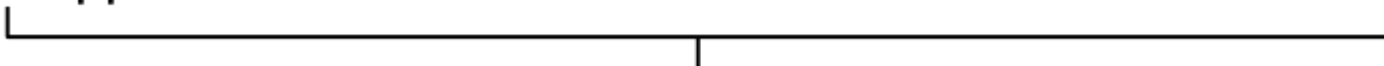
172 . 16 . 254 . 1



10101100 . 00010000 . 11111110 . 00000001



Один байт = Восемь бит

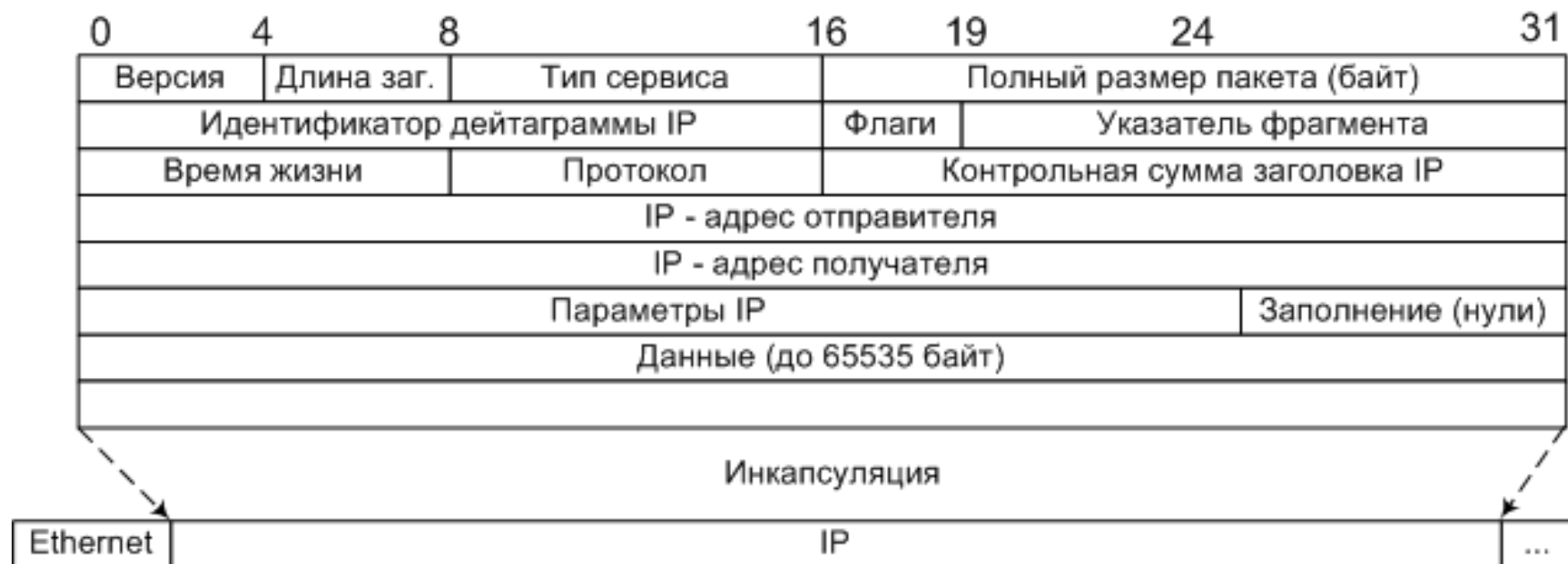


Тридцать два бита (4 x 8), или 4 байта

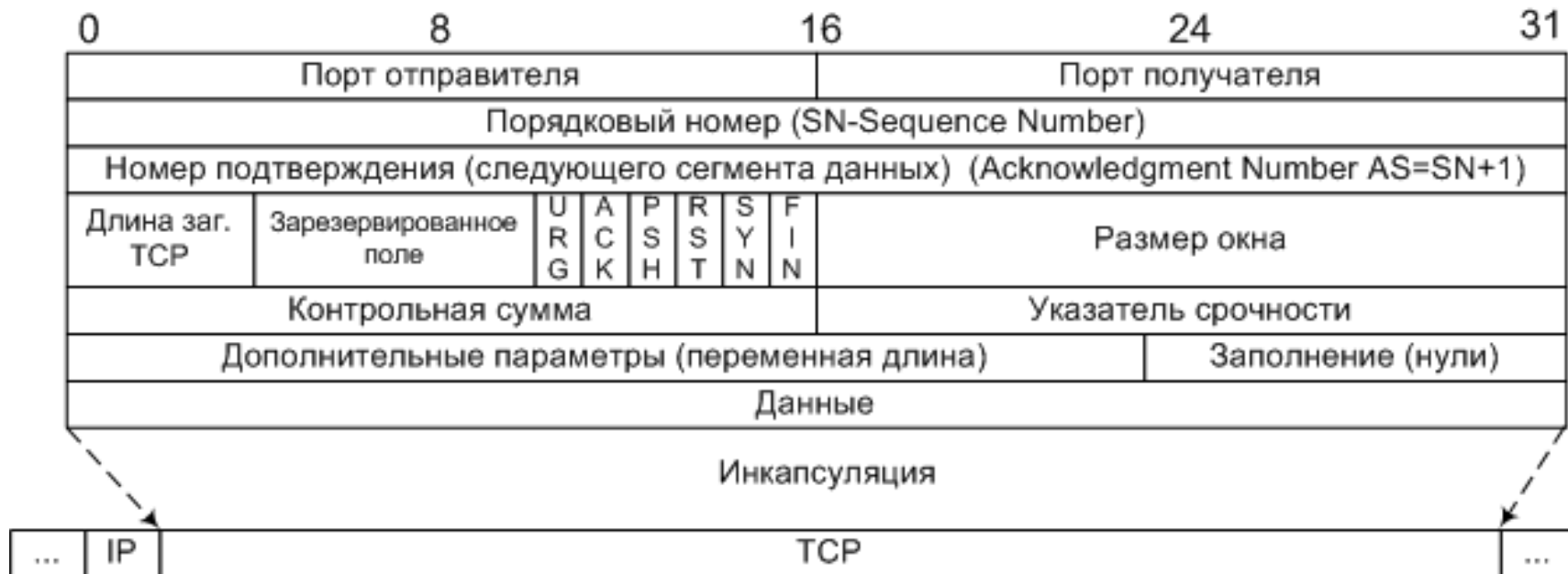
Типы IP-адресов

- Публичные
 - Частные (напр., 192.168.0.0. – 192.168.255.255)
 - Localhost (127.0.0.1)
-
- IPv4
 - IPv6

