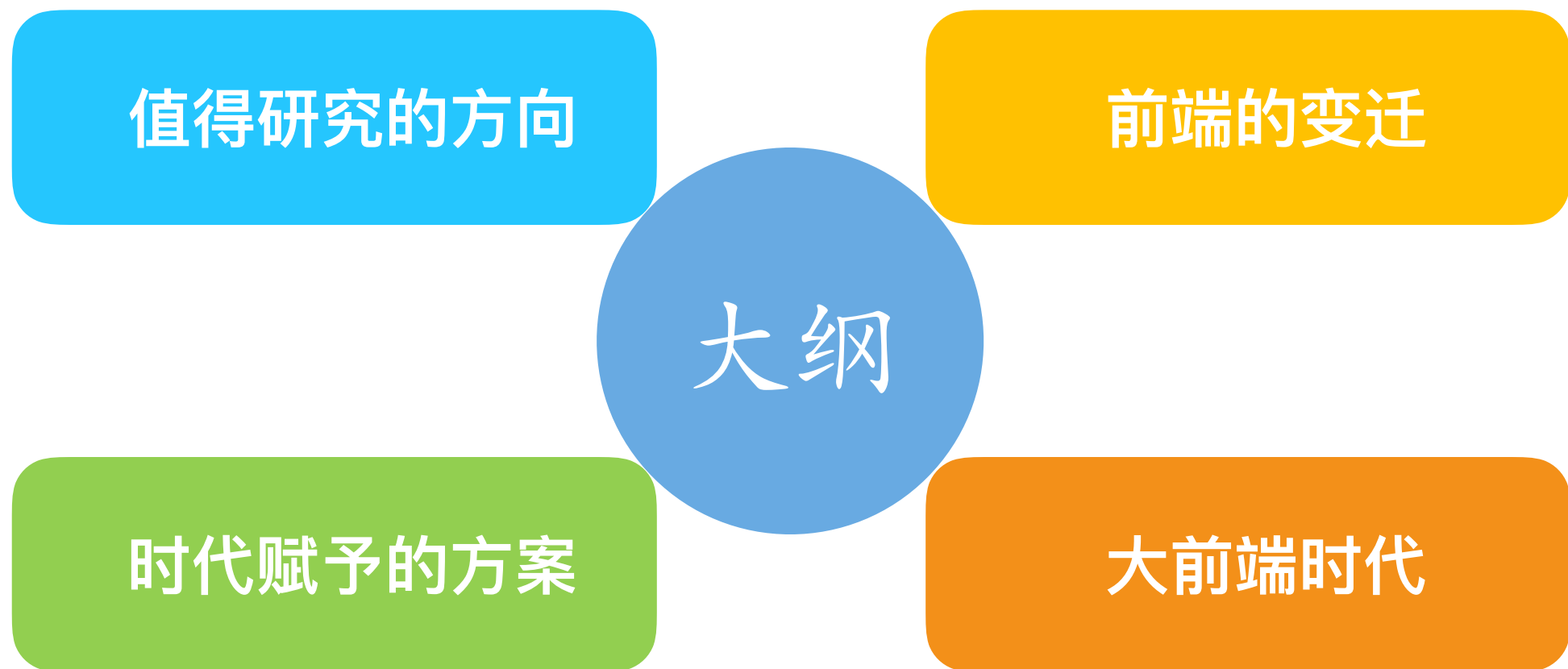


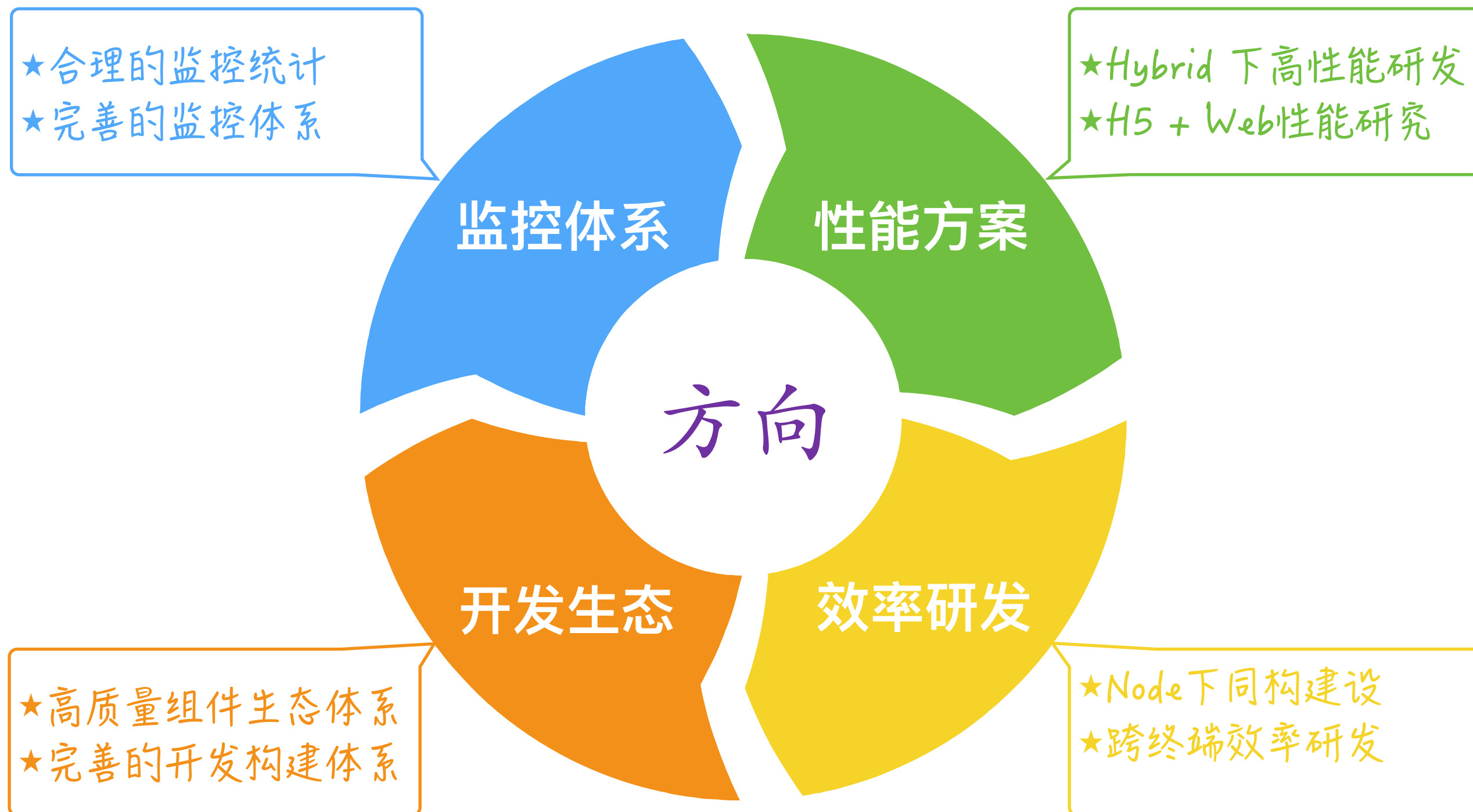
大前端优化之路

腾讯 高级工程师 刘恒兵(河伯)





