

# React 前后端同构之道



## About me

杨春文

2012 - 2015    百度  
2015 - now    腾讯



<http://imweb.io>



# 同构

- React
- why
- How
- Challenge



## Thinking in React



## Thinking in React



web component

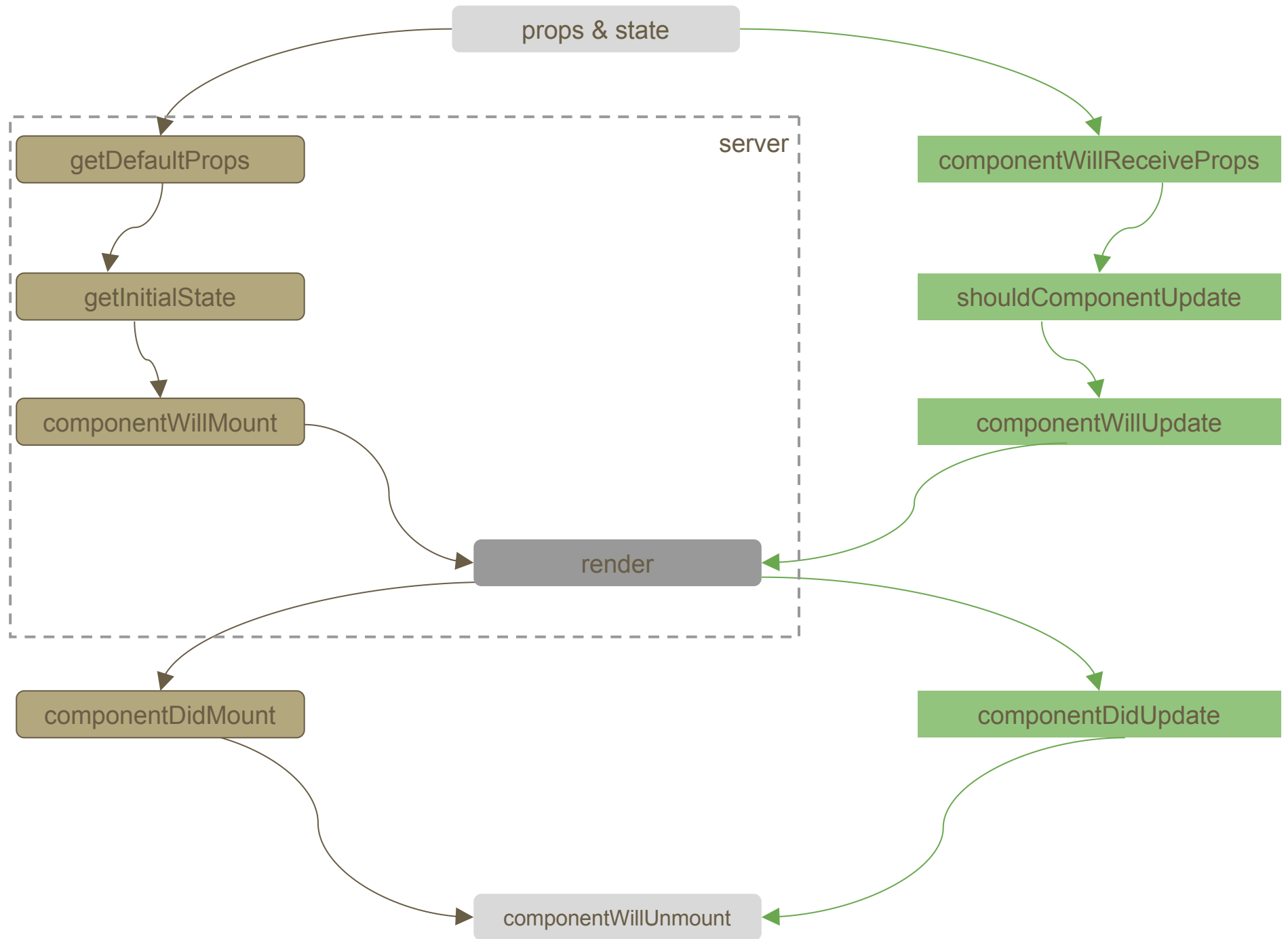
## Thinking in React

```
class Face extends React.Component {  
  render () {  
    return (  
      <div>  
        <img src={this.props.url} />  
  
        <span>  
          {this.props.name}  
        </span>  
      </div>  
    );  
  }  
}
```

## Thinking in React

```
let url = 'http://a.com/b.png';
let name = 'foo';

ReactDOM.render(
  (
    <Page>
      <Header>
        <Face url={url} name={name} />
      </Header>
      <Tab />
      <Content />
      ...
    </Page>
  ),
  document.body
);
```





## React + Redux



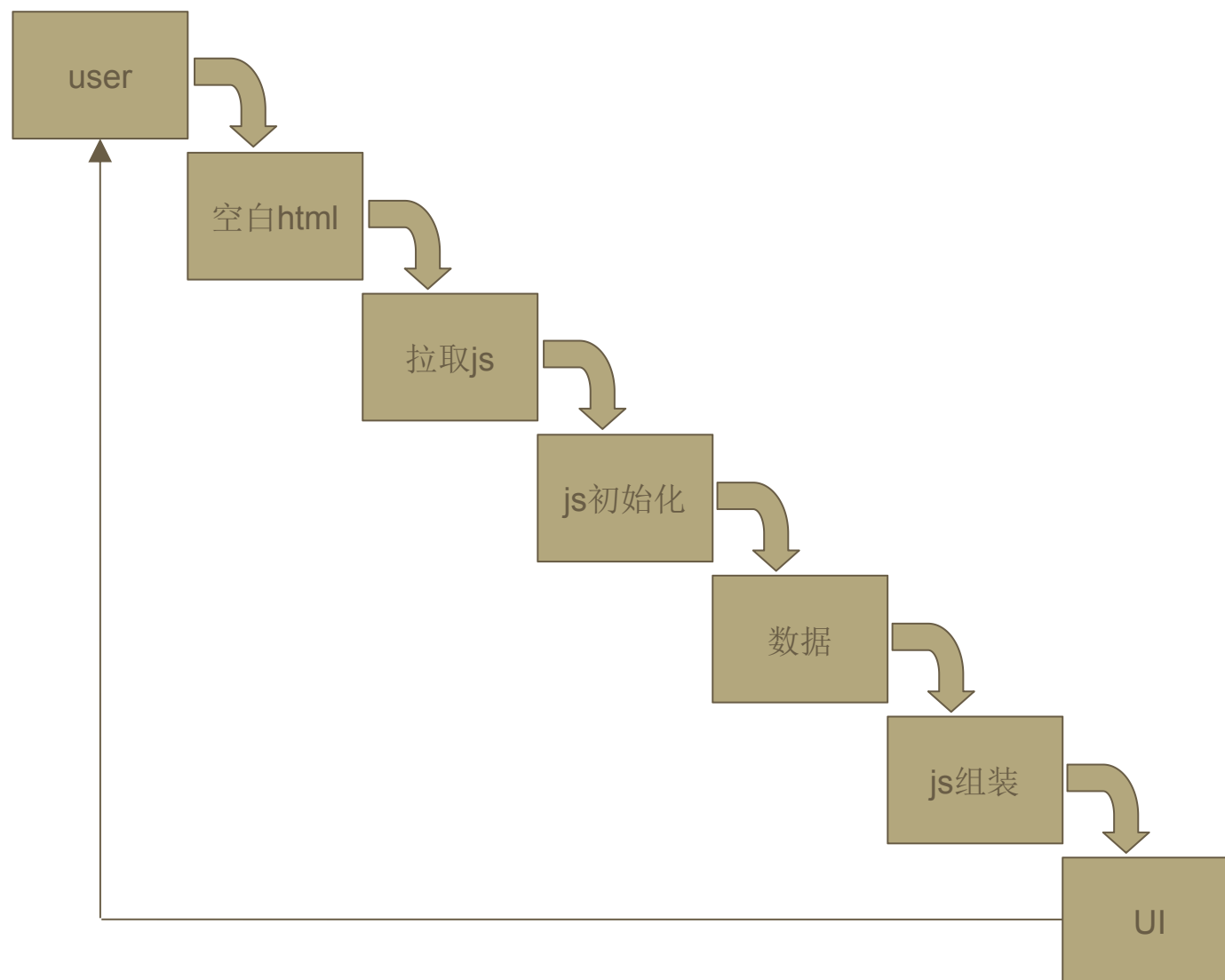
数据 $\leftrightarrow$ UI解耦

架构清晰

维护方便

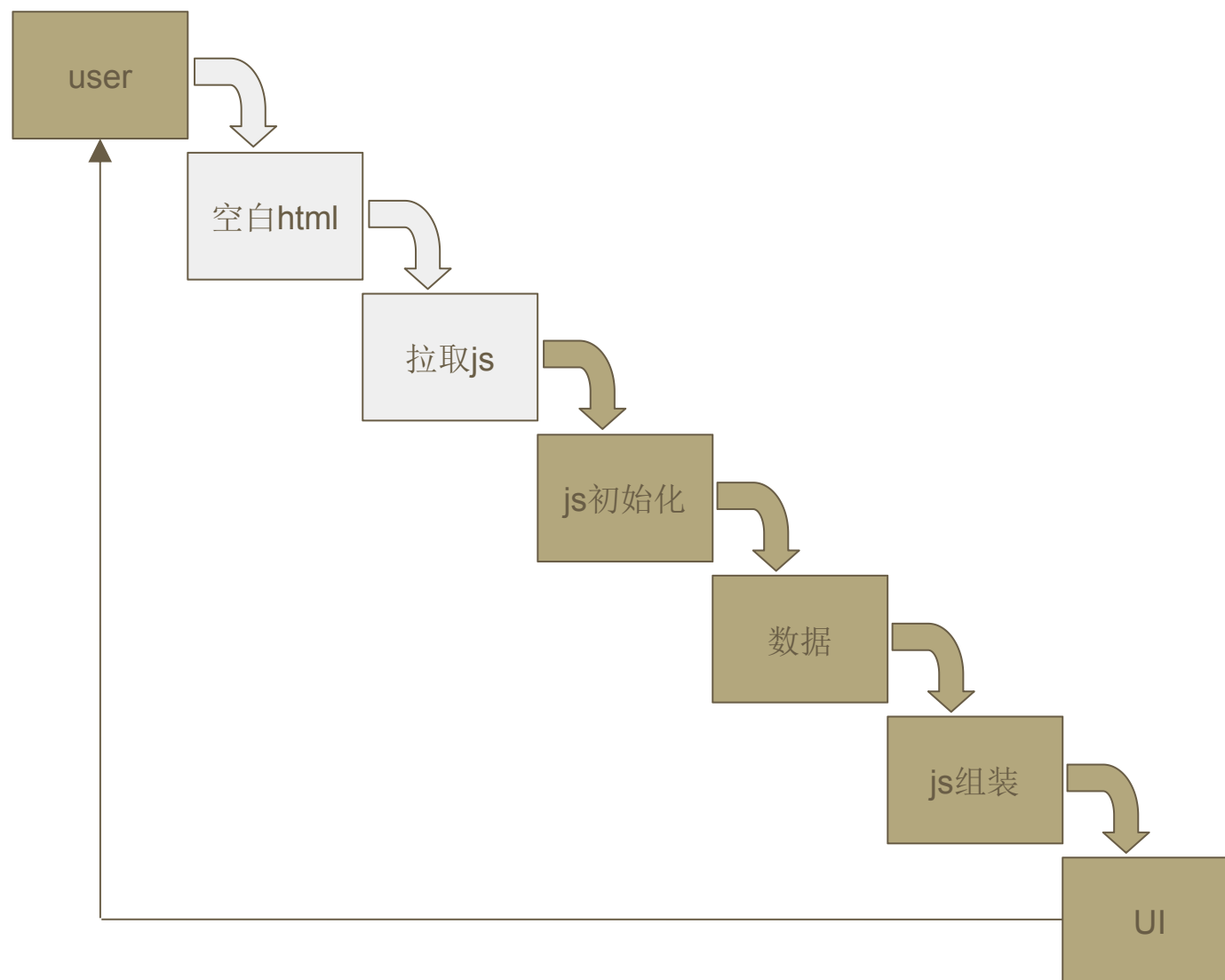
组件很容易前后端复用

## 最初做法



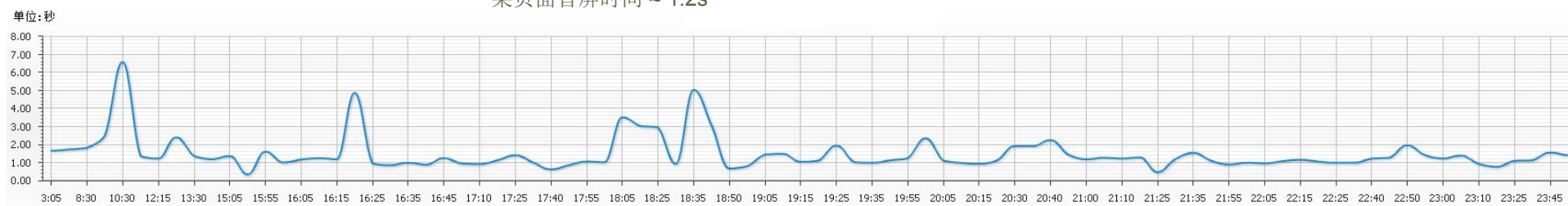


## 离线包

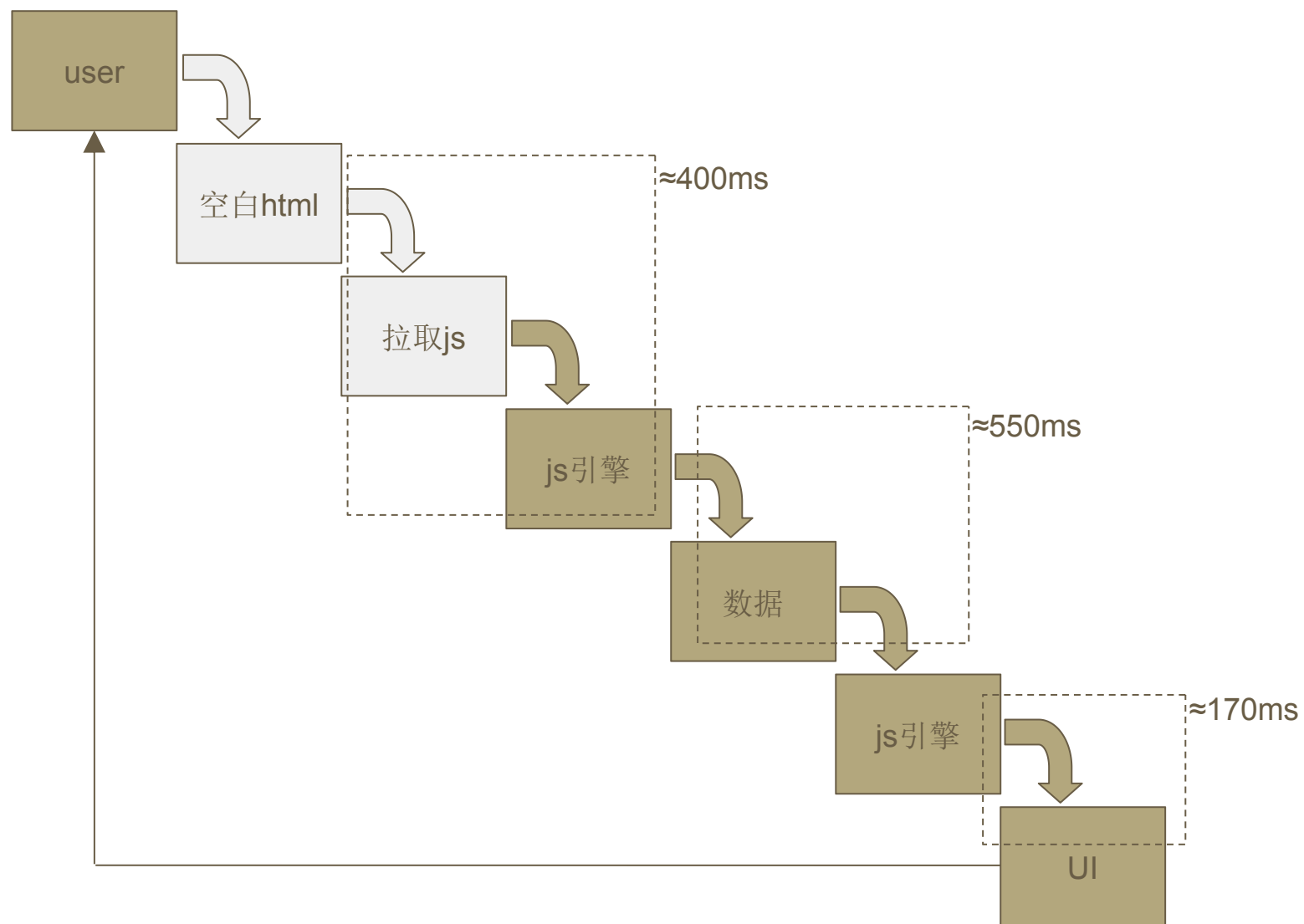


## (离线包)首屏时间

某页面首屏时间  $\approx 1.2\text{s}$



时间都去哪了



## React引擎初始化

```
<body>  
  <script>var T = Date.now();</script>  
  <script src="react.js?__inline"></script>  
  <script>  
    var cost = (Date.now() - T);  
  </script>  
</body>
```