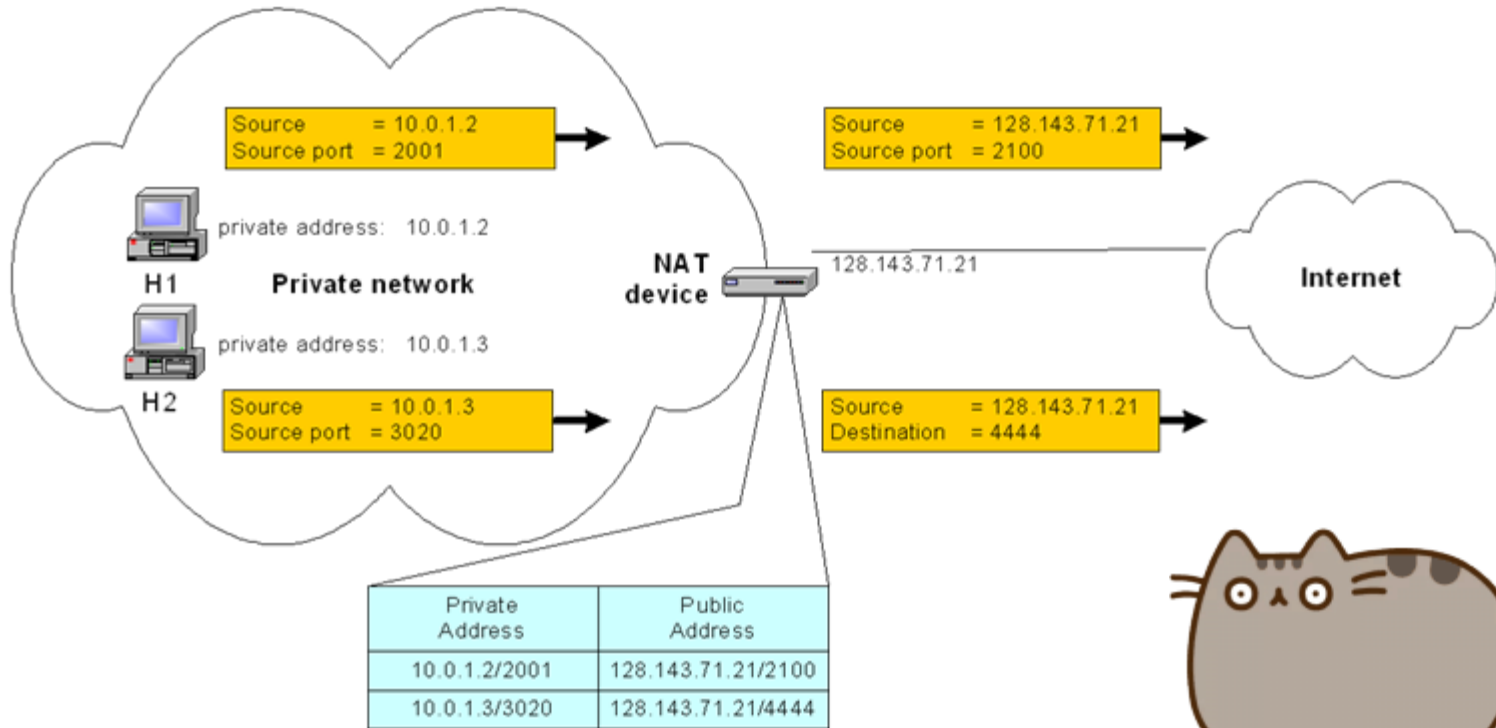
IP



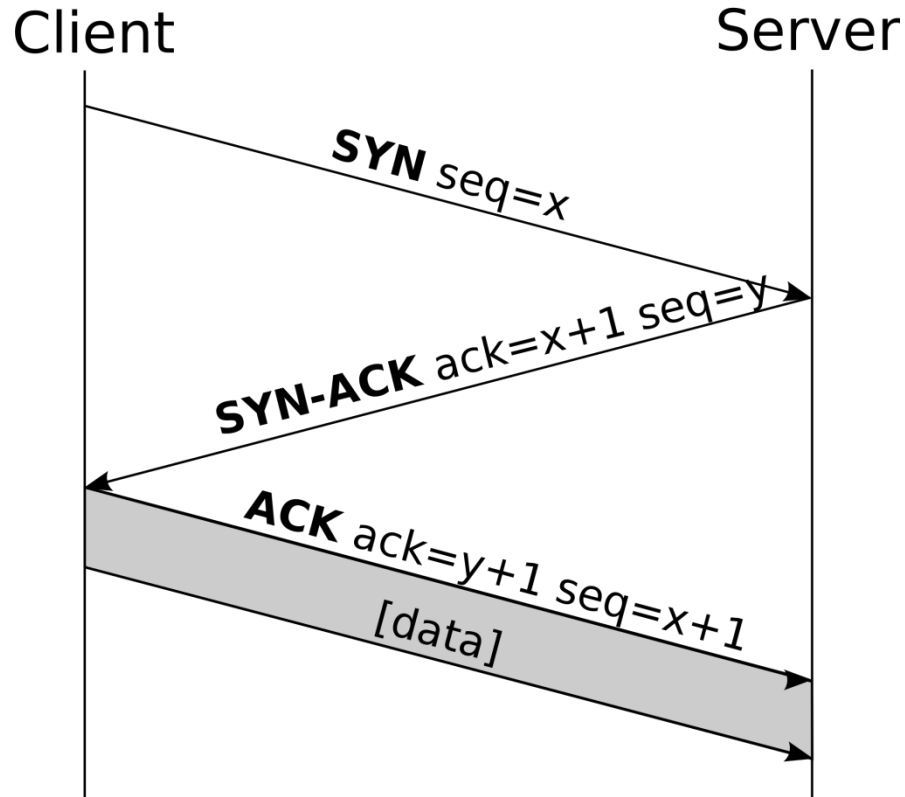
TCP



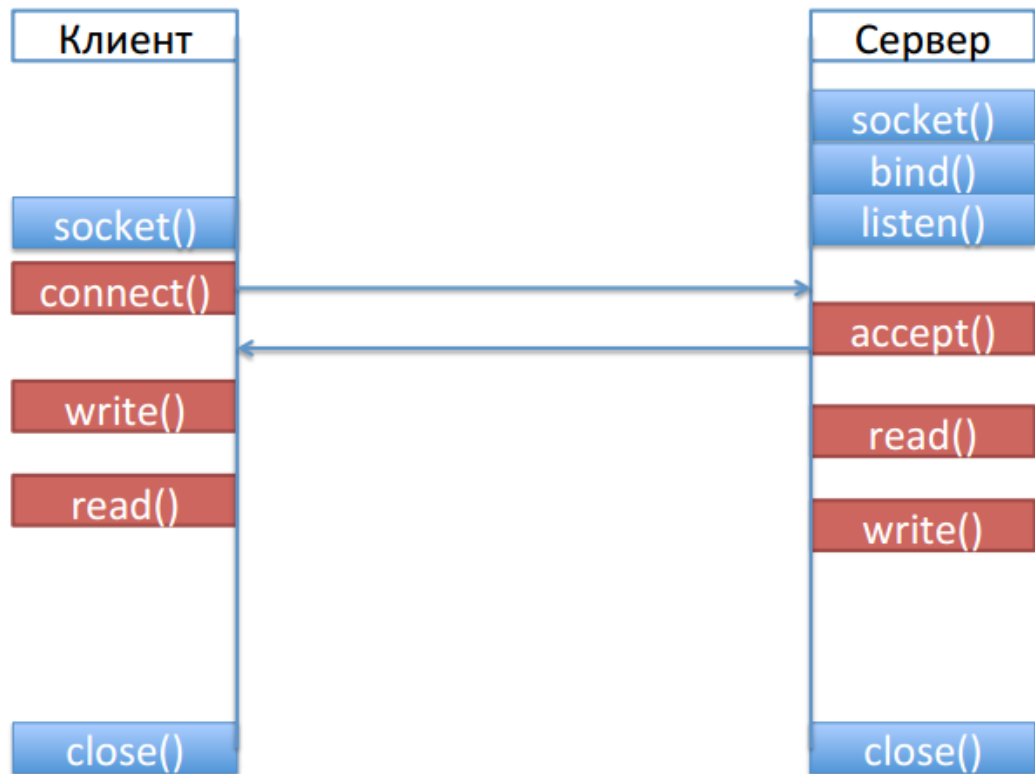
NAT (PAT)