我们需要研究哪些方向？



前端的变迁

- 前端的变迁犹如车轮滚滚，既重复这历史，又站在新的高度

前端的变迁

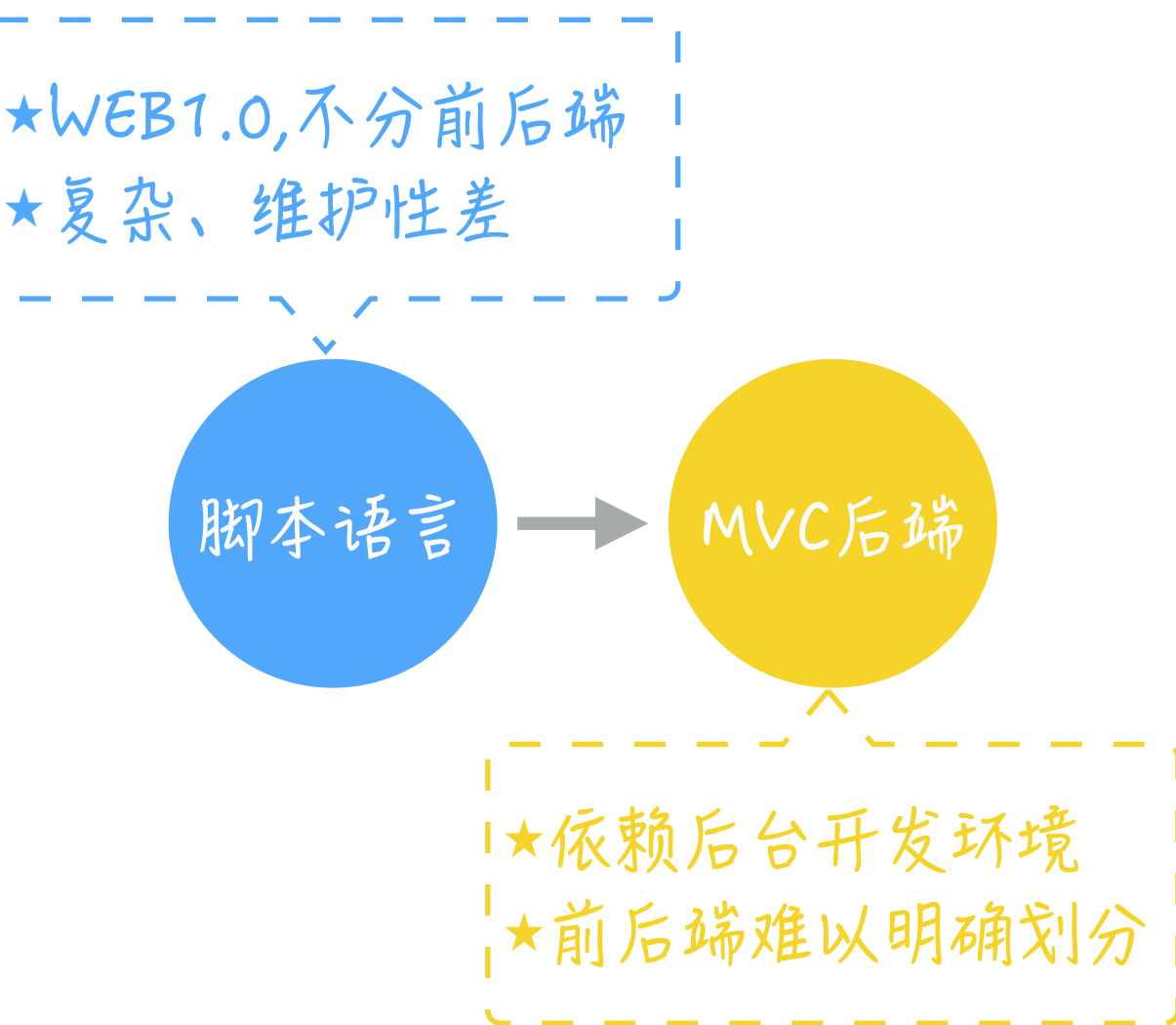
- 前端的变迁犹如车轮滚滚，既重复这历史，又站在新的高度

★WEB1.0,不分前后端
★复杂、维护性差

↓
脚本语言

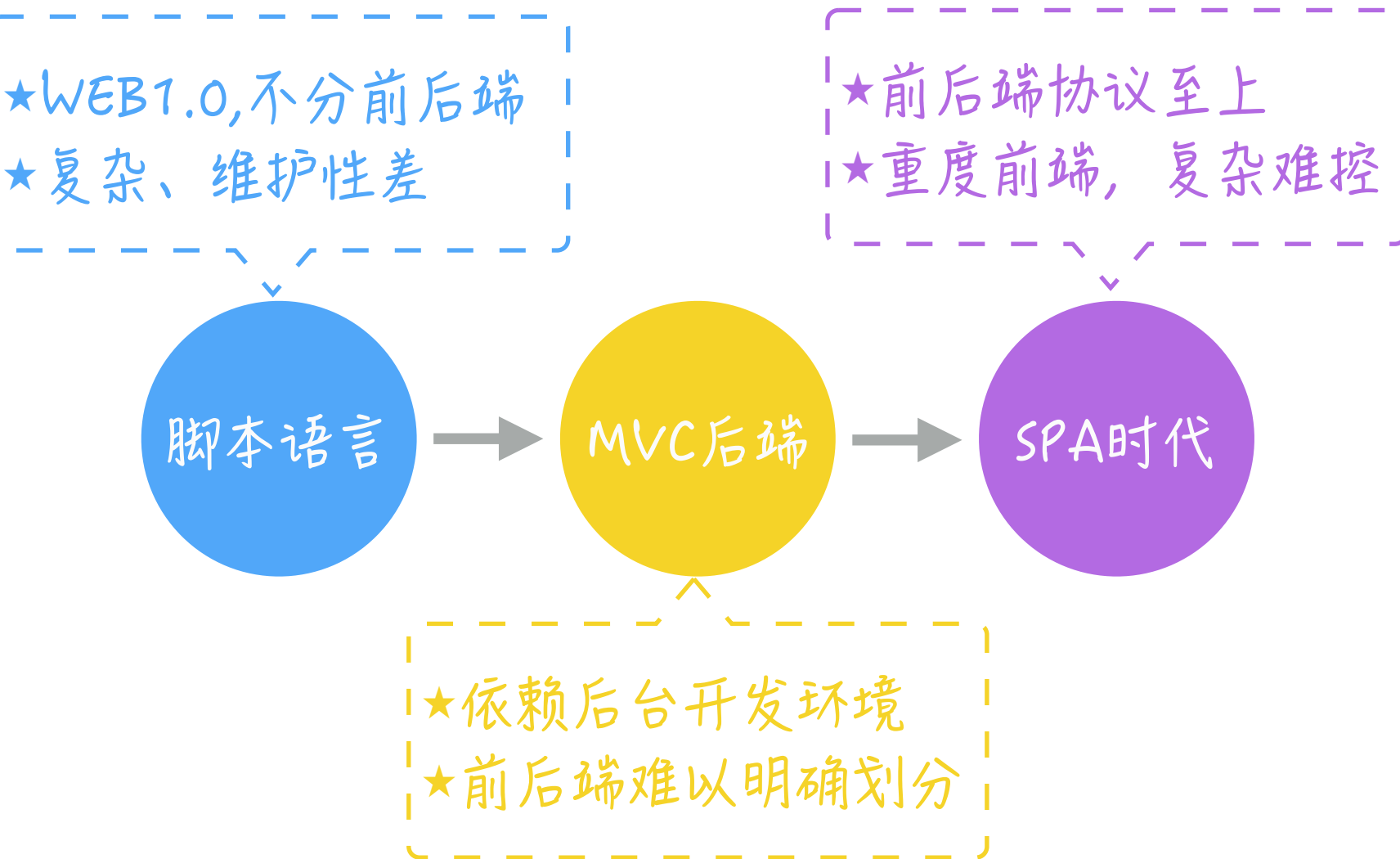
前端的变迁

- 前端的变迁犹如车轮滚滚，既重复这历史，又站在新的高度



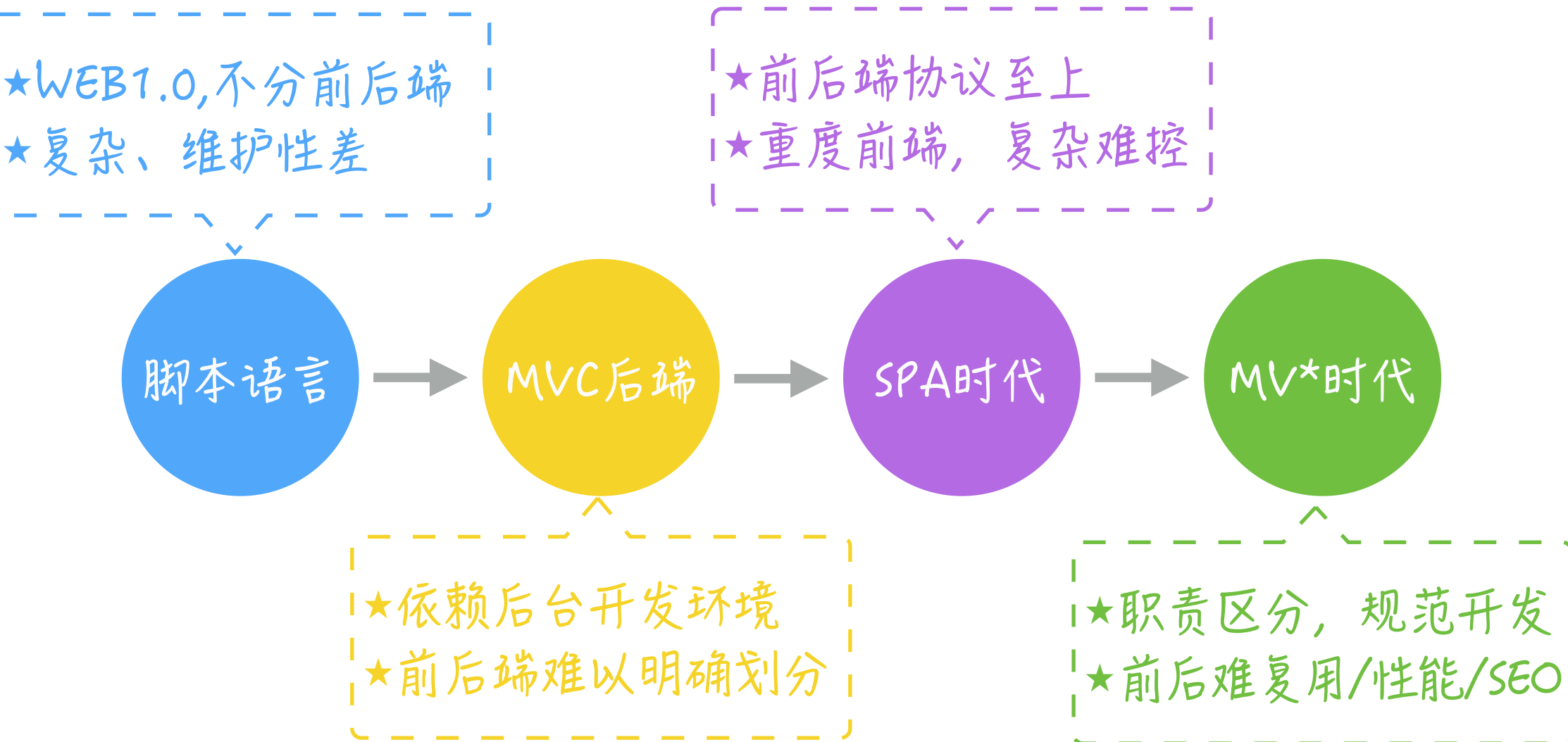
前端的变迁

- 前端的变迁犹如车轮滚滚，既重复这历史，又站在新的高度



