

JS覆盖率统计平台

Build a JS Coverage Statistical Platform Based on Istanbul

酷家乐 银时

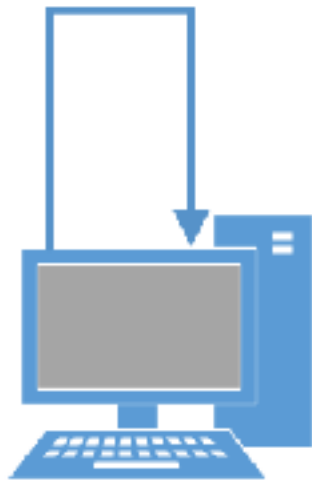


使用场景001 和 三个JS覆盖率统计工具

本地做 单元测试/自动化测试
覆盖率数据 - 生成在本地
覆盖率报告 - 导出在本地



Tester



Terminal

ScriptCover

浏览器插件，使用方便，但Chrome商店已下架；
无需预插桩即可监控browser运行js代码，拿混淆后的代码毫无办法；
开源，但已停止维护；

Istanbul

覆盖率统计插件，可配多种各种UT框架和自动化框架使用；
编译时预插桩，代码在UT或browser运行时都可统计覆盖率；
开源，旧版已停止维护，新版(请搜nyc)维护的很好；
Js写的，可扩展；

JsCoverage

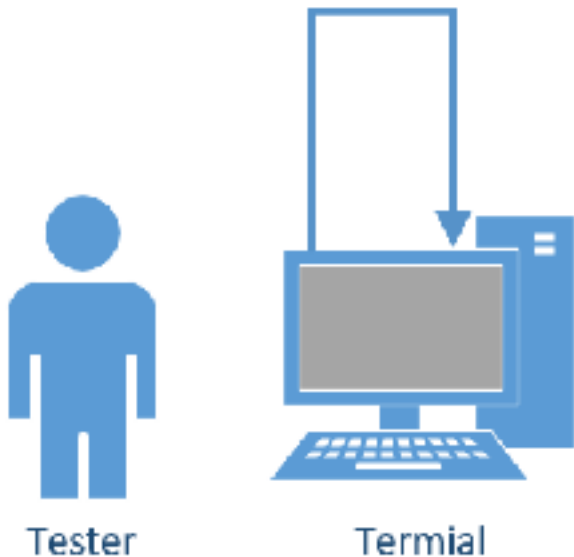
单测覆盖率统计插件，可配多种各种UT框架和自动化框架使用；
编译时预插桩，代码在UT或browser运行时都可统计覆盖率；
开源，旧版已停止维护，新版(请搜JsCover)维护的很好；
Java写的，可扩展；和 Istanbul 非常的像；

karma-coverage

Karma 的插件，基于 Istanbul 写的；
如果用 Karma 做自动化，使用很方便；
较定制化，可模仿但不好直接扩展；

使用场景001 和 三个JS覆盖率统计工具

本地做 单元测试/自动化测试
覆盖率数据 - 生成在本地
覆盖率报告 - 导出在本地



- 单版本，单次测试 •
- 一般用于单元测试、前端自动化 •
- 报告生成在本地 •
- 不支持多次测试覆盖率叠加 •



使用场景002 和 基于上述工具的一些实践



打包一个前端版本
并部署在某个环境



Tester 1



Terminal 1



Tester 2



Terminal 2

覆盖率收集



实时统计,
实时出报告



多个测试 并行测试
或运行自动化

Istanbul-Middleware

基于 Istanbul 写的中间件；
需要前端代码预插桩并调用 middleware 提供的数据上传接口；
可统计一个前端工程在多个终端、多种方式测试的总覆盖率；
官方，开源，可扩展性强。