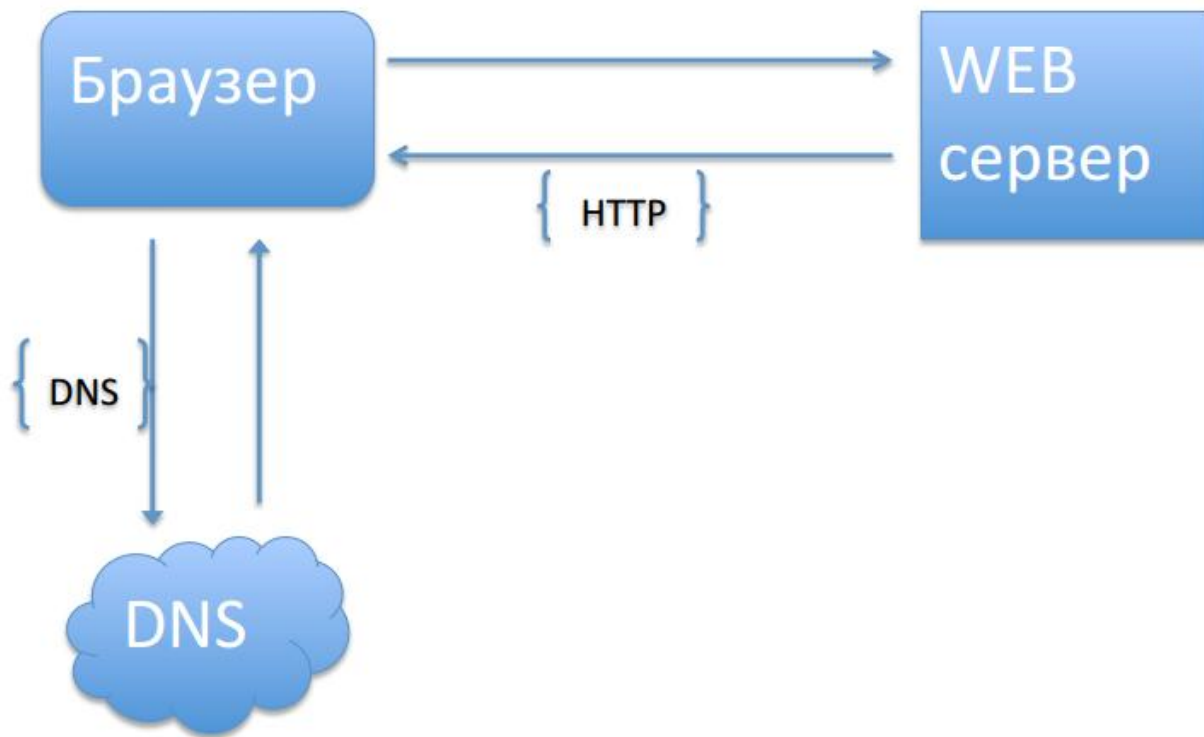
TCP handshake



Сокеты, порты

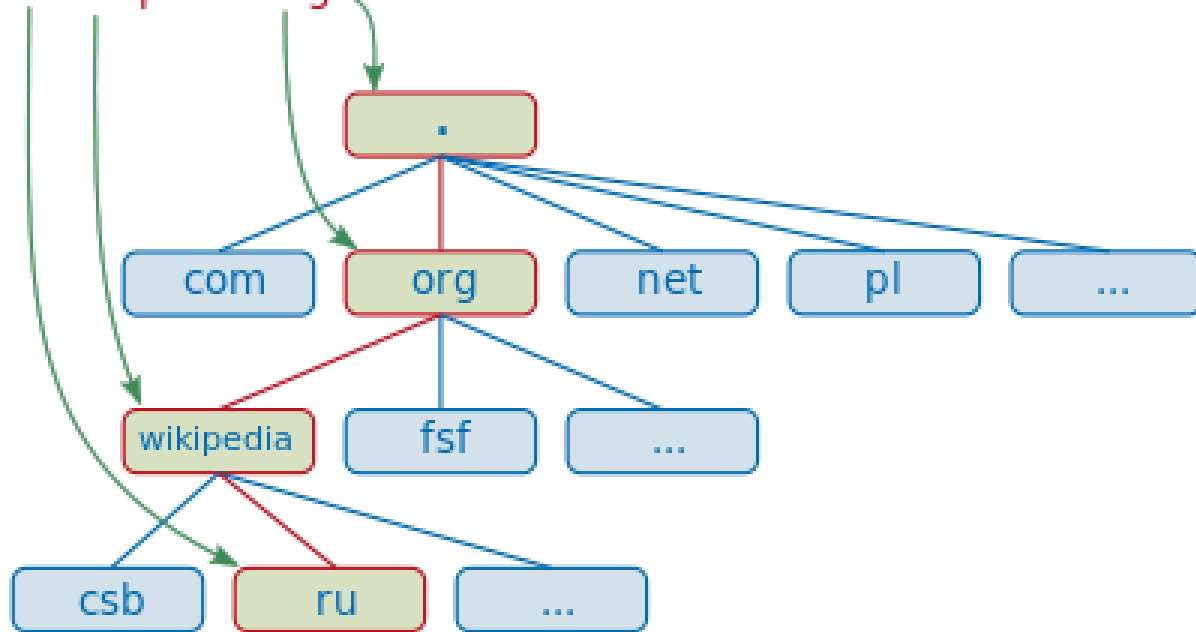


Модель работы браузера

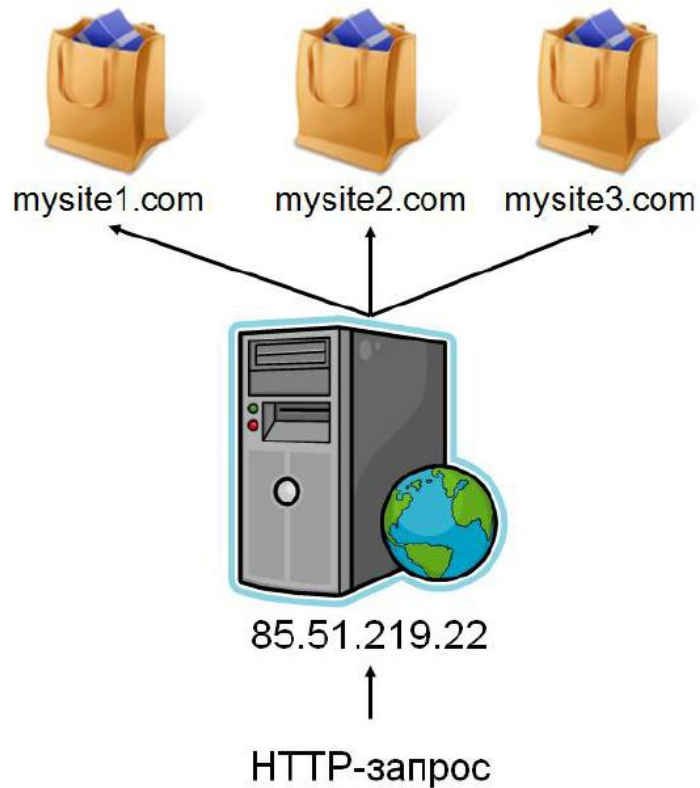


DNS

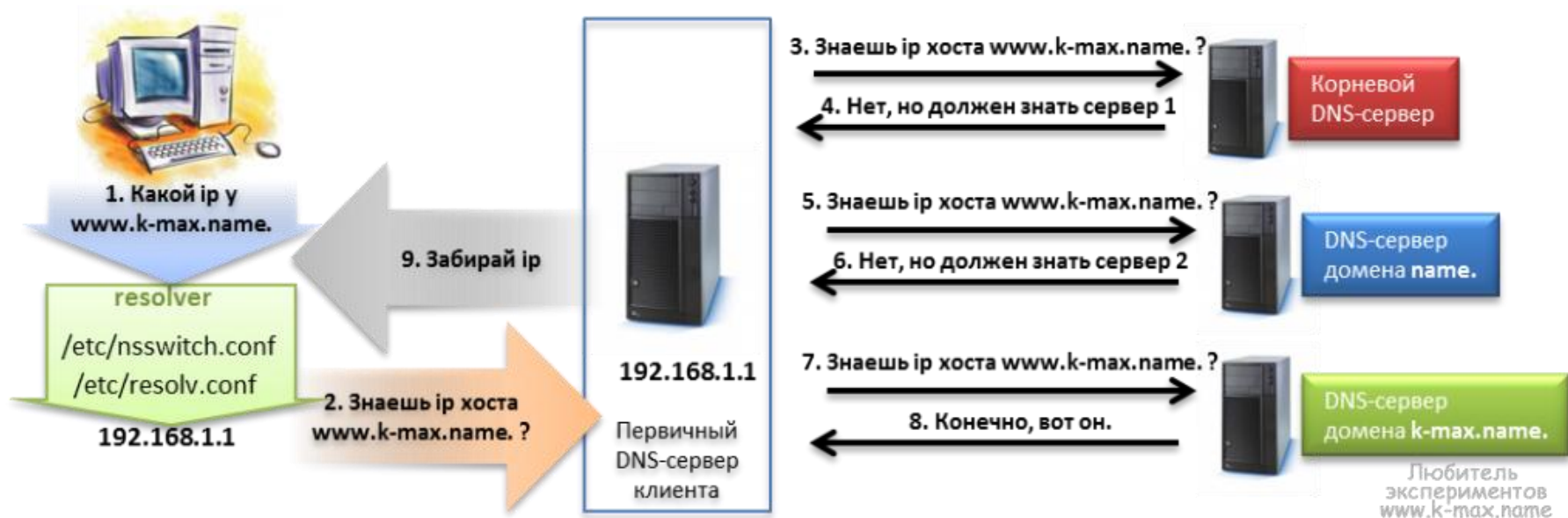
ru.wikipedia.org.



Виртуальный хостинг



DNS схема запроса



URL

- http://fogsoft.ru:80/solutions/srm/itender_srm.aspx/?category=hardware&year=2012#theme_3

1. **http** – протокол
2. **fogsoft.ru** – хост
3. **80** – порт
4. **/solutions/srm/** – путь
5. **/itender_srm.aspx/** – ресурс
6. **?category=hardware&year=2012** – строка запроса
7. **#theme_3** – якорь

Абсолютные и относительные URL

- <http://some.com/p1/p2/?a=1&b=2#aaa>
 - /path/ -> <http://some.com/path/>
 - path/ -> <http://some.com/p1/p2/path/>
 - ../path/ -> <http://some.com/p1/path>
 - ?c=3 -> <http://some.com/p1/p2/?c=3>
 - #anchor -> <http://some.com/p1/p2/?a=1&b=2#anchor>

Типы данных (MIME)

- text/html
- text/css
- text/javascript
- image/png
- video/mp4
- application/json
- ...
- ИХ ОЧЕНЬ МНОГО

http://

Инструменты: Fiddler & WireShark



Fiddler Web Debugger

File Edit Rules Tools View Help GET /book GeoEdge

WinConfig Replay X Go Stream Decode Keep: All sessions Any Process Find Save Browse Clear Cache TextWizard Tearoff MSDN Search... Online X