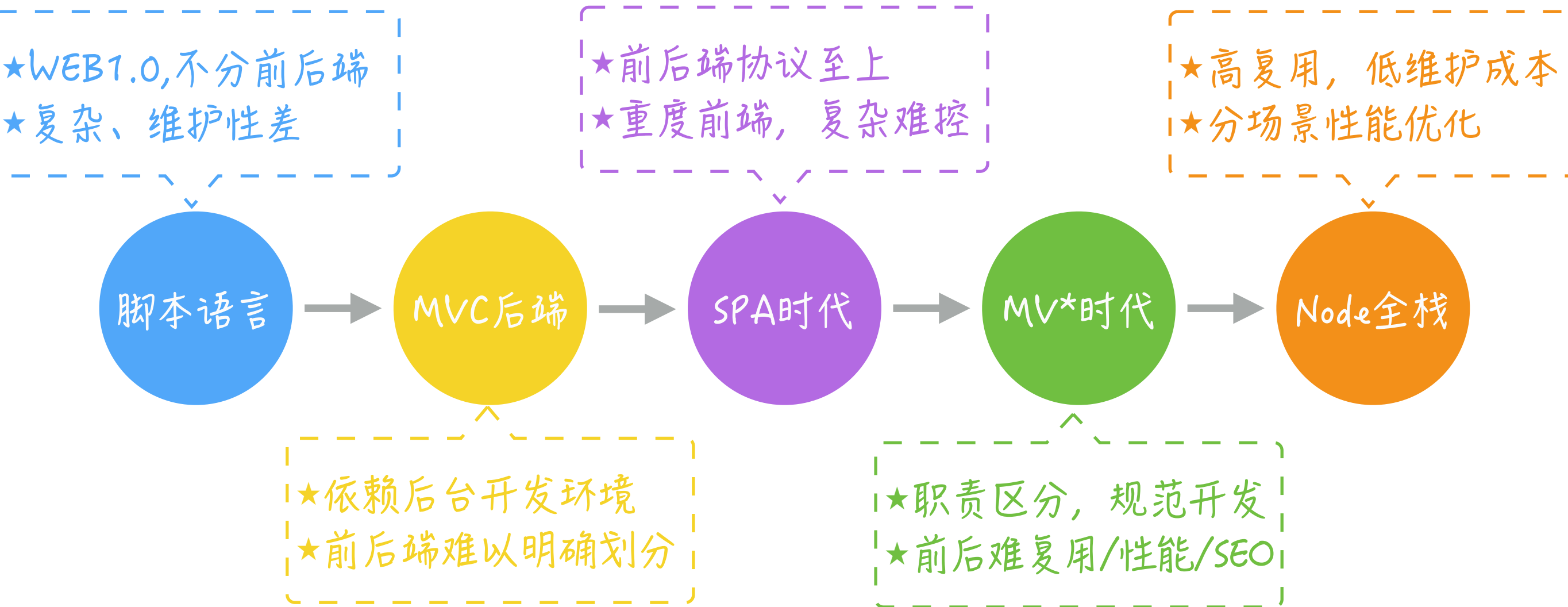
前端的变迁

- 前端的变迁犹如车轮滚滚，既重复这历史，又站在新的高度



前端的变迁

- 前端的变迁犹如车轮滚滚，既重复这历史，又站在新的高度



时代赋予的方案

前后端完全分离

重度前端逻辑下的分层架构

多场景下的网络优化

重前端逻辑的MV*

多并发下的前端性能

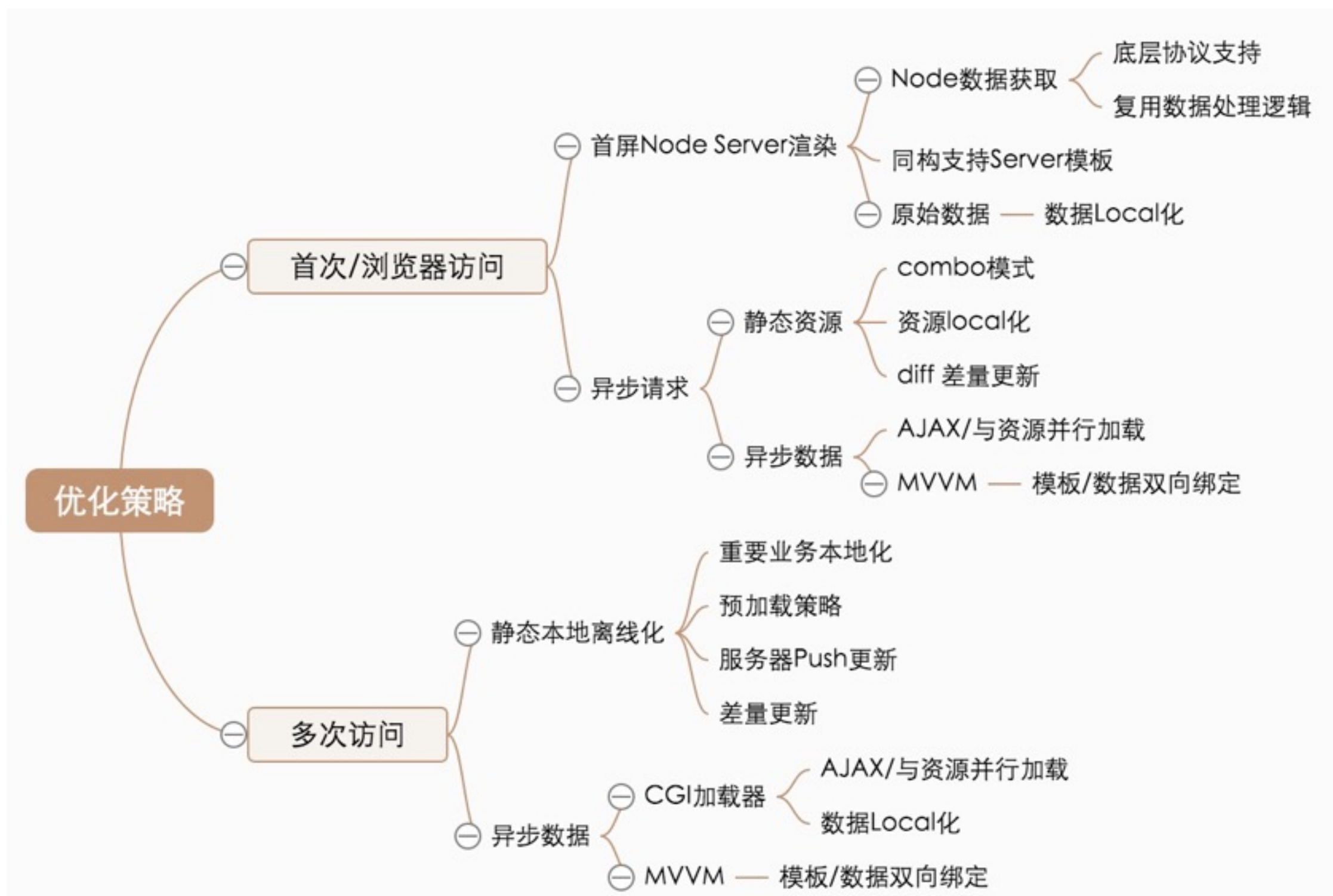
同步渲染降级方案

基于Node的全栈开发

前后端高度复用体系

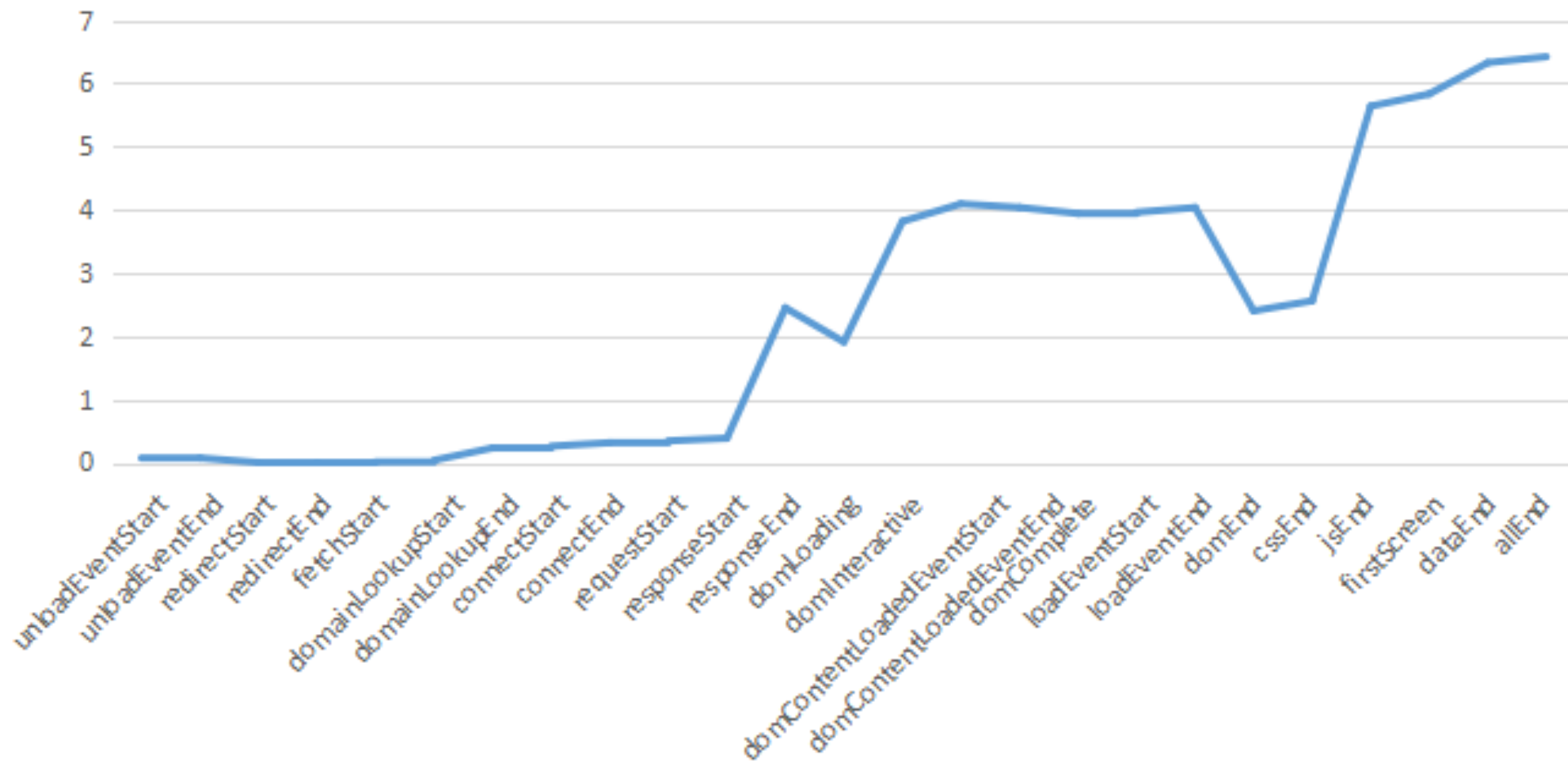
Node基于TCP/UDP协议解析

优化策略



优化瓶颈

2G数据加载(S)