Elements Sources Network Timeline Profiles Resources Security Audits Console

Tree (Top Down) [Icons]

Profiles

CPU PROFILES

Profile 1 Save

	Self	Total	Function	
0 ms 0 %	74.1 ms 62.02 %	▼ (anonymous function)	react.js:1	
27.4 ms 22.95 %	74.1 ms 62.02 %	▼ (anonymous function)	react.js:4	
0.4 ms 0.30 %	46.7 ms 39.08 %	▼ (anonymous function)	react.js:22	
0.1 ms 0.10 %	46.3 ms 38.78 %	▼ e	react.js:24	
0.1 ms 0.10 %	46.2 ms 38.68 %	▼ s	react.js:25	
0 ms 0 %	46.1 ms 38.58 %	▼ 93.172	react.js:14744	
0 ms 0 %	46.1 ms 38.58 %	▼ (anonymous function)	react.js:37	
1.0 ms 0.80 %	46.1 ms 38.58 %	▼ s	react.js:25	
2.0 ms 1.70 %	42.5 ms 35.57 %	▼ 37.122	react.js:6934	
0.7 ms 0.60 %	2.9 ms 2.40 %	▶ inject	react.js:10710	
0.5 ms 0.40 %	1.1 ms 0.90 %	▶ debug		
0 ms 0 %	36.5 ms 30.56 %	▼ (anonymous function)	react.js:37	
1.4 ms 1.20 %	36.5 ms 30.56 %	▼ s	react.js:25	
0 ms 0 %	0.6 ms 0.50 %	▶ 41.10	react.js:8141	
0 ms 0 %	34.1 ms 28.56 %	▼ 61.13	react.js:10675	
0 ms 0 %	34.1 ms 28.56 %	▼ (anonymous function)	react.js:37	
5.4 ms 4.51 %	34.1 ms 28.56 %	▼ s	react.js:25	
0.5 ms 0.40 %	1.6 ms 1.30 %	▶ 99.100	react.js:15808	
0.5 ms 0.40 %	0.7 ms 0.60 %	▶ 97	react.js:15291	
0.1 ms 0.10 %	4.1 ms 3.41 %	▼ 2.102	react.js:77	
0 ms 0 %	4.0 ms 3.31 %	▼ (anonymous function)	react.js:37	
0.5 ms 0.40 %	4.0 ms 3.31 %	▼ s	react.js:25	
0.1 ms 0.10 %	0.4 ms 0.30 %	▼ 16.164	react.js:2393	
0.1 ms 0.10 %	0.1 ms 0.10 %	keyMirror	react.js:21149	
0 ms 0 %	0.1 ms 0.10 %	▼ (anonymous function)	react.js:37	
0.1 ms 0.10 %	0.1 ms 0.10 %	s	react.js:25	
0.1 ms 0.10 %	0.1 ms 0.10 %	147	react.js:20296	
0.1 ms 0.10 %	0.4 ms 0.30 %	▶ 21.132	react.js:3382	
0.1 ms 0.10 %	0.6 ms 0.50 %	▶ 102.104	react.js:16794	
0 ms 0 %	1.9 ms 1.60 %	▶ 20.115	react.js:3236	
0 ms 0 %	0.1 ms 0.10 %	▶ 106.104	react.js:17181	
0.1 ms 0.10 %	0.1 ms 0.10 %	22.10	react.js:3483	
0.1 ms 0.10 %	3.8 ms 3.21 %	▶ 6.104	react.js:970	
0.1 ms 0.10 %	12.8 ms 10.72 %	▼ 39.1	react.js:7078	
0 ms 0 %	12.7 ms 10.62 %	▼ (anonymous function)	react.js:37	
3.2 ms 2.71 %	12.7 ms 10.62 %	▼ s	react.js:25	
0.2 ms 0.20 %	0.6 ms 0.50 %	▶ 27.114	react.js:4128	
0.1 ms 0.10 %	1.2 ms 1.00 %	▶ 4.120	react.js:641	
0 ms 0 %	0.1 ms 0.10 %	▶ 1.155	react.js:48	
0 ms 0 %	0.8 ms 0.70 %	▶ 11.10	react.js:1885	
0 ms 0 %	0.1 ms 0.10 %	▶ 38.14	react.js:7050	
0 ms 0 %	2.2 ms 1.80 %	▼ 48.11	react.js:8754	
0 ms 0 %	2.2 ms 1.80 %	▼ (anonymous function)	react.js:37	
0.4 ms 0.30 %	2.2 ms 1.80 %	▼ s	react.js:25	
0.1 ms 0.10 %	1.8 ms 1.50 %	▼ 24.139	react.js:3756	
0 ms 0 %	1.7 ms 1.40 %	▼ (anonymous function)	react.js:37	
0.6 ms 0.50 %	1.7 ms 1.40 %	▼ s	react.js:25	
0.2 ms 0.20 %	1.1 ms 0.90 %	▼ 85.130	react.js:13509	
0 ms 0 %	0.7 ms 0.60 %	▼ (anonymous function)	react.js:37	
0.6 ms 0.50 %	0.7 ms 0.60 %	▼ s	react.js:25	
0 ms 0 %	0.1 ms 0.10 %	▼ 62.117	react.js:10780	
0 ms 0 %	0.1 ms 0.10 %	▼ (anonymous function)	react.js:37	
0.1 ms 0.10 %	0.1 ms 0.10 %	s	react.js:25	
0 ms 0 %	0.1 ms 0.10 %	▼ createPrimitiveTypeChecker	react.js:13637	
0.1 ms 0.10 %	0.1 ms 0.10 %	createChainableTypeChecker	react.js:13616	
0 ms 0 %	1.0 ms 0.80 %	▶ 51.171	react.js:9085	
0 ms 0 %	2.9 ms 2.40 %	▶ 78.123	react.js:12713	
0 ms 0 %	0.6 ms 0.50 %	▶ 91.113	react.js:14495	
0.1 ms 0.10 %	0.2 ms 0.20 %	▶ 60.113	react.js:10600	
0 ms 0 %	2.4 ms 2.00 %	▶ 32.47	react.js:5667	
0 ms 0 %	0.2 ms 0.20 %	▶ 67.128	react.js:11523	
0 ms 0 %	1.6 ms 1.30 %	▶ 71.10	react.js:11836	
0 ms 0 %	0.5 ms 0.40 %	▶ 86.113	react.js:13919	
0 ms 0 %	0.7 ms 0.60 %	▶ 15.108	react.js:2276	
0 ms 0 %	0.2 ms 0.20 %	▶ 77.10	react.js:12189	
0 ms 0 %	0.1 ms 0.10 %	▶ 123.120	react.js:18737	



Elements Sources Network Timeline Profiles Resources Security Audits Console

Tree (Top Down) Self Total Function

Profiles

CPU PROFILES

Profile 1 Save

0 ms 0% 74.1 ms 62.02% ▼ (anonymous function) react.js:1

27.4 ms 22.95% 74.1 ms 62.02% ▼ (anonymous function) react.js:4

0.4 ms 0.30% 46.7 ms 39.08% ▼ (anonymous function) react.js:22

0.1 ms 0.10% 46.3 ms 38.78% ▼ e react.js:24

0.1 ms 0.10% 46.2 ms 38.68% ▼ s react.js:25

0 ms 0% 46.1 ms 38.58% ▼ 93.172 react.js:14744

0 ms 0% 46.1 ms 38.58% ▼ (anonymous function) react.js:37

1.0 ms 0.80% 46.1 ms 38.58% ▼ s react.js:25

2.0 ms 1.70% 42.5 ms 35.57% ▼ 37.122 react.js:6934

0.7 ms 0.60% 2.9 ms 2.40% ▶ inject react.js:10710

0.5 ms 0.40% 1.1 ms 0.90% ▶ debug

0 ms 0% 36.5 ms 30.56% ▼ (anonymous function)

1.4 ms 1.20% 36.5 ms 30.56% ▼ s

0 ms 0% 0.6 ms 0.50% ▶ 41.10

0 ms 0% 34.1 ms 28.56% ▼ 61.13

0 ms 0% 34.1 ms 28.56% ▼ (anonymous function)

5.4 ms 4.51% 34.1 ms 28.56% ▼ s

0.5 ms 0.40% 1.6 ms 1.30% ▶ 99.100

0.5 ms 0.40% 0.7 ms 0.60% ▶ 97

14747 93: [function(\_deref\_, module, exports) {

14748 /\*\*

14749 \* Copyright 2013-present, Facebook, Inc.

14750 \* All rights reserved.

14751 \*

14752 \* This source code is licensed under the BSD-style license found in the

14753 \* LICENSE file in the root directory of this source tree. An additional grant

14754 \* of patent rights can be found in the PATENTS file in the same directory.

14755 \*

14756 \* @providesModule ReactUMDEntry

14757 \*/

14758

14759 'use strict';

14760 ;

14761 var \_assign = \_deref\_(172);

14762

14763 var ReactDOM = \_deref\_(37);

14764 var ReactDOMServer = \_deref\_(54);

14765 var React = \_deref\_(26);

14766

0 ms 0% 1.0 ms 0.80% ▶ 51.171

0 ms 0% 2.9 ms 2.40% ▶ 78.123

0 ms 0% 0.6 ms 0.50% ▶ 91.113

0.1 ms 0.10% 0.2 ms 0.20% ▶ 60.113

0 ms 0% 2.4 ms 2.00% ▶ 32.47

0 ms 0% 0.2 ms 0.20% ▶ 67.128

0 ms 0% 1.6 ms 1.30% ▶ 71.10

0 ms 0% 0.5 ms 0.40% ▶ 86.113

0 ms 0% 0.7 ms 0.60% ▶ 15.108

0 ms 0% 0.2 ms 0.20% ▶ 77.10

0 ms 0% 0.1 ms 0.10% ▶ 123.120

react.js:1  
react.js:4  
react.js:22  
react.js:24  
react.js:25  
react.js:14744  
react.js:37  
react.js:25  
react.js:6934  
react.js:10710  
react.js:37  
react.js:25  
react.js:8141  
react.js:10675  
react.js:37  
react.js:25  
react.js:15808  
react.js:15291  
react.js:77  
react.js:37  
react.js:25  
react.js:2393  
react.js:21149  
react.js:37  
react.js:25  
react.js:20296  
react.js:3382  
react.js:16794  
react.js:3236  
react.js:17181  
react.js:3483  
react.js:970  
react.js:7078  
react.js:37  
react.js:25  
react.js:4128  
react.js:641  
react.js:48  
react.js:1885  
react.js:7050  
react.js:8754  
react.js:37  
react.js:25  
react.js:3756  
react.js:37  
react.js:25  
react.js:13509  
react.js:37  
react.js:25  
react.js:10780  
react.js:37  
react.js:25  
react.js:13637  
react.js:13616  
react.js:9085  
react.js:12713  
react.js:14495  
react.js:10600  
react.js:5667  
react.js:11523  
react.js:11836  
react.js:13919  
react.js:2276  
react.js:12189  
react.js:18737

## React引擎初始化

Elements	Sources	Network	Timeline	Profiles	Resources	Security	Audits	Console
Tree (Top Down) ▼ 🔍 ✕ ↺								
Self ▼		Total		Function				
88.6 ms		1188.6 ms		(idle)				
38.7 ms	32.36 %	38.7 ms	32.36 %	(program)				
5.6 ms	4.71 %	5.6 ms	4.71 %	(garbage collector)				
0.2 ms	0.20 %	0.2 ms	0.20 %	(anonymous function)				
0 ms	0 %	0.6 ms	0.50 %	▶ (anonymous function)				
0 ms	0 %	74.1 ms	62.02 %	▼ (anonymous function)				
27.4 ms	22.95 %	74.1 ms	62.02 %	▼ (anonymous function)				
0.4 ms	0.30 %	46.7 ms	39.08 %	▼ (anonymous function)				
0.1 ms	0.10 %	46.3 ms	38.78 %	▼ e				
0.1 ms	0.10 %	46.2 ms	38.68 %	▼ s				
0 ms	0 %	46.1 ms	38.58 %	▼ 93.172				
0 ms	0 %	46.1 ms	38.58 %	▼ (anonymous function)				
1.0 ms	0.80 %	46.1 ms	38.58 %	▼ s				
2.0 ms	1.70 %	42.5 ms	35.57 %	▶ 37.122				
0.1 ms	0.10 %	0.4 ms	0.30 %	▶ 172				
0 ms	0 %	0.2 ms	0.20 %	▶ 54.61				
0 ms	0 %	2.0 ms	1.70 %	▶ 26.137				

