Взаимодействие клиента и сервера.

Клиент – это заказчик той или иной услуги, а сервер – поставщик услуг. Клиент и сервер физически представляют собой программы, например, типичным клиентом является браузер. Принцип клиент-сервер основан на том, что клиент отправляет запрос серверу, а сервер отвечает ему. Данные запрос-ответы могут выглядеть по-разному, могут использоваться разные протоколы, такие как tcp/ip, http, rdp и много других.

Клиент и сервер взаимодействую друг с другом при помощи различных сетевых протоколов. Сообщения, которые посылают клиенты получили названия <u>HTTP запросы</u>. Запросы имеют <u>специальные методы</u>, которые говорят серверу о том, как обрабатывать сообщение. А сообщения, которые посылает сервер получили название <u>HTTP ответы</u>, они содержат помимо полезной информации еще и специальные <u>коды состояния</u>, которые позволяют браузеру узнать то, как сервер понял его запрос.

В основе взаимодействия клиент-сервер лежит принцип того, что такое взаимодействие начинает клиент, сервер лишь отвечает клиенту и сообщает о том может ли он предоставить услугу клиенту и если может, то на каких условиях. Клиент отправляет запрос, а сервер возвращает ответ. Для взаимодействия компьютеры должны иметь общий язык, и они должны следовать правилам, чтобы и клиент, и сервер знали, чего ожидать. Язык и правила общения определены в протоколе связи. Все протоколы клиент-серверной модели работают на уровне приложений. Протокол прикладного уровня определяет основные шаблоны диалога.

Чтобы ещё больше формализовать обмен данными, сервер может реализовать интерфейс прикладного программирования (API). API — это уровень абстракции для доступа к сервису. Ограничивая связь определённым форматом контента, он облегчает синтаксический анализ. Абстрагируя доступ, он облегчает межплатформенный обмен данными.

Сервер может получать запросы от множества различных клиентов за короткий период времени. Компьютер может выполнять только ограниченное количество задач в любой момент и полагается на систему планирования для определения приоритетов входящих запросов от клиентов для их удовлетворения.

Все сайты в Интернете располагаются где-то на серверах (хостинге), а Вы соответственно хотите получить доступ к ним и для этого используете браузер и в данном случае браузер и есть клиент, а файлы на хостинге сервер. Если разбирать отдельно взятый сайт, то здесь также присутствует данное взаимодействие, к примеру, в браузере Вы видите всего лишь интерфейс приложения и при любых Ваших действиях на этом сайте данный интерфейс будет отправлять запрос серверу который выполнит все что Вы запросили и пришлет ответ, а клиент в свою очередь отобразит этот ответ, для того чтобы пользователь смог увидеть его.

Примеры:

Ввод адреса доставки:

Запрос:

GET https://api-

 $maps. y and ex. ru/services/search//v2/? callback=id_16676581182654305032 \& text=59.91292913375632\% 2C30.29298464056775 \& format=json \& rspn=0 \& lang=ru_RU \& token=445db412edd08bf71465133912bbb950 \& type=geo \& production of the production of th$

perties=addressdetails&geocoder sco=latlong&origin=jsapi2Geocoder&apikey=47042de8-7735-4996-8e28-

7cd4a1caeb11 HTTP/1.1 Host: api-maps.yandex.ru Connection: keep-alive

Accept: */*

User-Agent: Mozilla/5.0 (iPhone; CPU iPhone OS 15_7 like Mac OS X) AppleWebKit/605.1.15 (KHTML, like Gecko)

Version/15.6,2 Mobile/15E148 Safari/604.1

Accept-Language: ru

Referer: https://sbermarket.ru/ Accept-Encoding: gzip, deflate, br

Ответ:

HTTP/1.1 200 OK

Content-Type: text/javascript; charset=utf-8 Date: Sat, 05 Nov 2022 14:22:49 GMT

ETag: W/"3f7b-piiARP4CMuumxeQslhlgD25QOFs"

