

ReactJS.NET - опыт рендеринга на сервере

Проблемы

1

Дублирование
представлений

2

Высокий порог
вхождения

3

Разделение
ответственности

Требования

Пользователи и бизнес

- 1 Быструю загрузку страницы
- 2 Богатую функциональность
- 3 SEO
- 4 Быстрое внедрение новых фич

Разработчики

- 1 Низкий порог входа
- 2 Тестируемый код
- 3 Переиспользование компонентов
- 4 Свобода действий

Кто мы?



ФРОНТЭНДЕРЫ



Чего мы хотим?



REACT



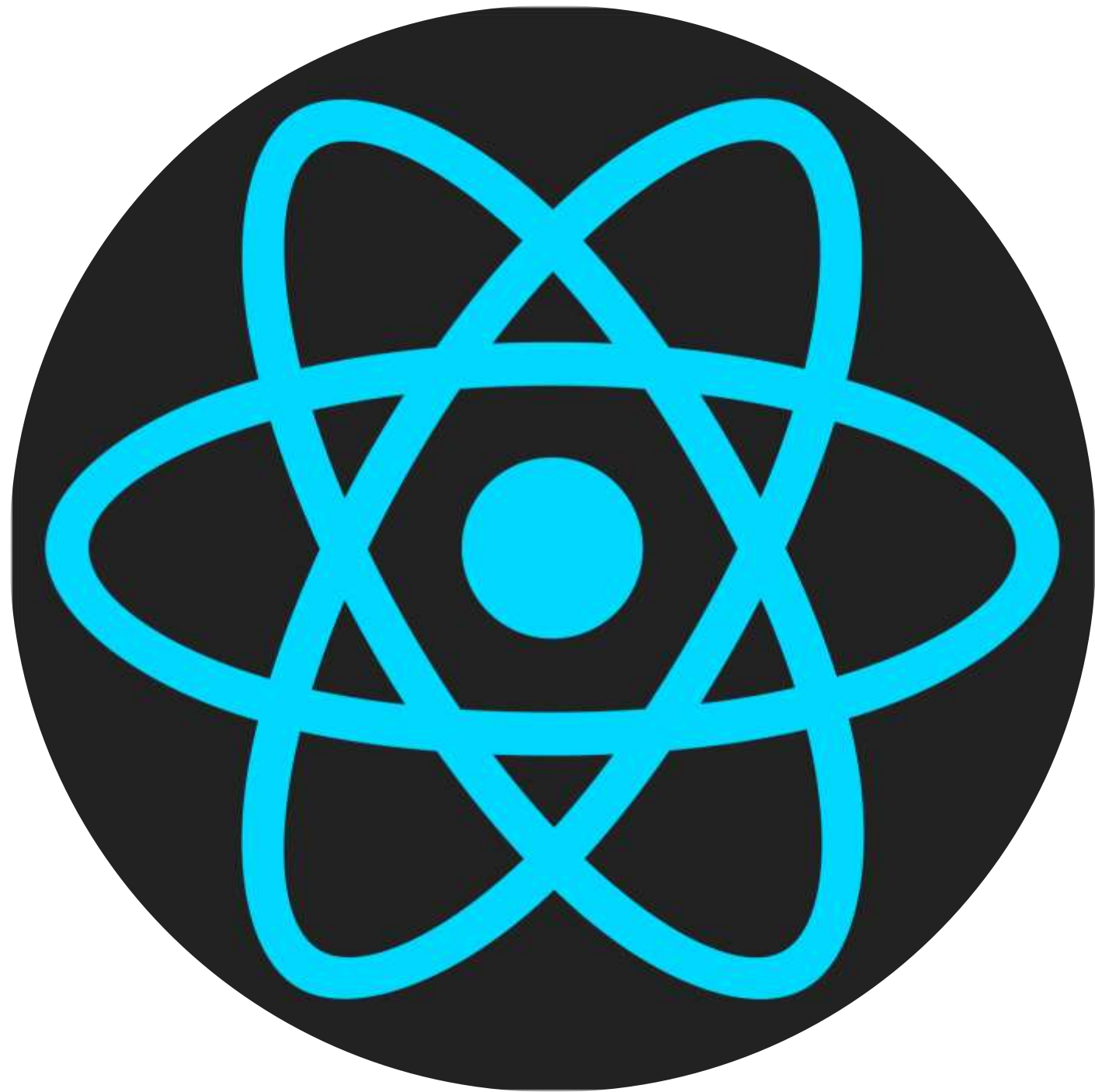
Когда мы хотим?