JsCover++

基于 JsCover 写的服务；
和 Istanbul-Middleware 很相似，但更定制化；
没开源。

使用场景002 和 基于上述工具的一些实践



打包一个前端版本
并部署在某个环境



Tester 1



Terminal 1



Tester 2



Terminal 2

覆盖率收集



实时统计,
实时出报告

单项目，单版本

数据无统一管理，只能导出文件

Repo无法自动匹配更新

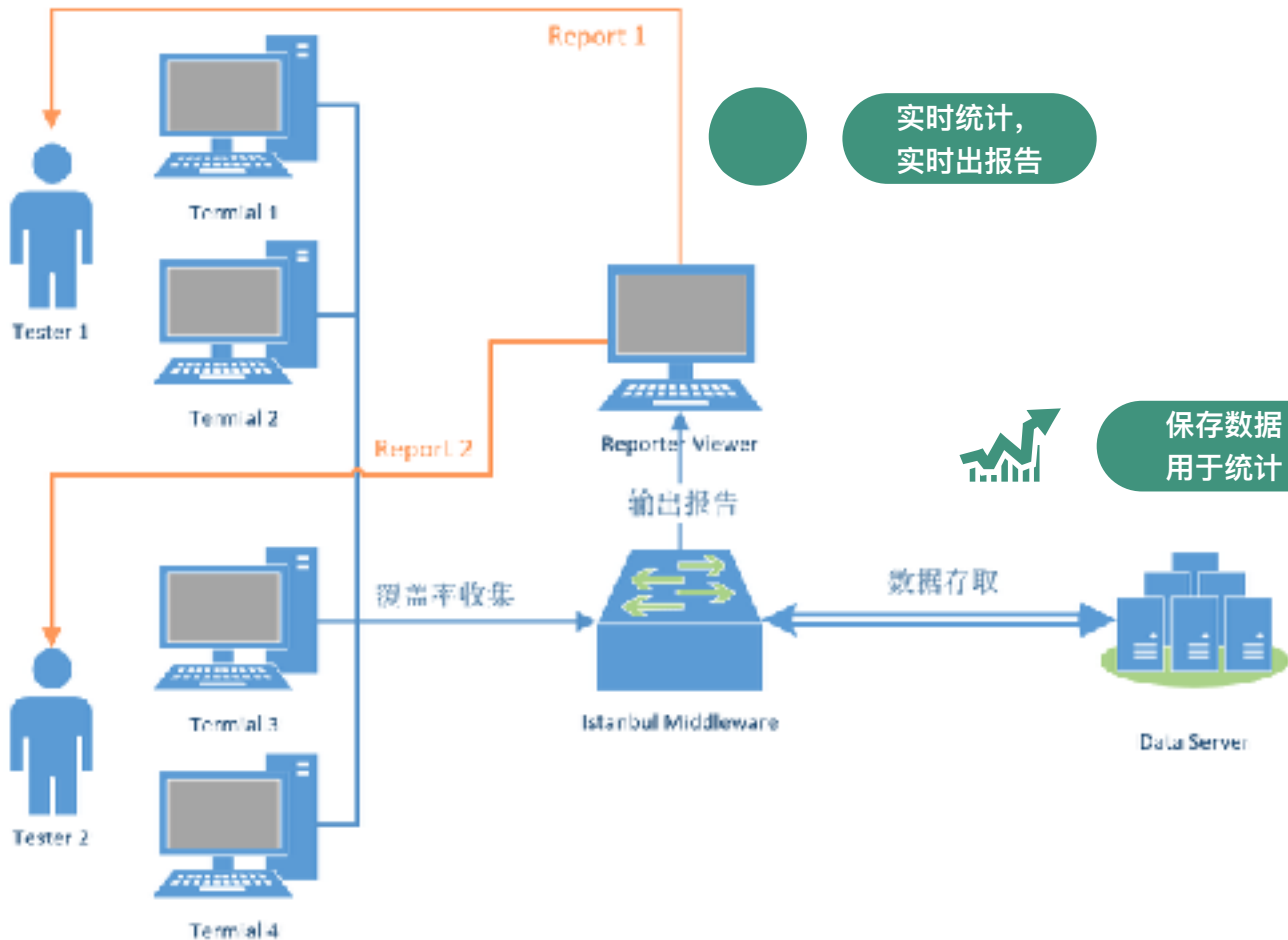


多个测试并行测试
或运行自动化

使用场景003 和 基于Istanbul的改造



打包多工程的前端版本
部署多个环境



实时统计,
实时出报告

保存数据
用于统计

测试各自测负责的版本
功能测试+自动化

如何使用istanbul-midleware



找个环境部署 Istanbul-middleware

使用Istanbul的插件给前端代码插桩

[Link](#)