#	Result	Protocol	Host	URL	Body
81	200	HTTP	Tunnel to	www.tns-counter.ru:443	0
82	200	HTTP	Tunnel to	avatars.mds.yandex.net:443	0
83	200	HTTP	Tunnel to	yandex.ru:443	0
84	200	HTTP	Tunnel to	yastatic.net:443	0
85	200	HTTP	Tunnel to	yastatic.net:443	0
86	200	HTTP	Tunnel to	yastatic.net:443	0
87	200	HTTP	Tunnel to	yastatic.net:443	0
88	200	HTTP	Tunnel to	mc.yandex.ru:443	0
89	200	HTTP	Tunnel to	yandex.ru:443	0
90	200	HTTP	Tunnel to	www.google.ru:443	0
91	502	HTTP	127.0.0.1:63342	/browserConnection/buildInfo	580
92	200	HTTP	Tunnel to	hls.goodgame.ru:443	0
93	200	HTTP	Tunnel to	imv4.vk.com:443	0
94	200	HTTP	Tunnel to	imv4.vk.com:443	0
95	200	HTTP	Tunnel to	imv4.vk.com:443	0
96	200	HTTP	Tunnel to	vk.com:443	0
97	200	HTTP	Tunnel to	vk.com:443	0
98	200	HTTP	Tunnel to	vk.com:443	0
99	200	HTTP	Tunnel to	www.yandex.ru:443	0
100	200	HTTPS	www.yandex.ru	/	25 701
101	200	HTTP	Tunnel to	imv4.vk.com:443	0
102	200	HTTP	Tunnel to	yandex.ru:443	0
103	200	HTTP	Tunnel to	yandex.ru:443	0
104	200	HTTP	Tunnel to	yandex.ru:443	0
105	200	HTTP	Tunnel to	vk.com:443	0
106	200	HTTP	Tunnel to	yastatic.net:443	0
107	200	HTTP	Tunnel to	push.yandex.ru:443	0
108	200	HTTP	Tunnel to	mc.yandex.ru:443	0
109	200	HTTP	Tunnel to	www.tns-counter.ru:443	0
110	200	HTTP	Tunnel to	clients1.google.com:443	0
111	200	HTTP	Tunnel to	awaps.yandex.net:443	0
112	200	HTTP	Tunnel to	awaps.yandex.net:443	0
113	200	HTTP	Tunnel to	yandex.ru:443	0
114	502	HTTP	127.0.0.1:63342	/browserConnection/buildInfo	580

Click on the icon to turn Fiddler on or off

Statistics Inspectors AutoResponder Composer Log Filters Timeline

Headers TextView WebForms HexView Auth Cookies Raw JSON XML

```
GET https://www.yandex.ru/ HTTP/1.1
Host: www.yandex.ru
Connection: keep-alive
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/56.0.2924.87 Safari/537.36
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Encoding: gzip, deflate, sdch, br
Accept-Language: ru-RU,ru;q=0.8,en-US;q=0.6,en;q=0.4
Cookie: fuid01=567f7578284034.YjYNTQyH_EBKCHFCEK_3V8dcNwBfPqYsSP6v14KwZozs1KbS0PB07NTXNCAPZ9WYKLfSX9yakbThG39v
```

Find... (press Ctrl+Enter to highlight all) View in Notepad

Response body is encoded. Click to decode.

Get SyntaxView Transformer Headers TextView ImageView HexView WebView Auth Caching Cookies Raw JSON

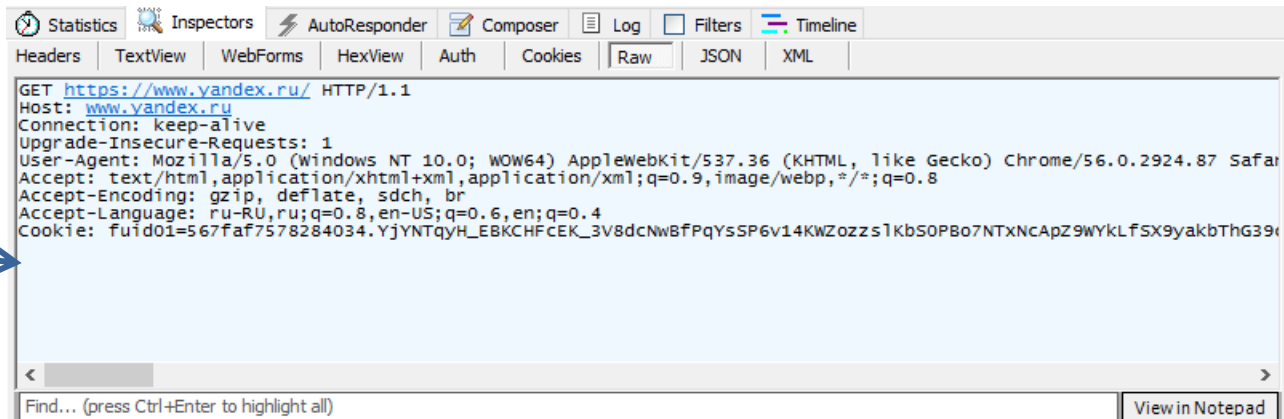
XML

```
HTTP/1.1 200 OK
Date: Sun, 12 Feb 2017 19:15:16 GMT
Content-Type: text/html; charset=UTF-8
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
Expires: Sun, 12 Feb 2017 19:15:16 GMT
Last-Modified: Sun, 12 Feb 2017 19:15:16 GMT
Content-Security-Policy: connect-src 'self' wss://webasr.yandex.net wss://push.yandex.ru wss://portal-xiva.yandex.ru;
P3P: policyref="/w3c/p3p.xml", CP="NON DSP ADM DEV PSD IVD O OUR IND STP PHY PRE NAV UNI"
Set-Cookie: yp=1514228129.dswa.0#1514228129.dsws.17#1514228129.dsws.12#1513590443.dwys.3#1775414529.multib.1#1501
Set-Cookie: Cookie_check=; Expires=Thu, 15-Feb-2007 19:15:16 GMT; Domain=.yandex.ru; Path=/
X-Frame-Options: DENY
Content-Encoding: gzip
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked
```

```
1519
0000000000 00F0000v{0803000pxj0HqH00040003h00 90:0k0j0000n0[000000E000000003000000c0R~01000:0002020:
*** FIDDLER: RawDisplay truncated at 128 characters. Right-click to disable truncation. ***
```

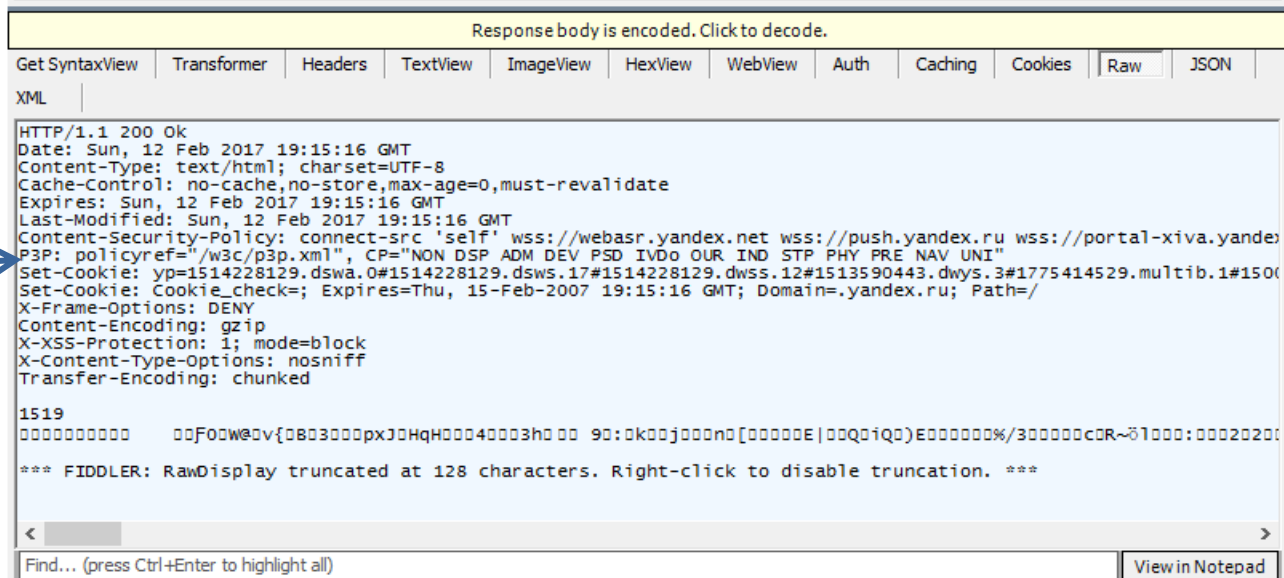
Find... (press Ctrl+Enter to highlight all) View in Notepad

Request



```
GET https://www.yandex.ru/ HTTP/1.1
Host: www.yandex.ru
Connection: keep-alive
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/56.0.2924.87 Safari
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Encoding: gzip, deflate, sdch, br
Accept-Language: ru-RU,ru;q=0.8,en-US;q=0.6,en;q=0.4
Cookie: fuid01=567faf7578284034.YjYNTqyH_EBKCHFCCK_3V8dcNwBfPqYsSP6v14KWZozzs1KbS0PB07NTXNCpZ9WykLfSX9yakbThG394
```