СЕЙЧАС



React



Made by Facebook

Большое комьюнити

Скорость работы (Virtual DOM)

Поддержка TypeScript

Debug & React Developer Tools

КОМЬЮНИТИ



facebook / react

A declarative, efficient, and flexible JavaScript library for building user interfaces.

JavaScript ★ 77,928 🍷 14,804 Updated 6 hours ago



vuejs / vue

A progressive, incrementally-adoptable JavaScript framework for building UI on the web.

JavaScript ★ 69,564 🍷 10,101 Updated 12 hours ago



angular / angular.js

HTML enhanced for web apps

JavaScript ★ 57,250 🍷 28,584 Updated 13 hours ago



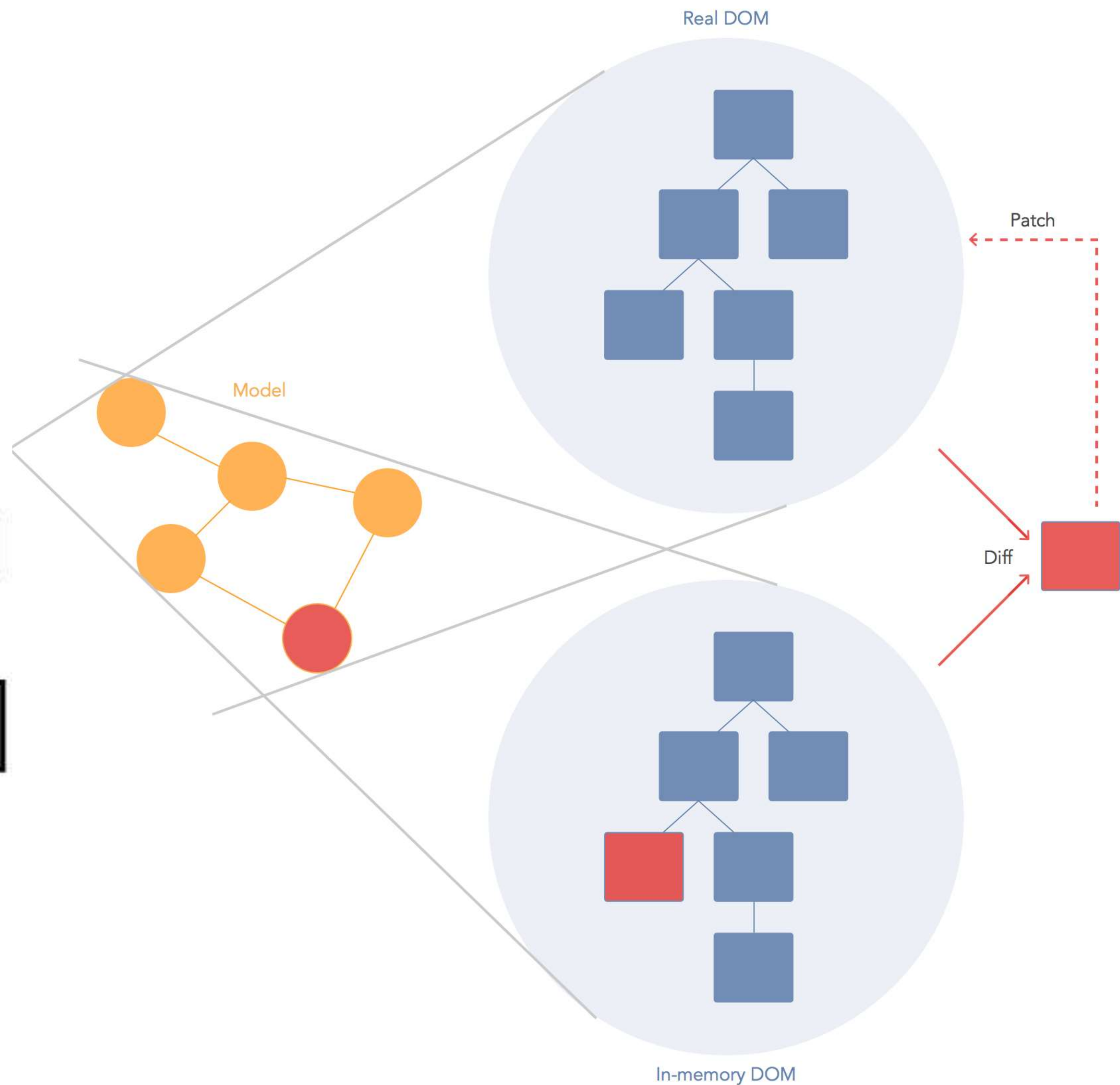
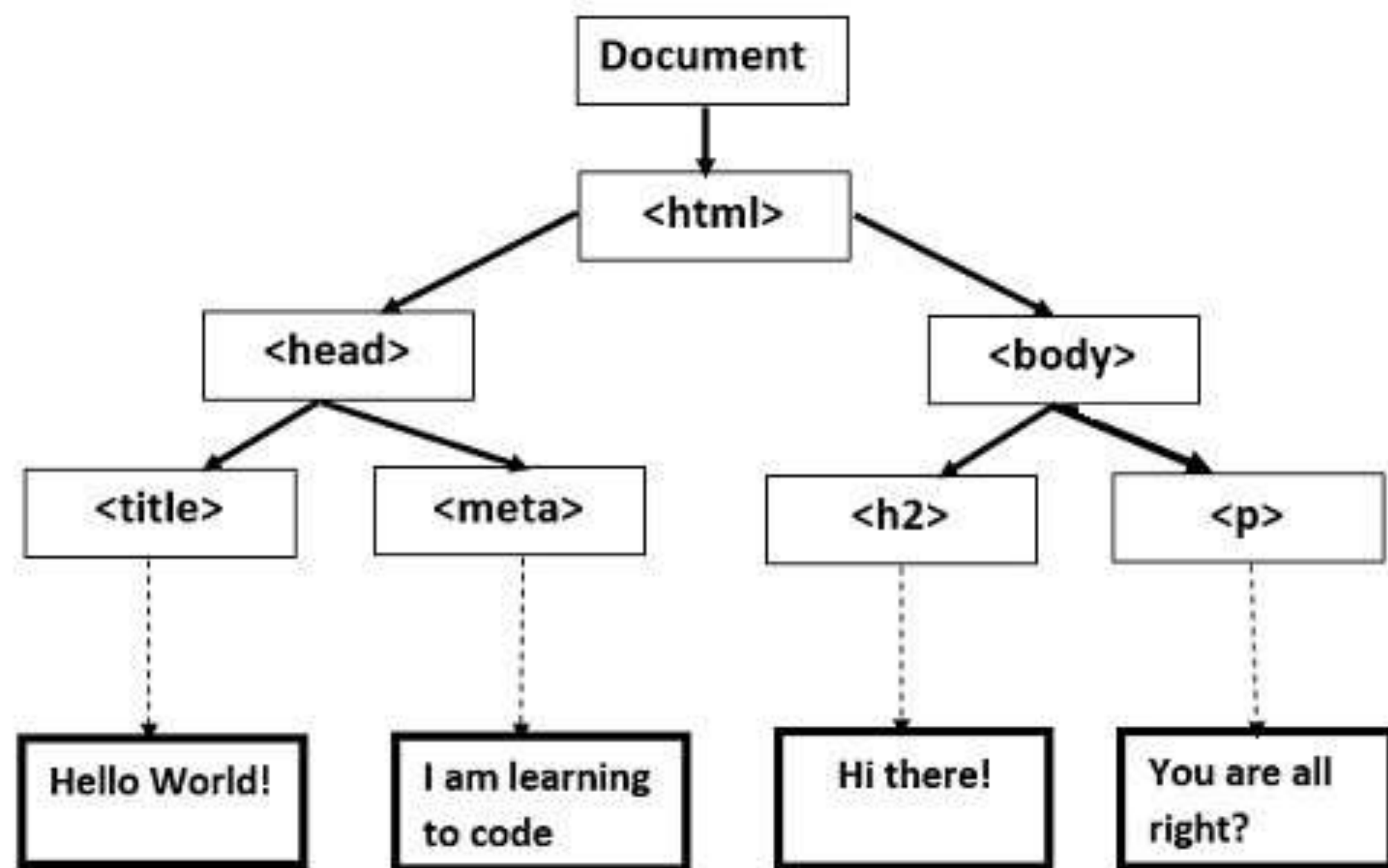
jashkenas / backbone

