Async PHP
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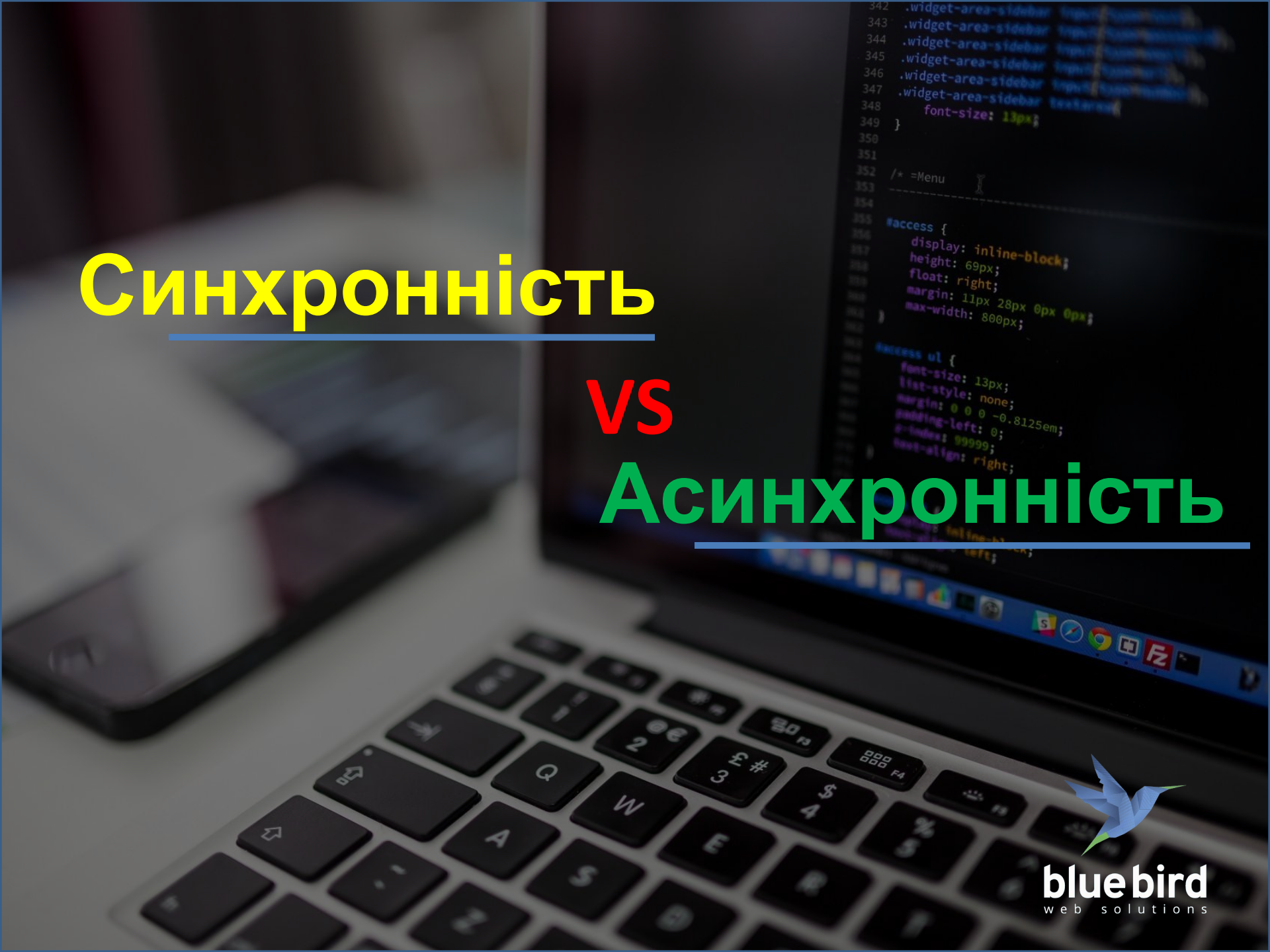
Синхронність
vs
Асинхронність
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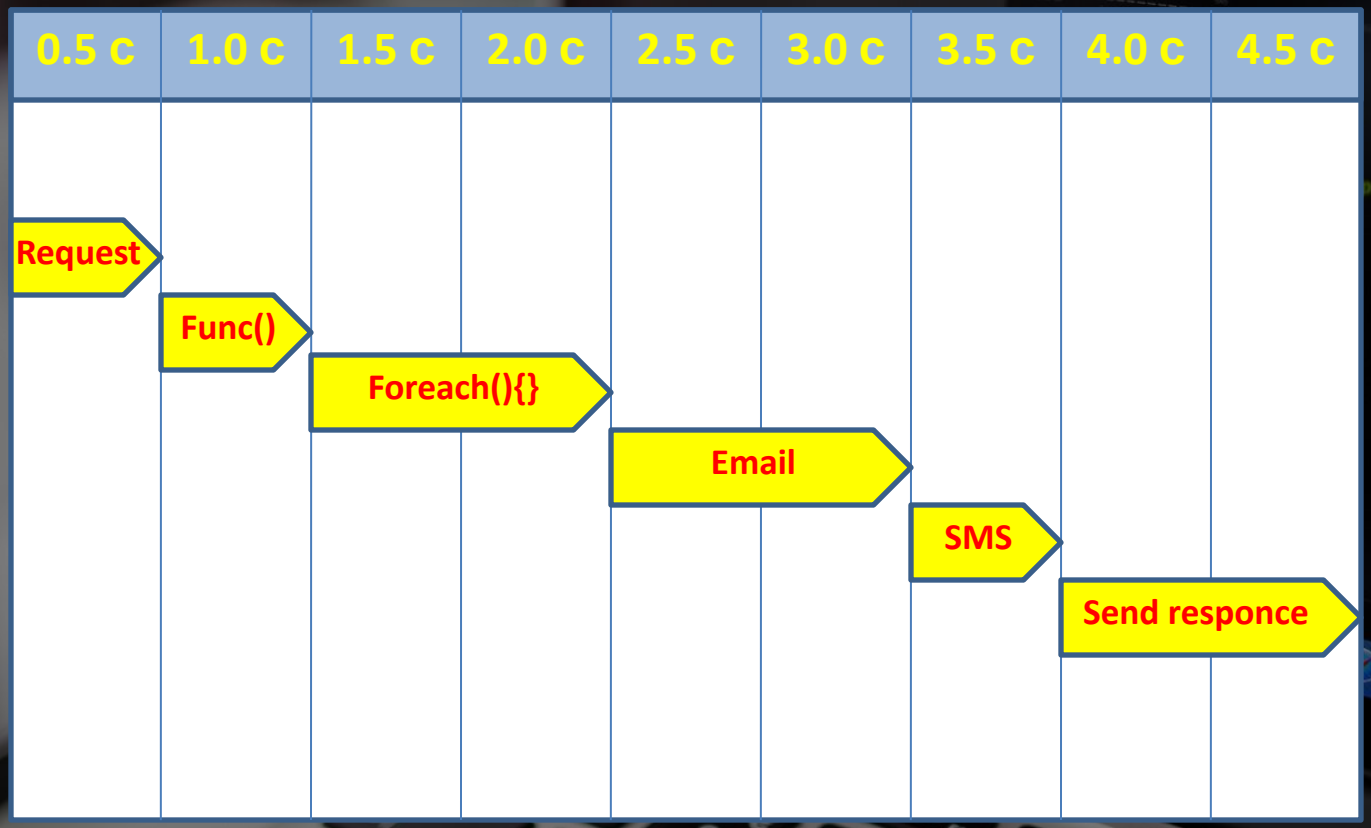
Послідовна модель



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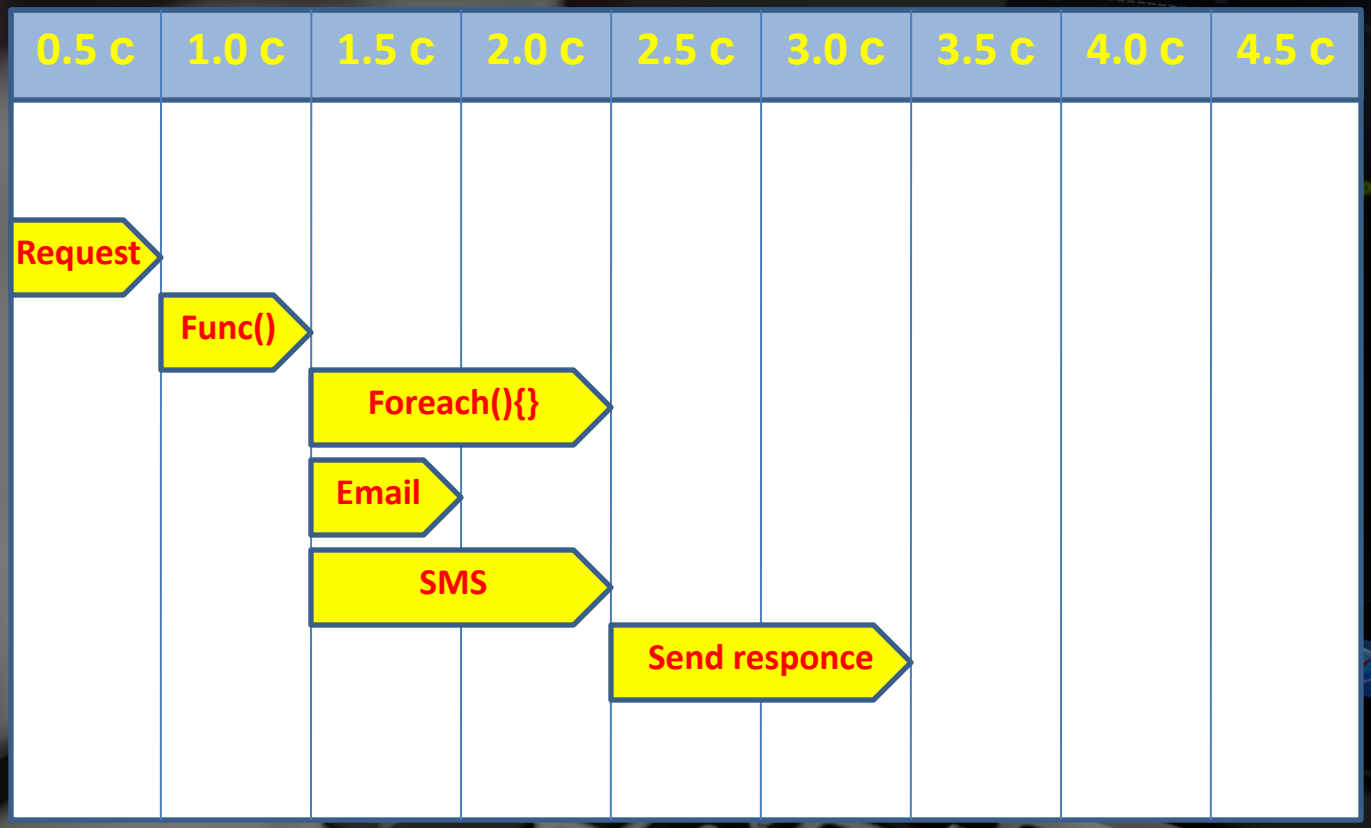
Паралельна модель