## React引擎初始化

Elements Sources Network Timeline Profiles Resources Security Audits Console

Tree (Top Down) ▼ 🔍 ✕ ↺

	Self ▼	Total	Function
88.6 ms		1188.6 ms	(idle)
38.7 ms	32.36 %	38.7 ms 32.36 %	(program)
5.6 ms	4.71 %	5.6 ms 4.71 %	(garbage collector)
0.2 ms	0.20 %	0.2 ms 0.20 %	(anonymous function)
0 ms	0 %	0.6 ms 0.50 %	▶ (anonymous function)
0 ms	0 %	74.1 ms 62.02 %	▼ (anonymous function)
27.4 ms	22.95 %	74.1 ms 62.02 %	▼ (anonymous function)
0.4 ms	0.30 %	46.7 ms 39.08 %	▼ (anonymous function)
0.1 ms	0.10 %	46.3 ms 38.78 %	▼ e
0.1 ms	6934		37: [function(_dereq_, module, exports) {
0 ms	6935		/**
0 ms	6936		* Copyright 2013-present, Facebook, Inc.
1.0 ms	6937		* All rights reserved.
2.0 ms	6938		*
0.1 ms	6939		* This source code is licensed under the BSD-style license found in the
0 ms	6940		* LICENSE file in the root directory of this source tree. An additional gr
0 ms	6941		* of patent rights can be found in the PATENTS file in the same directory.
	6942		*
	6943		* @providesModule ReactDOM
	6944		*/
	6945		
	6946		/* globals __REACT_DEVTOOLS_GLOBAL_HOOK__*/
	6947		
	6948		'use strict';
	6949		
	6950		var ReactDOMComponentTree = _dereq_(41);

```
37: [function(_dereq_, module, exports) {  
  /**  
   * Copyright 2013-present, Facebook, Inc.  
   * All rights reserved.  
   *  
   * This source code is licensed under the BSD-style license found in the  
   * LICENSE file in the root directory of this source tree. An additional gr  
   * of patent rights can be found in the PATENTS file in the same directory.  
   *  
   * @providesModule ReactDOM  
  */  
  
  /* globals __REACT_DEVTOOLS_GLOBAL_HOOK__*/  
  
  'use strict';  
  
  var ReactDOMComponentTree = _dereq_(41);
```

## React引擎初始化

Elements Sources Network Timeline Profiles Resources Security Audits Console									
Tree (Top Down) ▼ 🔍 ✕ ↺									
Self ▼		Total		Function					
1188.6 ms		1188.6 ms		(idle)					
38.7 ms	32.36 %	38.7 ms	32.36 %	(program)					
5.6 ms	4.71 %	5.6 ms	4.71 %	(garbage collector)					
0.2 ms	0.20 %	0.2 ms	0.20 %	(anonymous function)					
0 ms	0 %	0.6 ms	0.50 %	▶ (anonymous function)					
0 ms	0 %	74.1 ms	62.02 %	▼ (anonymous function)					
27.4 ms	22.95 %	74.1 ms	62.02 %	▼ (anonymous function)					
0.4 ms	0.30 %	46.7 ms	39.08 %	▼ (anonymous function)					
0.1 ms	0.10 %	46.3 ms	38.78 %	▼ e					
0.1 ms	0.10 %	46.2 ms	38.68 %	▼ s					
0 ms	0 %	46.1 ms	38.58 %	▼ 93.172					
0 ms	0 %	46.1 ms	38.58 %	▼ (anonymous function)					
1.0 ms	0.80 %	46.1 ms	38.58 %	▼ s					
2.0 ms	1.70 %	42.5 ms	35.57 %	▼ 37.122					
0.7 ms	0.60 %	2.9 ms	2.40 %	▶ inject					
0.5 ms	0.40 %	1.1 ms	0.90 %	▶ debug					
0 ms	0 %	36.5 ms	30.56 %	▼ (anonymous function)					
1.4 ms	1.20 %	36.5 ms	30.56 %	▼ s					
0 ms	0 %	0.6 ms	0.50 %	▶ 41.10					
0 ms	0 %	34.1 ms	28.56 %	▶ 61.13					
0 ms	0 %	0.2 ms	0.20 %	▶ 77.10					
0 ms	0 %	0.1 ms	0.10 %	▶ 122.129					
0.1 ms	0.10 %	0.4 ms	0.30 %	▶ 172					
0 ms	0 %	0.2 ms	0.20 %	▶ 54.61					
0 ms	0 %	2.0 ms	1.70 %	▶ 26.137					

## React引擎初始化

Elements Sources Network Timeline Profiles Resources Security Audits Console

Tree (Top Down) ▼ 🔍 ✕ ↺

	Self		Total		Function
1188.6 ms			1188.6 ms		(idle)
38.7 ms	32.36 %		38.7 ms	32.36 %	(program)
5.6 ms	4.71 %		5.6 ms	4.71 %	(garbage collector)
0.2 ms	0.20 %		0.2 ms	0.20 %	(anonymous function)
0 ms	0 %		0.6 ms	0.50 %	▶ (anonymous function)
0 ms	0 %		74.1 ms	62.02 %	▼ (anonymous function)
27.4 ms	22.95 %		74.1 ms	62.02 %	▼ (anonymous function)
0.4 ms	0.30 %		46.7 ms	39.08 %	▼ (anonymous function)
0.1 ms	0.10 %		46.3 ms	38.78 %	▼ e
0.1 ms	0.10 %		46.2 ms	38.68 %	▼ s
0 ms	0 %		46.1 ms	38.58 %	▼ 93.172
0 ms	0 %		46.1 ms	38.58 %	▼ (anonymous function)
1.0 ms	0.80 %		46.1 ms	38.58 %	▼ s
2.0 ms	1.70 %		42.5	10676	61: [function(_dereq_, module, exports) {
0.7 ms	0.60 %		2.9	10677	/**
0.5 ms	0.40 %		1.1	10678	* Copyright 2013-present, Facebook, Inc.
0 ms	0 %		36.5	10679	* All rights reserved.
1.4 ms	1.20 %		36.5	10680	*
0 ms	0 %		0.6	10681	* This source code is licensed under the BSD-style license found in the
0 ms	0 %		34.1	10682	* LICENSE file in the root directory of this source tree. An additional grant
0 ms	0 %		0.2	10683	* of patent rights can be found in the PATENTS file in the same directory.
0 ms	0 %		0.1	10684	*
0.1 ms	0.10 %		0.4	10685	* @providesModule ReactDefaultInjection
0 ms	0 %		0.2	10686	*/
0 ms	0 %		2.0	10687	
				10688	'use strict';
				10689	
				10690	var BeforeInputEventPlugin = _dereq_(2);
				10691	var ChangeEventPlugin = _dereq_(6);
				10692	var DefaultEventPluginOrder = _dereq_(13);
				10693	var EnterLeaveEventPlugin = _dereq_(15);



## React引擎初始化

Elements	Sources	Network	Timeline	Profiles	Resources	Security	Audits	Console
Tree (Top Down) ▼ 🔍 ✕ ↺								
Self	▼	Total	▼	Function				
3.0 ms	4.71 %	3.0 ms	4.71 %	(garbage collector)				
0.2 ms	0.20 %	0.2 ms	0.20 %	(anonymous function)				
0 ms	0 %	0.6 ms	0.50 %	▶ (anonymous function)				
0 ms	0 %	74.1 ms	62.02 %	▼ (anonymous function)				
27.4 ms	22.95 %	74.1 ms	62.02 %	▼ (anonymous function)				
0.4 ms	0.30 %	46.7 ms	39.08 %	▼ (anonymous function)				
0.1 ms	0.10 %	46.3 ms	38.78 %	▼ e				
0.1 ms	0.10 %	46.2 ms	38.68 %	▼ s				
0 ms	0 %	46.1 ms	38.58 %	▼ 93.172				
0 ms	0 %	46.1 ms	38.58 %	▼ (anonymous function)				
1.0 ms	0.80 %	46.1 ms	38.58 %	▼ s				
2.0 ms	1.70 %	42.5 ms	35.57 %	▼ 37.122				
0.7 ms	0.60 %	2.9 ms	2.40 %	▶ inject				
0.5 ms	0.40 %	1.1 ms	0.90 %	▶ debug				
0 ms	0 %	36.5 ms	30.56 %	▼ (anonymous function)				
1.4 ms	1.20 %	36.5 ms	30.56 %	▼ s				
0 ms	0 %	0.6 ms	0.50 %	▶ 41.10				
0 ms	0 %	34.1 ms	28.56 %	▼ 61.13				
0 ms	0 %	34.1 ms	28.56 %	▼ (anonymous function)				
5.4 ms	4.51 %	34.1 ms	28.56 %	▼ s				
0.5 ms	0.40 %	1.6 ms	1.30 %	▶ 99.100				
0.5 ms	0.40 %	0.7 ms	0.60 %	▶ 97				
0.1 ms	0.10 %	4.1 ms	3.41 %	▶ 2.102				
0.1 ms	0.10 %	0.1 ms	0.10 %	22.10				
0.1 ms	0.10 %	3.8 ms	3.21 %	▶ 6.104				
0.1 ms	0.10 %	12.8 ms	10.72 %	▶ 39.1				
0.1 ms	0.10 %	0.2 ms	0.20 %	▶ 60.113				
0 ms	0 %	2.4 ms	2.00 %	▶ 32.47				
0 ms	0 %	0.2 ms	0.20 %	▶ 67.128				
0 ms	0 %	1.6 ms	1.30 %	▶ 71.10				

## React引擎初始化

Elements Sources Network Timeline Profiles Resources Security Audits Console

Tree (Top Down) ▼ 🔍 ✕ ↺

Self	Total	Function
3.0 ms 4.71 %	3.0 ms 4.71 %	(garbage collector)
0.2 ms 0.20 %	0.2 ms 0.20 %	(anonymous function)
0 ms 0 %	0.6 ms 0.50 %	▶ (anonymous function)
0 ms 0 %	74.1 ms 62.02 %	▼ (anonymous function)
27.4 ms 22.95 %	74.1 ms 62.02 %	▼ (anonymous function)
0.4 ms 0.30 %	46.7 ms 39.08 %	▼ (anonymous function)
0.1 ms 0.10 %	46.3 ms 38.78 %	▼ e
0.1 ms 0.10 %	46.2 ms 38.68 %	▼ s
0 ms 0 %	46.1 ms 38.58 %	▼ 93.172
0 ms 0 %	46.1 ms 38.58 %	▼ (anonymous function)
1.0 ms 0.80 %	46.1 ms 38.58 %	▼ s
2.0 ms 1.70 %	42.5 ms 35.38 %	39: [function(_dereq_, module, exports) {
0.7 ms 0.60 %	2.9 ms 2.40 %	/**
0.5 ms 0.40 %	1.1 ms 0.90 %	* Copyright 2013-present, Facebook, Inc.
0 ms 0 %	36.5 ms 30.38 %	* All rights reserved.
1.4 ms 1.20 %	36.5 ms 30.38 %	*
0 ms 0 %	0.6 ms 0.50 %	* This source code is licensed under the BSD-style license found in the
0 ms 0 %	34.1 ms 28.48 %	* LICENSE file in the root directory of this source tree. An additional grant
0 ms 0 %	34.1 ms 28.48 %	* of patent rights can be found in the PATENTS file in the same directory.
5.4 ms 4.51 %	34.1 ms 28.48 %	*
0.5 ms 0.40 %	1.6 ms 1.30 %	* @providesModule ReactDOMComponent
0.5 ms 0.40 %	0.7 ms 0.60 %	*/
0.1 ms 0.10 %	4.1 ms 3.40 %	/* global hasOwnProperty:true */
0.1 ms 0.10 %	0.1 ms 0.10 %	'use strict';
0.1 ms 0.10 %	3.8 ms 3.10 %	var _prodInvariant = _dereq_(139),
0.1 ms 0.10 %	0.2 ms 0.20 %	_assign = _dereq_(172);
0 ms 0 %	2.4 ms 2.00 %	
0 ms 0 %	0.2 ms 0.20 %	
0 ms 0 %	1.6 ms 1.30 %	var AutoFocusUtils = _dereq_(1);

```
39: [function(_dereq_, module, exports) {  
  /**  
   * Copyright 2013-present, Facebook, Inc.  
   * All rights reserved.  
   *  
   * This source code is licensed under the BSD-style license found in the  
   * LICENSE file in the root directory of this source tree. An additional grant  
   * of patent rights can be found in the PATENTS file in the same directory.  
   *  
   * @providesModule ReactDOMComponent  
   */  
  
  /* global hasOwnProperty:true */  
  
  'use strict';  
  
  var _prodInvariant = _dereq_(139),  
      _assign = _dereq_(172);  
  
  var AutoFocusUtils = _dereq_(1);
```

## 其他基础框架

```
<body>

  <script>var T = Date.now();</script>

  <script src="qqapi.js"></script>
  <script src="react.js"></script>
  <script src="react-dom.js"></script>
  <script src="redux.js"></script>
  <script src="react-redux.js"></script>
  <script src="redux-thunk.js"></script>
  <script src="react-fastclick.js"></script>

  <script>
    var cost = (Date.now() - T);
  </script>

</body>
```



## 其他基础框架

实测平均近400+ms!

```
<body>

  <script>var T = Date.now();</script>

  <script src="qqapi.js"></script>
  <script src="react.js"></script>
  <script src="react-dom.js"></script>
  <script src="redux.js"></script>
  <script src="react-redux.js"></script>
  <script src="redux-thunk.js"></script>
  <script src="react-fastclick.js"></script>

  <script>
    var cost = (Date.now() - T);
  </script>

</body>
```

## 离线包挑战：命中率

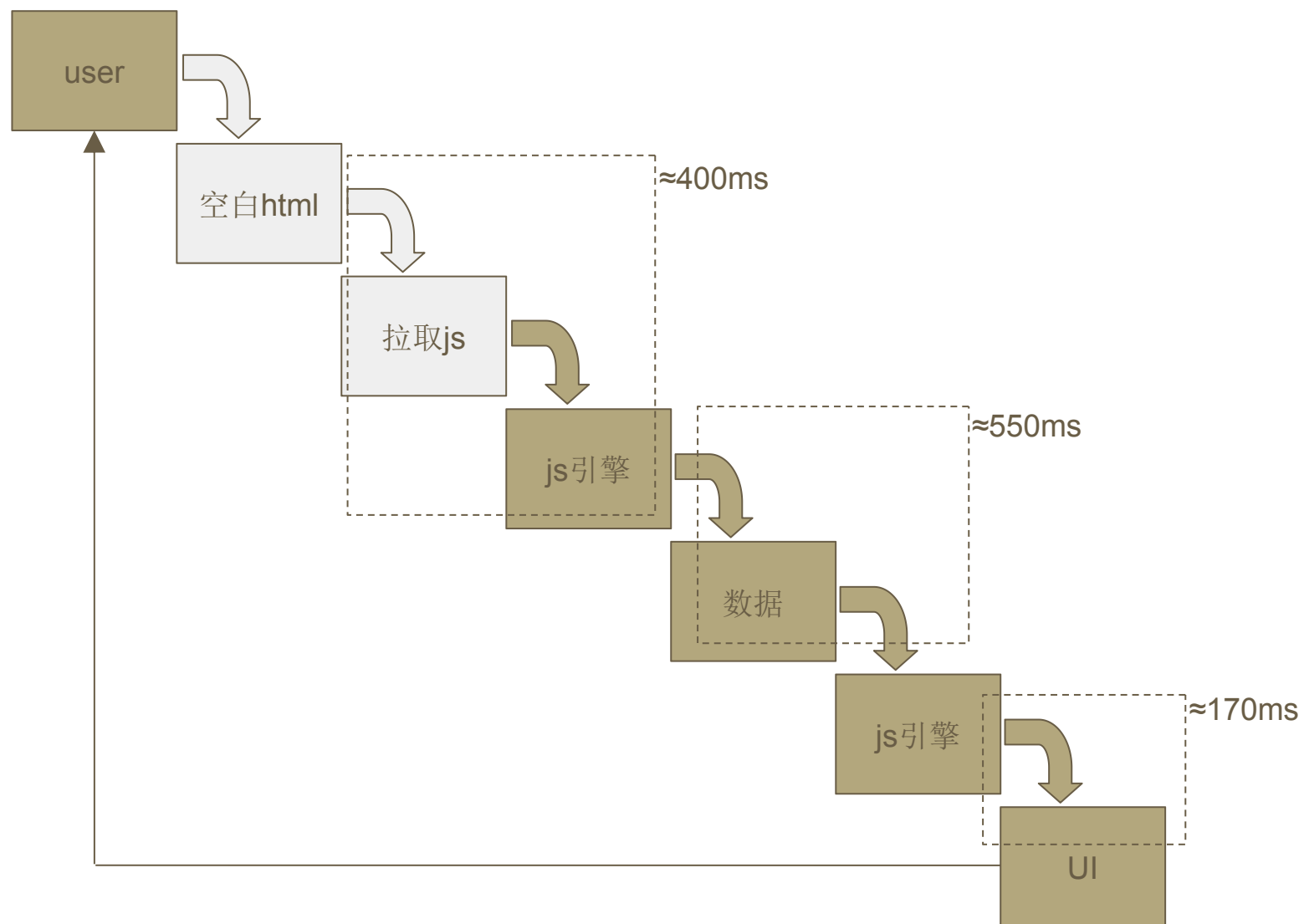
APP ( $\approx 100\%$ )