Give your JS App some Backbone with Models, Views, Collections, and Events

JavaScript ★ 26,757 🍷 5,739 Updated 11 days ago



Virtual DOM



Компонент (.JSX)

```
import React, { Component } from 'react';  
import PropTypes from 'prop-types';
```

```
export default class HelloWorld extends Component {  
  render() {  
    return (  
      <p>Hello <strong>{this.props.name}</strong></p>  
    );  
  }  
}
```

```
Comment.propTypes = {  
  name: PropTypes.string.isRequired  
};
```


Поддержка TypeScript (.TSX)

```
import React = __React;

interface HelloWorldProps extends React.Props<any> {
  Name: string;
}

class HelloMessage extends React.Component<HelloWorldProps, {}> {
  render() {
    return <div>Hello {this.props.Name}</div>;
  }
}
```

T

Debug & React Developer Tools

```
33 request = debounce(searchText => searchText = "sdds")
34 {
35   this.setState({
36     loading: true
37   });
38   var xhr = new XMLHttpRequest();
39   xhr.open('GET', "/Home/Search/?text=" + searchText, true);
40   xhr.setRequestHeader("Content-Type", "application/json");
41   xhr.onload = () => {
42     var data = JSON.parse(xhr.responseText);
43     this.setState({
44       users: data.users,
45       loading: false
46     });
47   };
48   xhr.send();
49 }, 200)
50
51 handleChange = (evt) => {
52   this.setState({
53     searchText: evt.target.value,
54   });
55 };
56
```



csharp_dotnet

1312 followers

C#.NET Programming (C# | .NET)



programming_csharp

1022 followers

C#programmer

```
<input type="text" onChange=fn()></input>
<h1>Users</h1>
▼ <ol className="userList">
  ▼ <User key="3676216412" user={has_anonymous_profile_
    ▼ <li>
      ▶ <Avatar picUrl="https://instagram.fhen1-1.fna.f
        <p>csharp_dotnet</p>
        <p>1312 followers</p>
        <strong>C#.NET Programming (C# | .NET)</strong>
      </li>
    </User>
    ▶ <User key="4867253815" user={has_anonymous_profile_
    ▶ <User key="4262877642" user={has_anonymous_profile_
    ▶ <User key="937379970" user={has_anonymous_profile_
    ▶ <User key="1797717013" user={has_anonymous_profile_
    ▶ <User key="971347" user={has_anonymous_profile_pic
    ▶ <User key="45347476" user={has_anonymous_profile n
  </ol>
Instagram div ol User
  byline: "1312 followers"
  follower_count: 1312
  full_name: "C#.NET Programming (C# | .NET)"
  has_anonymous_profile_picture: false
  is_private: false
```