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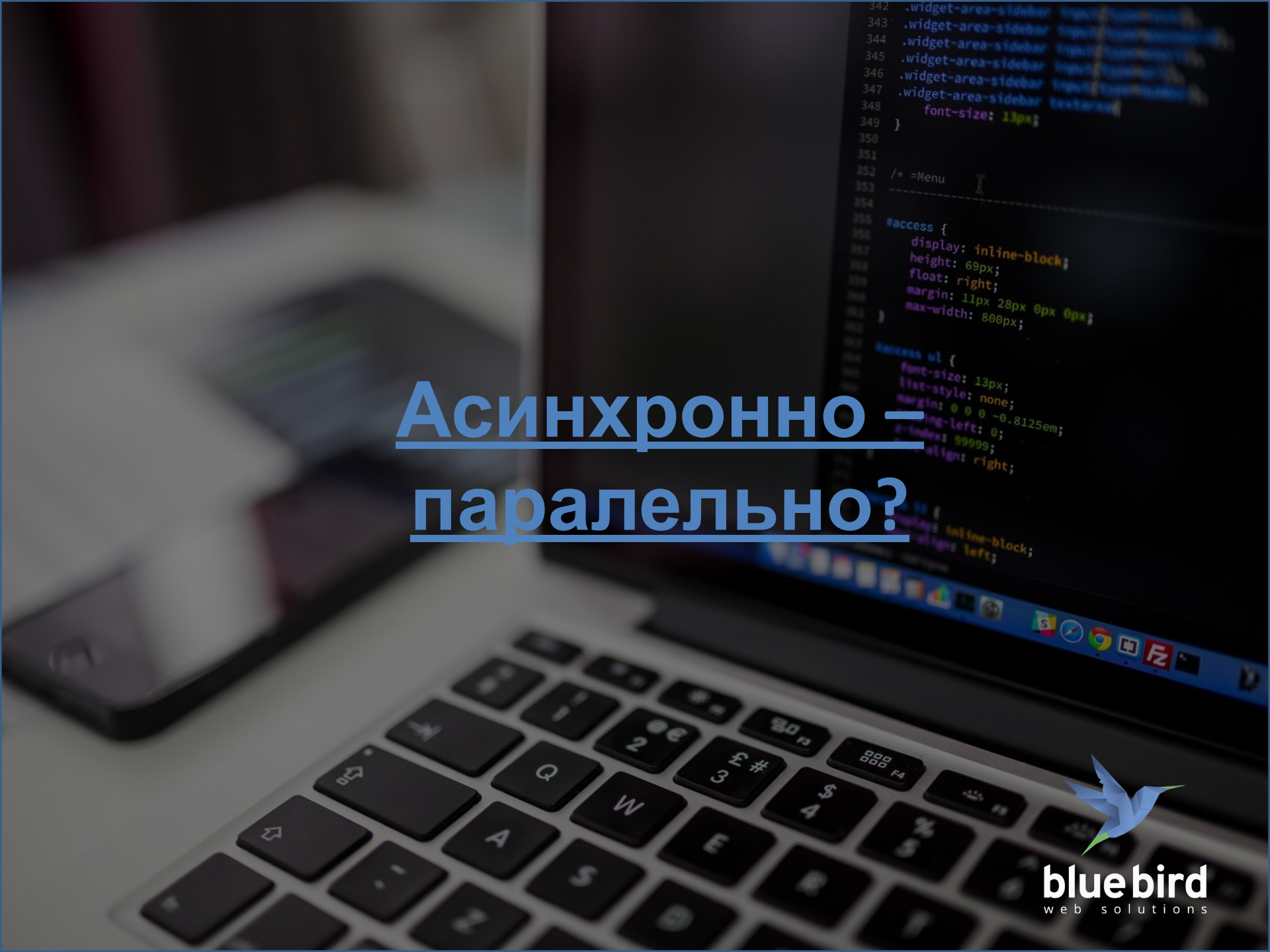
Асинхронно – паралельно?
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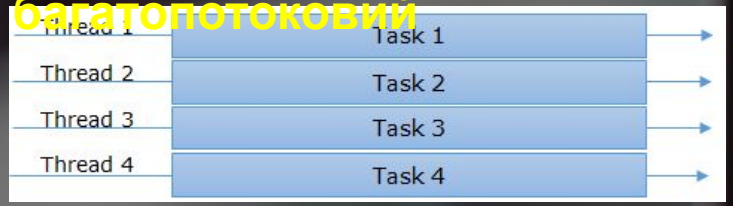
Синхронний однопотоковий