手Q ( $\leq 30\%$ )

其他 (无)



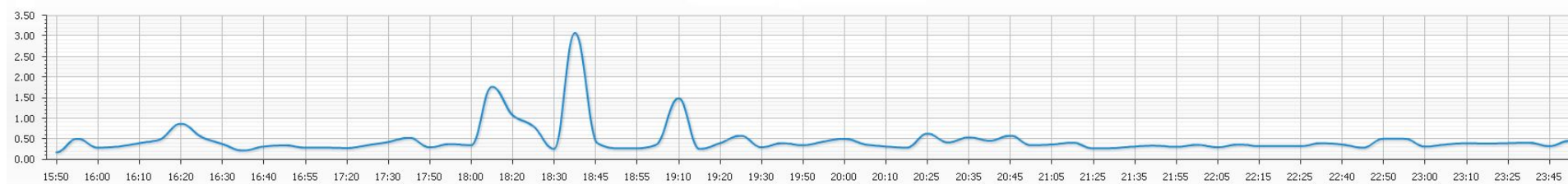
时间都去哪了



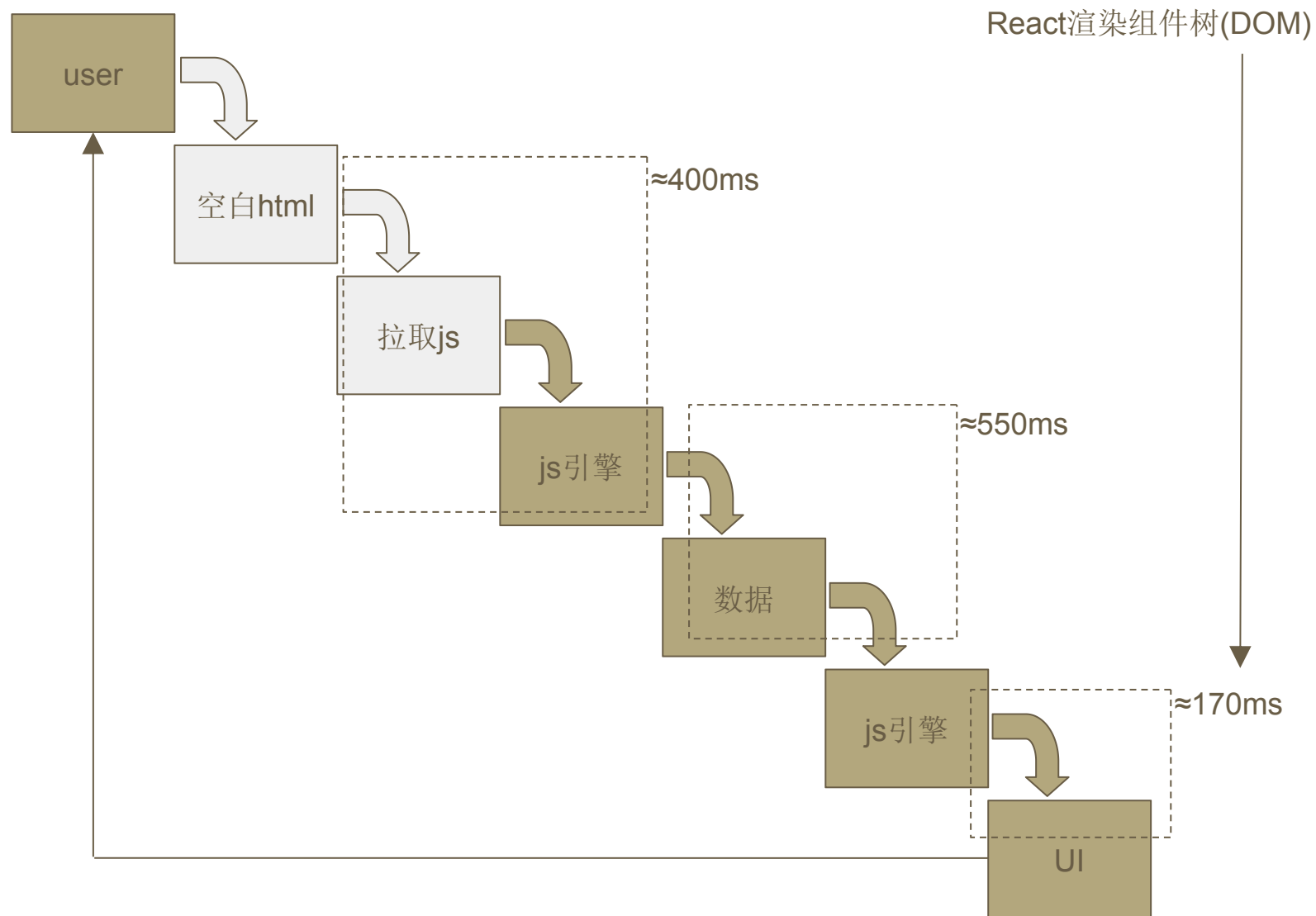
## 数据接口时间消耗

某ajax请求耗时曲线

单位:秒



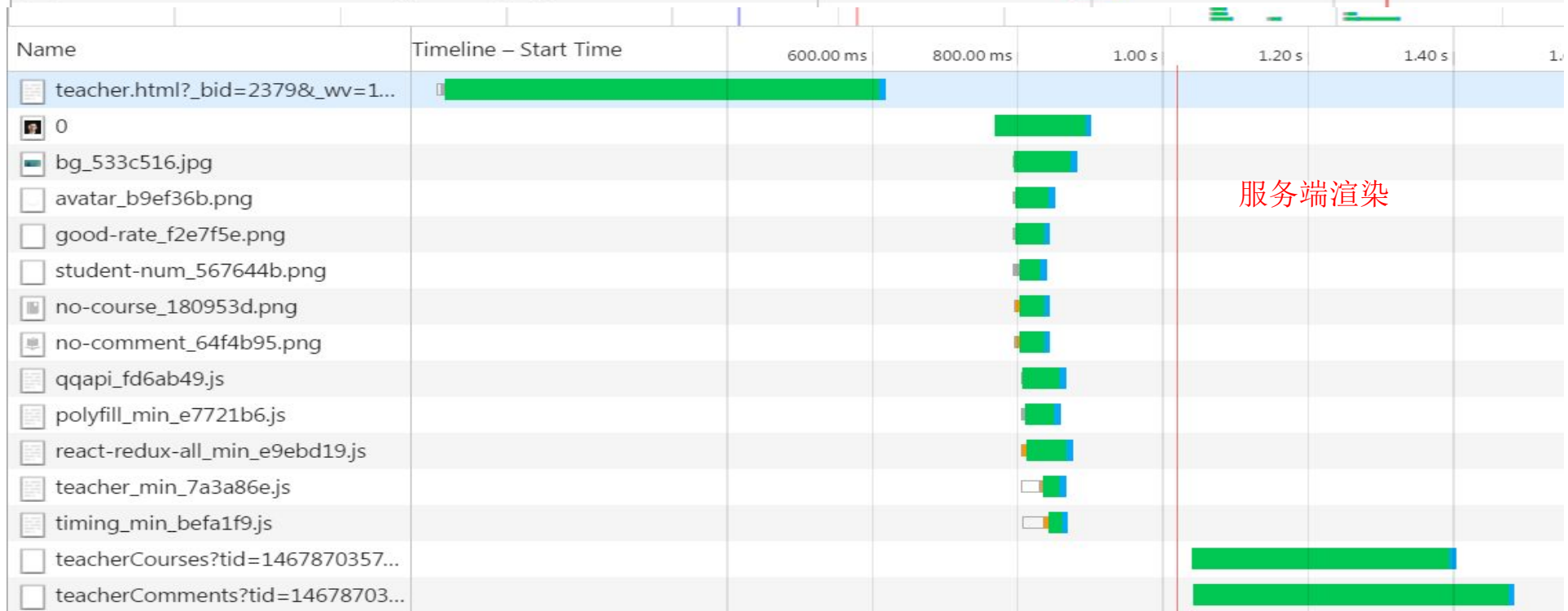
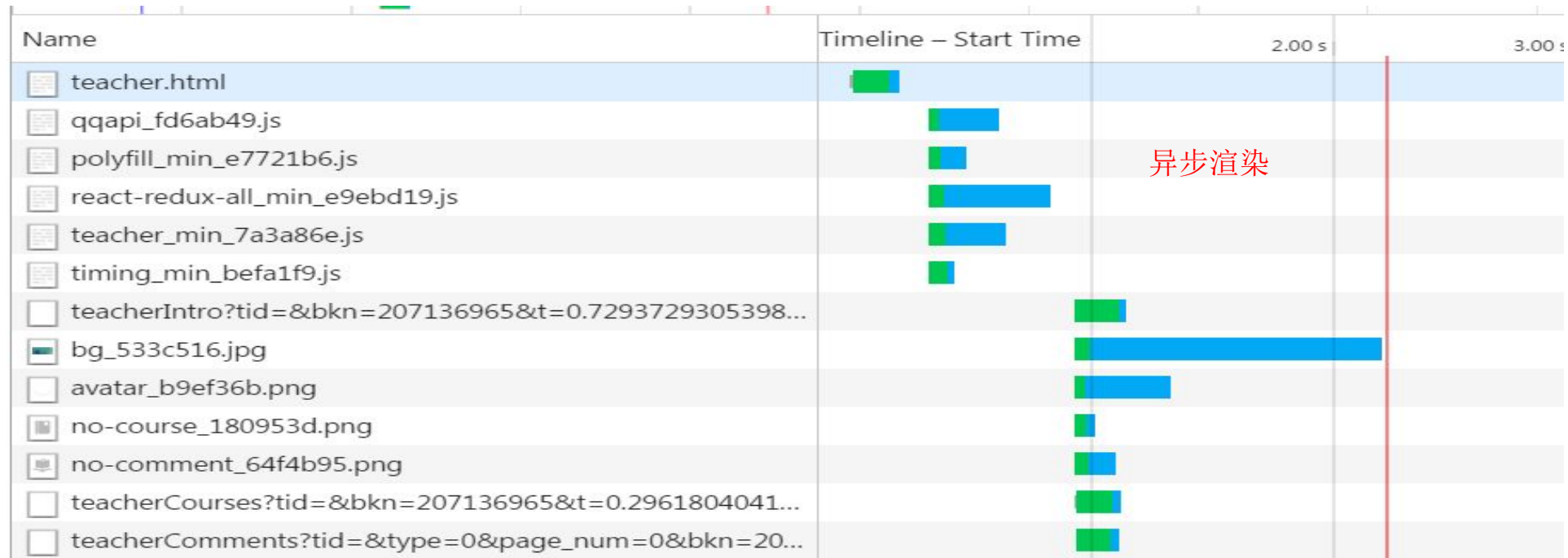
## React真的很快吗?





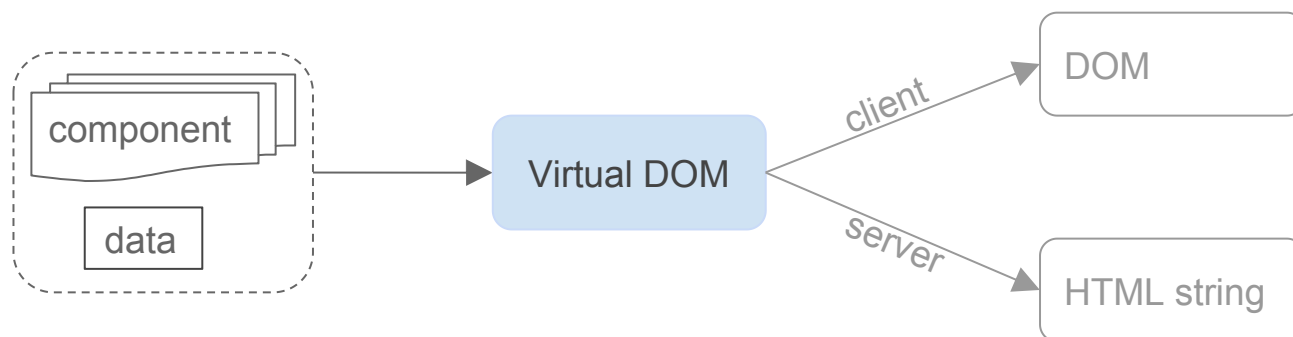
## 优化思路

第一个请求中就返回首屏  
耗时的操作放到首屏展示后  
    初始**JS**  
    拉取非首屏数据  
    渲染非首屏





## 服务端React

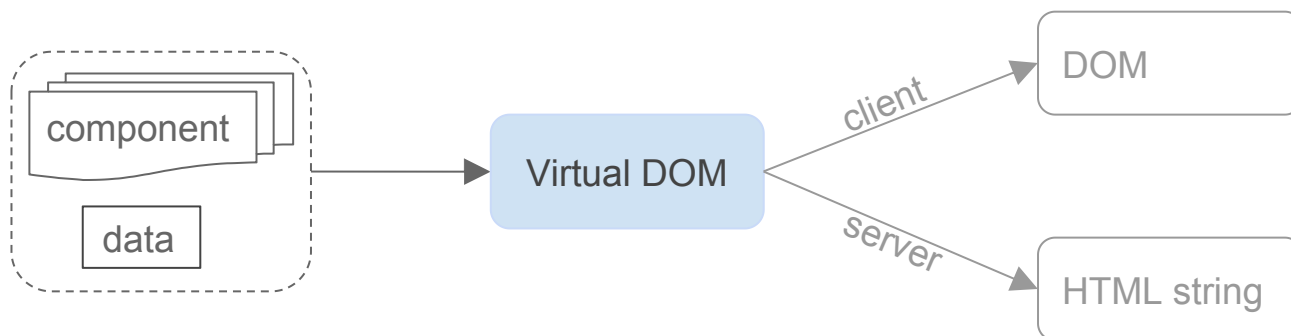


## 服务端React

```
// client

import React from 'react';
import ReactDOM from 'react-dom';
import { Provider } from 'react-redux';

ReactDOM.render(
  (
    <Provider store={store}>
      <App />
    </Provider>
  ), //
  document.querySelector('#root')
);
```