Response



```
HTTP/1.1 200 Ok
Date: Sun, 12 Feb 2017 19:15:16 GMT
Content-Type: text/html; charset=UTF-8
Cache-Control: no-cache,no-store,max-age=0,must-revalidate
Expires: Sun, 12 Feb 2017 19:15:16 GMT
Last-Modified: Sun, 12 Feb 2017 19:15:16 GMT
Content-Security-Policy: connect-src 'self' wss://webasr.yandex.net wss://push.yandex.ru wss://portal-xiva.yandex.ru
P3P: policyref="/w3c/p3p.xml", CP="NON DSP ADM DEV PSD IVD0 OUR IND STP PHY PRE NAV UNI"
Set-Cookie: yp=1514228129.dswa.0#1514228129.dsws.17#1514228129.dws5.12#1513590443.dws.3#1775414529.multib.1#1500
Set-Cookie: Cookie_check=; Expires=Thu, 15-Feb-2007 19:15:16 GMT; Domain=.yandex.ru; Path=/
X-Frame-Options: DENY
Content-Encoding: gzip
X-XSS-Protection: 1; mode=block
X-Content-Type-Options: nosniff
Transfer-Encoding: chunked

1519
0000000000 00F00w0v{0803000pxJ0HqH00040003h000 90:0k00j000n0[00000E|00Q0iQ0)E000000%/300000c0R~01000:0002020:

*** FIDDLER: RawDisplay truncated at 128 characters. Right-click to disable truncation. ***
```

HTTP запрос

GET <http://fogsoft.ru/ HTTP/1.1>

Host: fogsoft.ru

Connection: keep-alive

User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/56.0.2924.87 Safari/537.36

Accept: */*

Referer: <http://fogsoft.ru/>

Accept-Encoding: gzip, deflate, sdch

Accept-Language: ru-RU,ru;q=0.8,en-US;q=0.6,en;q=0.4

Cookie: _ym_uid=1481315172303637916;
ASP.NET_SessionId=dgwiwqcghk3vrkpx2das2utx;_gat=1;
_ga=GA1.2.1980385076.1481315171;_ym_isad=1;_ym_visorc_224309=w

HTTP ответ

HTTP/1.1 200 OK

Cache-Control: private

Content-Type: text/html; charset=utf-8

Content-Encoding: gzip

Vary: Accept-Encoding

server: Microsoft-IIS/8.5

set-cookie: fs_referrer = fogsoft.ru/; expires=Mon, 08-Feb-21 17:20:28:14 GMT; path=/

X-Powered-By: ASP.NET

Date: Wed, 08 Feb 2017 20:28:14 GMT

Content-Length: 22604

<тело ответа>

Методы HTTP запросов

- GET
- HEAD
- POST
- PUT

GET, POST

FFFFFFFFUU



UUUUUUUUUU

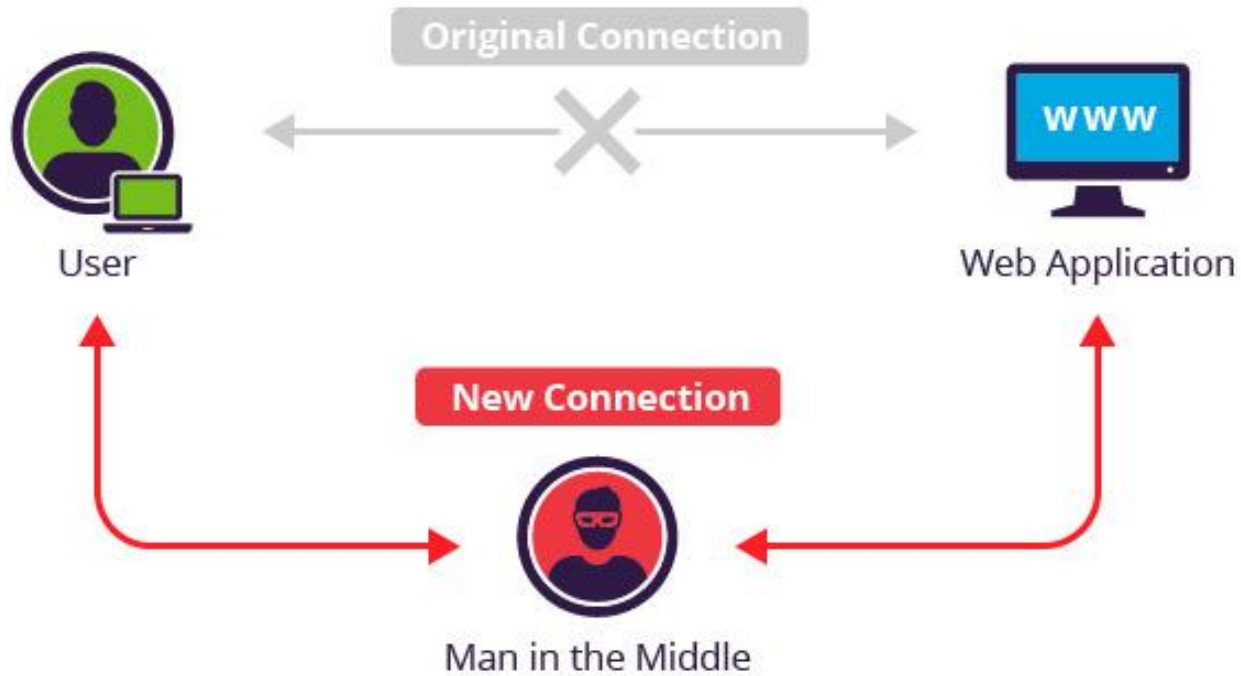
Pusheen.com



HTTP – коды ответа

- 1xx – информационные
- 2xx – успешное выполнение
- 3xx – перенаправления
- 4xx – ошибка на стороне клиента
- 5xx – ошибка на стороне сервера

HTTPS



Web-серверы



Apache
Tomcat



APACHE
HTTP SERVER



Microsoft
IIS



Tornado



Общая схема работы веб-сервера



Веб-сервер и веб-приложение



Интерфейсы взаимодействия

- CGI
- FastCGI
- ISAPI

CGI vs. FastCGI

CGI Processes

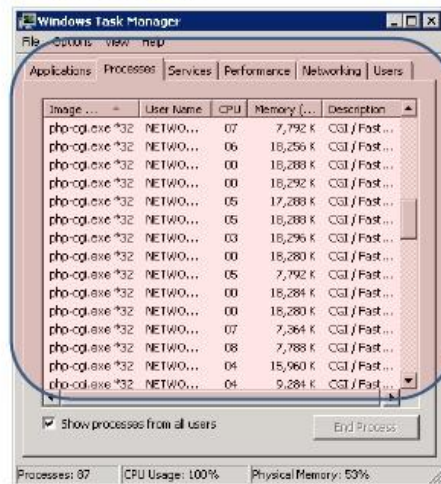


Image...	User Name	CPU	Memory (...)	Description
pho-cgi.exe *32	NETWO...	07	7,792 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	06	18,256 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	00	18,288 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	00	18,292 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	05	17,288 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	05	18,288 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	03	18,296 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	00	18,280 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	05	7,792 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	00	18,284 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	00	18,280 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	07	7,364 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	08	7,788 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	04	15,960 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	04	9,284 K	CGI / Fast ...

Processes: 87 | CPU Usage: 100% | Physical Memory: 53%

FastCGI processes

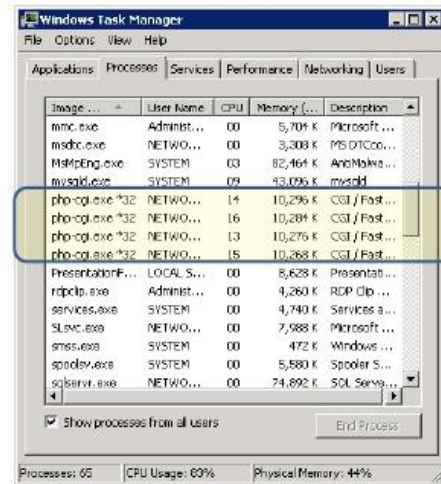
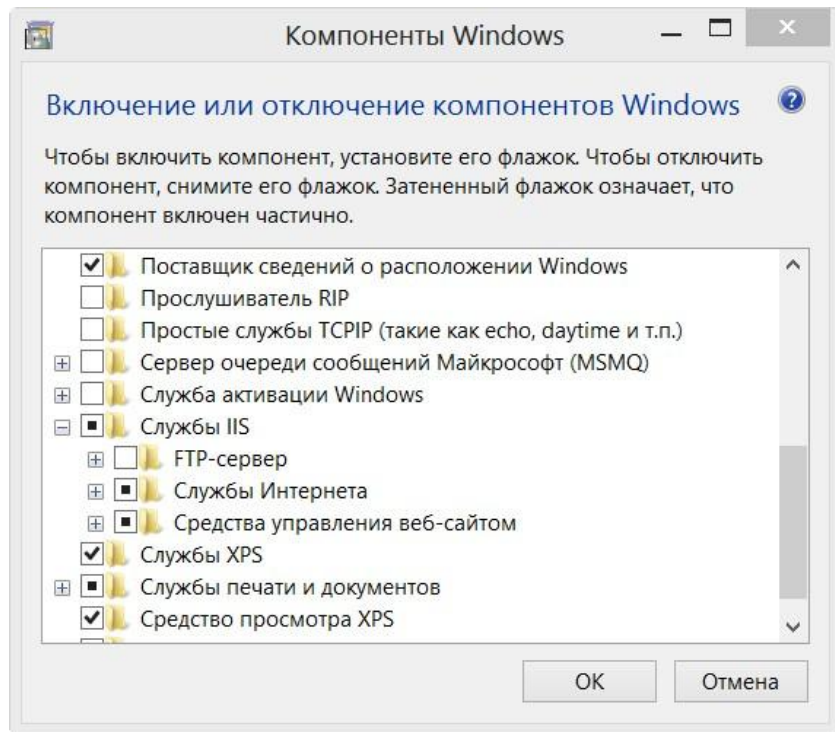