Синхронний багатопотоковий



Асинхронний однопотоковий

Асинхронний багатопотоковий

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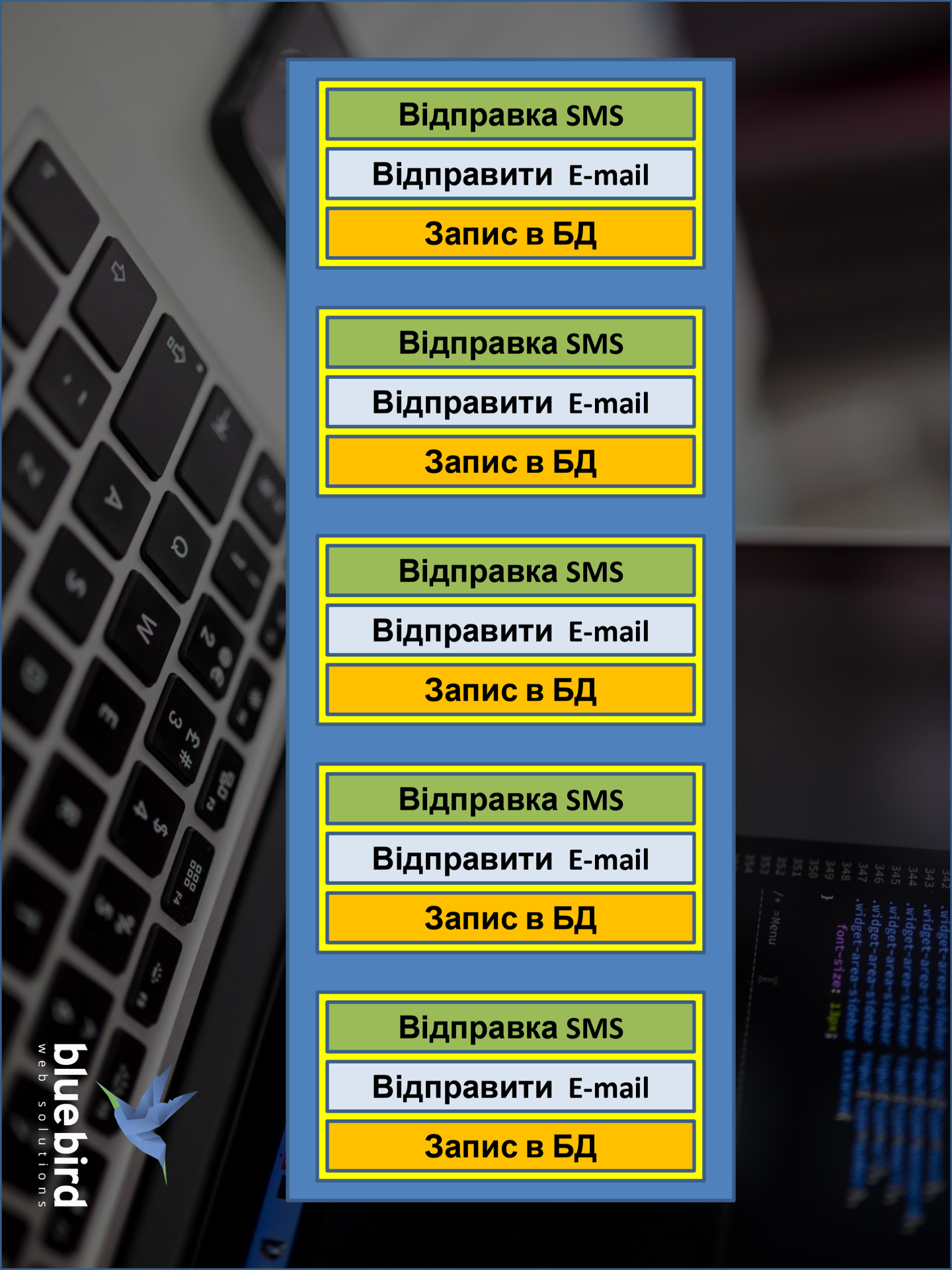
Відправка SMS
Відправити E-mail
Запис в БД
Відправка SMS
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Запис в БД
Відправка SMS
Відправити E-mail
Запис в БД
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Почнемо з JS
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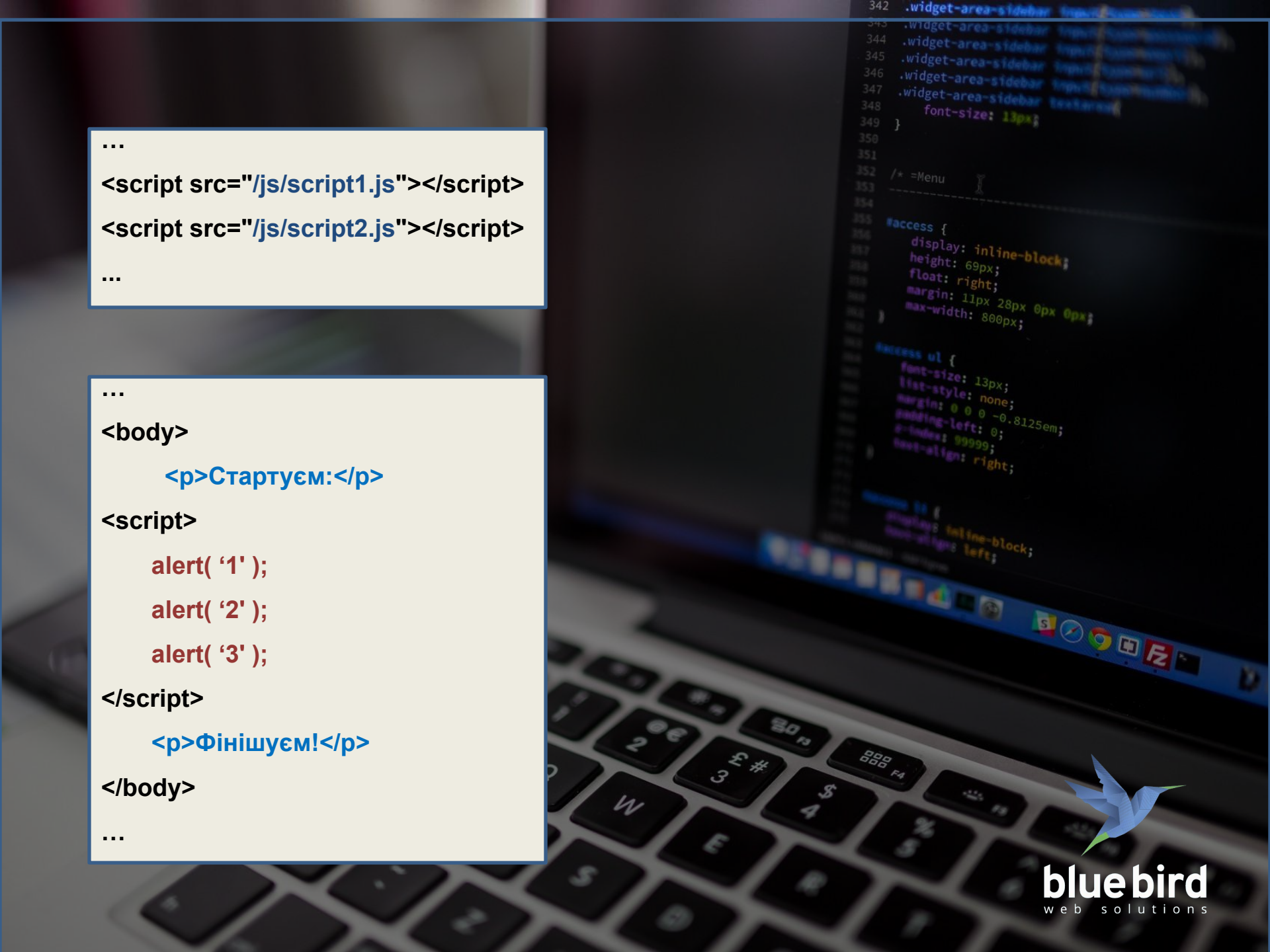
```
...
<script src="/js/script1.js"></script>
<script src="/js/script2.js"></script>
...
```

```
...
<body>
    <p>Стартуєм:</p>
<script>
    alert( '1' );
    alert( '2' );
    alert( '3' );
</script>
    <p>Фінішуєм!</p>
</body>
...
```



...
<script async src="/js/script1.js"></script>
<script async src="/js/script2.js"></script>
...
...
<script defer src="/js/script1.js"></script>
<script defer src="/js/script2.js"></script>
...
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Коротко про CSS

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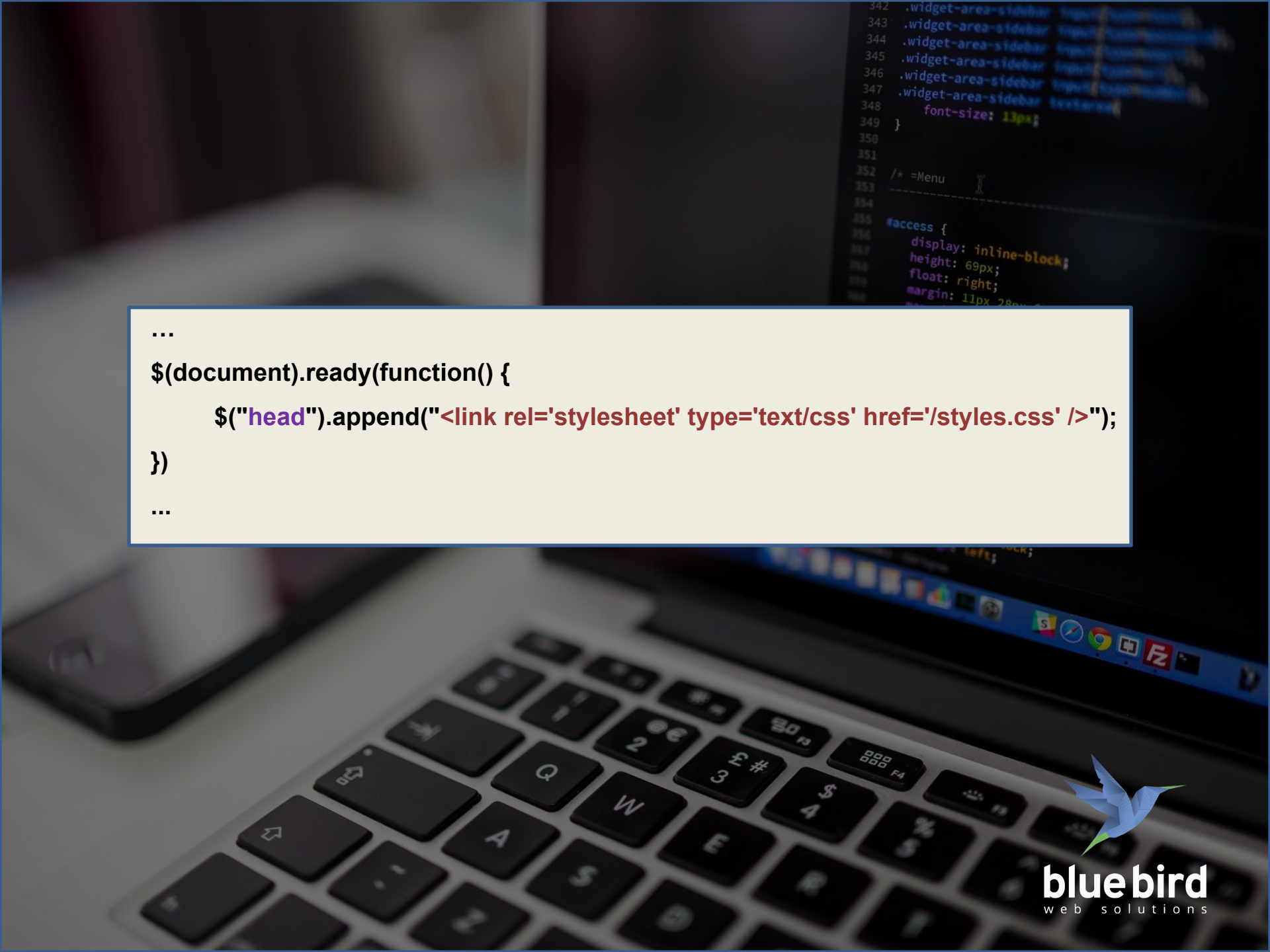
...
$(document).ready(function() {
$("head").append("<link rel='stylesheet' type='text/css' href='/styles.css' />");
})
...
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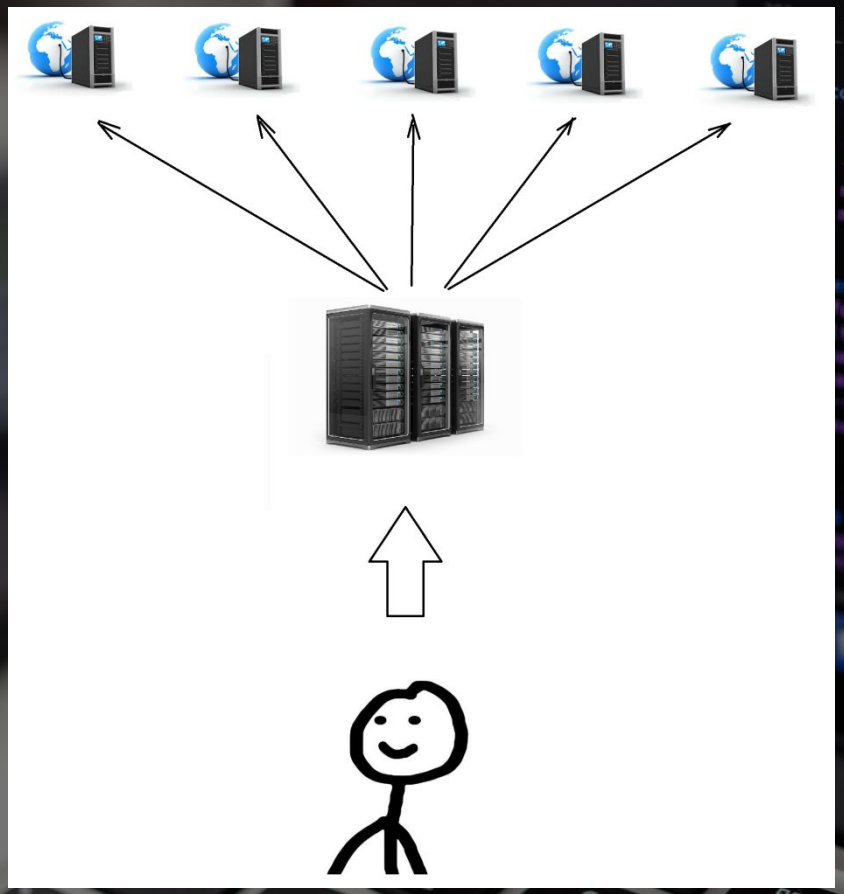