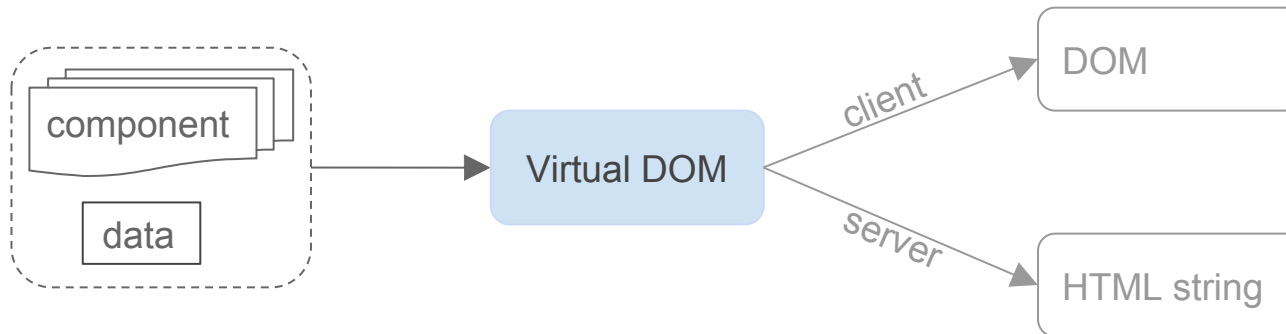


同构

```
// client

import React from 'react';
import ReactDOM from 'react-dom';
import { Provider } from 'react-redux';

ReactDOM.render(
  (
    <Provider store={store}>
      <App />
    </Provider>
  ), //
  document.querySelector('#root')
);
```

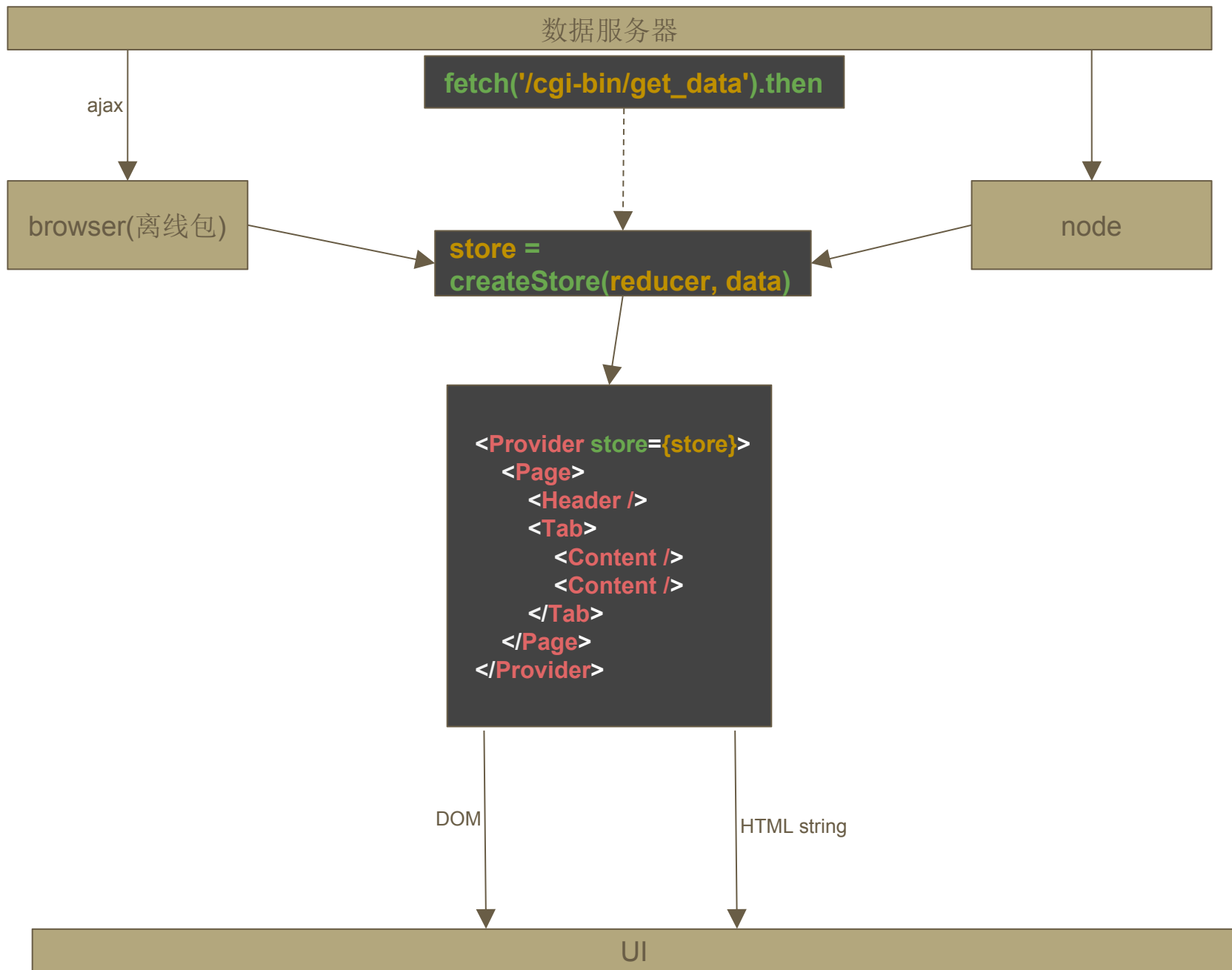


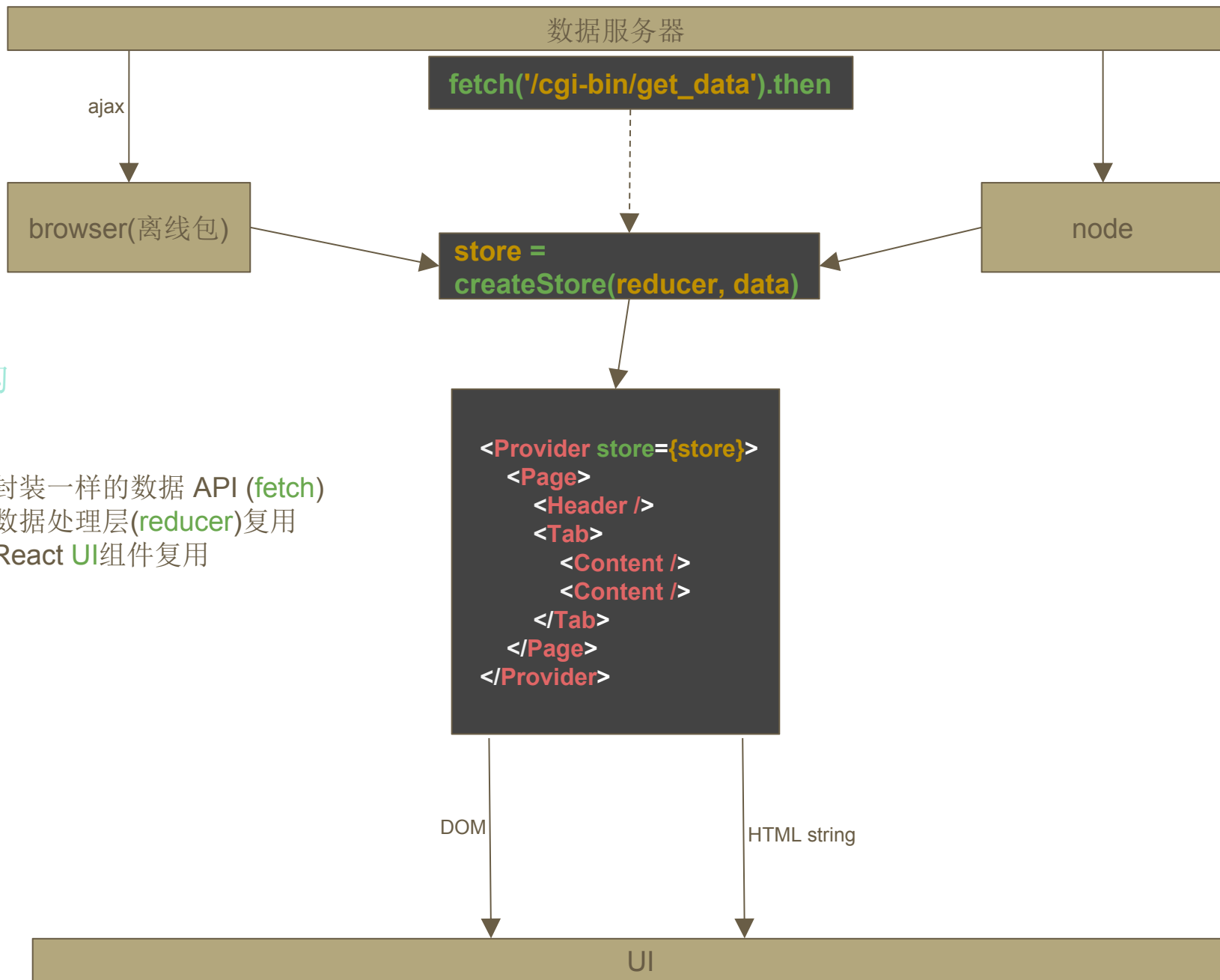
```
// server

import React from 'react';
import ReactDOM from 'react-dom/server';
import { Provider } from 'react-redux';

let rootElement = React.createElement(Provider, {
  store: store
}, App);

let html = ReactDOM.renderToString(rootElement);
```