查看 `window.__coverage__`
[Link](#)

前端代码调用 `middleware/coverage/client` 接口

[Link](#)


浏览器打开网页 [middleware/coverage](#)
[Link](#)

使用场景003 和 基于Istanbul的改造

如果说，我们要满足这样的测试场景？



[我这样设计架构](#)
[Link](#)



[我这样设计数据库](#)
[Link](#)



[我这样设计接口](#)
[Link](#)



[最后的效果](#)
[Link](#)

我们有好多多个

Repo

分别统计

每个Repo部署多个

环境

分别统计

每个环境有多个版本

版本

分别统计

使用场景003 和 基于Istanbul的改造

我还有哪些没做的？



01

代码Diff，支持增量覆盖率统计

02

基于代码Diff，支持多个版本的覆盖率数据 Merge

03

可视化统计各工程、各版本覆盖率数据



酷家乐技术质量 知乎主页



酷家乐 官方技术博客

以下是 截图素材

截图—如何插桩

以酷家乐的某个前端repo为例：

它使用babel编译打包，可使用babel-plugin-Istanbul插桩

请参考：github.com/istanbuljs/babel-plugin-istanbul

对于其他类型的JS前端工程，

请参考：github.com/istanbuljs/nyc

```
.babelrc
1  {
2    "presets": [
3      "react",
4      "@quihc/babel-presets/babel-preset-env-maybe-webpack",
5      "stage-0"
6    ],
7    "plugins": [
8      ["transform-runtime", {
9        "helpers": false,
10       "polyfill": false,
11       "regenerator": true }],
12      "transform-class-properties"
13    ],
14    "env": {
15      "test": {
16        "plugins": [
17          ["istanbul", {
18            "exclude": [
19              "./src/client/diy-sdk/*",
20              "./src/client/home-model/*",
21              "./src/plugins/custom-app/*"
22            ]
23          }]
24        ]
25      }
26    }
27  }
```