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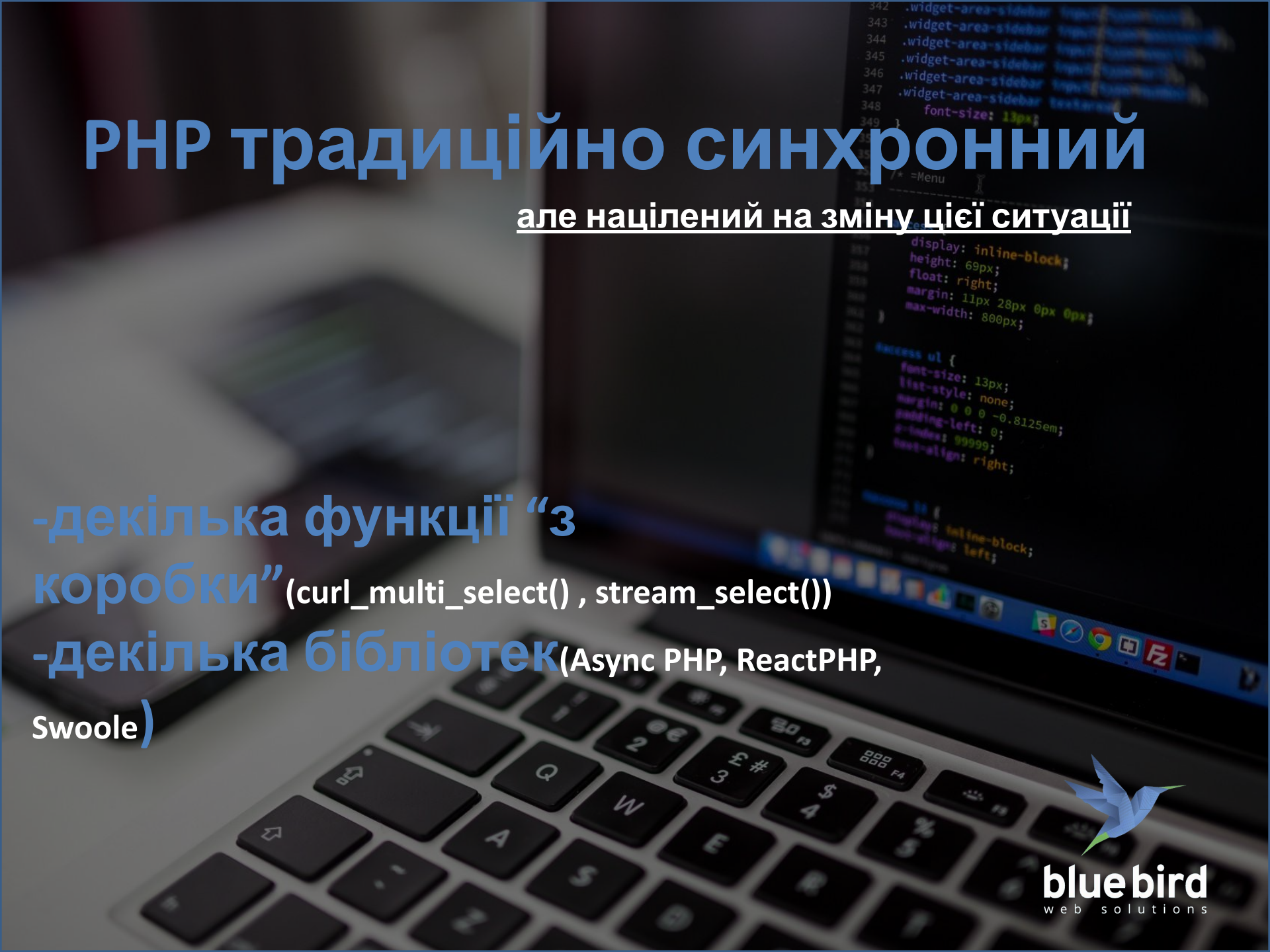

PHP традиційно синхронний

але націлений на зміну цієї ситуації

-декілька функції “з коробки” (curl_multi_select() , stream_select())

-декілька бібліотек (Async PHP, ReactPHP, Swoole)

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curl_multi_select()

```php
<?php

$ch1 = curl_init(); // Створюєм образ (1)
$ch2 = curl_init(); // Створюєм образ (2)

curl_setopt($ch1, CURLOPT_URL, " http://admin.drukarka.com.ua/"); // Встановлюєм URL та опції (1)
curl_setopt($ch1, CURLOPT_HEADER, 0);
curl_setopt($ch2, CURLOPT_URL, " http://comfart.bluebird.team/ "); // Встановлюєм URL та опції (2)
curl_setopt($ch2, CURLOPT_HEADER, 0);

$mh = curl_multi_init(); // Створюєм набір дескрипторів

curl_multi_add_handle($mh,$ch1); // Вставляємо у дескриптор данні (1)
curl_multi_add_handle($mh,$ch2); // Вставляємо у дескриптор данні (2)

$active = null;
do {
    $mrc = curl_multi_exec($mh, $active);
} while ($mrc == CURLM_CALL_MULTI_PERFORM);

...
```

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stream_select()

```php
$readable = $read ?: null;
$writable = $write ?: null;
$except = null;

if (stream_select($readable, $writable, $except, 1)) {
    if ($readable) {
        foreach ($readable as $stream) {
            // ...
        }
    }

    if ($writable) {
        foreach ($writable as $write) {
            // ...
        }
    }
}
```

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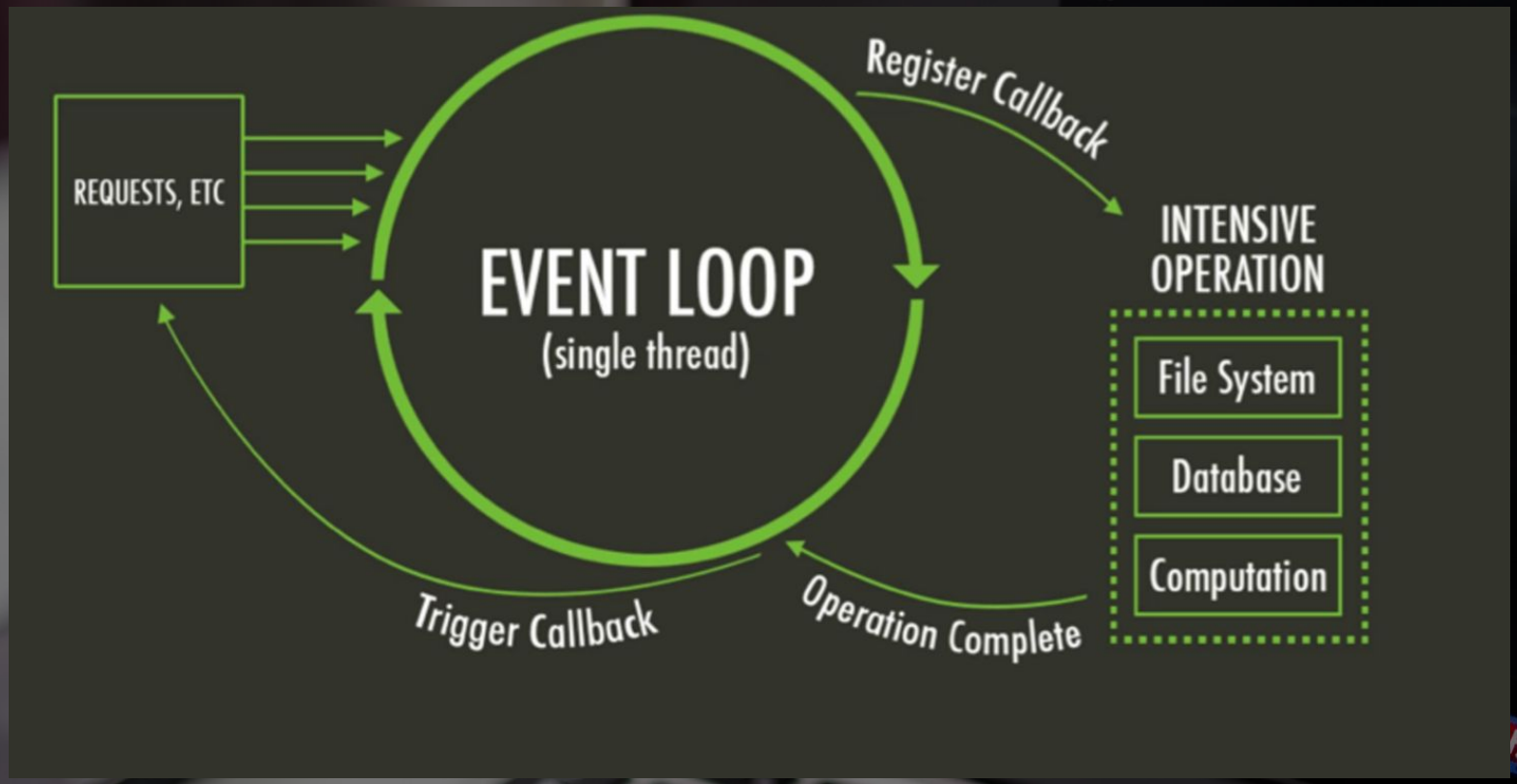