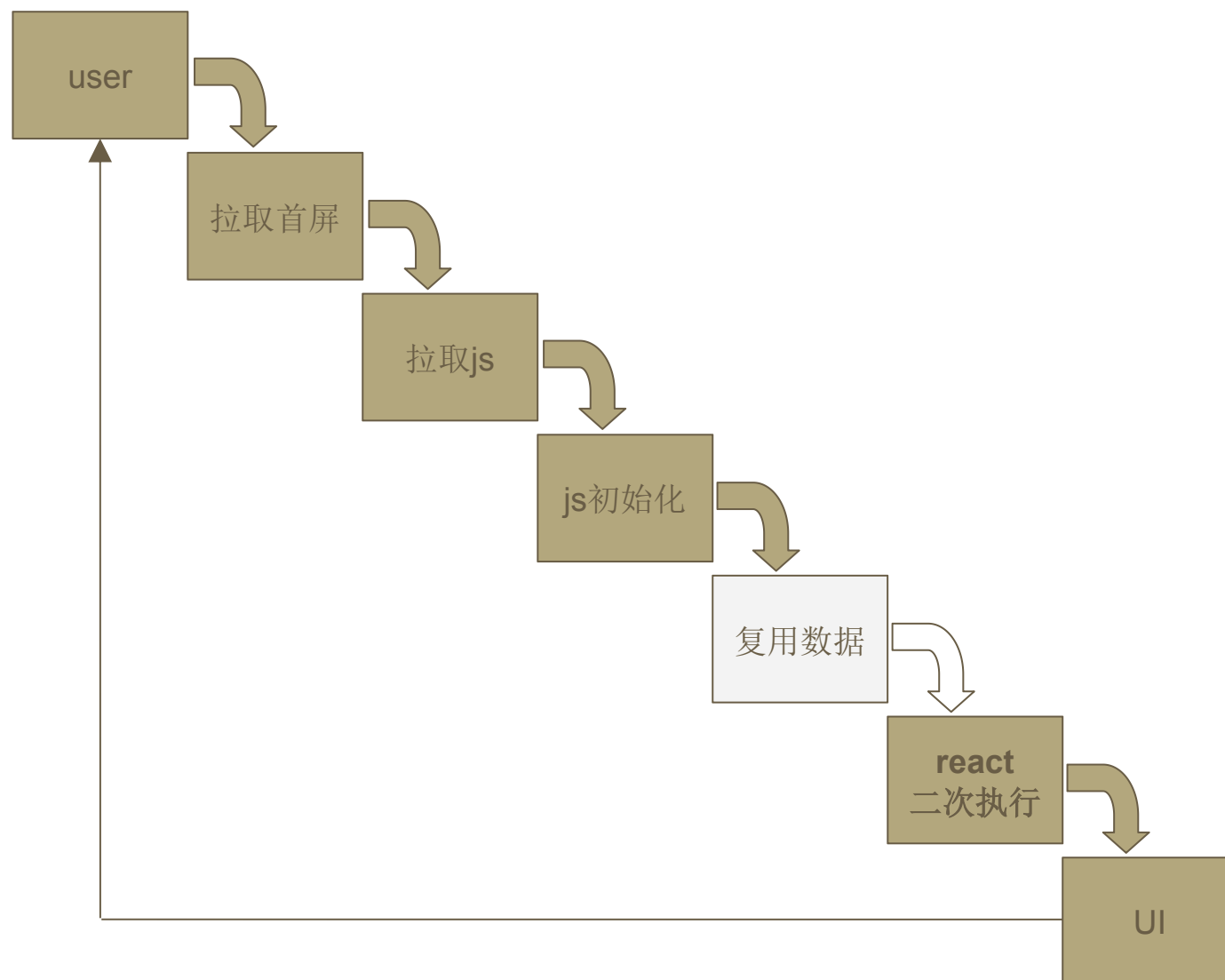




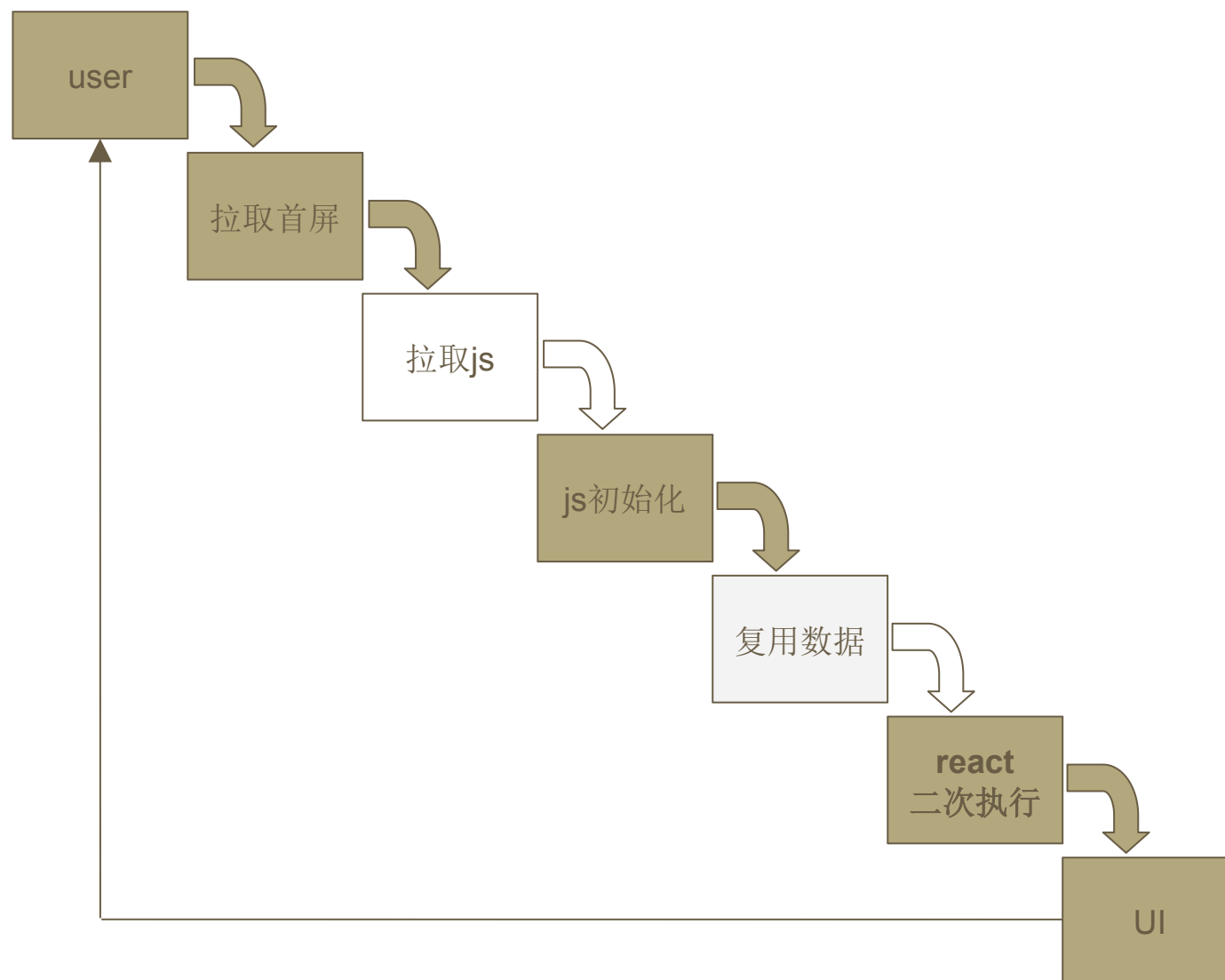
## 同构

- 封装一样的数据 API (`fetch`)
- 数据处理层(`reducer`)复用
- React UI组件复用

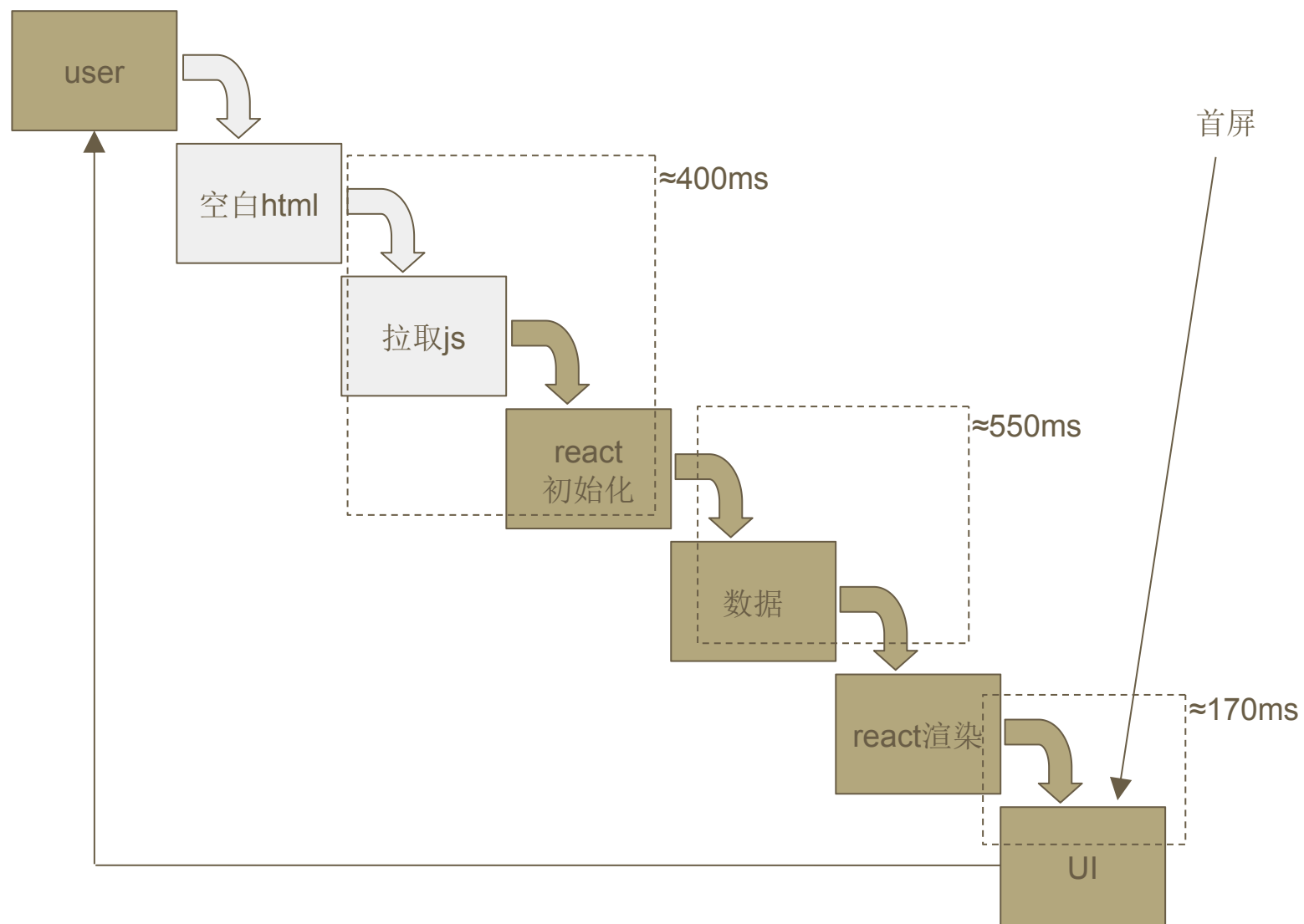
## 服务端渲染



## 服务端 + 离线包

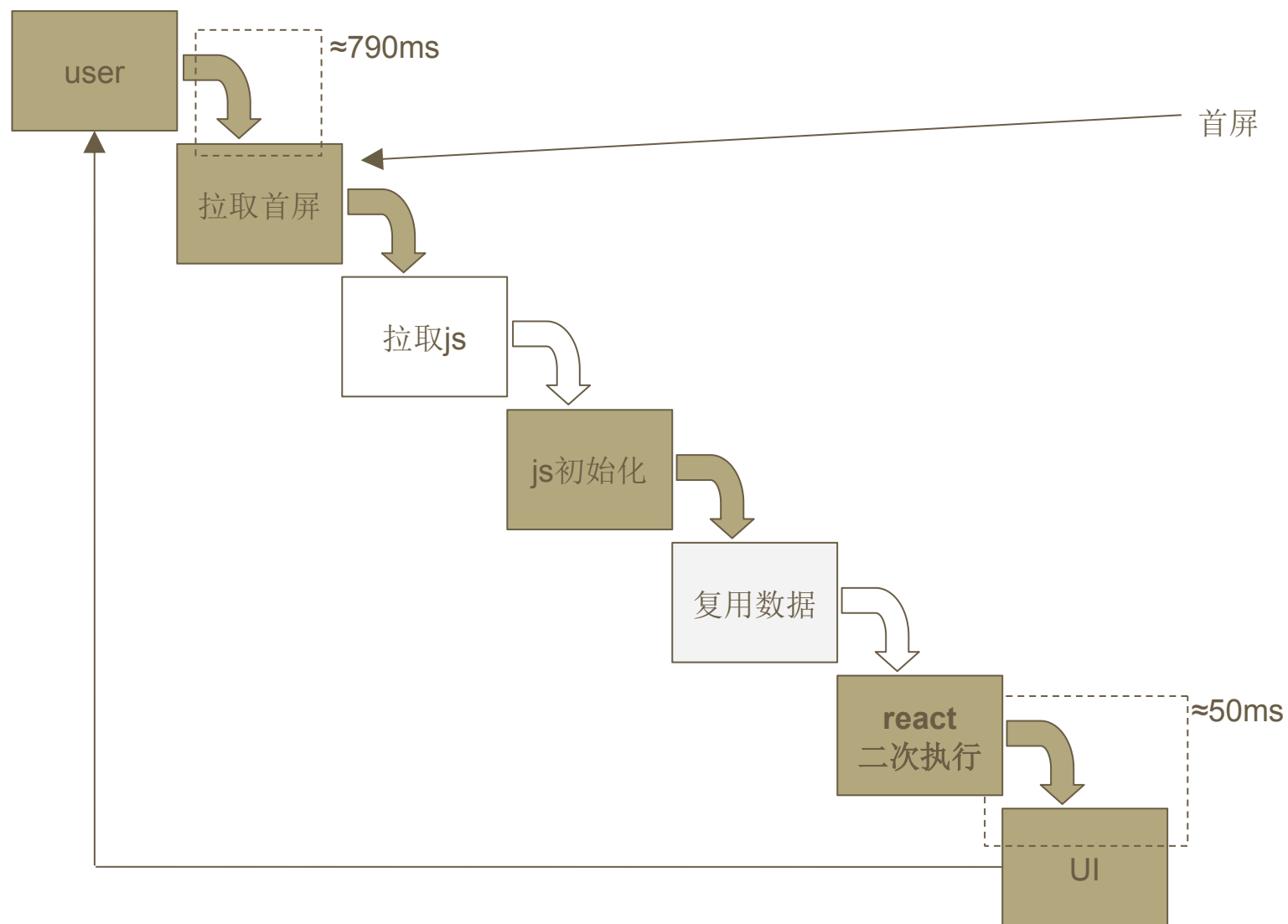


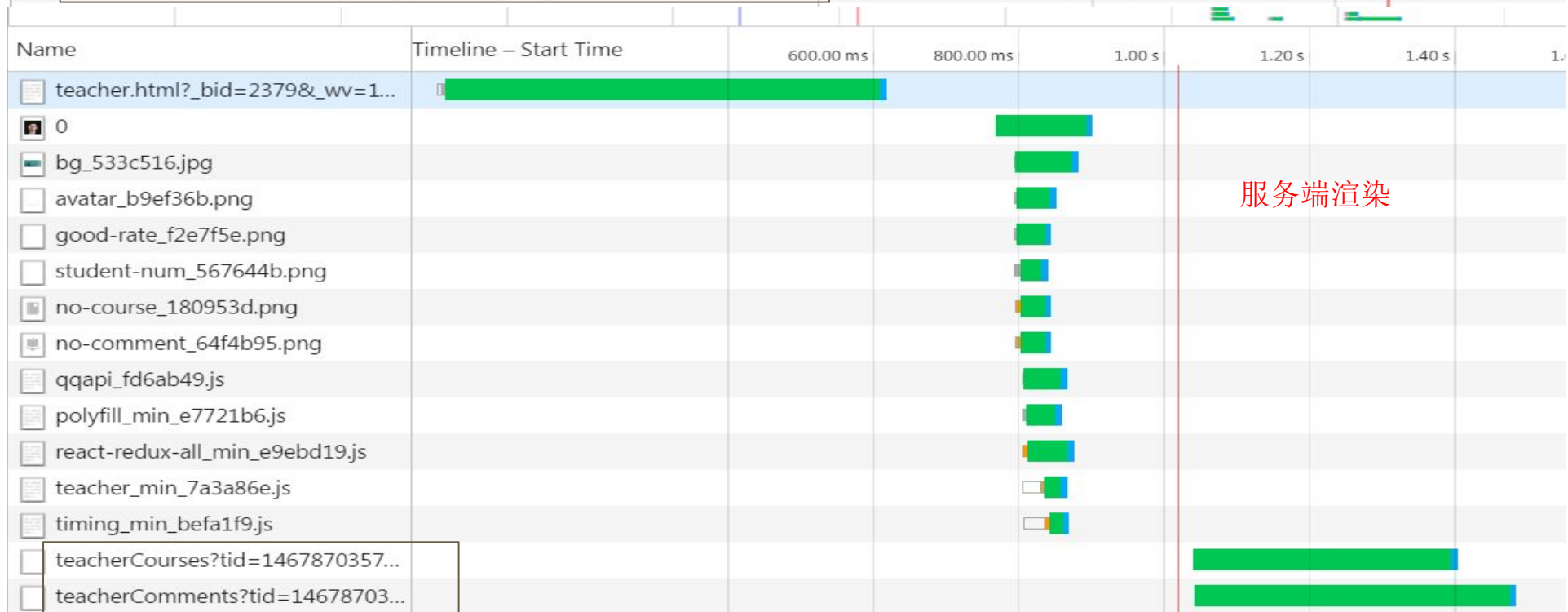
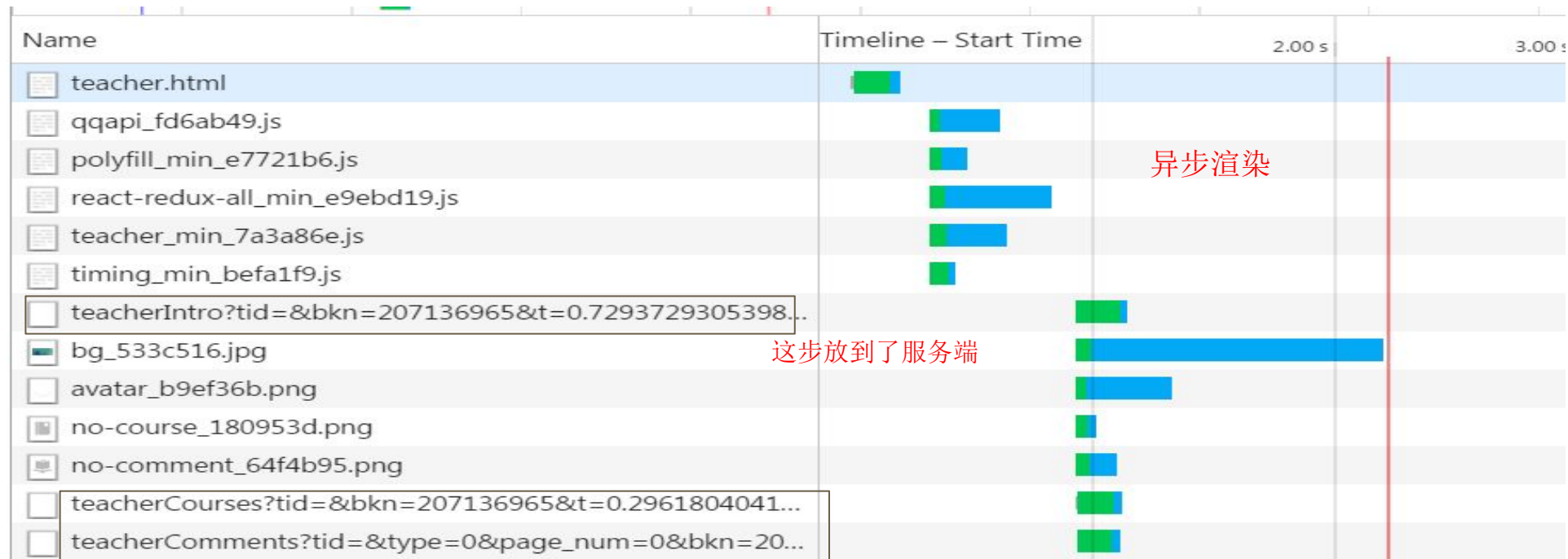
## 异步渲染