Image...	User Name	CPU	Memory (...)	Description
mmc.exe	Administ...	00	5,704 K	Microsoft ...
msdch.exe	NETWO...	00	3,308 K	MS DTC...
ntfping.exe	SYSTEM	03	82,464 K	AntHole...
mysqld.exe	SYSTEM	09	43,096 K	mysqld
pho-cgi.exe *32	NETWO...	14	10,296 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	16	10,284 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	13	10,276 K	CGI / Fast ...
pho-cgi.exe *32	NETWO...	15	10,268 K	CGI / Fast ...
Presentat...	LOCAL S...	00	8,628 K	Presentat...
rpcclp.exe	Administ...	00	4,260 K	RDP Clp ...
services.exe	SYSTEM	00	4,740 K	Services a...
SLWC.exe	NETWO...	00	7,988 K	Microsoft ...
smss.exe	SYSTEM	00	472 K	Windows ...
spoolsv.exe	SYSTEM	00	5,580 K	Spooler S...
sqlservr.exe	NETWO...	00	74,892 K	SOL Serv...

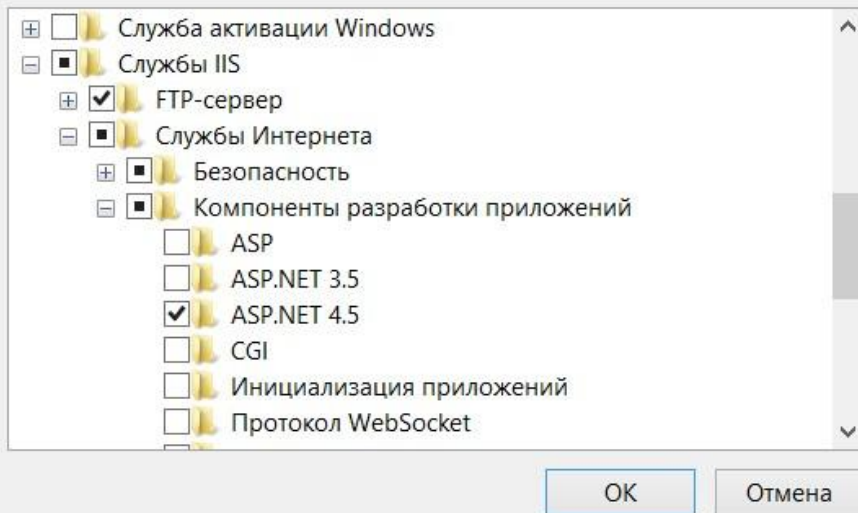
Processes: 65 | CPU Usage: 63% | Physical Memory: 44%

Установка IIS



Включение или отключение компонентов Windows

Чтобы включить компонент, установите его флажок. Чтобы отключить компонент, снимите его флажок. Затененный флажок означает, что компонент включен частично.



ASP.NET на Linux?

Да, это возможно. Особенно Net.Core (ASP.NET 5, Он же ASP.NET CORE)



Установка apache

Для windows

OpenServer

Для Linux

```
sudo apt-get install apache2 mysql-server php5 phpmyadmin
```

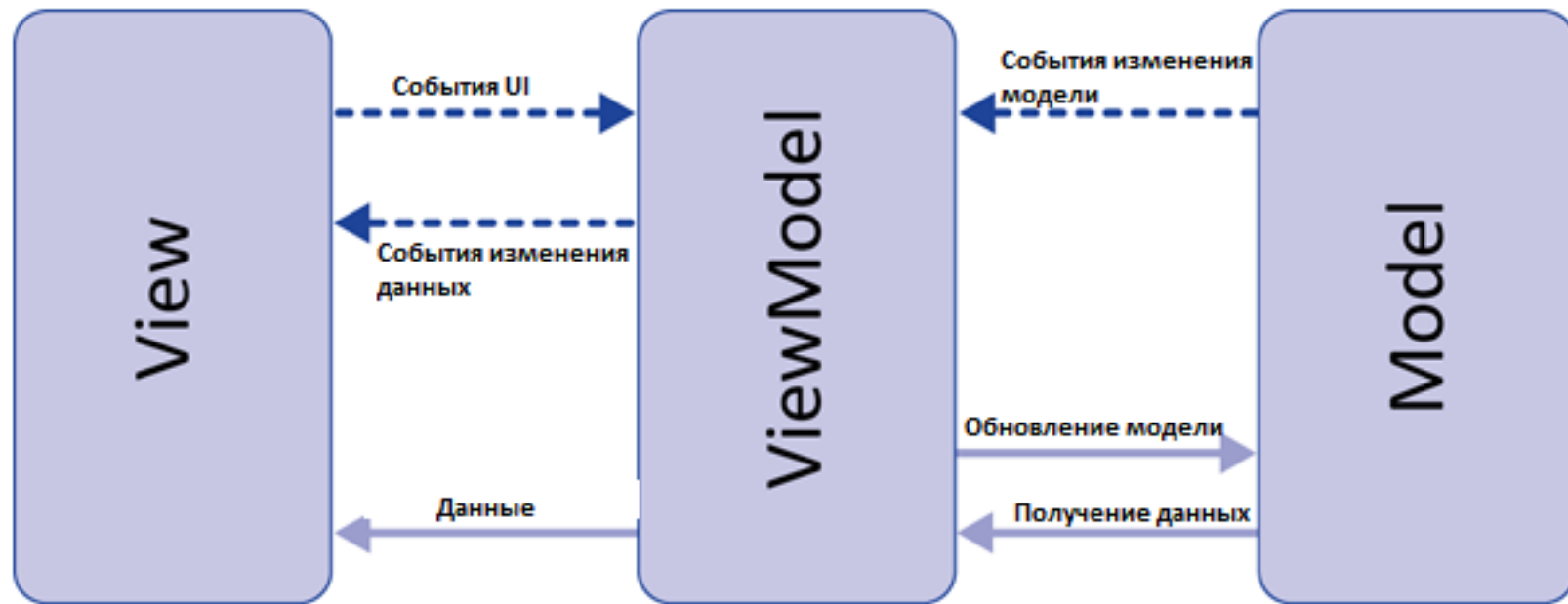
Архитектурные шаблоны веб-приложений



Model-View-Controller



Model-View-View Model



Системы контроля версий

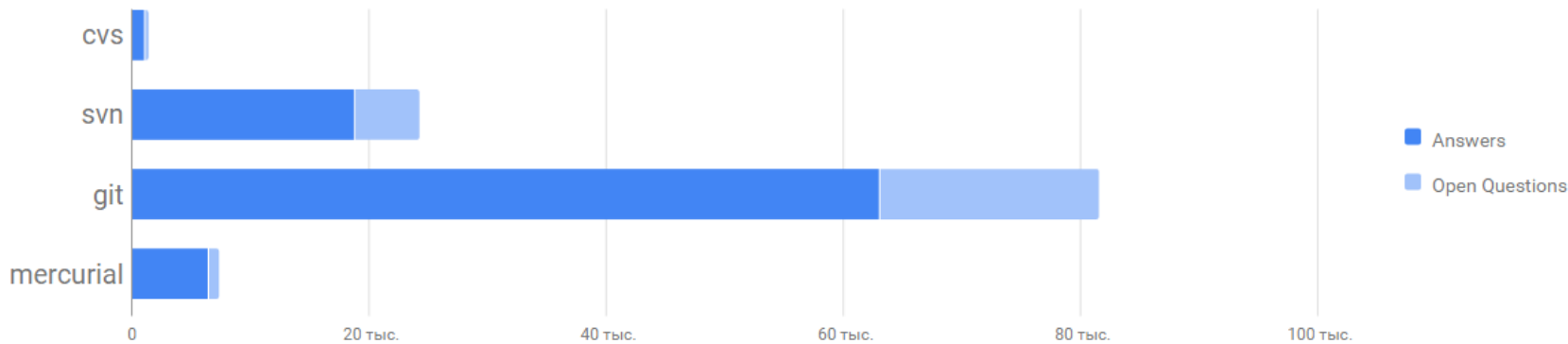


Почему GIT?