截图一插桩前后代码对比

```
$(function () {
    $('#.item').wrapInner(function () {
        var link = $('<a/>');
        link.attr('href', '/authors/' + $(this).attr('id'));
        return link;
    });
});

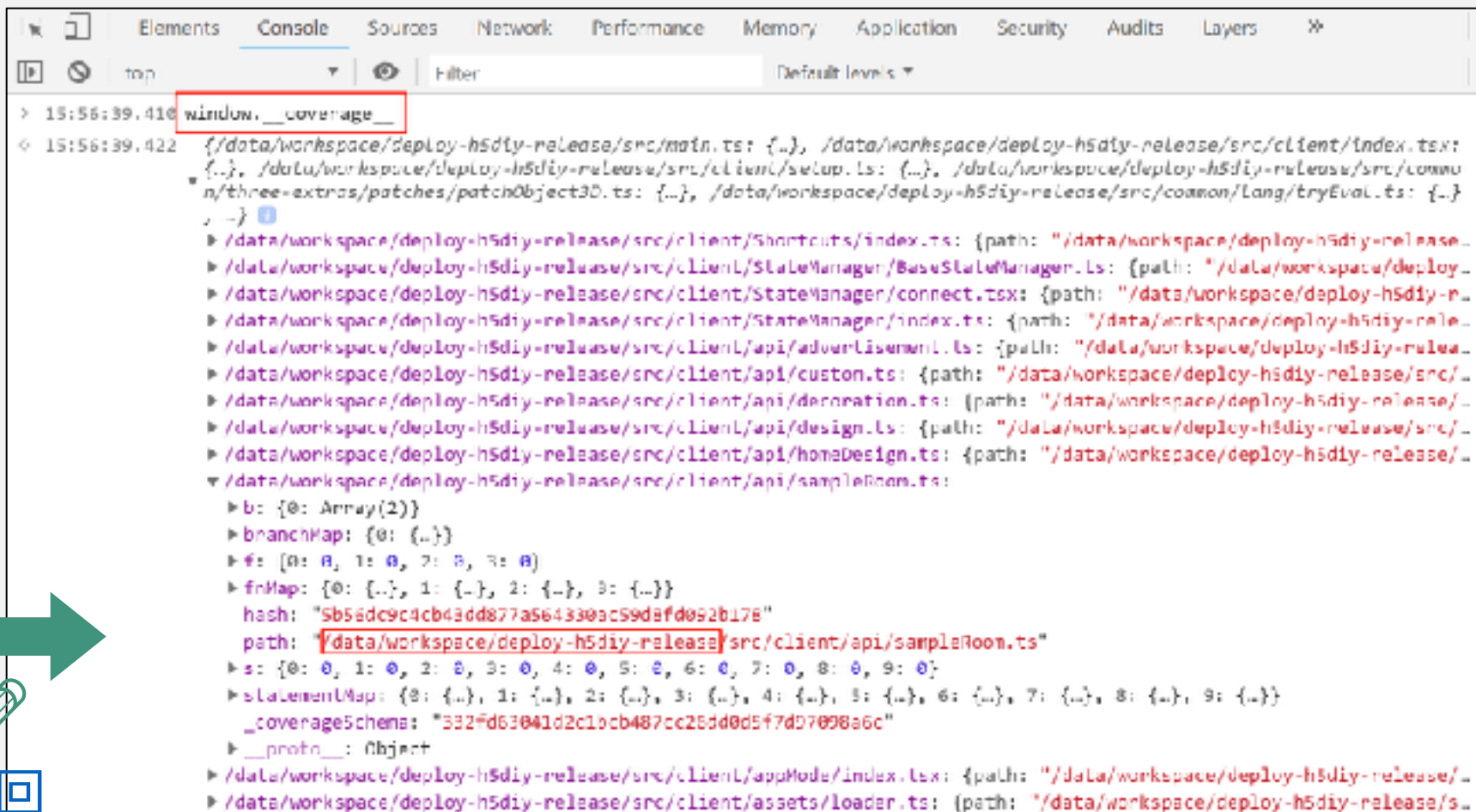
// post window.__coverage__ to server every 2 seconds
setInterval(function() {
    $.ajax({
        url: "/coverage/client",
        type: "POST",
        data: JSON.stringify(window.__coverage__),
        contentType: "application/json; charset=utf-8",
        dataType: "json",
        success: function(data) {
            console.log("success!");
        }
    });
}, 2000);
```

```
var cov_vbfvvi74l=function(){var
  path='/js/clients/q.js',hash='3b19319a7219997f494c2443d4272113127eb517b793',globalNow
  function(){return
    link=link||newCoverage__newCoverage({path:'js/clients/q.js',statementMap:{'0':{start:{line:
2,end:column:3},end:{line:8,end:column:3}},'1':{start:{line:8,end:column:6},end:{line:8,end:column:7}},'2':{s
tart:{line:4,end:column:16},end:{line:4,end:column:28}},'3':{start:{line:5,end:column:8},end:{line:5,end:colu
mn:60}},'4':{start:{line:5,end:column:8},end:{line:6,end:column:20}},'5':{start:{line:11,end:column:0},en
d:{line:22,end:column:5}},'6':{start:{line:12,end:column:4},end:{line:21,end:column:7}},'7':{start:{line:
10,column:12},end:{line:10,column:36}},fnMap:{'0':{name:'(anonymous 0)',decl:{start:{line:2,
column:2},end:{line:2,column:13}},loc:{start:{line:2,column:14},end:{line:8,column:1}},line:2},
'1':{name:'(anonymous 1)',decl:{start:{line:3,column:25},end:{line:3,column:26}},loc:{start:
{line:3,column:37},end:{line:7,column:5}},line:3},'2':{name:'(anonymous 2)',decl:{start:{line:
11,column:12},end:{line:11,column:13}},loc:{start:{line:11,column:23},end:{line:22,column:1}
},line:11},'3':{name:'(anonymous 3)',decl:{start:{line:10,column:17},end:{line:16,column:10}},
loc:{start:{line:16,column:32},end:{line:20,column:9}},line:10},branchMap:{},s:{'0':0,'1':0
,'2':0,'3':0,'4':0,'5':0,'6':0,'7':0},f:{'0':0,'1':0,'2':0,'3':0},b:{},_coverageSchema:'322bd
6301d2c0c0419cc26d3057d5f990a6c',coverage:global['__coverage__'][global['__cov__']]||{}},it(newCoverage(path
+global['__coverage__'][path].hash,hash){return newCoverage(path+global['__coverage__'].hash,hash){return
newCoverage(path+newCoverage({s:{(k:++cov_vbfvvi74l.s[0])}/global: $, document
}/$({func:it}){++cov_vbfvvi74l[1][0]}/++cov_vbfvvi74l.s[1]}/$'}.from().wrapInFunc(function(){++cov
_vbfvvi74l[1][1]};var
link=(time_vbfvvi74l[2]+'<?>');time_vbfvvi74l[3]=link.url+'href','/endfunc'+1&hi
st.url+'id');time_vbfvvi74l[4]=column-link[1];};// post window._coverage__ to server
every 2 seconds
new vbfvvi74l.s[5];setInterval(function(){cov_vbfvvi74l.f[2];cov_vbfvvi74l.s[6];$.ajax(
{url:'/coverage/client',type:'POST',data:JSON.stringify(window._coverage__),contentType:'app
lication/json;
charset=utf-8',dataType:'json',success:function(data){cov_vbfvvi74l.f[3];cov_vbfvvi74l.s[
7];console.log("success!");}});1,20000);
```