Set-Cookie: _yasc=jmqG4d6a8sfC6dc689cQgpz3VSLYAJNiuokcVaKsbC6EpwONFGPDELCwC7k=; domain=.yandex.ru;

path=/; expires=Tue, 02-Nov-2032 14:22:49 GMT; secure

Set-Cookie:

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Vary: Accept-Encoding

X-Content-Type-Options: nosniff X-Content-Type-Options: nosniff X-XSS-Protection: 1; mode=block

Content-Length: 16251

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Запрос списка магазинов, производящих доставку по введенному адресу:

Запрос:

GET https://api.sbermarket.ru/v2/retailers?with_stores_total=1&shipping_method=pickup&city_id=42 HTTP/1.1

Host: api.sbermarket.ru

Accept: */*

Client-Id: SbermarketIOS Accept-Language: ru

BackendUserUUID: 4a29348f-ed3b-4e01-a5cf-61f1f3aae01e

Accept-Encoding: gzip, deflate, br

Cache-Control: no-cache Client-Ver: 6.31.1

User-Agent: Sbermarket/6.31.1 (iPhone; iOS 15.7)

Connection: keep-alive

AnonymousId: fb5dc34e-6ca7-4896-af62-12fd9ec3112d

ScreenName: unknown

Client-Token: 1a8693e1530e4e68b23485d6da585ff1

Ответ:

HTTP/1.1 200 OK Server: nginx

Date: Sat, 05 Nov 2022 14:50:17 GMT

Content-Type: application/json; charset=utf-8

Connection: keep-alive Vary: Accept-Encoding Vary: Accept-Encoding

etag: W/"f2066ec81c141a7d72c20b63a50e73bc" cache-control: max-age=0, private, must-revalidate x-request-id: 5127d641-ffff-48cd-ab02-15d070cdb1a4

x-runtime: 0.141162

vary: Origin

strict-transport-security: max-age=631138519

x-frame-options: SAMEORIGIN x-content-type-options: nosniff x-xss-protection: 1; mode=block x-download-options: noopen

x-permitted-cross-domain-policies: none content-security-policy: frame-ancestors 'self'

X-NGENIX-Cache: MISS X-NGENIX-Cache: MISS Content-Length: 14034 {"retailers":[{"id":1,"name":"METRO","slug":"metro","color":"#002d72","logo_background_color":"#0f447c","logo ":"https://sbermarket.ru/statics/retailer_banners/1/logo_images/Metro.png?1658923296","available":true,"envir onment":"production","stores_count":3,"appearance":{"background_color":"#0f447c","image_color":"#0f447c","black_theme":false,"logo_image":"https://sbermarket.ru/statics/retailer_banners/1/logo_images/Metro.png?1658923296","side_image":"https://sbermarket.ru/statics/retailer_banners/1/side_images/Img-