监控体系



★移动/PC都需要完善监控体系

- 移动监控规范和PC监控规范
- 视频播放监控规范

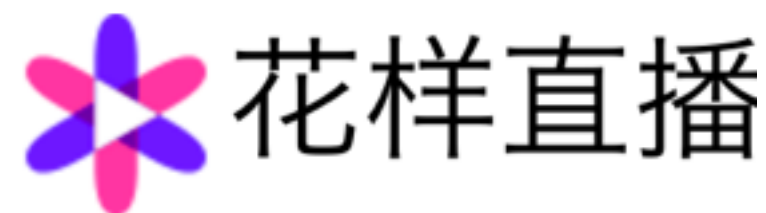


优化重点



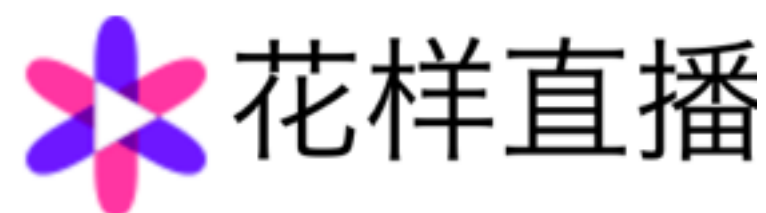
不可忽视脚本错误

- Badjs平台



不可忽视脚本错误

- Badjs平台



- 反馈现网真实情况&定制化监控输出日报

不可忽视脚本错误

- Badjs平台

#	出现次数	错误内容
1	450	ReferenceError: diableNightMode is not defined @ <anonymous>:1:1@4c12ccb
2	99	ReferenceError: executeFunction is not defined @ runCustomize (<anonymous>:1:1395) @ <anonymous>:1:1@4c12ccb
3	94	TypeError: Cannot read property 'trigger' of undefined @ http://8.url.cn/huayang/jiaoyou_mobile/index_81236e7.js:12:1622 @ t (http://8.url.cn/huayang/jiaoyou_mobile/index_81236e7.js:4:115)@81236e7
4	34	TypeError: Cannot call method 'trigger' of undefined @ http://8.url.cn/huayang/jiaoyou_mobile/index_81236e7.js:12:1623 @ t (http://8.url.cn/huayang/jiaoyou_mobile/index_81236e7.js:4:115)@81236e7
5	24	ReferenceError: removeNightMode is not defined @ <anonymous>:1:1@4c12ccb
6	23	Uncaught SyntaxError: Illegal return statement@4c12ccb
7	18	ReferenceError: Player is not defined @ http://huayang.qq.com/jiaoyou_mobile/bootstart.html:1:29 @4c12ccb
8	18	TypeError: Cannot read property 'innerHTML' of null @ <anonymous>:1:56@4c12ccb
9	15	TypeError: Cannot call method 'trigger' of undefined @ http://8.url.cn/huayang/jiaoyou_mobile/index_81236e7.js:12:1623 @ http://8.url.cn/huayang/jiaoyou_mobile/index_81236e7.js:4:115 @81236e7
10	15	SyntaxError: Unexpected identifier@4c12ccb
11	12	SyntaxError: Unexpected end of input@4c12ccb
12	11	Uncaught SyntaxError: Unexpected token ILLEGAL@4c12ccb
13	11	ReferenceError: hackLocationSuccess is not defined @ <anonymous>:1:1@4c12ccb
14	10	SyntaxError: Unexpected token }@4c12ccb
15	9	Uncaught TypeError: Cannot call method 'log' of undefined@4c12ccb
16	9	TypeError: Cannot read property '0' of undefined @ http://huayang.qq.com/jiaoyou_mobile/bootstart.html:1:76 @4c12ccb
17	9	SyntaxError: Unexpected token ILLEGAL@4c12ccb
18	9	ReferenceError: MacPlayer is not defined @ http://huayang.qq.com/jiaoyou_mobile/bootstart.html:1:29 @4c12ccb
19	9	TypeError: Cannot read property 'innerHTML' of null @ http://huayang.qq.com/jiaoyou_mobile/bootstart.html:1:65 @4c12ccb
20	8	TypeError: undefined is not an object (evaluating 'g.el.trigger')@ http://8.url.cn/huayang/jiaoyou_mobile/index_81236e7.js:12:1622 t@ http://8.url.cn/huayang/jiaoyou_mobile/index_81236e7.js:4:120 @81236e7

● "Script Error. & Script Error"

● "Script Error. & Script Error"



允许跨域服务器设置

● "Script Error. & Script Error"



允许跨域服务器设置



浏览器兼容性



资源访问限制

● “Script Error. & Script Error”



允许跨域服务器设置



浏览器兼容性



资源访问限制



Try-Cache包裹解决

● 快速错误定位

● 快速错误定位

- 时时日志

- 时时日志时时解决现网问题

● 快速错误定位

- 时时日志

- 时时日志时时解决现网问题

- **Badjs + SourceMap**

- Badjs和SourceMap完美结合快速定位问题

快速错误定位

- 时时日志

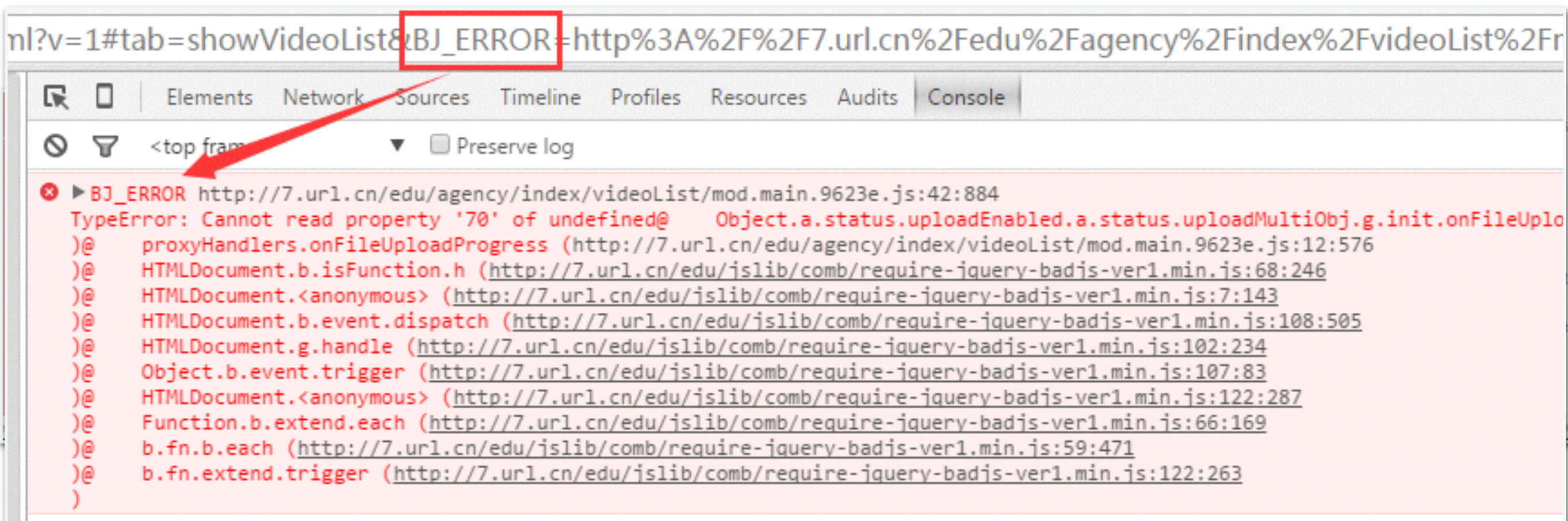
- 时时日志时时解决现网问题

7	2015-11-16 15:51:59	enter course success after open.tencent in 3s	978320346	221.212.213.66		monitorTencentOpen 0行 0列 http://ke.qq.com/user/tasks/index.html?cid=3465
8	2015-11-16 15:51:59	TypeError: Cannot read property '70' of undefined@ Object.a.status.uploadEnable d.a.status.uploadMultiObj.g.init.onFileUploadProgress (http://7.url.cn/edu/agency/in dex/videoList/mod.main.9623e.js:42:884)@ proxyHandlers.onFileUploadProgress (htt p://7.url.cn/edu/agency/index/videoList/mod.main.9623e.js:12:576)@ HTMLDocume nt.b.isFunction.h (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:6 8:246)@ HTMLDocument.<anonymous> (http://7.url.cn/edu/jslib/comb/require-jqu ery-badjs-ver1.min.js:7:143)@ HTMLDocument.b.event.dispatch (http://7.url.cn/edu/j slib/comb/require-jquery-badjs-ver1.min.js:108:505)@ HTMLDocument.g.handle (htt p://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:102:234)@ Object.b.eve nt.trigger (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:107:83)@ HTMLDocument.<anonymous> (http://7.url.cn/edu/jslib/comb/require-jquery-badi s-ver1.min.js:122:287)@ Function.b.extend.each (http://7.url.cn/edu/jslib/comb/requi re-iqerv-badis-ver1.min.js:66:160)@ jQuery.each (http://7.url.cn/edu/islib/comb/req	1069948610	119.147.144.162		http://7.url.cn/edu/agency/index/videoList 42行 884列 http://ke.qq.com/agency/index/index.html?v=1#t