Submit

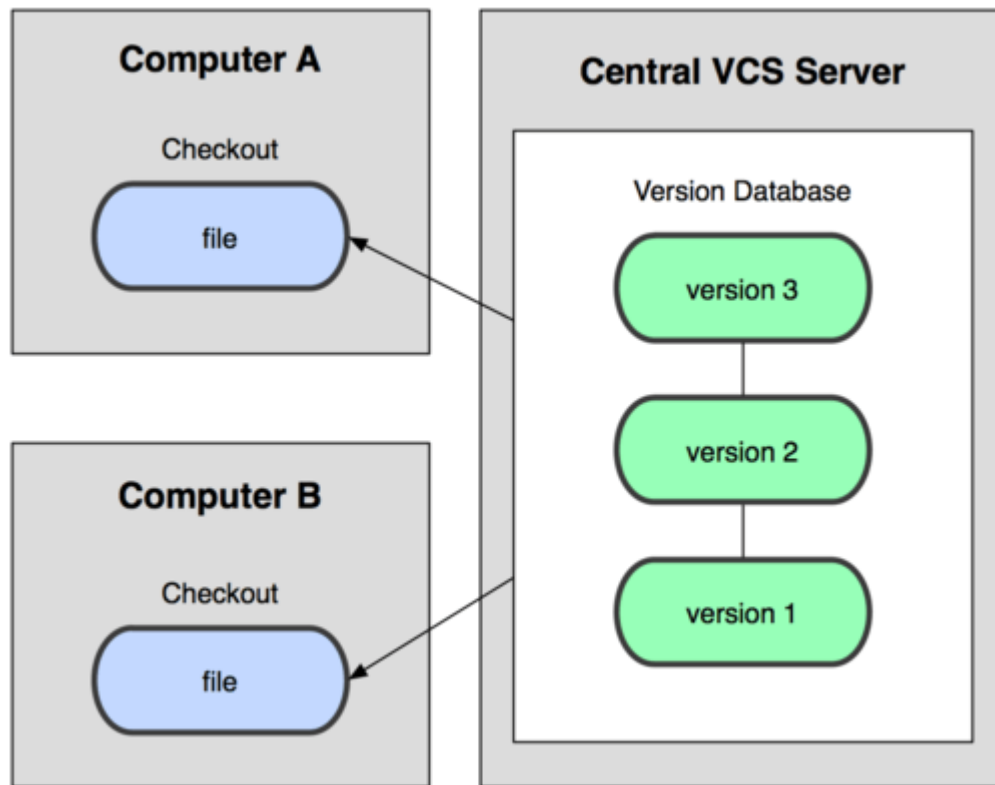
Enter a few tags (separated by commas) from [Stackoverflow](#)