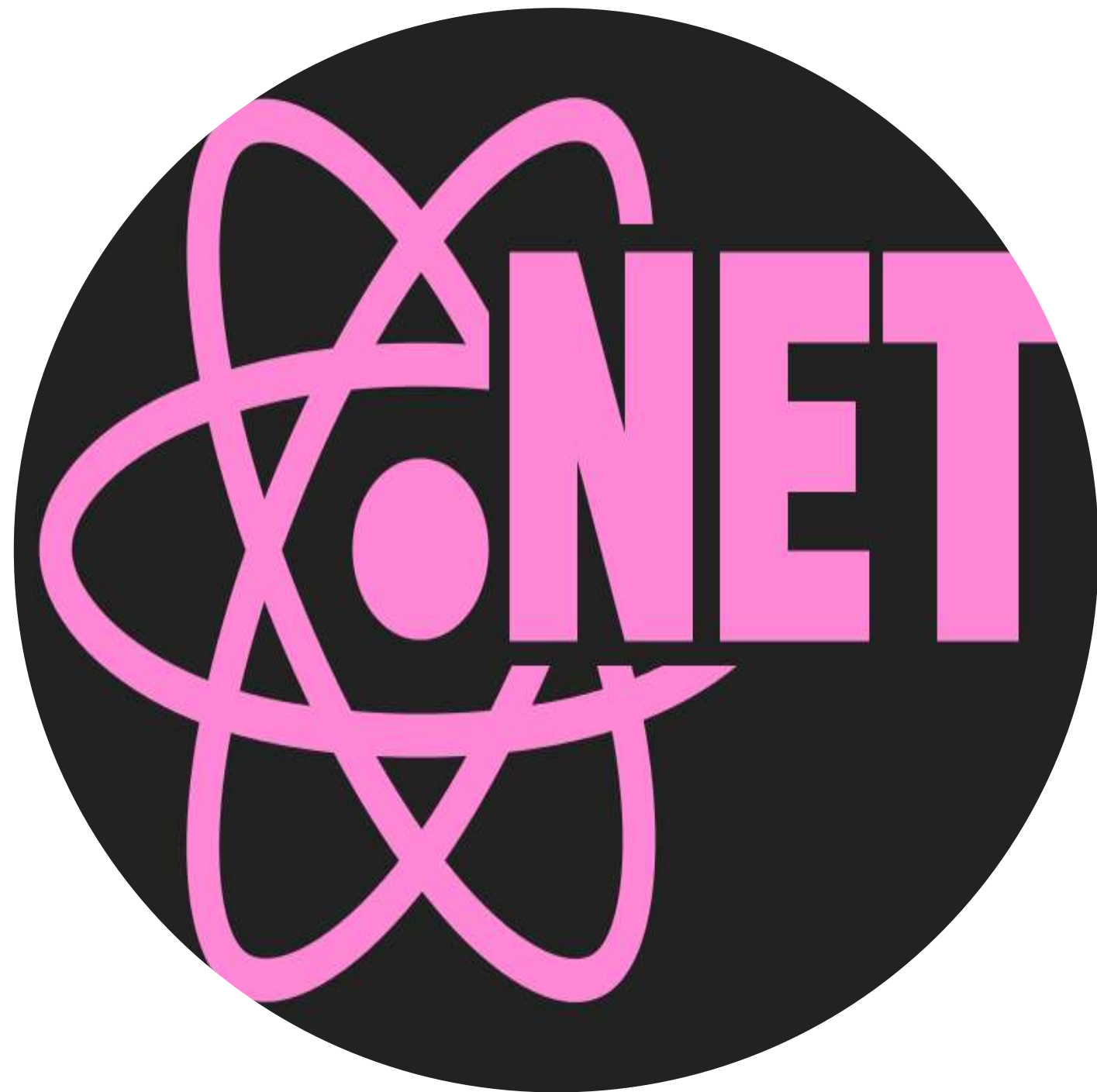
ReactJS.NET

- ✓ In Process rendering (V8, ChakraCore...)
- ✓ ASP MVC (3, 4, 5), [ASP.NET](#) Web Forms, Nancy, ASP .NET Core
- ✓ Постепенный переход на SPA

JavaScriptServices

- ✓ Out of Process rendering (Node.JS)
- ✓ ASP .NET Core
- ✓ SPA ориентированный подход

ReactJS.NET



Поддержка серверного рендеринга

Простая интеграция

On-the-fly JSX to JavaScript компиляция

Устройство библиотеки



JavaScriptEngineSwitcher

Google V8

- ✓ Windows
- ✓ Microsoft (ClearScript) / Google
- ✓ Немного быстрее

Microsoft ChakraCore

- ✓ Windows, Linux, OS X
- ✓ Microsoft

Подключение

```
JsEngineSwitcher engineSwitcher = JsEngineSwitcher.Instance;  
engineSwitcher.EngineFactories  
    .AddV8();  
  
engineSwitcher.DefaultEngineName = V8JsEngine.EngineName;  
  
ReactSiteConfiguration.Configuration  
    .SetLoadBabel(false)  
    .SetLoadReact(false)  
    .AddScriptWithoutTransform("~/js/server.js");
```

Интеграция в Razor

```
@Html.Partial("Instagram", Model)
```

```
@Html.React("Components.Instagram", Model)
```