● 快速错误定位

• 时时日志

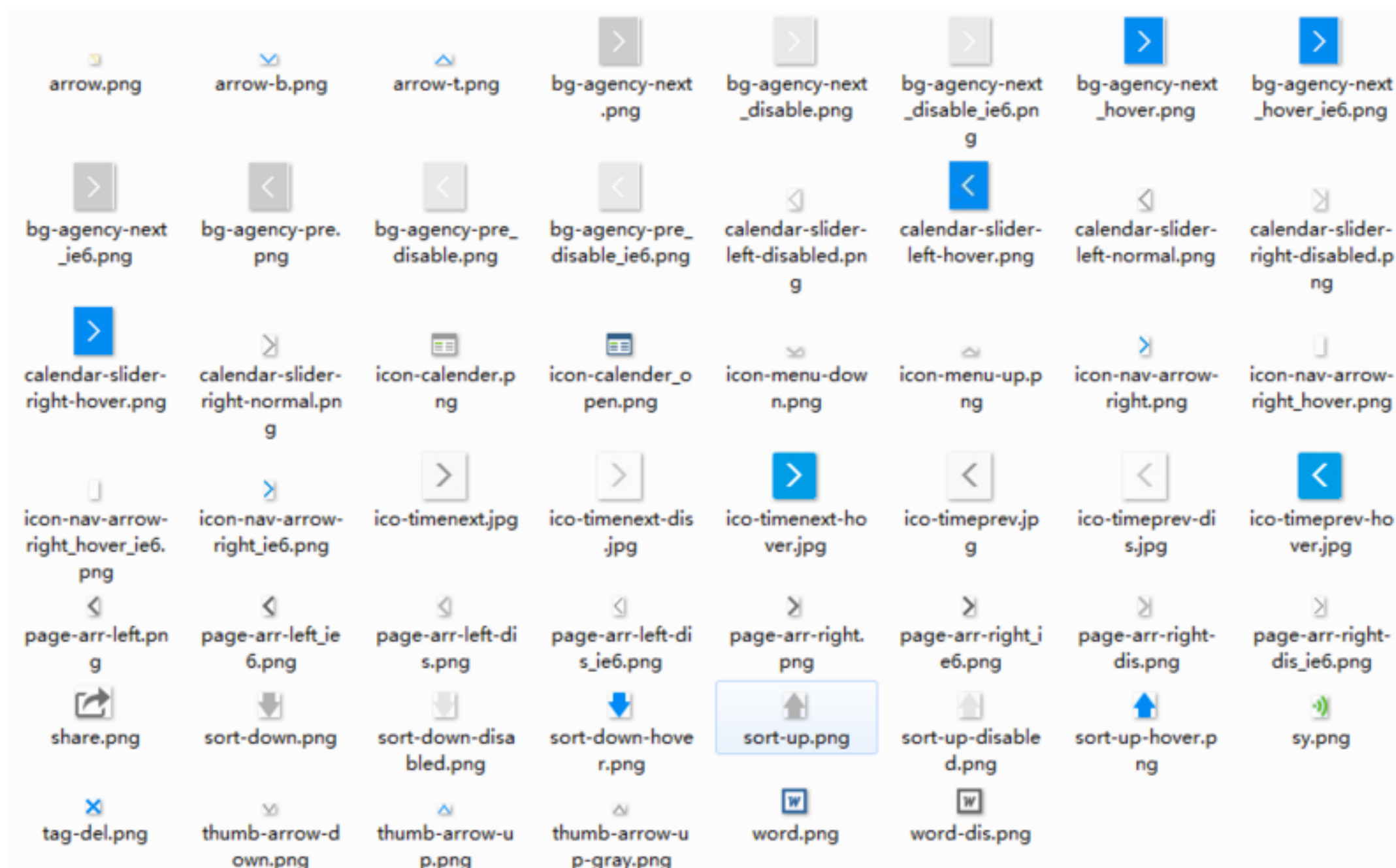
- 时时日志时时解决现网问题



BadJs - 前端代码异常监控 x 网页制作类课程_编程开发 x						
badjs.server.com/user/realtimelog.html						
历史日志	实时日志	统计	申请接入	管理	帮助	
#	时间	信息	uin	ip	类型	<input checked="" type="checkbox"/> 展示页面来源
17	2015-11-16 17:47:47	time: 4s, online: yes, ip: 1711152137, client ver:5425	690816220	113.128.83.179		monitorTencentOpen 0行 0列 http://ke.qq.com/user/tasks/index.html?cid=102531#tid=100107071&fr=2
16	2015-11-16 17:47:47	TypeError: 无法获取未定义或 null 引用的属性 "get" @ t (http://7.url.cn/edu/common/js/base.28bff.js:80:580) @ u (http://7.url.cn/edu/common/js/base.28bff.js:80:679) @ succ (http://7.url.cn/edu/common/js/base.28bff.js:80:333) @ callBack (http://7.url.cn/edu/common/js/base.28bff.js:66:184) @ l.succss (http://7.url.cn/edu/common/js/base.28bff.js:64:880) @ Anonymous function (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:7:134) @ i (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:71:39) @ k.fireWith (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:72:292) @ d (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:195:280) @ c (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:206:238)	1050264225	36.6.13.188		http://7.url.cn/edu/common/js/base.28bff.js 80行 580列 http://ke.qq.com/course/list?mt=1002&st=2037&tt=3123
15	2015-11-16 17:47:47	time: 1s, online: yes, ip: 2074200388, client ver:5431	1852256628	1.192.63.137		monitorTencentOpen 0行 0列 http://ke.qq.com/user/tasks/index.html?cid=80366#tid=100082035&fr=2
14	2015-11-16 17:47:47	user searches keyword<计算机ms> , subset:["microsoft","ms","计算机","计算机ms"]	865355057	220.168.44.238		http://ke.qq.com/course/list/%E8%AE%A1%E7%AE%97%E6%9C%BAm s?sort=5&enable_activity_label=0 0行 0列
13	2015-11-16 17:47:46	user searches keyword<LEED V4> , subset:["4","LEED V4","leed","v"]	2559767085	122.225.36.170		http://ke.qq.com/course/list/LEED%20V4?enable_activity_label=0 0行 0列
12	2015-11-16 17:47:46	user searches keyword<杜斯迅> , subset:["杜斯","杜斯迅","迅"]	-	59.172.46.1		http://ke.qq.com/course/list/%E6%9D%9C%E6%96%AF%E8%BF%85?enable_activity_label=0 0行 0列
11	2015-11-16 17:47:46	user searches keyword<3D> , subset:["3D","3d"]	401560853	113.118.113.75		http://ke.qq.com/course/list/3D?enable_activity_label=0&page=7 0行 0列

BadJs - 前端代码异常监控 x 网页制作类课程_编程开发 x						
badjs.server.com/user/realtimelog.html						
历史日志	实时日志	统计	申请接入	管理	帮助	
#	时间	信息	uin	ip	类型	<input checked="" type="checkbox"/> 展示页面来源
17	2015-11-16 17:47:47	time: 4s, online: yes, ip: 1711152137, client ver:5425	690816220	113.128.83.179		monitorTencentOpen 0行 0列 http://ke.qq.com/user/tasks/index.html?cid=102531#tid=100107071&fr=2
16	2015-11-16 17:47:47	TypeError: 无法获取未定义或 null 引用的属性 "get" @ t (http://7.url.cn/edu/common/js/base.28bff.js:80:580) @ u (http://7.url.cn/edu/common/js/base.28bff.js:80:679) @ succ (http://7.url.cn/edu/common/js/base.28bff.js:80:333) @ callBack (http://7.url.cn/edu/common/js/base.28bff.js:66:184) @ l.succ (http://7.url.cn/edu/common/js/base.28bff.js:64:880) @ Anonymous function (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:7:134) @ i (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:71:39) @ k.fireWith (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:72:292) @ d (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:195:280) @ c (http://7.url.cn/edu/jslib/comb/require-jquery-badjs-ver1.min.js:206:238)	1050264225	36.6.13.188		http://7.url.cn/edu/common/js/base.28bff.js 80行 580列 http://ke.qq.com/course/list?mt=1002&st=2037&tt=3123
15	2015-11-16 17:47:47	time: 1s, online: yes, ip: 2074200388, client ver:5431	1852256628	1.192.63.137		monitorTencentOpen 0行 0列 http://ke.qq.com/user/tasks/index.html?cid=80366#tid=100082035&fr=2
14	2015-11-16 17:47:47	user searches keyword<计算机ms> , subset:["microsoft","ms","计算机","计算机ms"]	865355057	220.168.44.238		http://ke.qq.com/course/list/%E8%AE%A1%E7%AE%97%E6%9C%BAm s?sort=5&enable_activity_label=0 0行 0列 http://ke.qq.com/course/list/%E8%AE%A1%E7%AE%97%E6%9C%BAm?s?sort=5&enable_activity_label=0
13	2015-11-16 17:47:46	user searches keyword<LEED V4> , subset:["4","LEED V4","leed","v"]	2559767085	122.225.36.170		http://ke.qq.com/course/list/LEED%20V4?enable_activity_label=0 0行 0列 http://ke.qq.com/course/list/LEED%20V4?enable_activity_label=0
12	2015-11-16 17:47:46	user searches keyword<杜斯迅> , subset:["杜斯","杜斯迅","迅"]	-	59.172.46.1		http://ke.qq.com/course/list/%E6%9D%9C%E6%96%AF%E8%BF%85?enable_activity_label=0 0行 0列 http://ke.qq.com/course/list/%E6%9D%9C%E6%96%AF%E8%BF%85?enable_activity_label=0
11	2015-11-16 17:47:46	user searches keyword<3D> , subset:["3D","3d"]	401560853	113.118.113.75		http://ke.qq.com/course/list/3D?enable_activity_label=0&page=7 0行 0列