[返回](#)

截图—前端覆盖率数据长什么样



```
> 15:56:39.410 window.__coverage__
< 15:56:39.422 {/data/workspace/deploy-h5diy-release/src/main.ts: {...}, /data/workspace/deploy-h5diy-release/src/client/index.tsx: {...}, /data/workspace/deploy-h5diy-release/src/client/setup.ts: {...}, /data/workspace/deploy-h5diy-release/src/common/three-extras/patches/patchObject3D.ts: {...}, /data/workspace/deploy-h5diy-release/src/common/lang/tryEval.ts: {...}, ...}
  > /data/workspace/deploy-h5diy-release/src/client/Shortcuts/index.ts: {path: "/data/workspace/deploy-h5diy-release-...
  > /data/workspace/deploy-h5diy-release/src/client/StateManager/BaseStateManager.ts: {path: "/data/workspace/deploy-...
  > /data/workspace/deploy-h5diy-release/src/client/StateManager/connect.tsx: {path: "/data/workspace/deploy-h5diy-r...
  > /data/workspace/deploy-h5diy-release/src/client/StateManager/index.ts: {path: "/data/workspace/deploy-h5diy-rele...
  > /data/workspace/deploy-h5diy-release/src/client/api/advertisement.ts: {path: "/data/workspace/deploy-h5diy-relea...
  > /data/workspace/deploy-h5diy-release/src/client/api/custom.ts: {path: "/data/workspace/deploy-h5diy-release/src/...
  > /data/workspace/deploy-h5diy-release/src/client/api/decoration.ts: {path: "/data/workspace/deploy-h5diy-release/...
  > /data/workspace/deploy-h5diy-release/src/client/api/design.ts: {path: "/data/workspace/deploy-h5diy-release/src/...
  > /data/workspace/deploy-h5diy-release/src/client/api/homeDesign.ts: {path: "/data/workspace/deploy-h5diy-release/...
  > /data/workspace/deploy-h5diy-release/src/client/api/sampleRoom.ts:
    > b: {0: Array(2)}
    > branchMap: {0: {...}}
    > f: {0: 0, 1: 0, 2: 0, 3: 0}
    > fnMap: {0: {...}, 1: {...}, 2: {...}, 3: {...}}
    > hash: "5b56dc9c4cb43dd877a564330ac59d8fd092b178"
    > path: "/data/workspace/deploy-h5diy-release/src/client/api/sampleRoom.ts"
    > s: {0: 0, 1: 0, 2: 0, 3: 0, 4: 0, 5: 0, 6: 0, 7: 0, 8: 0, 9: 0}
    > statementMap: {0: {...}, 1: {...}, 2: {...}, 3: {...}, 4: {...}, 5: {...}, 6: {...}, 7: {...}, 8: {...}, 9: {...}}
    > _coverage5Schema: "332fd63041d2c1bcb487cc26dd0d5f7d57098a6c"
    > __proto__: Object
  > /data/workspace/deploy-h5diy-release/src/client/appMode/index.tsx: {path: "/data/workspace/deploy-h5diy-release/...
  > /data/workspace/deploy-h5diy-release/src/client/assets/loader.ts: {path: "/data/workspace/deploy-h5diy-release/s...
```