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Async
<...>
Websocket
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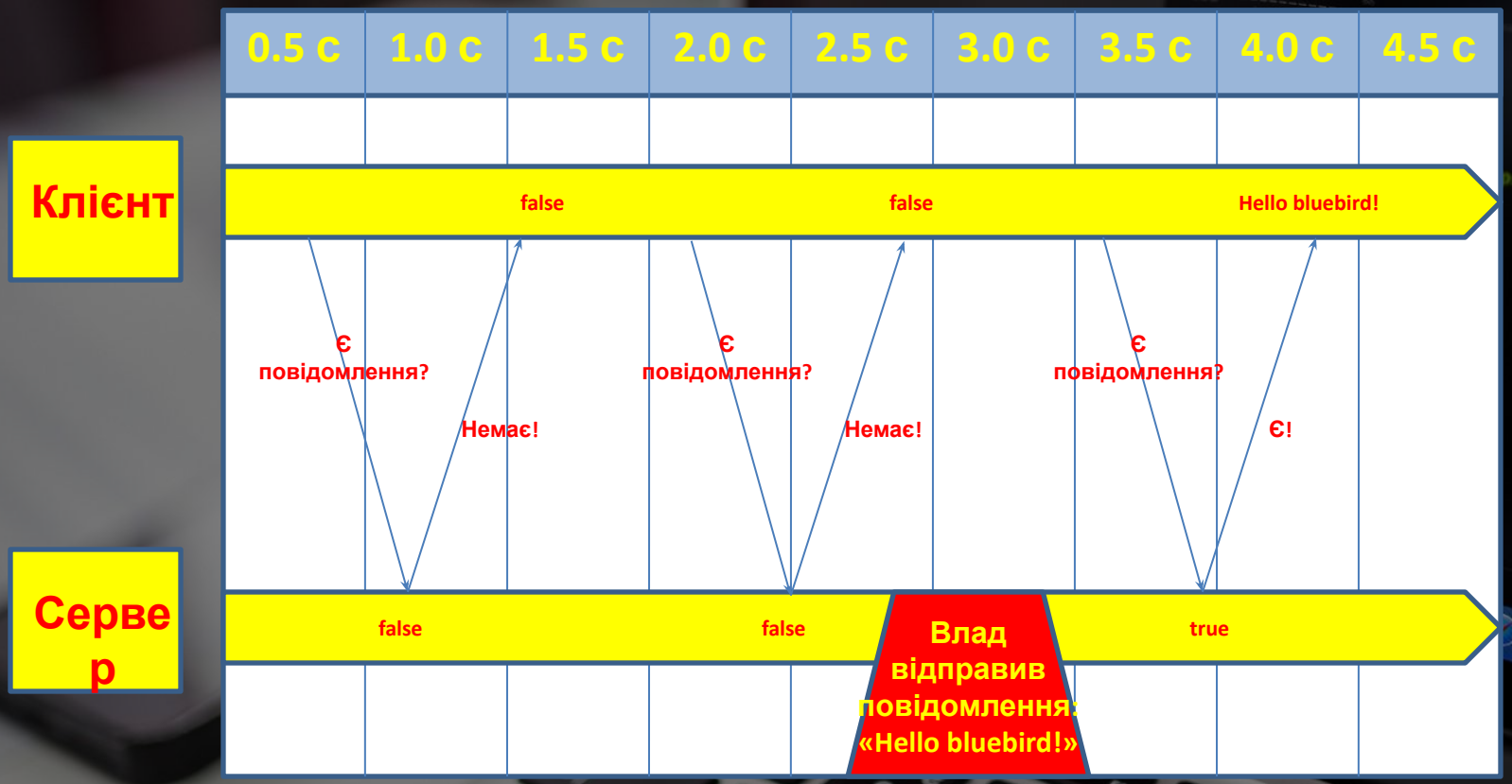
Як працює HTTP?



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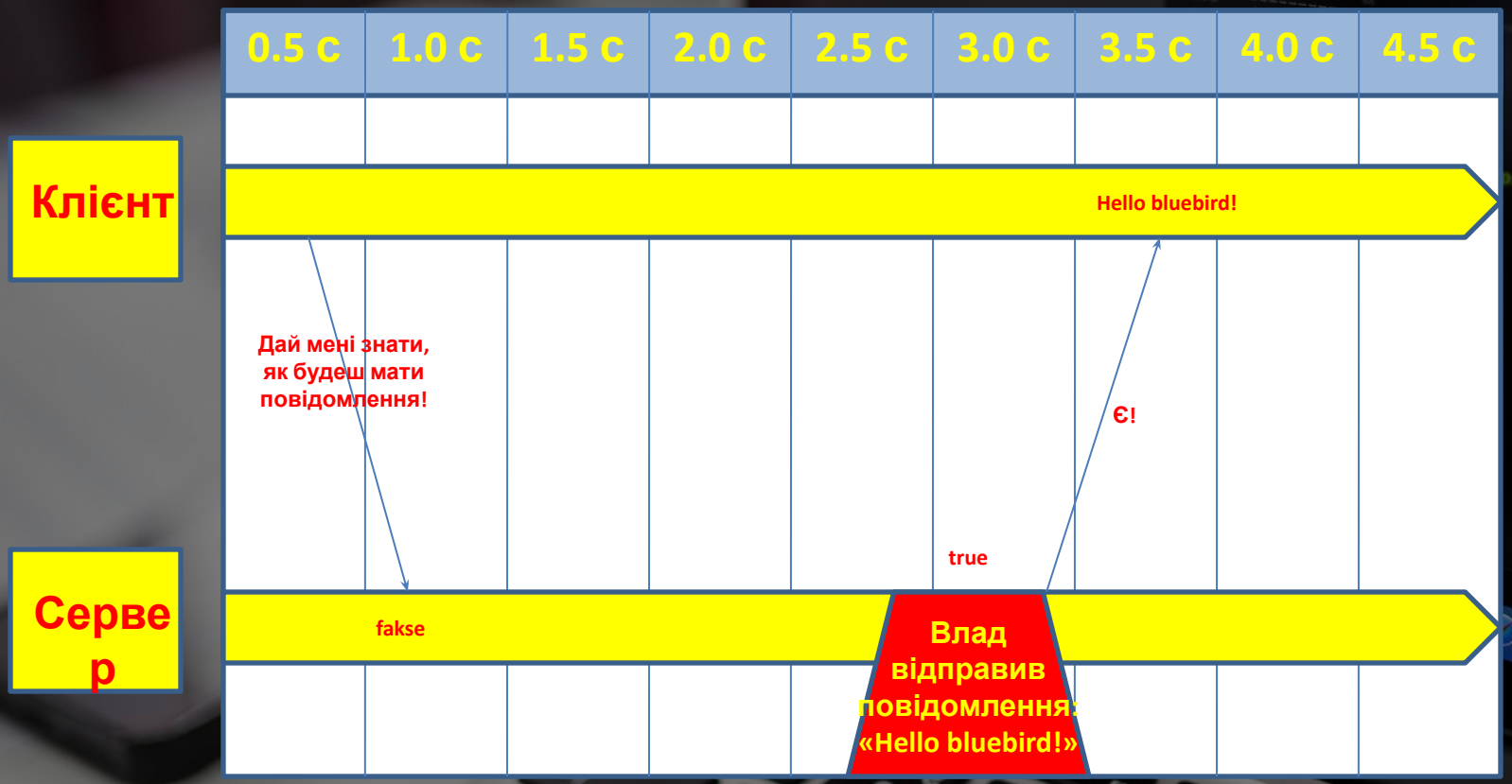
Як працює Websocket?