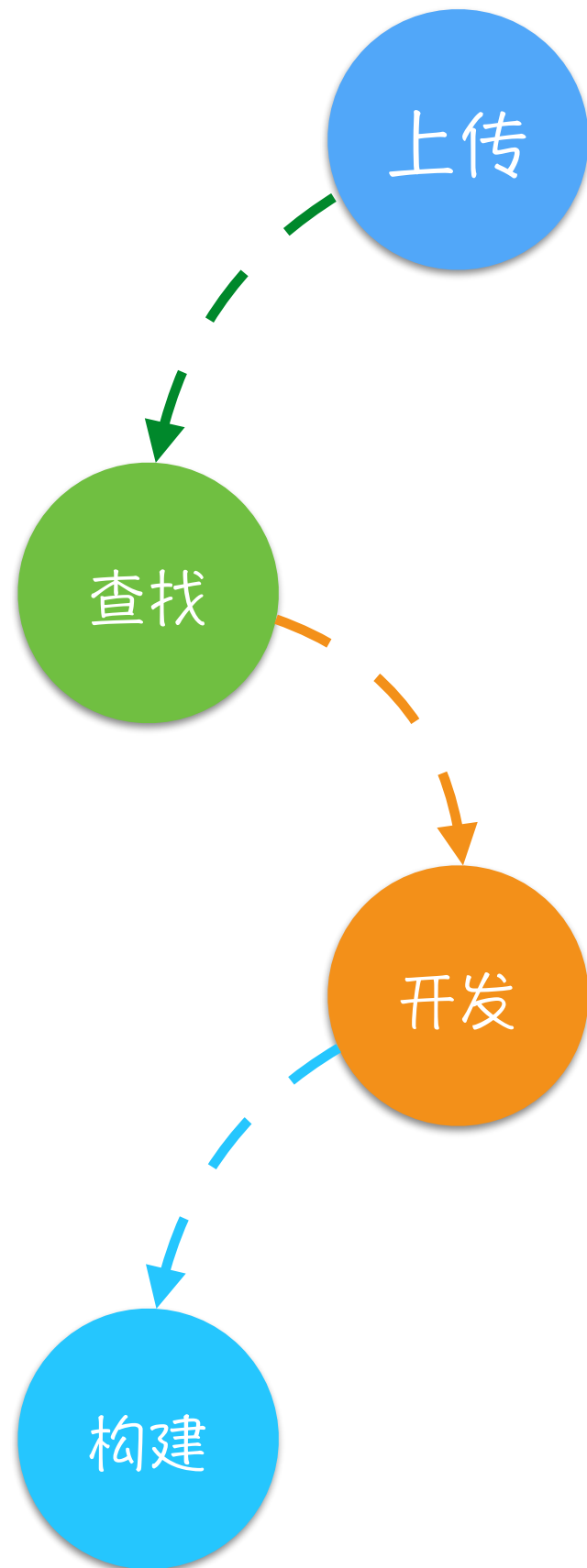
● 图片优化深挖



● 工程化思考

- 关于开发体系的挑战
 - 开发如何使用
 - 增删改查的维护
 - 系统来解决问题，开发无需关心

● 工程化思考



- 关于开发体系的挑战
 - 开发如何使用
 - 增删改查的维护
 - 系统来解决问题，开发无需关心



PC 平台 - 图标库 | 51



\f000
i-group



\f001
i-logo



\f002
i-heart



\f004
i-play



\f005
i-right



\f006
i-add



\f008
i-calendar



\f009
i-qq-border



\f00a
i-edit



\f00b
i-v-top



\f00c
i-alert



\f00d
i-home



\f00e
i-success



\f00f
i-user-border



\f013
i-tel



\f014
i-weixin



\f016
i-qq



\f019
i-info



\f01b
i-question



\f01c
i-arrow-bottom



\f01d
i-star



\f020
i-to-top



\f021
i-v-bottom



\f022
i-v-left



\f024
i-phone



\f025
i-weixin-border



\f027
i-user-group-border



\f029
i-time



\f02b
i-qr-code



\f02c
i-star-border



\f02d
i-close



\f02e
i-user-group



\f02f
i-v-right



\f031
i-arrow-top



\f033
i-user



\f036
i-course-data



\f037
i-course-live



\f038
i-course-q-a



\f039
i-course-record



\f03c
i-insert



\f03d
i-list-dot



\f046
i-delete



\f054
i-share



\f060
i-download



\f063
i-comment



\f06b
i-course-test



\f076
i-clone



\f081
i-upload



\f088
i-tupu



\f099
i-view



\f09a
i-praise

H5公众账号 - 图标库 | 56



\f012
i-search



\f015
i-lu



\f017
i-camera



\f018
i-empty



\f01e
i-career



\f01f
i-feeder



\f023
i-language



\f02a
i-pen



\f030
i-computer



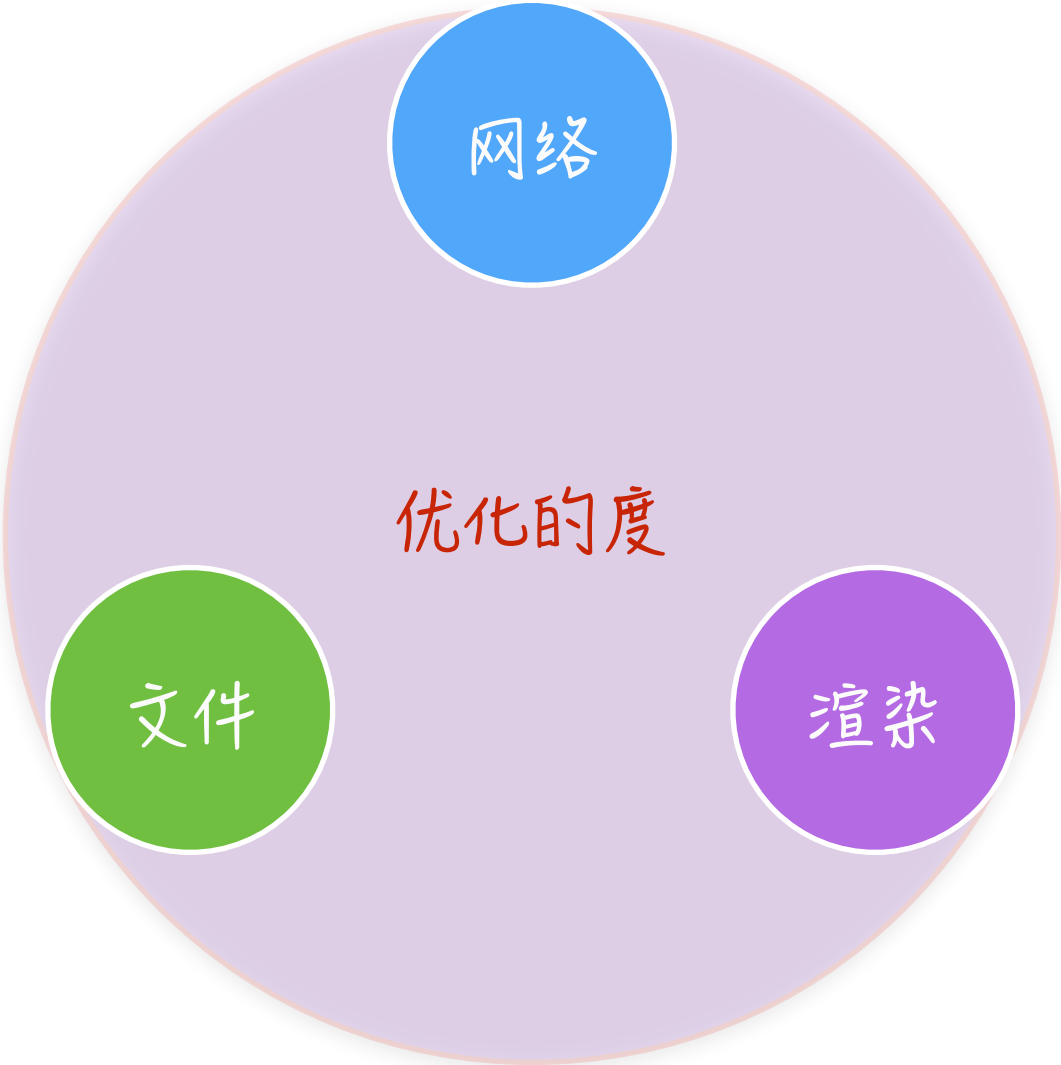
\f035
i-warn

业务实践



- 细分业务监控

方式方向



```
<div id="js-nav" class="nav">
  <div id="dropdown-mt" class="dropdown" data-target="mt">
    <div class="dropdown__description">全部分类</div>
    <div class="dropdown__sep"></div>
  </div>
  <div id="dropdown-video" class="dropdown" data-target="video">
    <div class="dropdown__description">全部类型</div>
    <div class="dropdown__sep"></div>
  </div>
  <div id="dropdown-sort" class="dropdown" data-target="sort">
    <div class="dropdown__description">综合排序</div>
  </div>
</div>
```

```
<div class="nav" id="js-nav">
  <div class="dropdown" data-target="mt" id="dropdown-mt">
    <div class="dropdown__description">全部分类</div>
    <div class="dropdown__sep"></div>
  </div>
  <div class="dropdown" data-target="video" id="dropdown-video">
    <div class="dropdown__description">全部类型</div>
    <div class="dropdown__sep"></div>
  </div>
  <div class="dropdown" data-target="sort" id="dropdown-sort">
    <div class="dropdown__description">综合排序</div>
  </div>
</div>
```