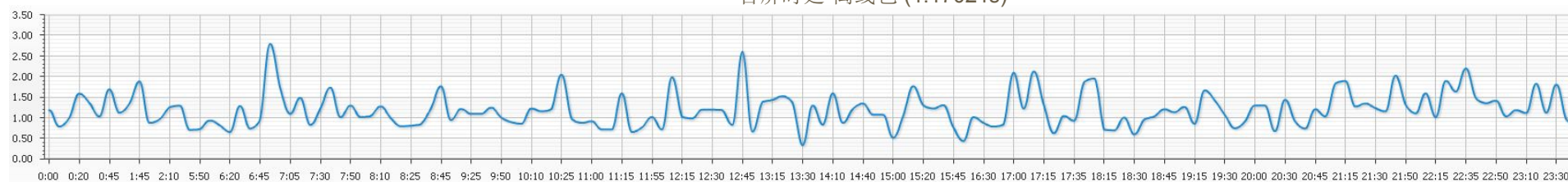
## 服务端 + 离线包



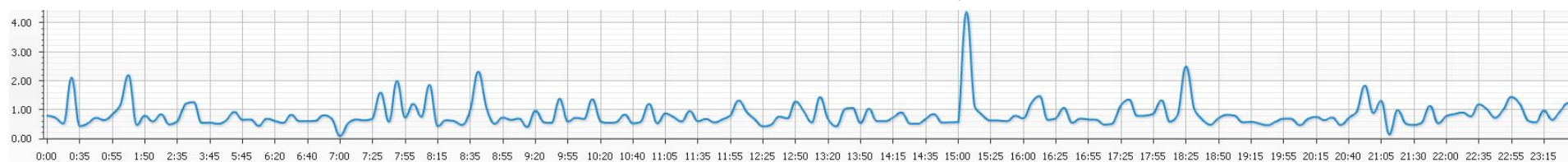


## 效果

首屏时延-离线包 (1.17021s)



首屏时延-服务端渲染 (0.795304s)



## 代码复用

- ▼ actions
  - ▼ teacher
    - load\_comments.js
    - load\_courses.js
    - load\_intro.js
- ▼ components
  - ▶ Comment
  - ▼ CommentList
    - index.jsx
    - index.scss
    - no-comment.png
  - ▶ CourseCard
  - ▶ CourseList
  - ▶ TeacherFacade
- ▼ pages
  - ▼ teacher
    - ▶ Comments
    - ▶ config
    - ▶ Courses
    - ▶ Intro
    - ▶ Tab
      - app.jsx
      - container.jsx
      - index.jsx
      - index.scss
      - index.tpl
- ▼ reducers
  - ▼ teacher
    - comments.js
    - courses.js
    - intro.js
    - tab.js
    - teacher.js
- ▼ server
  - ▶ conf
  - ▼ controllers
    - ▼ teacher
      - index.js
  - ▶ lib
  - ▼ models
    - teacher.js
  - ▶ routes

纯server代码

## 一些Tips

服务端只生成首屏

只为了减少白屏时间

**node**拉取数据也消耗时间





简介

课程(4)

评价(151)

### 老师标签

高中英语

10年教龄

青岛最受欢迎的独立教师

### 教学经历

- 2013-至今  
于瑶捷径英语首席讲师
- 2006-2012  
中高考百人班教师,未来支点教育创始人

### 教学内容



简介

课程(4)

评价(151)

### 出题天使的“套路”

讲座

8月2日 21:30-22:30



¥1

### 英语新学法-扎实篇

系统课

8月3日-8月11日,每两天一节,每晚9点...



¥36

### 单词语法欢乐通

讲座



简介

课程(4)

评价(151)

全部(151) 好评(119) 中评(13) 差评(19)