SEO и Server Side Rendering

```
▼<div id="react_YfyUdbGwVkKuBVFVAqjLoA">
  ▼<div class="menu-wrapper" data-reactroot data-reactid="1" data-react-checksum=
    "-515571534">
    ▼<ul class="menu" data-reactid="2">
      ►<li class="menu-item menu-item_search" data-reactid="3">...</li>
      ▼<li class="menu-item" data-reactid="14">
        <a class="menu-item-link" href="/msk/" data-track-category="Navigation" data-
          track-click="Menu All Click" data-type="all" data-reactid="15" data-tracked=
            "true">BCE</a>
        </li>
      ►<li class="menu-item" data-reactid="16">...</li>
      ►<li class="menu-item" data-reactid="73">...</li> == $0
```

Профайлинг MiniProfiler

<https://github.com/MiniProfiler/dotnet>

Профайлинг

```
public static IHtmlString React<T>(
    this IHtmlHelper htmlHelper,
    string componentName,
    T props,
    string htmlTag = null,
    string containerId = null,
    bool clientOnly = false,
    bool serverOnly = false,
    string containerClass = null)
{
    using (MiniProfiler.Current.Step($"React: {componentName}"))
    {
        return htmlHelper.React(
            componentName,
            props,
            htmlTag,
            containerId,
            clientOnly,
            serverOnly,
            containerClass);
    }
}
```

254.8 ms

Movie/IndexAsync

APP-007

	duration
	10.0
Controller: MovieController.IndexAsync	19.3
Render: Index	7.6
React: __components.UnitTitle	2.4
React: __components.UnitActions	5.9
React: __components.MediaSlider	11.4
React: __components.RestrictText	2.5
React: __components.RestrictText	2.1
React: __components._Summary	3.2
React: __components.Rating	4.4
React: __components.Rating	3.9
React: __components.Rating	3.6
React: __components.Rating	2.2
React: __components.KidsInfo	4.5
React: __components._Review	32.8
React: __components._ReviewsList	31.4
React: __components._Gallery	27.0
React: __components.SchedulePopup	18.4
React: __components.Search	3.5
React: __components.SidePanelData	6.2
React: __components.Notice	2.5
React: __components.FeedbackPopup	4.7
ReactInitJavaScript	17.0

client event	duration
Response	13.0
Dom Content Loaded Event	15.0
Dom Complete	
Load Event	5.0

[share](#)

[more columns](#)

[show trivial](#)

Производительность

Медленный компонент

Main/Index	
	duration
	11.2
Controller: MainController.Index	38.1
Render: Index	2.8
Render partial: All	7.8
React: __desktopComponents.TicketB...	2.4
Render partial: Widgets/Main/Tiles/Cre...	2.1
React: __desktopComponents.Creatio...	2.2
React: __desktopComponents.TicketB...	2.0
Controller: RatingController.Rating	2.1
React: __desktopComponents.Creatio...	2.1
React: __desktopComponents.Creatio...	9.3
React: __desktopComponents.Creatio...	8.7
React: __desktopComponents.Creatio...	9.6
React: __desktopComponents.Creatio...	6.9
React: __desktopComponents.Creatio...	7.7
React: __desktopComponents.Selecti...	13.5
React: __desktopComponents.UserInfo	8.0
React: __desktopComponents.Header...	138.3
client event	
Response	58.0
Dom Content Loaded Event	9.0
Load Event	11.0
Dom Complete	
share	
more columns	
show trivial	



Main/Index	
	duration
	2.2
Controller: MainController.Index	26.2
Render partial: All	4.8
React: __desktopComponents.TicketB...	5.1
React: __desktopComponents.Creatio...	6.4
React: __desktopComponents.TicketB...	6.2
React: __desktopComponents.Creatio...	6.7
React: __desktopComponents.Sponsor	7.9
React: __desktopComponents.TicketB...	5.4
React: __desktopComponents.Creatio...	3.9
React: __desktopComponents.Creatio...	3.6
React: __desktopComponents.TicketB...	4.3
React: __desktopComponents.Creatio...	4.3
React: __desktopComponents.Header...	6.1
client event	
Response	4.0
Dom Content Loaded Event	22.0
Dom Complete	
Load Event	7.0
share	
more columns	
show trivial	