● 防止过度优化

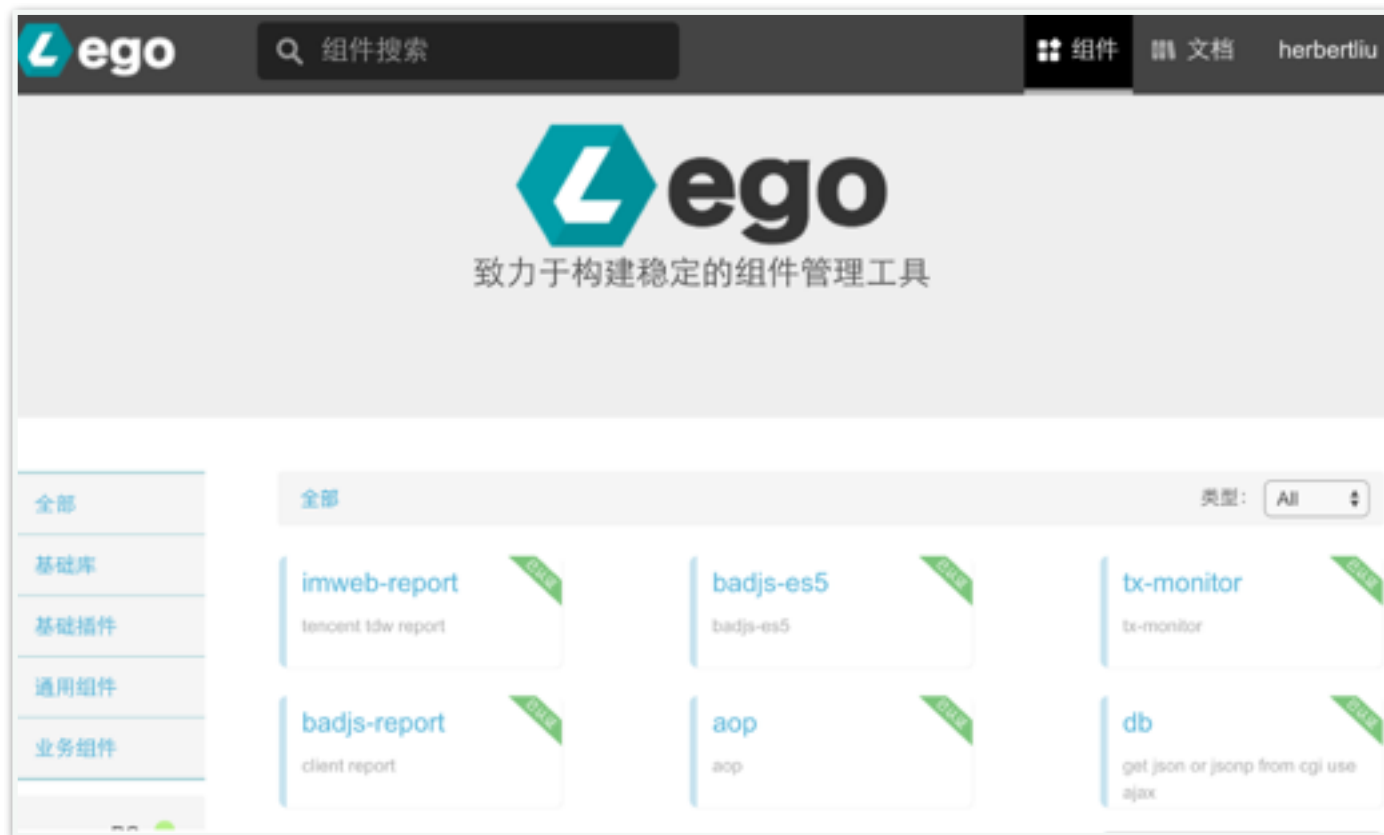
组件体系

★组件高复用、高可用

组件体系

★组件高复用、高可用

- Lego组件平台，提供稳定、高可用的组件
- 使用方便 (lego install)、仅需维护package.json



组件体系

★组件高复用、高可用

- Lego组件平台，提供稳定、高可用的组件
- 使用方便 (lego install)、仅需维护package.json

```
{
  "version": "0.0.1",
  "description": "bobo pc project",
  "keywords": [],
  "homepage": "",
  "author": "IMWeb",
  "repository": {
    "type": "git",
    "url": ""
  },
  "bugs": {
    "url": ""
  },
  "licenses": "MIT",
  "devDependencies": {
    "fis3-hook-lego": "~0.2.1",
    "fis3-smarty": "~1.1.2"
  },
  "lego": {
    "dependencies": {
      "imweb-report": "0.1.8",
      "imweb-badjs": "0.2.7",
      "jquery": "2.1.4"
    },
    "devDependencies": {}
  }
}
```

组件体系

★组件高复用、高可用

- Lego组件平台，提供稳定、高可用的组件
- 使用方便 (lego install)、仅需维护package.json

```
{
  "version": "0.0.1",
  "description": "bobo pc project",
  "keywords": [],
  "homepage": "",
  "author": "IMWeb",
  "repository": {
    "type": "git",
    "url": ""
  },
  "bugs": {
    "url": ""
  },
  "licenses": "MIT",
  "devDependencies": {
    "fis3-hook-lego": "~0.2.1",
    "fis3-smarty": "~1.1.2"
  },
}
```

```
var $ = require('lego_modules/
jQuery/1.11.3/jQuery');
```

```
var $ = require('jQuery');
```

```
var $ = require('jQuery@1.11.3');
```


组件体系

```
{
  "version": "0.0.1",
  "description": "bobo pc project",
  "keywords": [],
  "homepage": "",
  "author": "IMWeb",
  "repository": {
    "type": "git",
    "url": ""
  },
  "bugs": {
    "url": ""
  },
  "licenses": "MIT",
  "devDependencies": {
    "fis3-hook-lego": "~0.2.1",
    "fis3-smarty": "~1.1.2"
  },
}
```

```
var $ = require('lego_modules/
jQuery/1.11.3/jQuery');
```

```
var $ = require('jQuery');
```

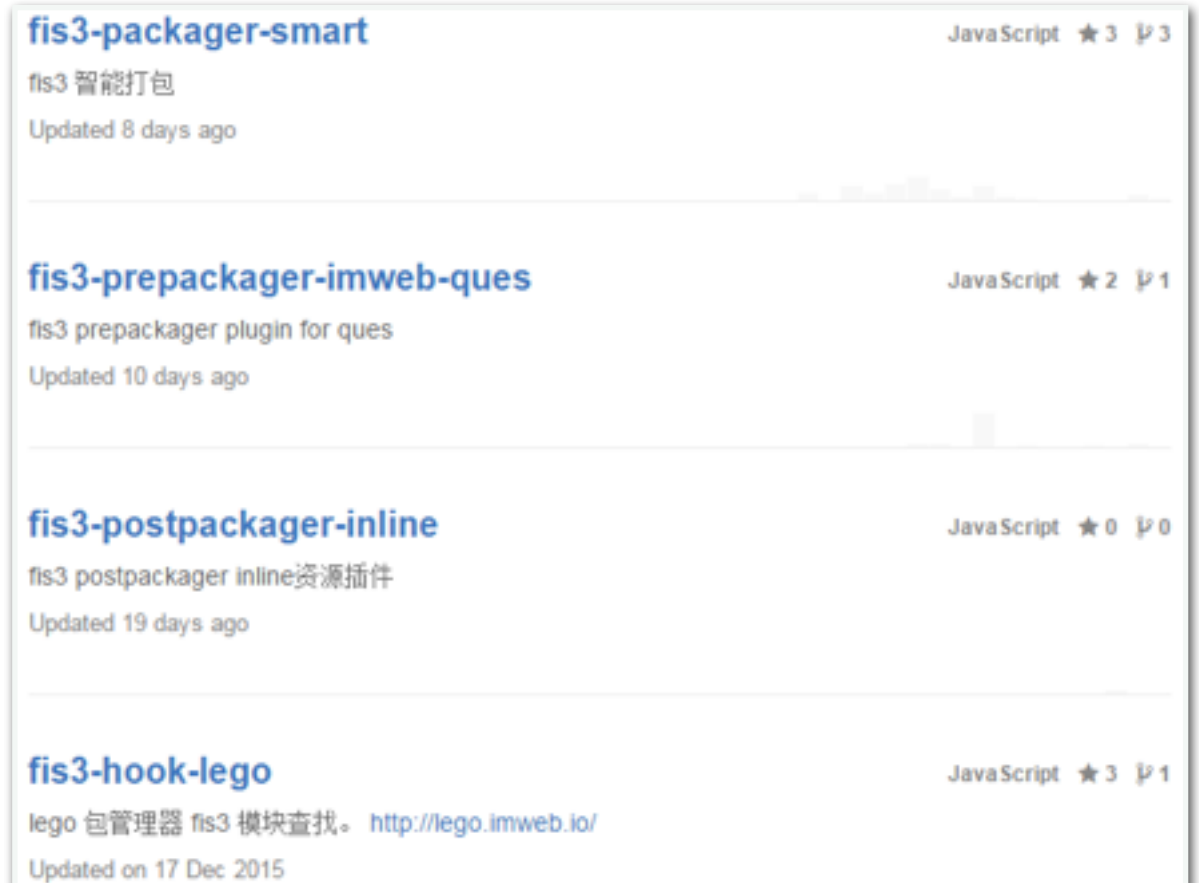
```
var $ = require('jQuery@1.11.3');
```

★组件高复用、高可用

- Lego组件平台，提供稳定、高可用的组件
- 使用方便 (lego install)、仅需维护package.json

★统一的构建体系

- fis3 + hook + lego



Plugin Name	Description	Language	Stars	Updated
fis3-packager-smart	fis3 智能打包	JavaScript	★ 3	Updated 8 days ago
fis3-prepackager-imweb-ques	fis3 prepackager plugin for ques	JavaScript	★ 2	Updated 10 days ago
fis3-postpackager-inline	fis3 postpackager inline资源插件	JavaScript	★ 0	Updated 19 days ago
fis3-hook-lego	lego 包管理器 fis3 模块查找。 http://lego.imweb.io/	JavaScript	★ 3	Updated on 17 Dec 2015