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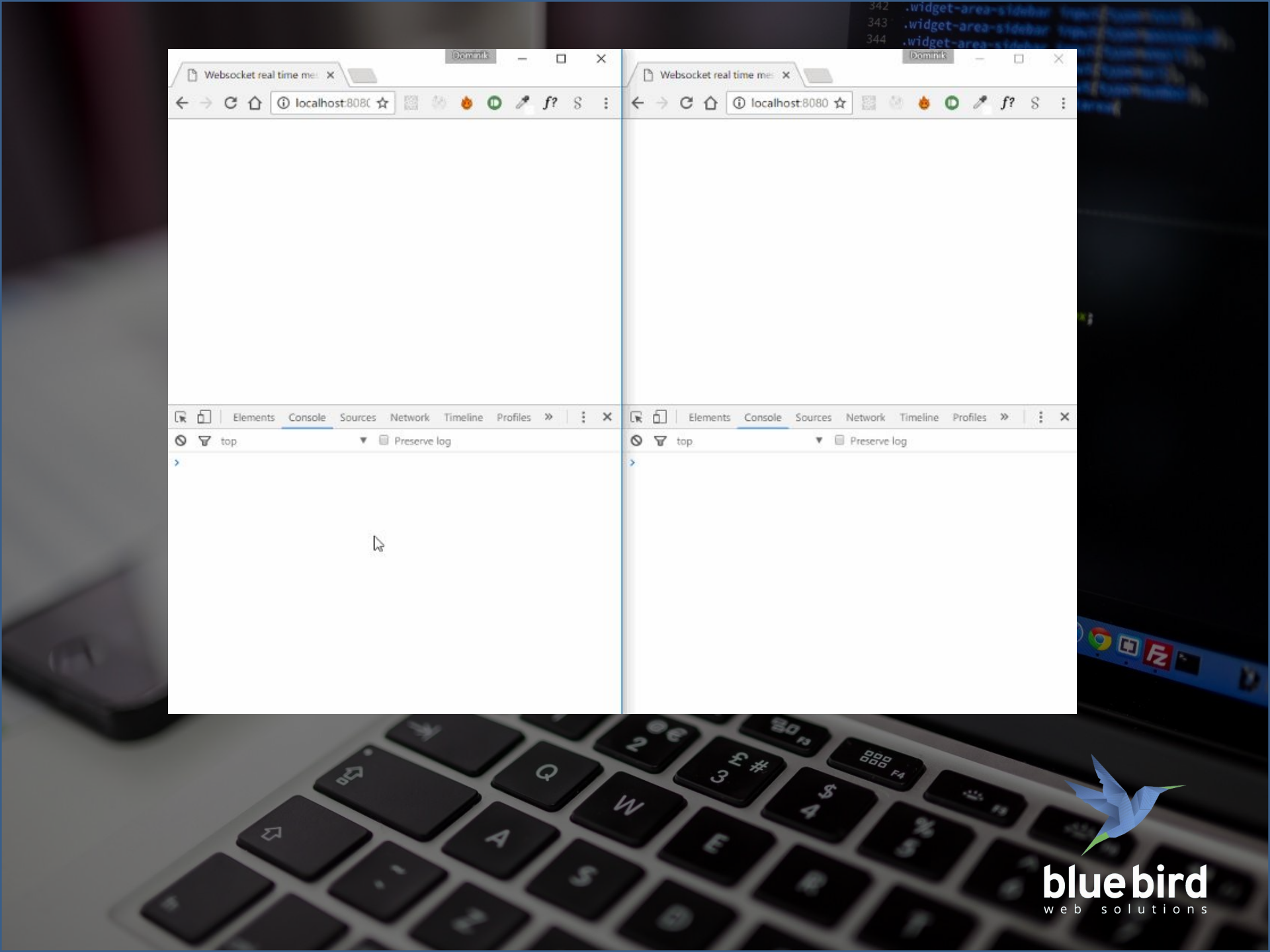
Websocket real time mes
localhost:8080
Elements
Console
Sources
Network
Timeline
Profiles
top
Preserve log
Websocket real time mes
localhost:8080
Elements
Console
Sources
Network
Timeline
Profiles
top
Preserve log
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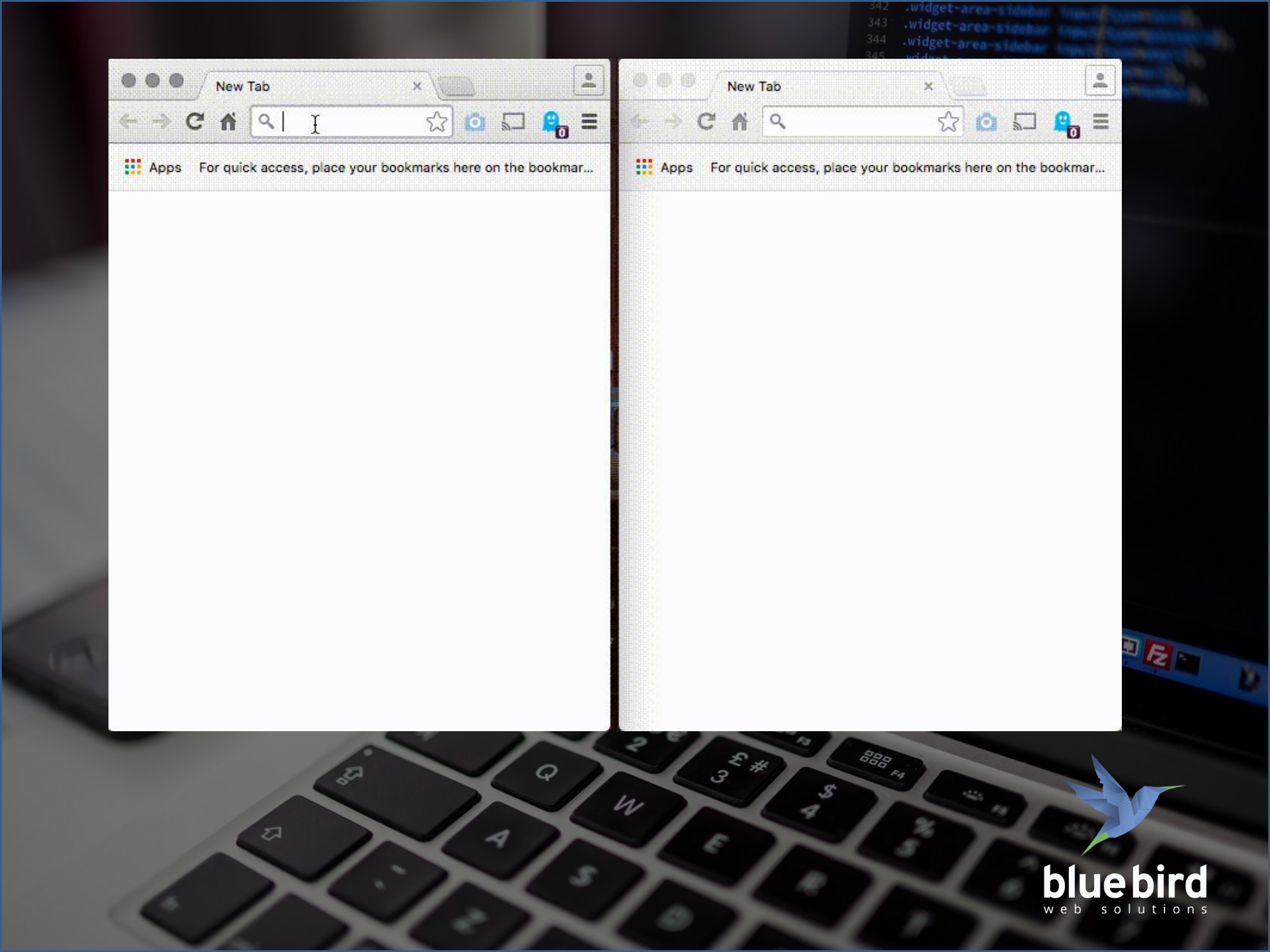
New Tab
Apps
For quick access, place your bookmarks here on the bookmar...
New Tab
Apps
For quick access, place your bookmarks here on the bookmar...
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Підтримка в браузерах

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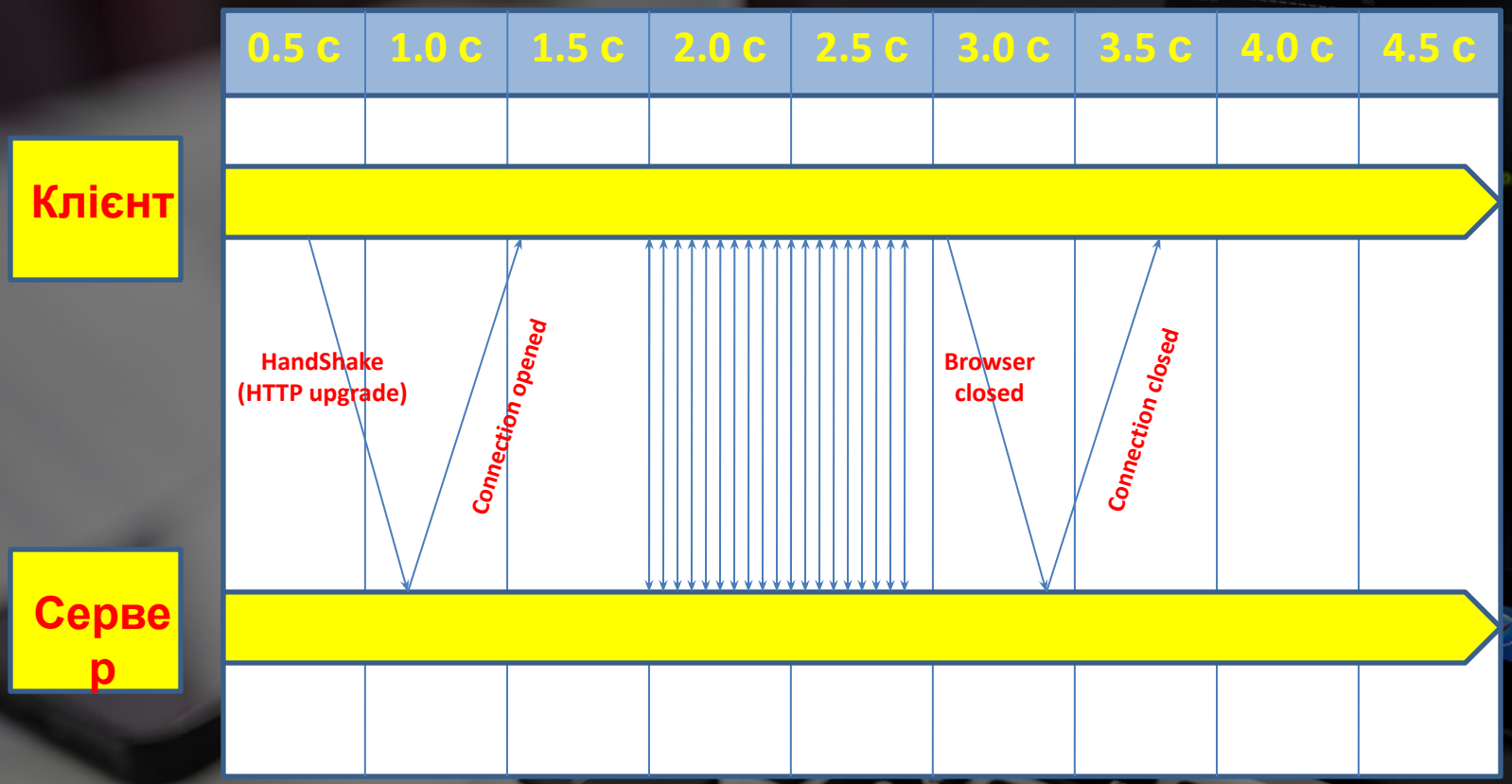
Як працює Websocket?