截图—覆盖率报告长什么样-文件列表

43.85% Statements 28624/65448 94.72% Branches 11484/39558 42.34% Functions 7809/18499 43.91% Lines 25218/57531

File	Statements	Branches	Functions	
ceploy-164fy-release/src/client/	<div><div></div></div> 99.15%	50/52	72.5%	23/40 100% 3/3
ceploy-164fy-release/src/client/Shutdown.js	<div><div></div></div> 100%	5/5	96.67%	4/5 100% 1/1
ceploy-164fy-release/src/client/StateManager/	<div><div></div></div> 100%	5/5	100%	6/0 100% 2/2
ceploy-164fy-release/src/client/auth/	<div><div></div></div> 71.47%	248/547	50.88%	57/112 70.25% 85/121
ceploy-164fy-release/src/client/appModule/	<div><div></div></div> 87.5%	7/5	96.67%	4/5 100% 2/2
ceploy-164fy-release/src/client/assets/	<div><div></div></div> 100%	3/3	100%	6/0 100% 2/2
ceploy-164fy-release/src/client/components/	<div><div></div></div> 83.16%	79/85	53.84%	25/44 60% 15/20
ceploy-164fy-release/src/client/components/CustomView/	<div><div></div></div> 100.00%	11/10	6.3%	7/8 100% 2/2
ceploy-164fy-release/src/client/components/react/	<div><div></div></div> 89.47%	34/36	63%	6/10 93.33% 11/16
ceploy-164fy-release/src/client/components/react/Advertisment/	<div><div></div></div> 60%	60/70	42.11%	10/38 85.71% 13/21
ceploy-164fy-release/src/client/components/react/BottomBar/	<div><div></div></div> 58.45%	62/105	41.27%	25/63 45.15% 14/31
ceploy-164fy-release/src/client/components/react/BottomBar/CameraSetting/	<div><div></div></div> 75%	24/32	48.38%	15/31 60% 5/10
ceploy-164fy-release/src/client/components/react/BottomBar/ReaderNode3DObject/	<div><div></div></div> 62.16%	23/37	40.74%	11/27 60% 5/15
ceploy-164fy-release/src/client/components/react/BottomBar/ScaleSlider/	<div><div></div></div> 35%	16/24	25.57%	5/16 65.63% 6/8
ceploy-164fy-release/src/client/components/react/Grandabel/	<div><div></div></div> 99.66%	18/16	75%	9/12 77.78% 7/9
ceploy-164fy-release/src/client/components/react/rowse/Fallback/	<div><div></div></div> 72.73%	24/33	60%	6/10 42.00% 3/7
ceploy-164fy-release/src/client/components/react/rowse/Fallback/ClientVer/	<div><div></div></div> 0%	0/30	100%	6/0 0% 0/8
ceploy-164fy-release/src/client/components/react/rowse/Fallback/ForceContinue/	<div><div></div></div> 15.67%	1/5	100%	6/0 0% 0/3
ceploy-164fy-release/src/client/components/react/rowse/Fallback/HelpPage/	<div><div></div></div> 23.26%	10/43	15.38%	3/52 11.11% 1/9