4\*\*\*

7-27 23:38



人挺漂亮,课也讲的好

《英语新学法-导入篇》



愿\*\*\*

7-29 23:39



老师讲的棒棒哒

《英语新学法-基础篇》



洋\*\*\*

7-29 08:05



非常满意

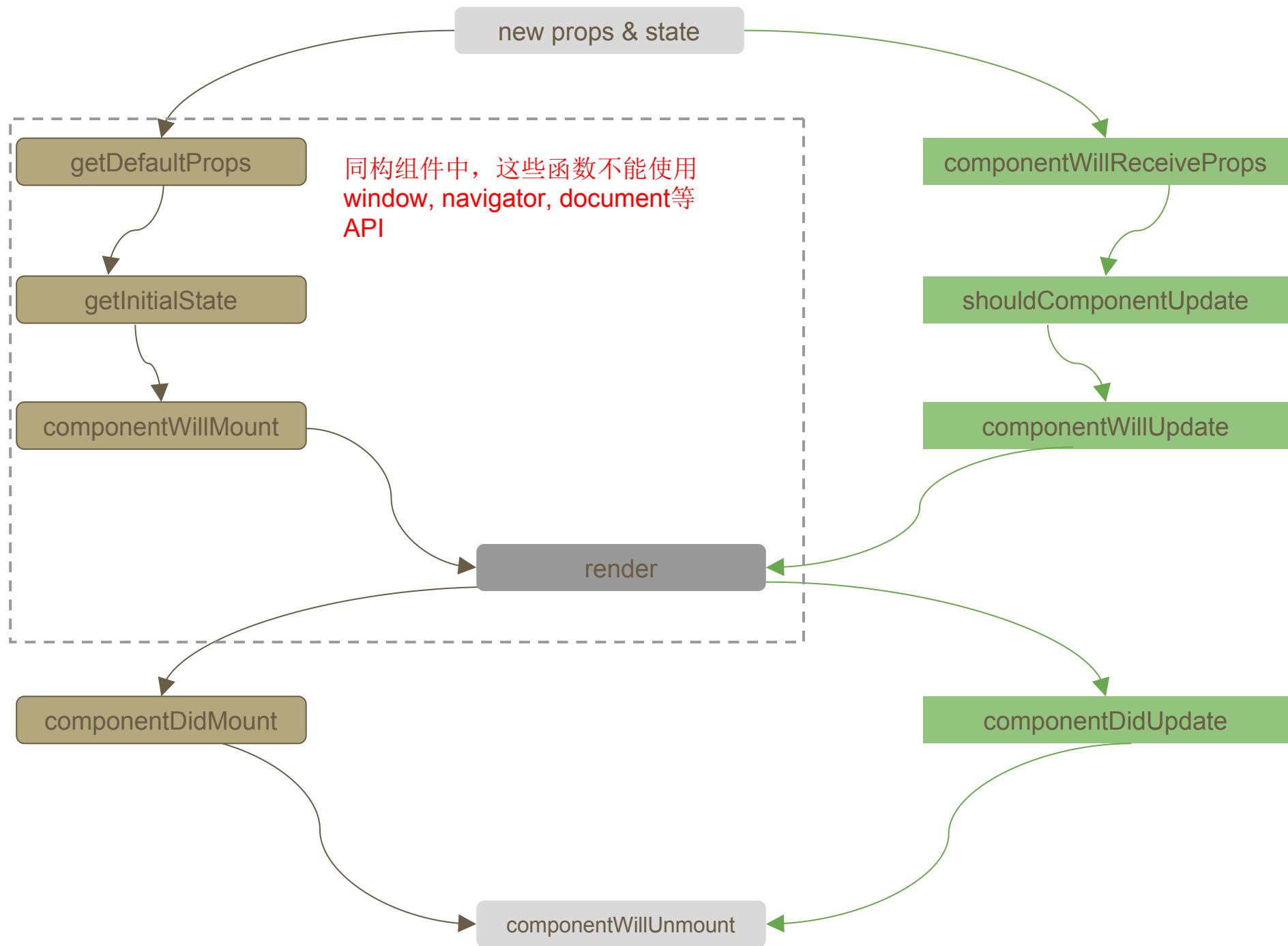
## 一些Tips

服务端只生成首屏

只为了减少白屏时间

**node**拉取数据也消耗时间

客户端**API** 要谨慎

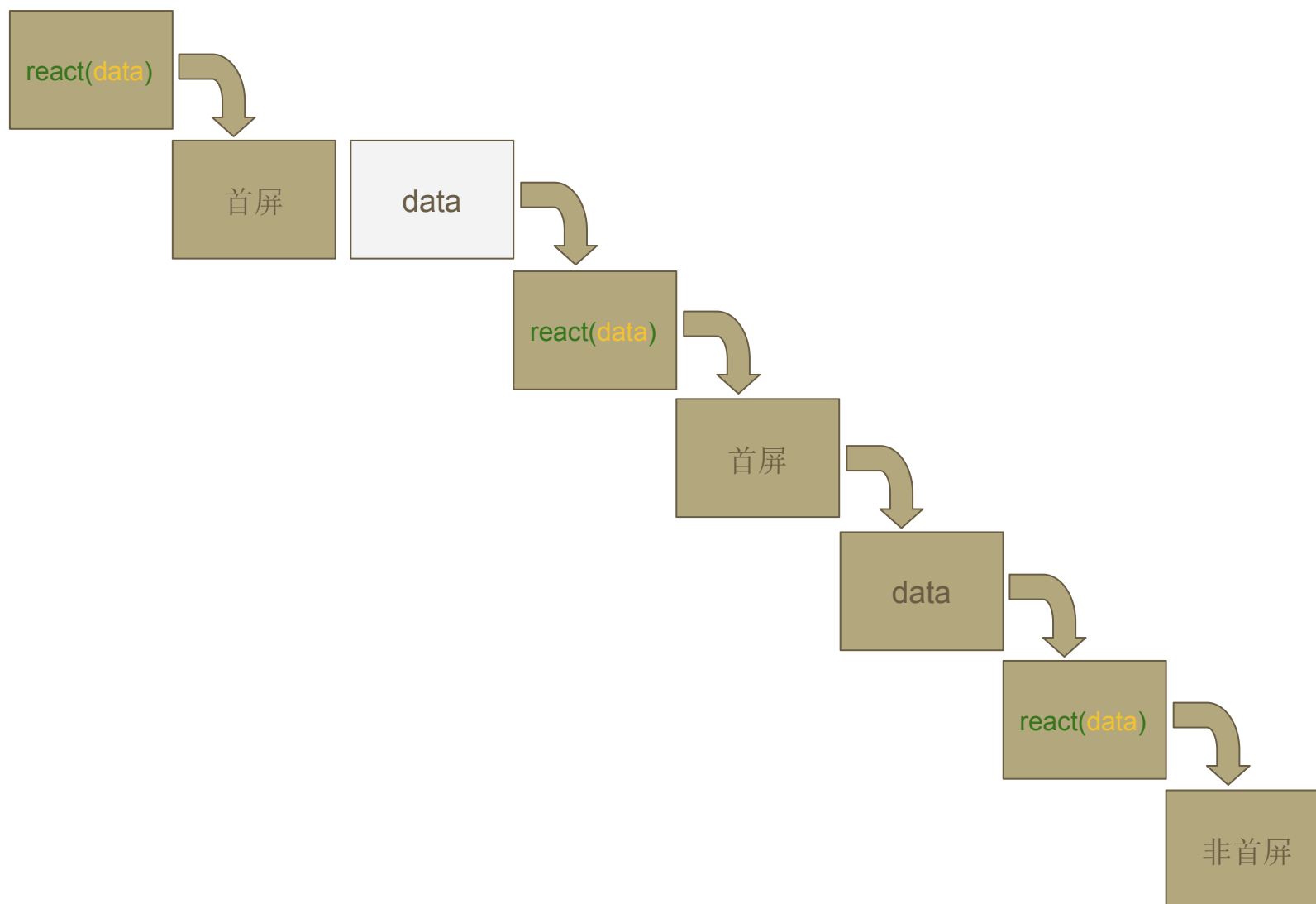




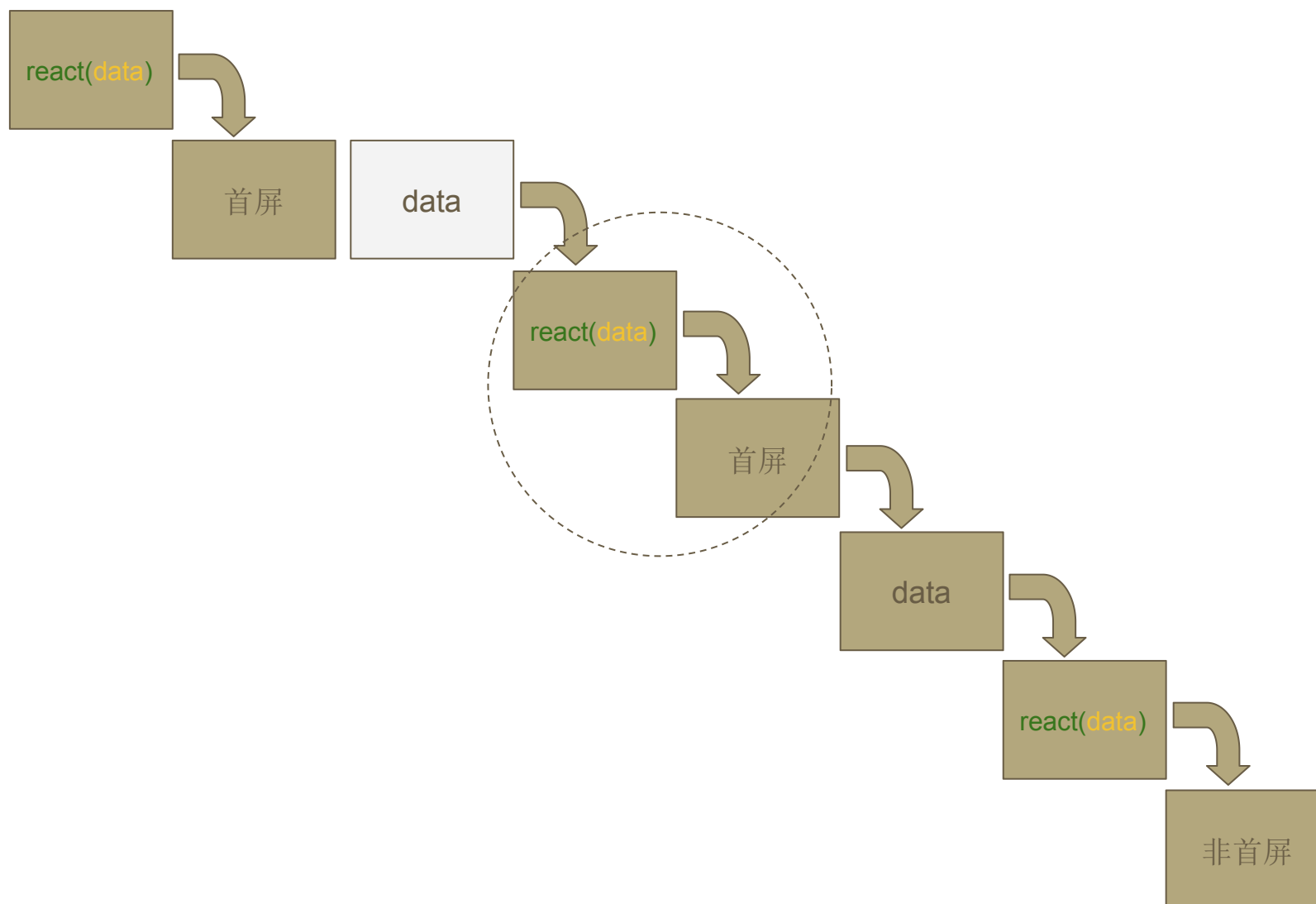
重复渲染？



重复渲染？



重复渲染？

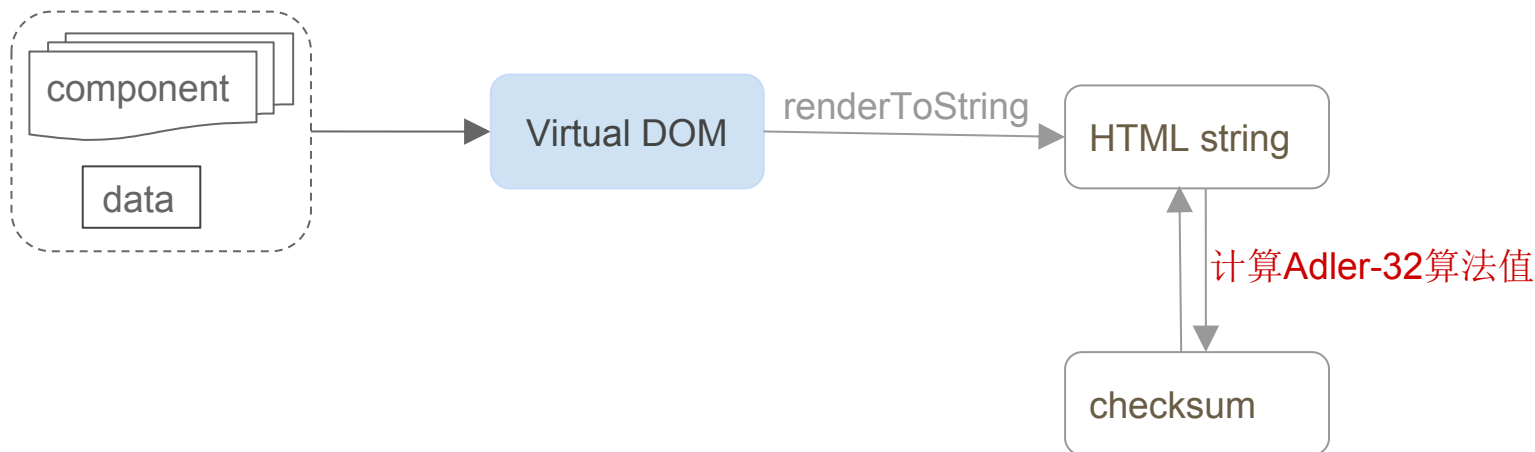


## 服务端首屏文本

```
<div data-reactid="1" data-react-checksum="-51068744"><div class="teacher-facade" data-reactid="2"><div class="avatar" data-reactid="3"><
  data-reactid="5"></div><span class="teacher-name" data-reactid="6">林泽涛</span></div><div class="info" data-reactid="7"><div class="good-rate" data-reactid="8">
  data-reactid="10"><ul data-reactid="11"><li class="" data-modid="intro tab" data-reactid="12"><a href="javascript:;" data-reactid="13"><!-- react-text: 14
  <!-- react-text: 17 -->课程</-- react-text --><span data-reactid="18"><!-- react-text: 19 --><!-- /react-text --><!-- react-text: 20 -->0<!-- /react-text
  href="javascript:;" data-reactid="23"><!-- react-text: 24 -->评价<!-- /react-text --><span data-reactid="25"><!-- react-text: 26 --><!-- /react-text --><!--
  container" data-reactid="29"><div data-reactid="30"><div class="teacher-intro" data-reactid="31"><section class="teacher-intro-item clearfix" data-reactid="
  class="teacher-label" data-reactid="36">语文due哥</span></li><li data-reactid="37"><span class="teacher-label" data-reactid="38">百场千人讲座</span></li><li
  class="teacher-label" data-reactid="42">高考作文押题王</span></li></ul></section><section class="teacher-intro-item clearfix" data-reactid="43"><h3 data-re
  data-reactid="47"><span class="dot" data-reactid="48"></span><!-- react-text: 49 -->2015-2016<!-- /react-text --><p><p class="teacher-exp-des" data-reactid="50
  data-reactid="53"></span><!-- react-text: 54 -->2009-2015!<!-- /react-text --><p><p class="teacher-exp-des" data-reactid="55">快乐学习教育科技集团</p></li><li d
  >2005-2009<!-- /react-text --><p><p class="teacher-exp-des" data-reactid="60">福建师大附中</p></li></ul></section><section class="teacher-intro-item clear
  content-item clearfix" data-reactid="64"><label data-reactid="65">学习阶段:</label><p data-reactid="66">高中</p></div><div class="teacher-content-item clea
  class="teacher-intro-item clearfix" data-reactid="70"><h3 data-reactid="71">个人介绍</h3><p class="teacher-intro-introduction" data-reactid="72">十一年福建
  就是DUE哥<br><br>DUE哥不玩那些高大上的理论概念，DUE哥只教你最“狠辣”的解题技巧<br>把每一篇枯燥的文言文讲成相声，把每一首难懂的诗歌鉴赏演绎成小品<br>集专业
  证！</p></section></div></div><div data-reactid="73"><div class="teacher-courses" data-reactid="74"><div class="course-list-container" data-reactid="75"><ul
  data-reactid="78"><p class="title" data-reactid="79">暂无课程</p><p class="description" data-reactid="80">这位老师还在备课中，请耐心等待</p></div></li></ul></div>
  data-reactid="84"><li data-modid="allcomment" data-reactid="85"><a href="javascript:;" class="disabled" data-reactid="86"><!-- react-text: 87 -->全部<!-- /
  react-text: 91 --><!-- /react-text --></span></a></li><li data-modid="positive" data-reactid="92"><a href="javascript:;" class="disabled" data-reactid="93">
```

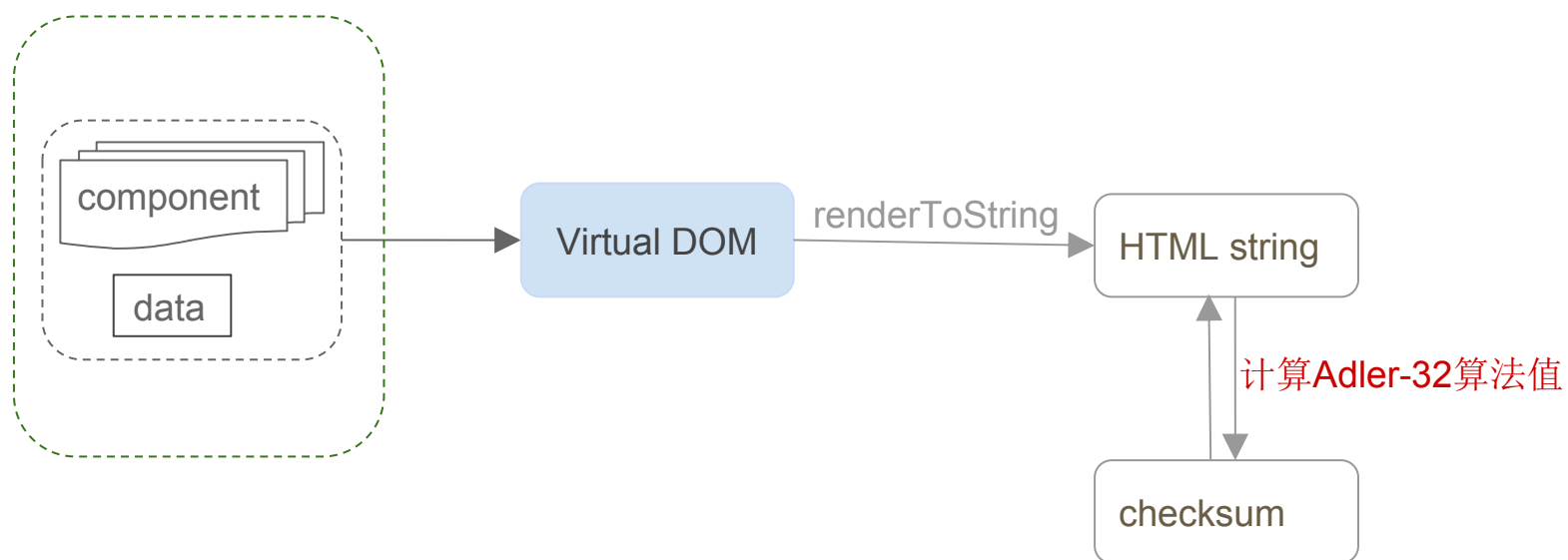
checksum: html内容的Adler-32算法值

```
<div data-reactroot="" data-reactid="1" data-react-checksum="-51068744"><div class="teacher-facade" data-reactid="2"><div class="avatar" data-reactid="3"><
  reactid="5"/></div><span class="teacher-name" data-reactid="6">林泽涛</span></div><div class="info" data-reactid="7"><div class="good-rate" data-reactid="8">
  data-reactid="10"><ul data-reactid="11"><li class="" data-modid="intro tab" data-reactid="12"><a href="javascript:;" data-reactid="13">!-- react-text: 14
  <!-- react-text: 17 -->课程</-- /react-text --><span data-reactid="18"><!-- react-text: 19 --><!-- /react-text --><!-- react-text: 20 -->0<!-- /react-text
  href="javascript:;" data-reactid="23">!-- react-text: 24 -->评价<!-- /react-text --><span data-reactid="25"><!-- react-text: 26 --><!-- /react-text --><!--
  container" data-reactid="29"><div data-reactid="30"><div class="teacher-intro" data-reactid="31"><section class="teacher-intro-item clearfix" data-reactid="
  class="teacher-label" data-reactid="36">语文due哥</span></li><li data-reactid="37"><span class="teacher-label" data-reactid="38">百场千人讲座</span></li><li
  class="teacher-label" data-reactid="42">高考作文押题王</span></li></ul></section><section class="teacher-intro-item clearfix" data-reactid="43"><h3 data-re
  reactid="47"><span class="dot" data-reactid="48"></span><!-- react-text: 49 -->2015-2016<!-- /react-text --><p><p class="teacher-exp-des" data-reactid="50
  reactid="63"></span><!-- react-text: 54 -->2009-2015!<!-- /react-text --></p><p class="teacher-exp-des" data-reactid="55">快乐学习教育科技集团</p></li><li d
  >2005-2009<!-- /react-text --></p><p class="teacher-exp-des" data-reactid="60">福建师大附中</p></li></ul></section><section class="teacher-intro-item clear
  content-item clearfix" data-reactid="64"><label data-reactid="65">学习阶段:</label><p data-reactid="66">高中</p></div><div class="teacher-content-item clea
  class="teacher-intro-item clearfix" data-reactid="70"><h3 data-reactid="71">个人介绍</h3><p class="teacher-intro-introduction" data-reactid="72">十一年福建
  就是DUE哥<br><br>DUE哥不玩那些高大上的理论概念，DUE哥只教你最“壞坡”的解题技巧<br>把每一篇枯燥的文言文讲成相声，把每一首难懂的诗歌鉴赏演绎成小品<br>集专业
  证！</p></section></div></div><div data-reactid="73"><div class="teacher-courses" data-reactid="74"><div class="course-list-container" data-reactid="75"><ul
  reactid="78"><p class="title" data-reactid="79">暂无课程</p><p class="description" data-reactid="80">这位老师还在备课中，请耐心等待</p></div></li></ul></div>
  data-reactid="84"><li data-modid="allcomment" data-reactid="85"><a href="javascript:;" class="disabled" data-reactid="86"><!-- react-text: 87 -->全部<!-- /
  react-text: 91 --><!-- /react-text --></span></a></li><li data-modid="positive" data-reactid="92"><a href="javascript:;" class="disabled" data-reactid="93">
```

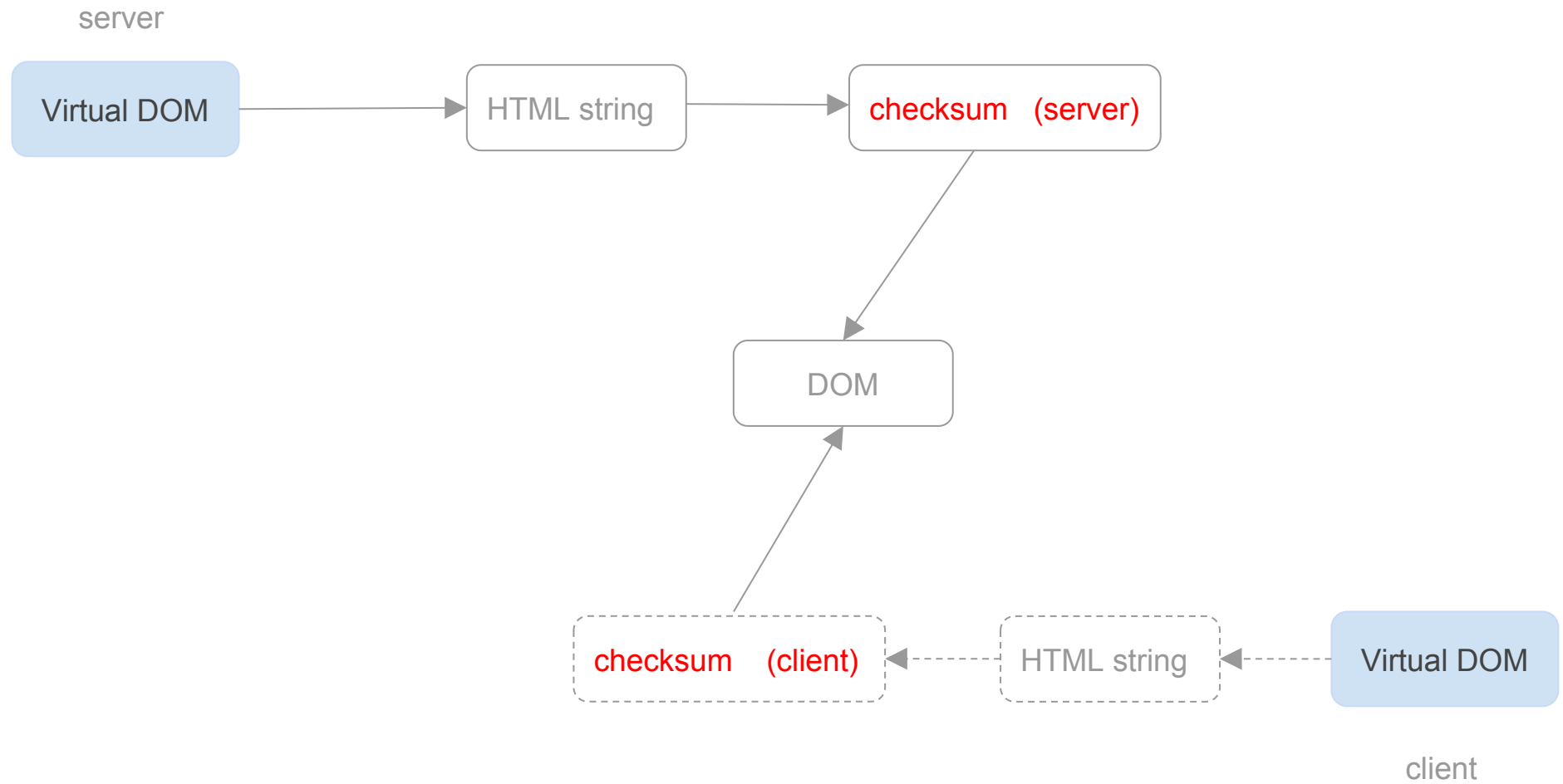


## checksum: html内容的Adler-32算法值

只要组件、数据一致，前端**checksum**也会和后台一致  
直接跳过render(重复渲染)



## checksum



## 小结

- react + redux: 畅快的开发体验 & 更好的代码解耦
- 性能问题
- 离线包优化但还是不够
- 服务端React提升首屏速度
- 同构Tips
- 重复渲染



Thanks!