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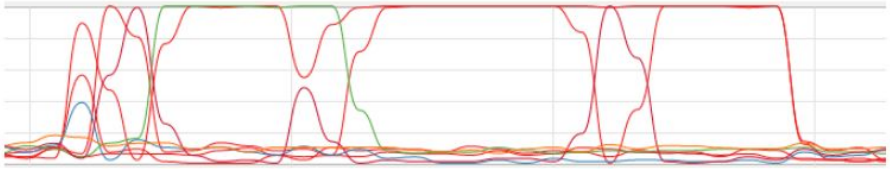
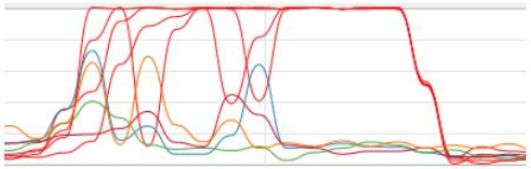
$threads = 1

$threads = 2



$threads = 4



$threads = 8

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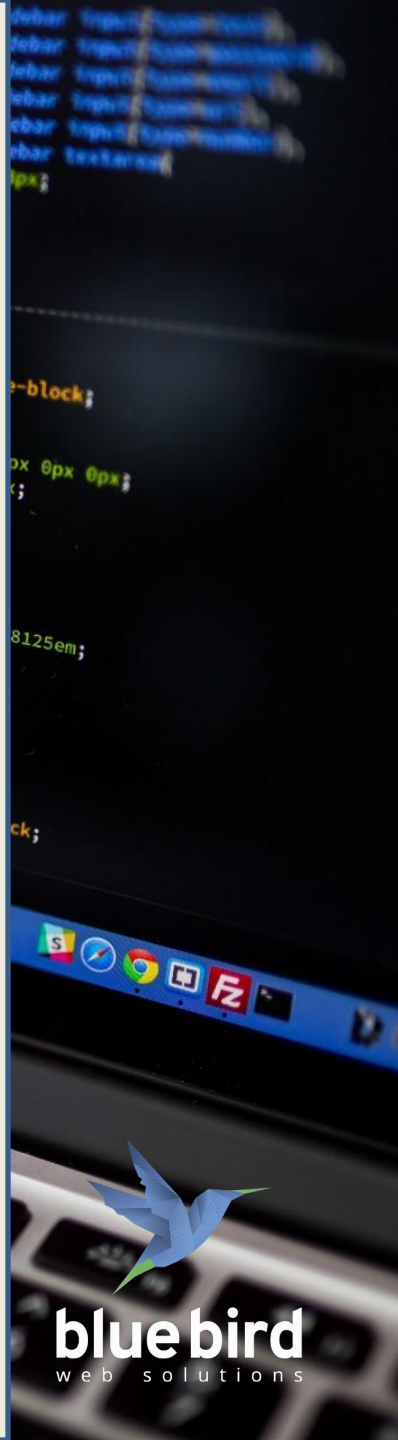
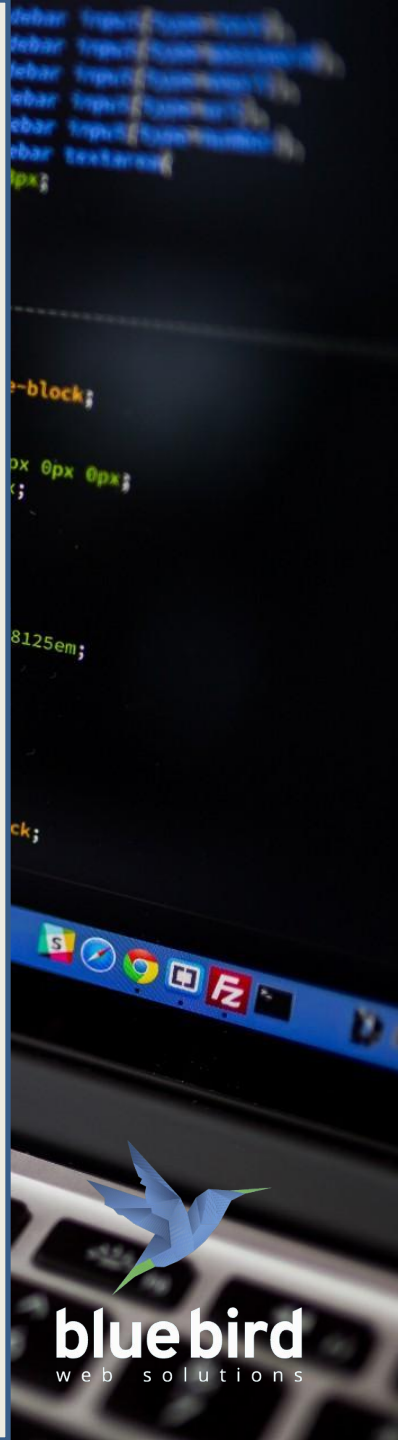
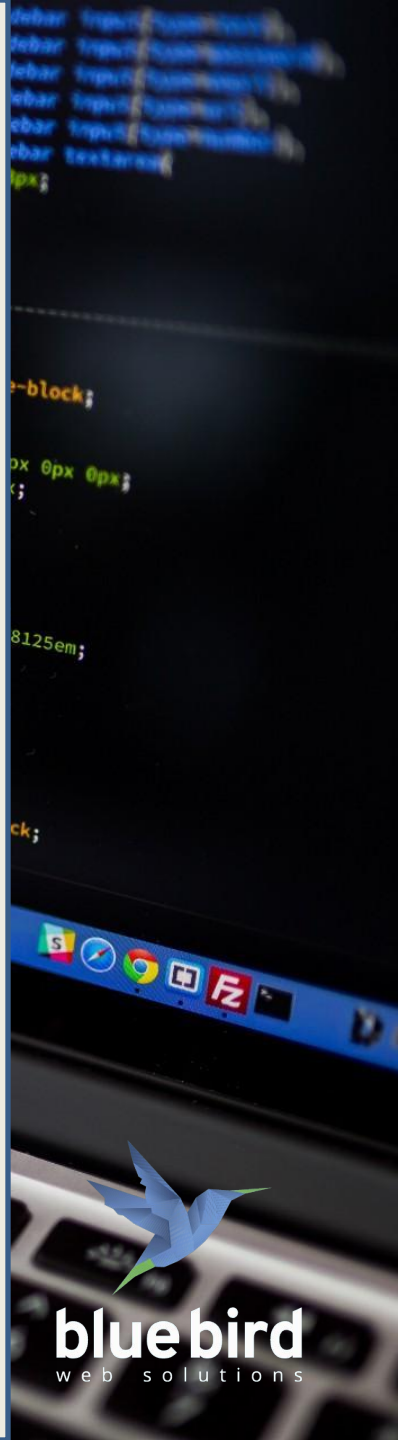
```
socket.onopen = function() {
    alert(" З’єднання встановленно!");
};

socket.onclose = function(event) {
    if (event.wasClean) {
        alert(‘З’єднання закрито чисто!');
     } else {
         alert('Обрив з’єднання!');
     }
     alert('Код: ' + event.code + ' причина: ' + event.reason);
};

socket.onmessage = function(event) {
    alert(“Отриманно данні: " + event.data);
};

socket.onerror = function(error) {
    alert(“Помилка:  " + error.message);
};
```

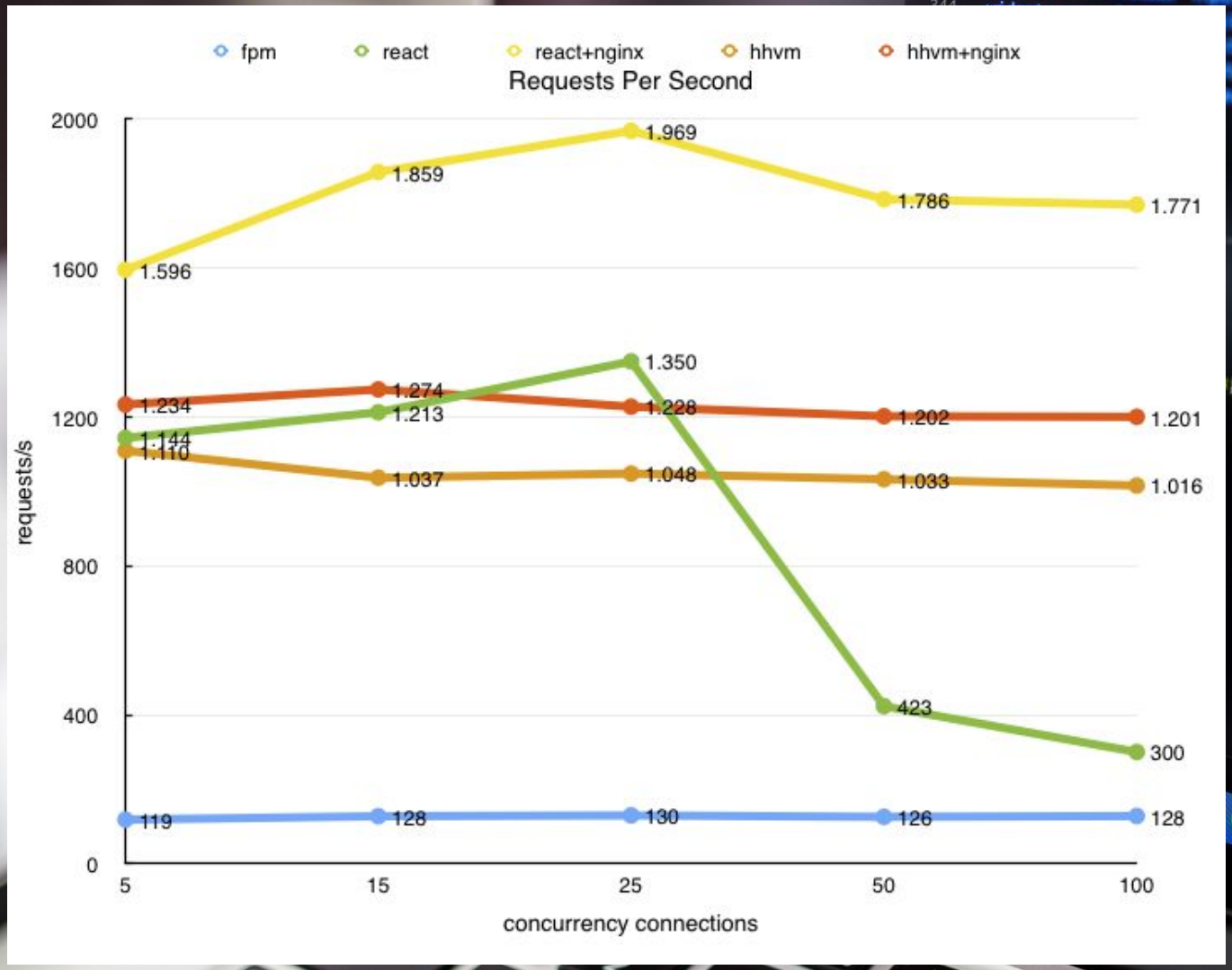


```php
use Ratchet\Server\IoServer;
use Ratchet\Http\HttpServer;
use Ratchet\WebSocket\WsServer;
use GSoares\RatchetChat\Chat;

require dirname(__DIR__) . '/vendor/autoload.php';

$server = IoServer::factory(
    new HttpServer(
        new WsServer(
            new Chat()
        )
    ),
    8080
);

$server->run();
```



```php
public function __construct() {
    $this->clients = new \SplObjectStorage;
}

public function onOpen(ConnectionInterface $conn) {
    $this->clients->attach($conn);
    echo "New connection! ({$conn->resourceId})\n";
}

public function onMessage(ConnectionInterface $from, $msg) {
    $numRecv = count($this->clients) - 1;
    echo $from->resourceId, $msg, $numRecv;

    foreach ($this->clients as $client) {
        if ($from !== $client) {
            $client->send($msg);
        }
    }
}

public function onClose(ConnectionInterface $conn) {
    $this->clients->detach($conn);
    echo $conn->resourceId . " disconnected";
}

public function onError(ConnectionInterface $conn, \Exception $e) {
    echo $e->getMessage();
    $conn->close();
}
```