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9/logo images/AptekaOzerki1.png?1662643615", "side image": "https://sbermarket.ru/statics/retailer banners/1 49/side images/Img.jpg?1662643616","mini logo image":"https://sbermarket.ru/statics/retailer banners/149/m ini logo images/AptekaOzerki.png?1662643616"},"requirements":[]},f"id":161,"name":"ДОКТОР СТОЛЕТОВ", "slug": "stoletov", "color": "#ffffff", "logo_background_color": "#313e9d", "logo": "https://sbermarket.ru/ statics/retailer banners/148/logo images/Stoletov.png?1658923526","available":true,"environment":null,"stores _count":33,"appearance":{"background_color":"#313e9d","image_color":"#313e9d","black_theme":false,"logo_i mage":"https://sbermarket.ru/statics/retailer_banners/148/logo_images/Stoletov.png?1658923526","side_image ":"https://sbermarket.ru/statics/retailer banners/148/side images/Img stoletov.jpg?1658923526","mini logo im age":"https://sbermarket.ru/statics/retailer banners/148/mini logo images/%D0%B4%D1%81.png?1658923526" },"requirements":[]},{"id":163,"name":"СУПЕРАПТЕКА","slug":"superapteka","color":"#ffffff","logo_background_c olor":"#0f194b","logo":"https://sbermarket.ru/statics/retailer_banners/150/logo_images/SuperApteka1.png?166 2643725","available":true,"environment":null,"stores_count":3,"appearance":{"background_color":"#0f194b","im age_color":"#0f194b","black_theme":false,"logo_image":"https://sbermarket.ru/statics/retailer_banners/150/log o_images/SuperApteka1.png?1662643725","side_image":"https://sbermarket.ru/statics/retailer_banners/150/sid e_images/Img.jpg?1662643725","mini_logo_image":"https://sbermarket.ru/statics/retailer_banners/150/mini_lo go_images/SuperApteka.png?1662643725"},"requirements":[]},{"id":165,"name":"ΠΕΡΒΑЯ ПОМОЩЬ","slug":"pervayapom","color":"#ffffff","logo_background_color":"#ffffff","logo":"https://sbermarket.ru /statics/retailer banners/152/logo images/PervayaPomosh.png?1662643765", "available":true, "environment":nul I,"stores count":21,"appearance":{"background color":"#ffffff","image color":"#ffffff","black theme":true,"logo i mage":"https://sbermarket.ru/statics/retailer_banners/152/logo_images/PervayaPomosh.png?1662643765","side _image":"https://sbermarket.ru/statics/retailer_banners/152/side_images/lmg1.jpg?1662643765","mini_logo_im age":"https://sbermarket.ru/statics/retailer banners/152/mini logo images/PervayaPomosh 1x.png?166264376 6"},"requirements":[]},{"id":166,"name":"РАДУГА","slug":"raduga","color":"#ffffff","logo_background_color":"#ffff ff","logo":"https://sbermarket.ru/statics/retailer_banners/153/logo_images/Raduga1.png?1662643755","availabl e":true,"environment":null,"stores count":6,"appearance":{"background color":"#ffffff","image color":"#ffffff","b lack theme":true,"logo image":"https://sbermarket.ru/statics/retailer banners/153/logo images/Raduga1.png?1 662643755", "side image": "https://sbermarket.ru/statics/retailer banners/153/side images/Img.jpg?1662643755 ","mini logo image":"https://sbermarket.ru/statics/retailer banners/153/mini logo images/Raduga.png?166264 3755"},"requirements":[]},{"id":313,"name":"ЛенОблФарм","slug":"lenoblpharm","color":"#FFFFFF","logo_backgr ound_color":"#FFFFFF","logo":"https://sbermarket.ru/statics/retailer_banners/314/logo_images/%D0%9B%D0%B E%D0%B3%D0%BE %D0%9B%D0%9E%D0%A4 %D0%BD%D0%BE%D0%B2%D1%8B%D0%B9.png?1664886045","a vailable":true,"environment":null,"stores_count":46,"appearance":{"background_color":"#FFFFFF","image_color": "#DDDDDD","black_theme":true,"logo_image":"https://sbermarket.ru/statics/retailer_banners/314/logo_images/ %D0%9B%D0%BE%D0%B3%D0%BE %D0%9B%D0%9E%D0%A4 %D0%BD%D0%BE%D0%B2%D1%8B%D0%B9.png? 1664886045", "side_image": "https://sbermarket.ru/statics/retailer_banners/314/side_images/Lenoblfarm_%281% 29.jpg?1664886045","mini logo image":"https://sbermarket.ru/statics/retailer banners/314/mini logo images/L

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enoblfarm-

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В приведенных примерах запросов происходит передача данных.

В результате обработки данных в ответе на второй запрос формируется список магазинов, из которых производится доставка на введенный адрес, введенный в первом запросе.