截图—覆盖率报告长什么样-代码

all files / server/index.js

58.86% Statements 11/31

11.11% Branches 1/5

16.67% Functions 1/5

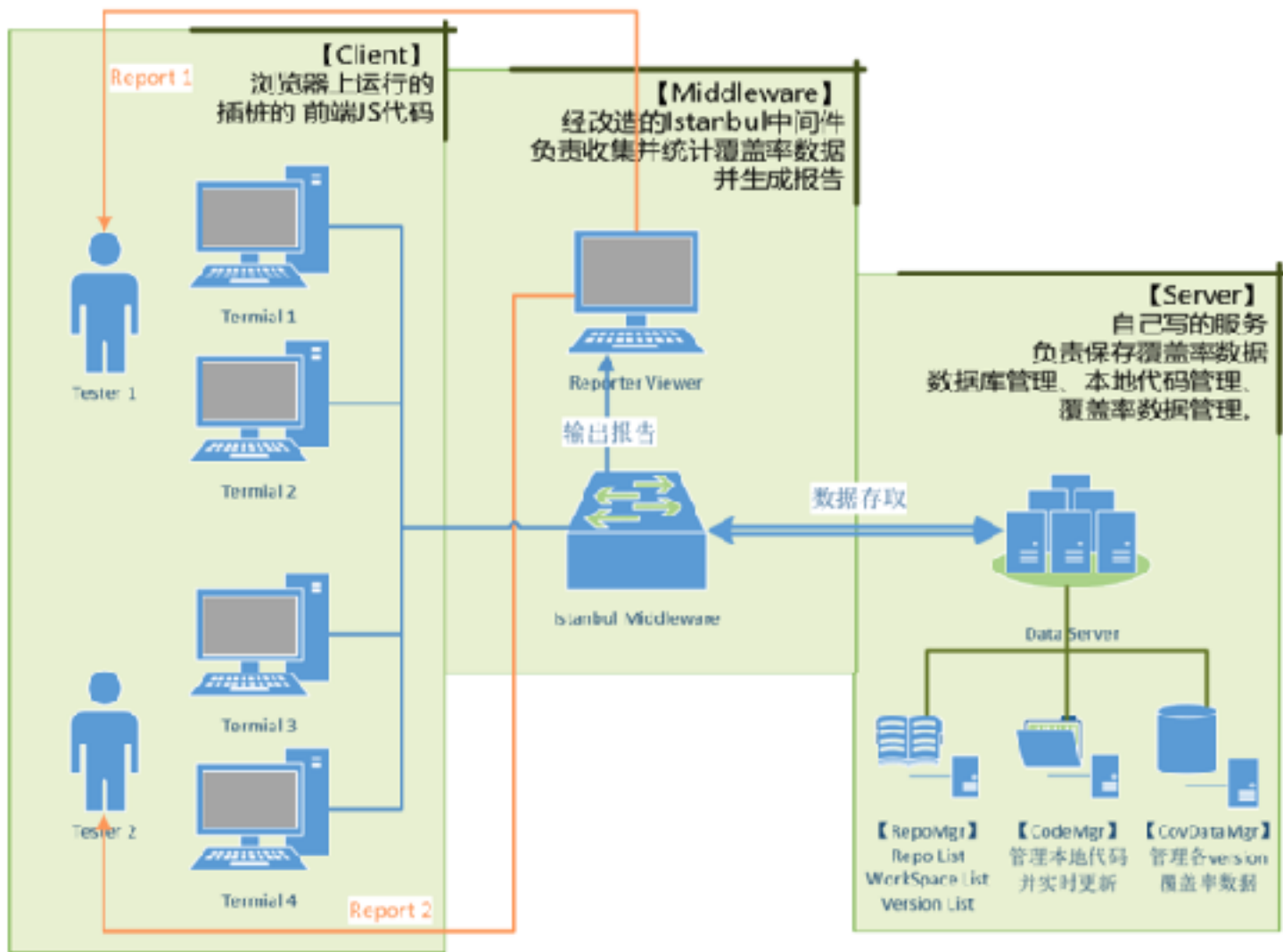
62.07% Lines 18/29

```
1  /*jshint node: true */
2  1> var path = require('path'),
3      express = require('express'),
4      url = require('url'),
5      data = require('./data'),
6      publicDir = path.resolve(__dirname, '..', 'public'),
7      coverage = require('../..../index'),
8      bodyParser = require('body-parser');
9
10 1> function matcher(req) {
11      var parsed = url.parse(req.url);
12      return parsed.pathname && parsed.pathname.match(/\/\./) && !parsed.pathname.match(/query/);
13  }
14
15 1> function list(req, res, next) {
16      var parsed = url.parse(req.url, true);
17      authors = data.authors;
18      if (parsed.query.alive === '1') {
19          authors = authors.filter(function (a) { return !a.deceased; });
20      }
21      res.render('index', { authors: authors });
22  }
23
24 1> function detail(req, res, next) {
25      var id = req.params.id;
26      authors = data.authors;
27
28      authors = authors.filter(function (a) { return a.id === id; });
29      if (authors.length === 0) {
30          res.send(404);
31      } else {
32          res.render('detail', { author: authors[0] });
33      }
34  }
35
36 1> module.exports = {
37      start: function (port, needCover) {
38          1> var app = express();
39          1> if (needCover) {
40              1> console.log('Turn on coverage reporting at ./coverage');
41              1> app.use('/coverage', coverage.createHandler({ verbose: true, resetOnGet: true }));
42              1> app.use(coverage.createClientHandler(publicDir, { matcher: matcher }));
43          }
44  }
```