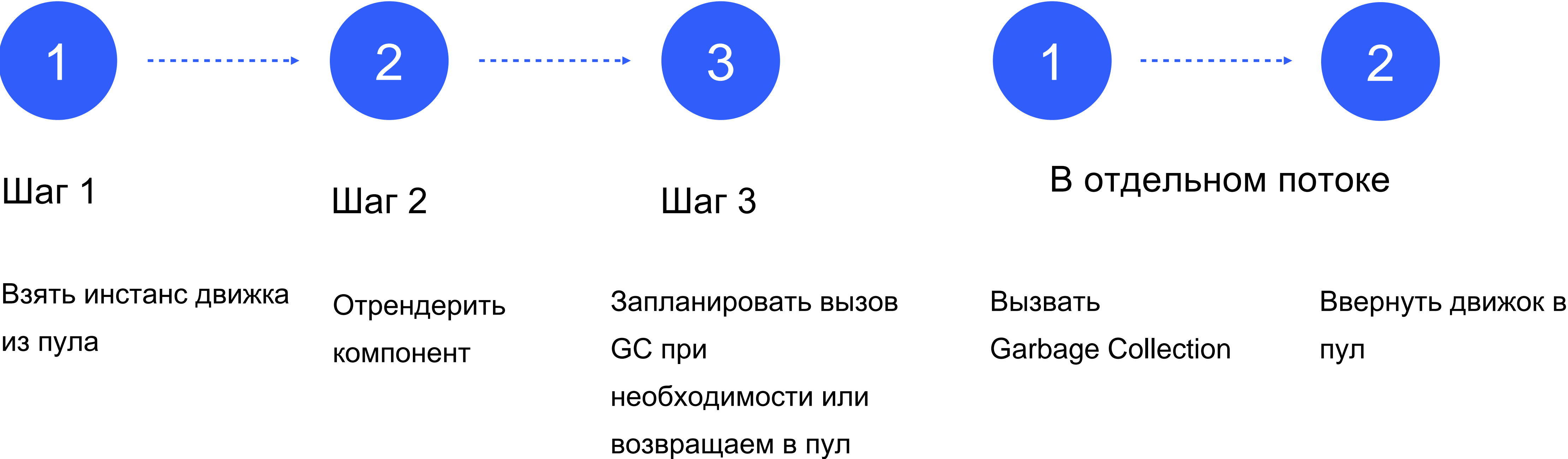
Под нагрузкой появляются проблемы

Render partial: Movie	7.9
React: __components.OnboardingBan...	21.3
React: __components.RestrictText	12.1
React: __components.RestrictText	681.8
React: __components.RestrictText	4.1
React: __components.Tile	5.8
React: __components.Tile	1825.7
React: __components.Tile	5.4
React: __components.Tile	5.3
React: __components.Tile	800.4
React: __components.Sponsor	6.0

Pipeline отрисовки компонентов



Новый Pipeline отрисовки компонентов



Too Many Components

Render: Index	5.5
Render partial: All	6.4
Find: Widgets/Main/Tiles/Special/Bann...	6.3
Find: Widgets/AdFox/BannerNative	2.0
React: __desktopComponents.TicketB...	17.4
React: __desktopComponents.Creatio...	20.5
React: __desktopComponents.TicketB...	18.0
React: __desktopComponents.Creatio...	15.4
React: __desktopComponents.Sponsor	15.5
React: __desktopComponents.TicketB...	15.5
React: __desktopComponents.Creatio...	15.4
React: __desktopComponents.Creatio...	17.2
React: __desktopComponents.Creatio...	16.7
React: __desktopComponents.Creatio...	18.7
React: __desktopComponents.Creatio...	18.8
React: __desktopComponents.Creatio...	17.0
React: __desktopComponents.Creatio...	17.8
React: __desktopComponents.Creatio...	18.9
React: __desktopComponents.Creatio...	15.5
React: __desktopComponents.Selecti...	18.7
React: __desktopComponents.PopupCo...	14.2
React: __desktopComponents.UserInfo	16.7
React: __desktopComponents.Header...	13.6
React: __desktopComponents.FooterF...	14.3
ReactInitJavaScript	14.7



Render: Index	3.0
Render partial: All	7.4
React: __desktopComponents.AllCrea...	60.2
React: __desktopComponents.Selecti...	4.3
React: __desktopComponents.UserInfo	6.0
React: __desktopComponents.Header...	23.3

Demo

<https://github.com/DaniilSokolyuk/ReactJsDotNetMeetup>

Спасибо!