Answers and open questions on Stackoverflow

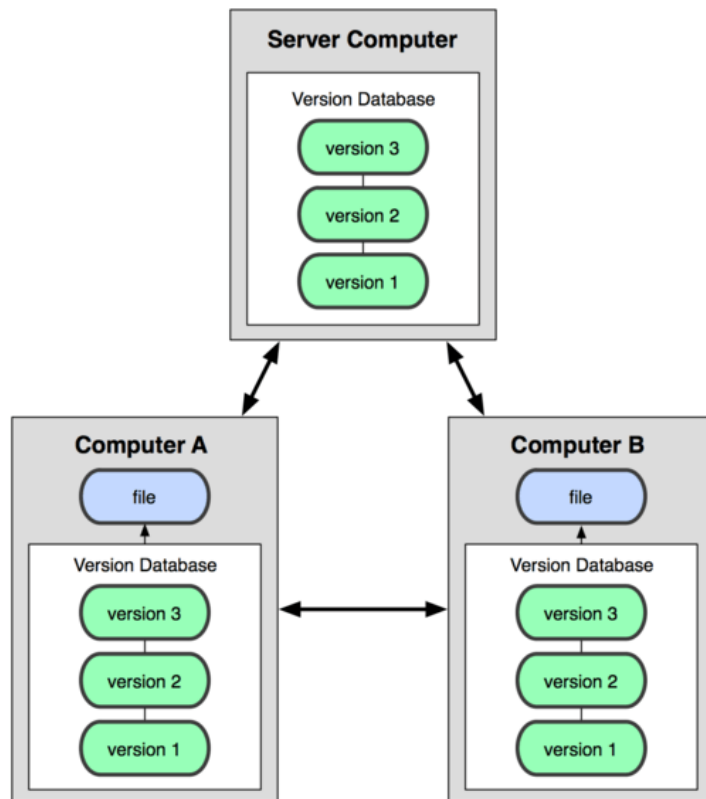


<http://www.arepeopletalkingaboutit.com/tags/cvs,svn,git,mercurial>

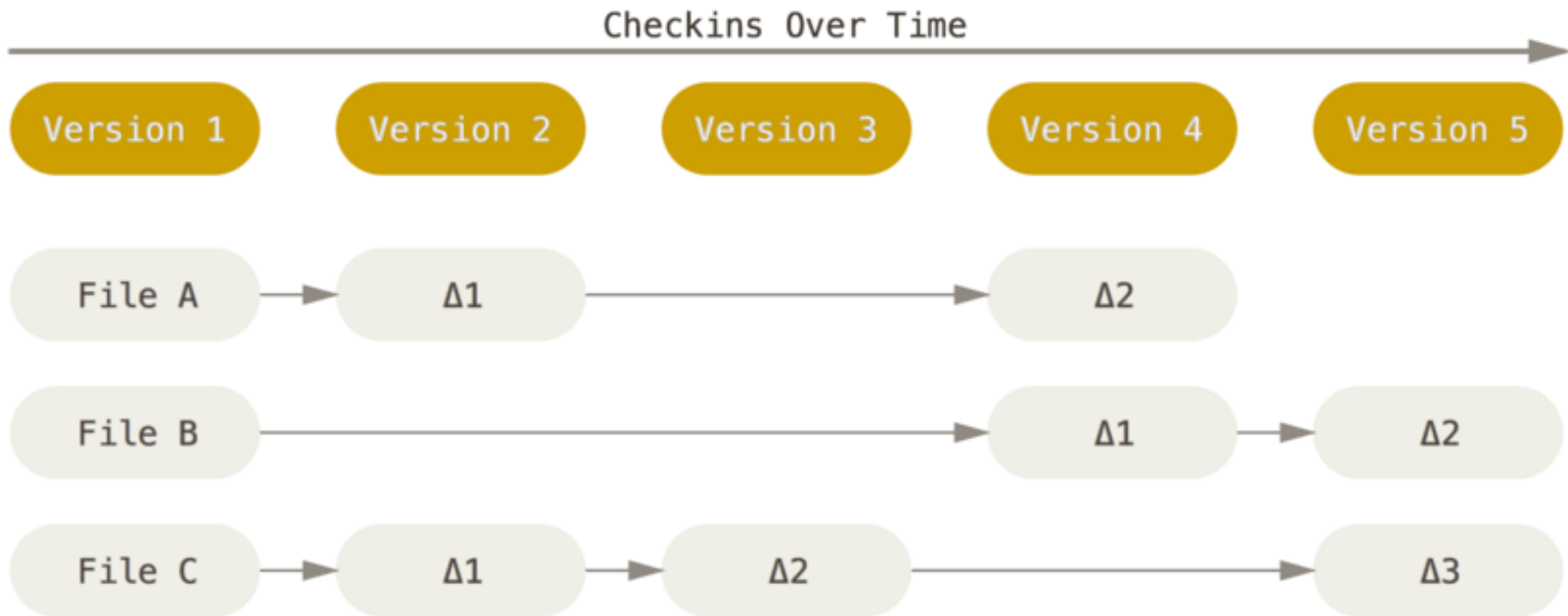
Централизованная система



Распределенная система

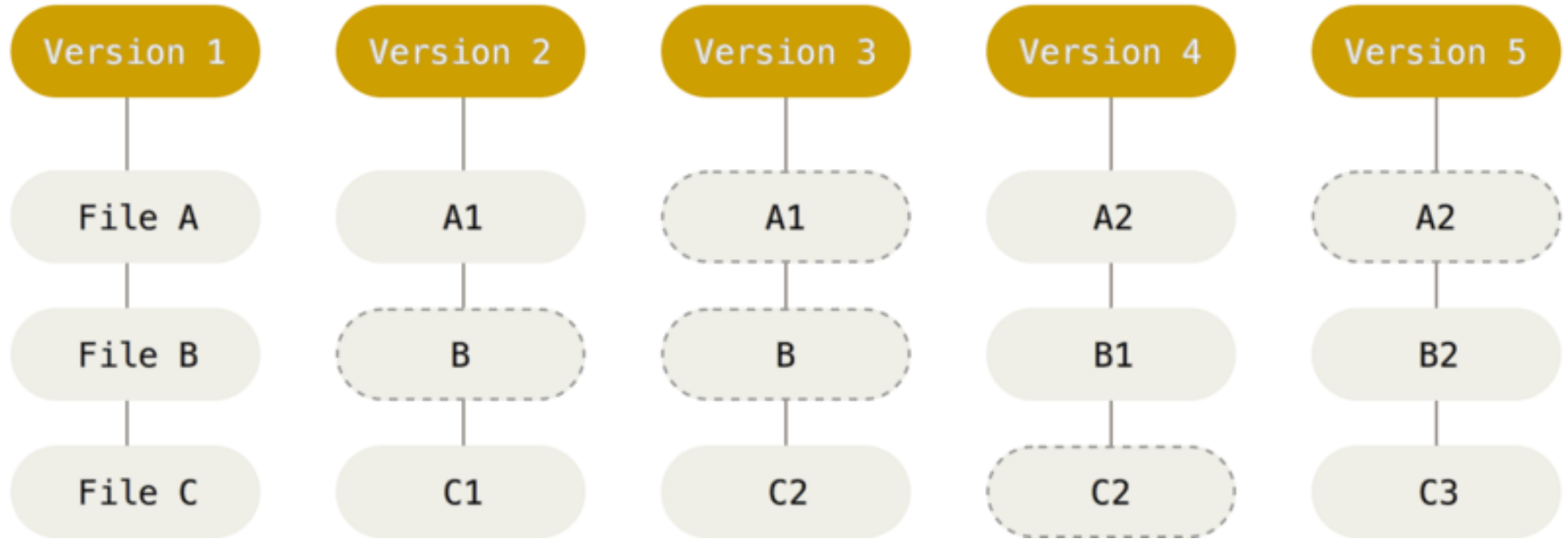


Различие в хранении файлов: НЕ GIT

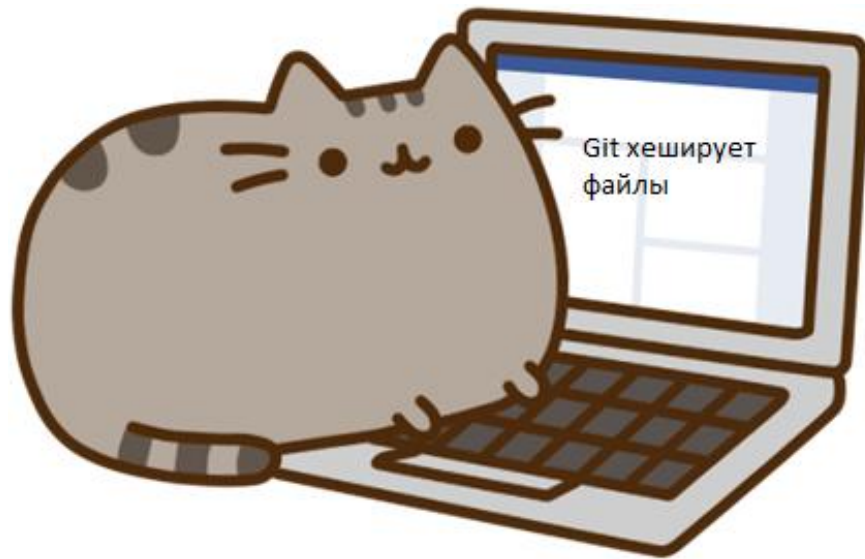


Различие в хранении файлов: GIT

Checkins Over Time →



ХЕШ СУММА ЭТО ХОРОШО!



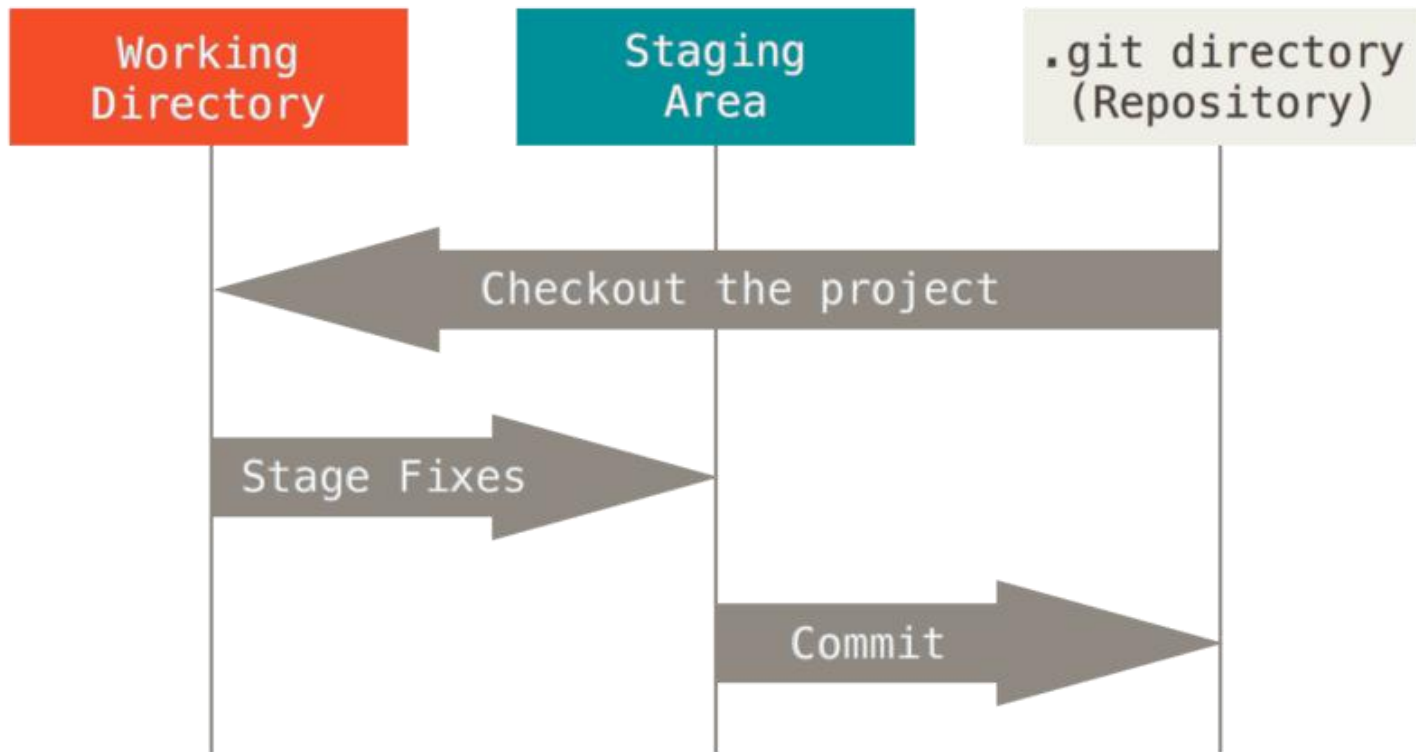
Три состояния файлов



Pasham, Tumblr

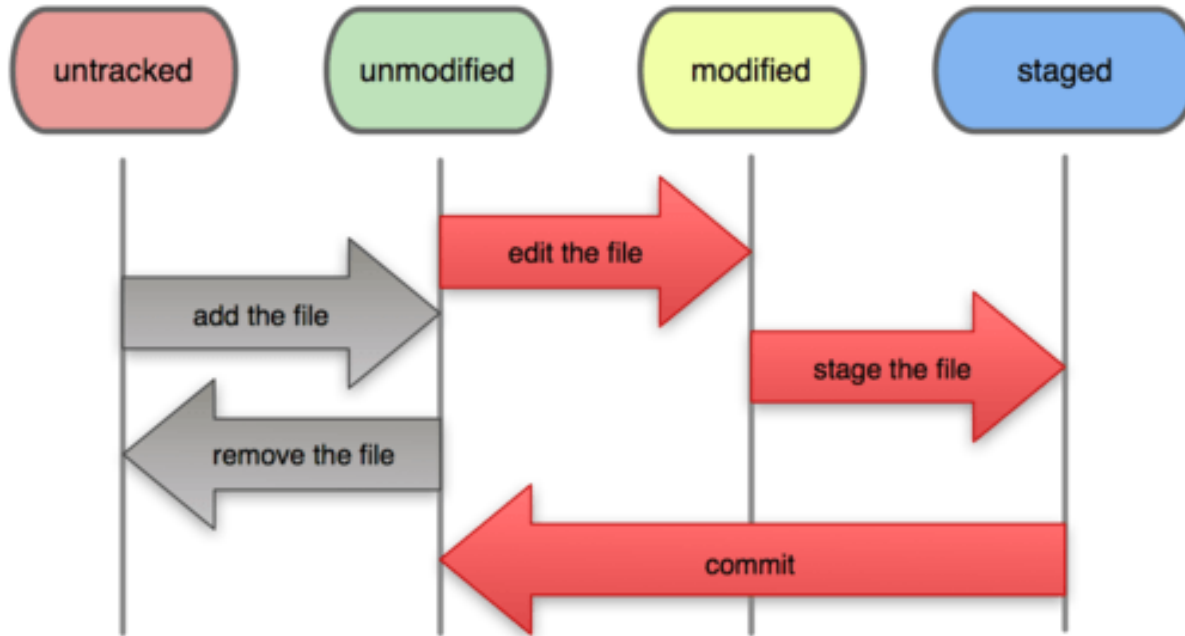
- Зафиксированный (committed)
- Измененный (modified)
- Подготовленный (staged)

Директории



Index

File Status Lifecycle



Инструменты





Спасибо за внимание!