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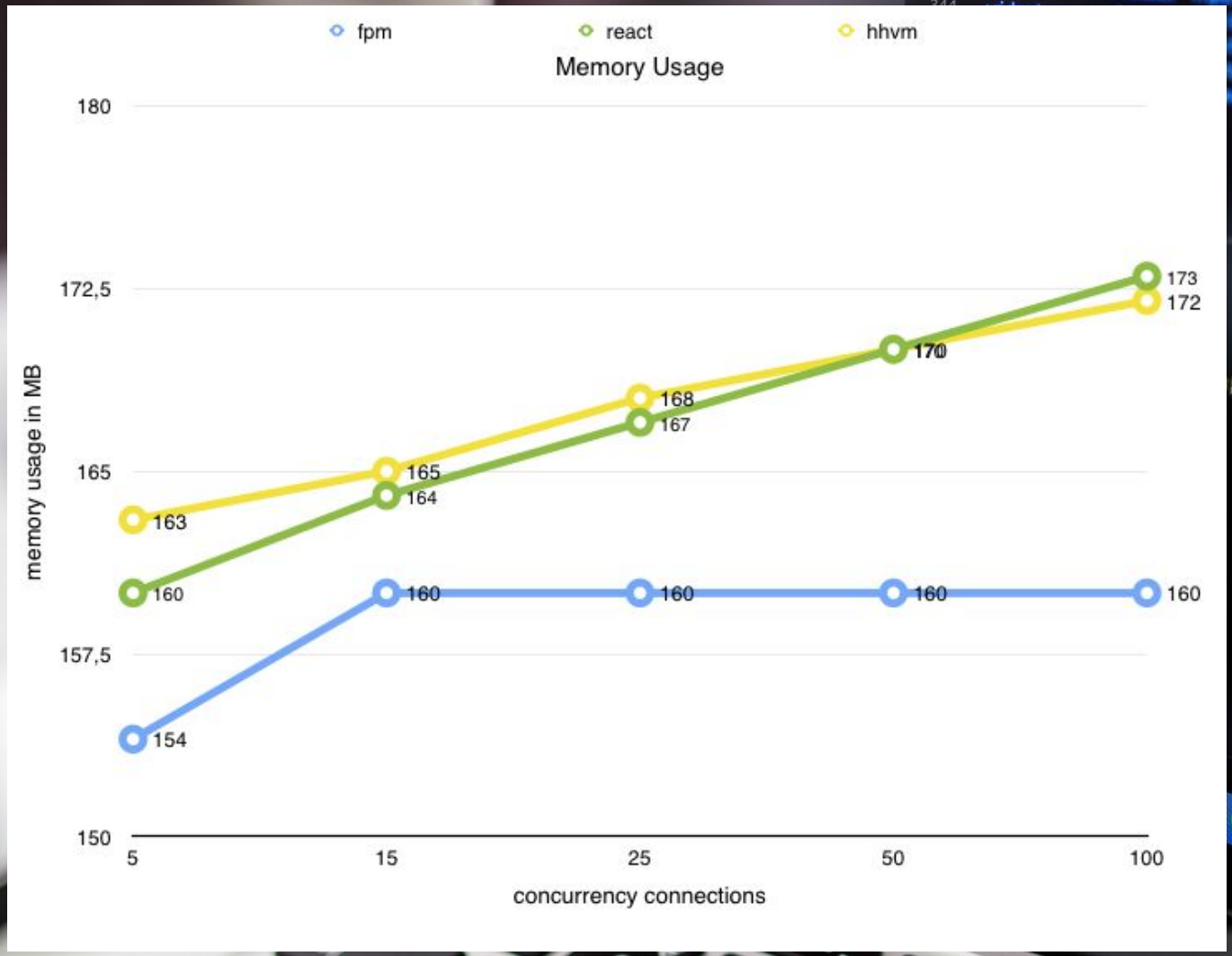

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Apache vs Nginx
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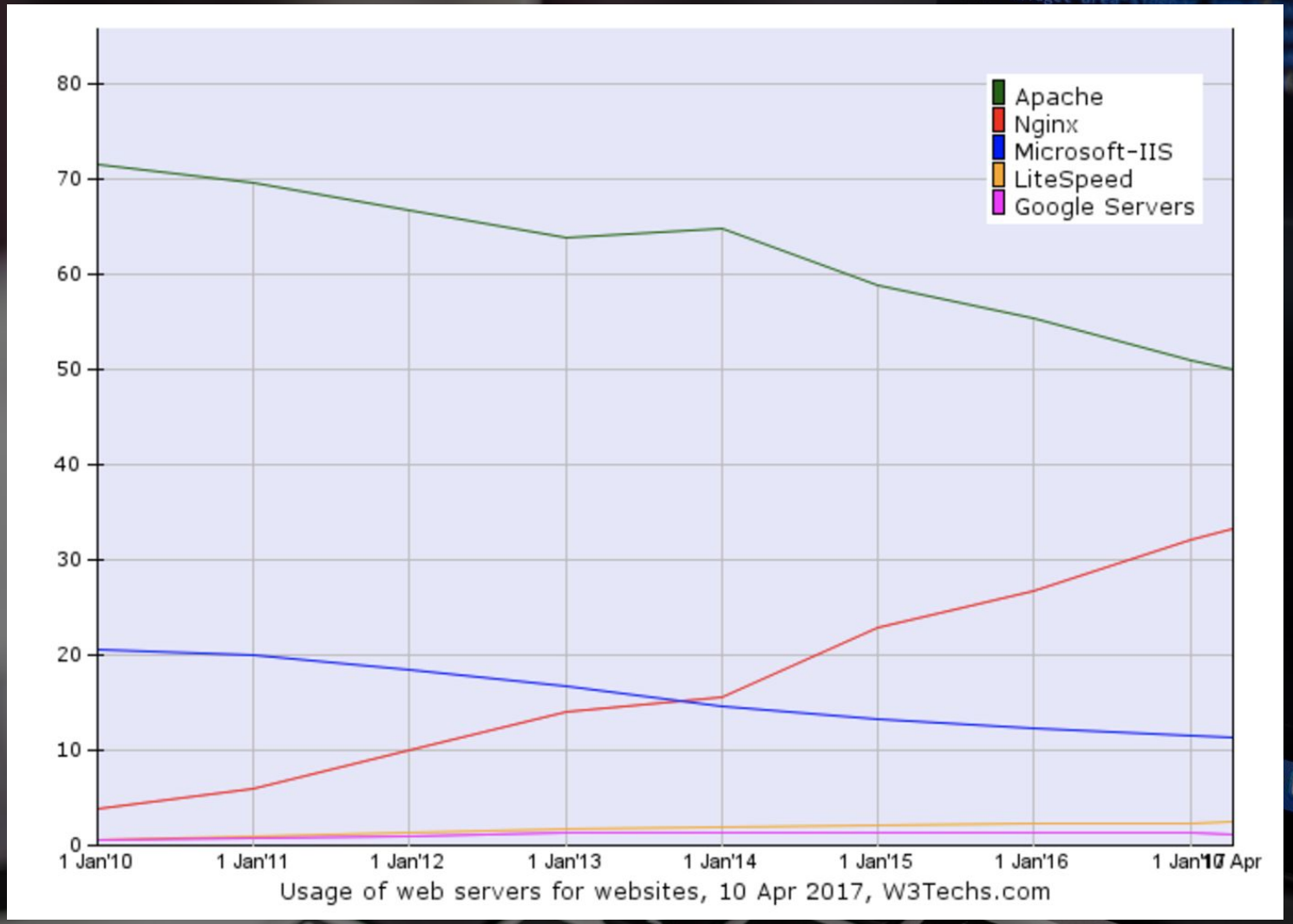

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Дякую!
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