QUES构建体系

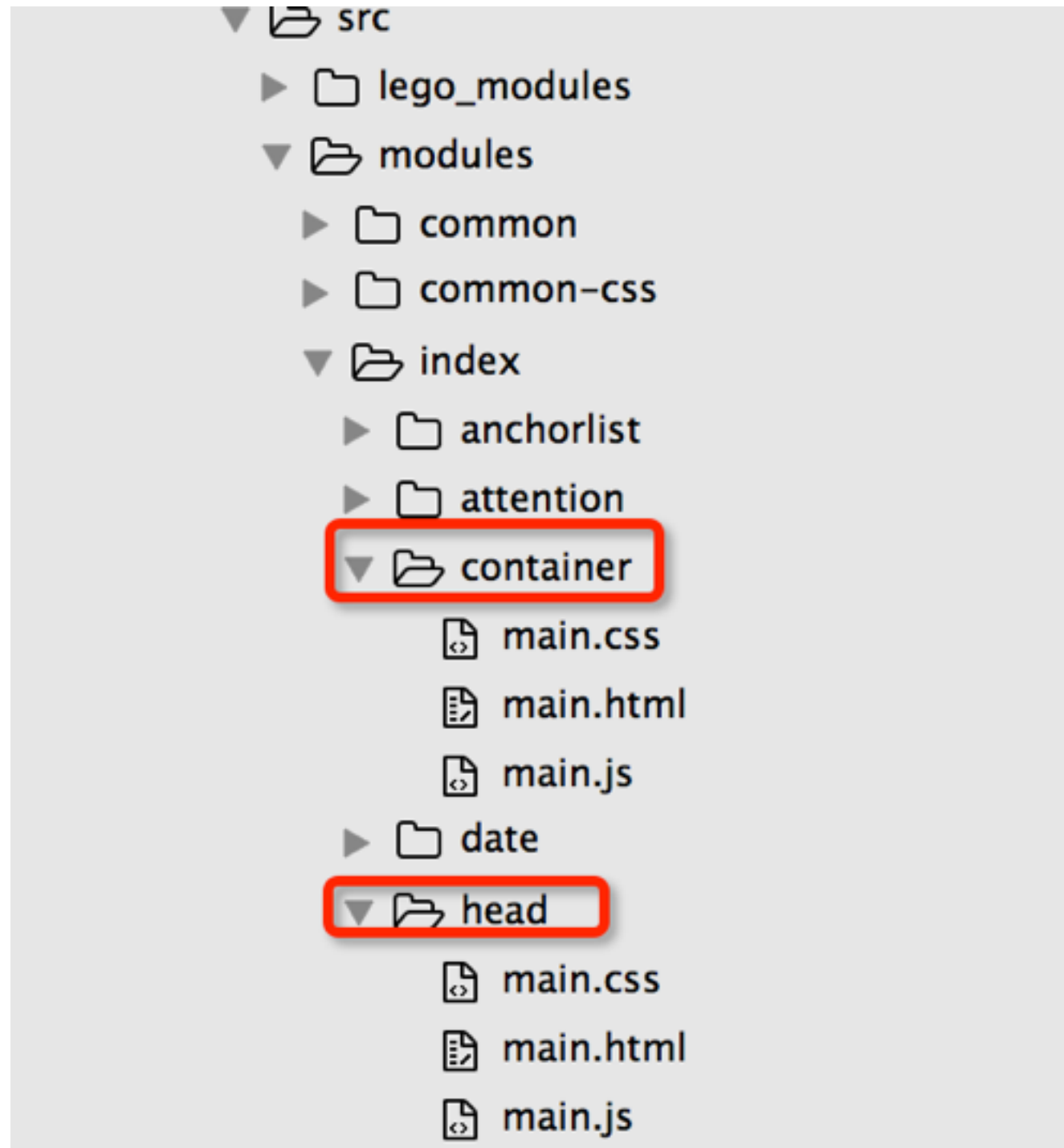
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<index-container id="index-container"></index-container>

QUES构建体系

<index-head id="index-head"></index-head>

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Node全栈极限优化



Node全栈极限优化

 前后台高度复用



Node全栈极限优化

 前后台高度复用

 同构解决方案

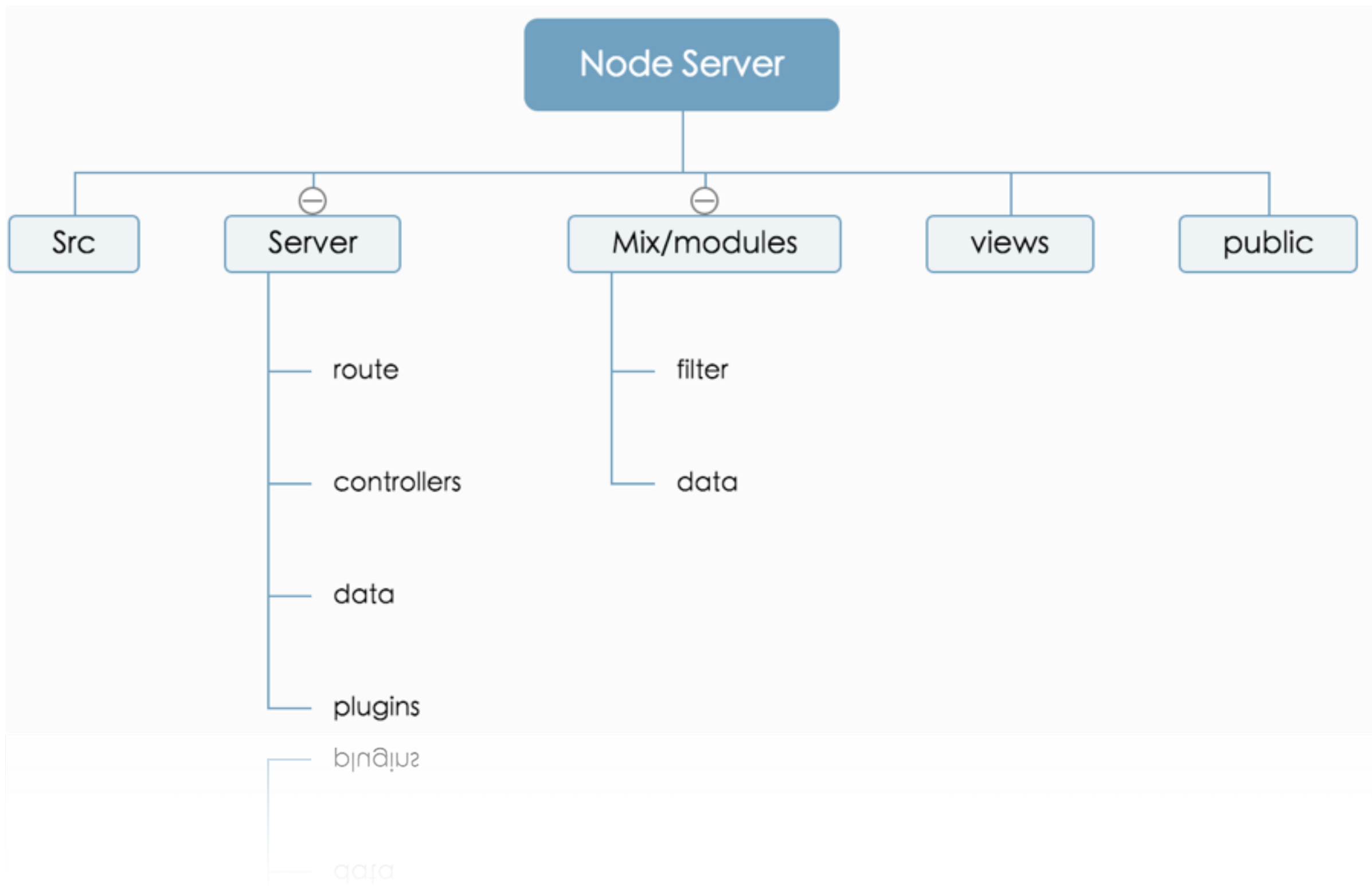


Node全栈极限优化

-  前后台高度复用
-  同构解决方案
-  TCP/UDP协议支持

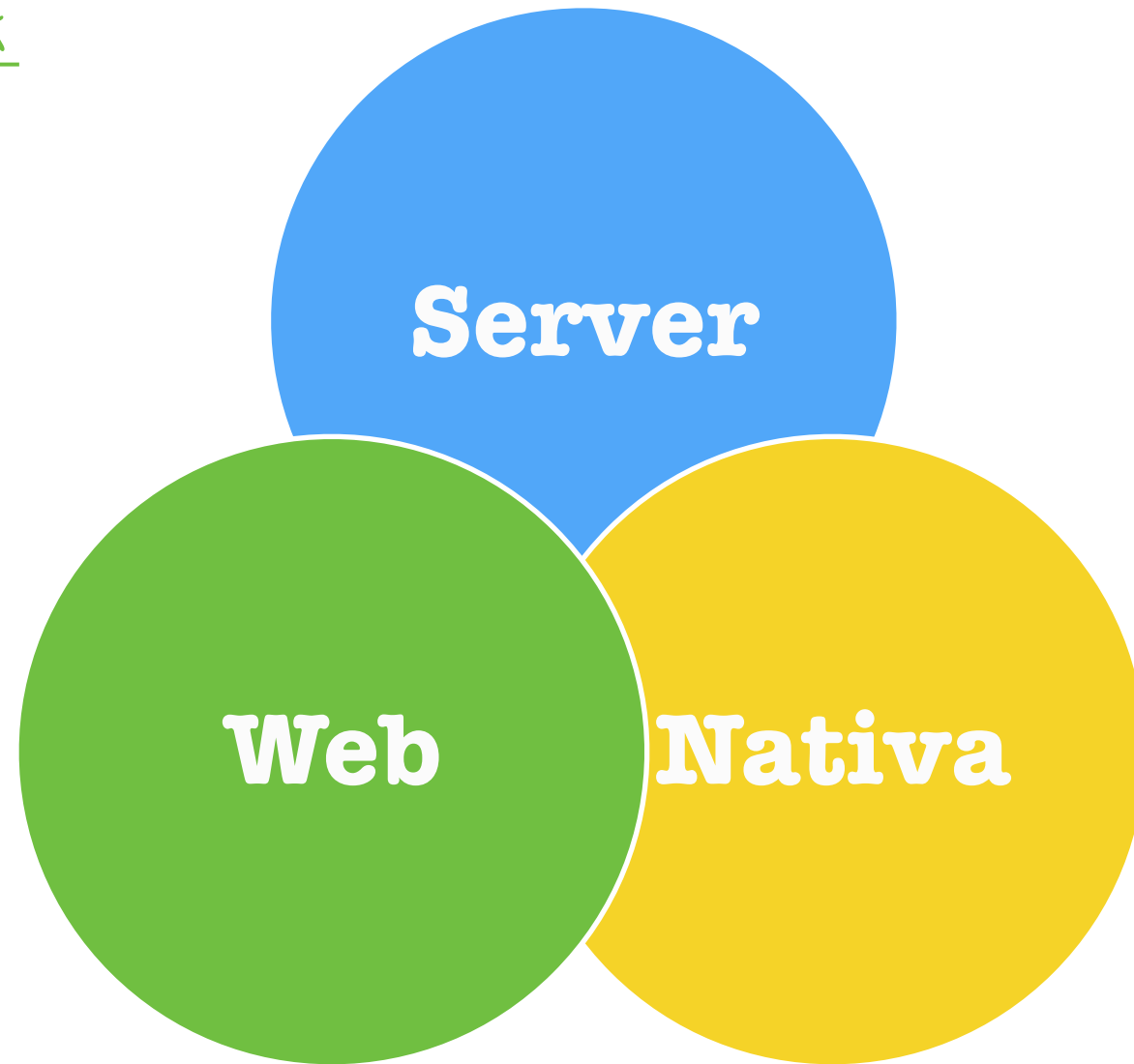


Node Server架构



大前端同构

- Node同构方案



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END

Thanks

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