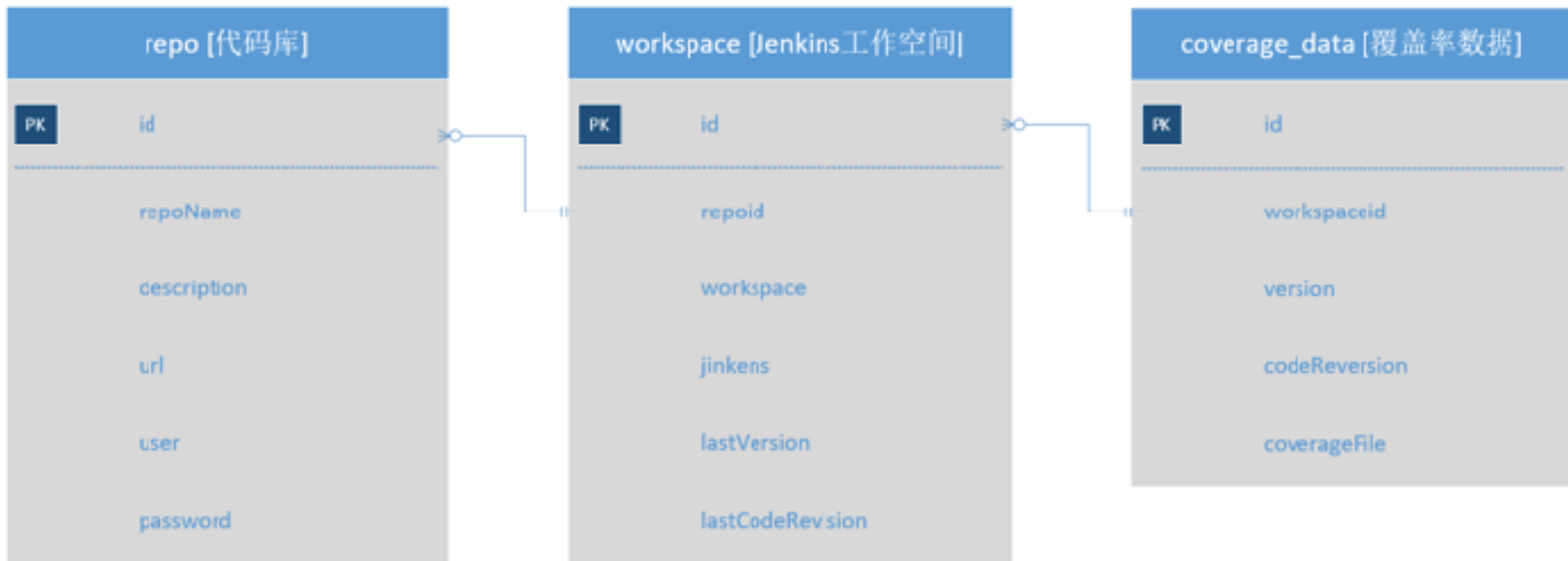
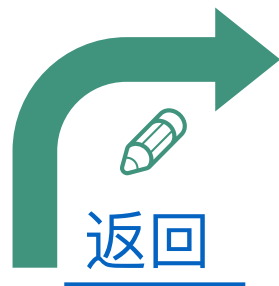


返回

截图—设计架构



返回



截图—设计接口

Middleware 初始接口 (<https://github.com/gotwarlost/istanbul-middleware>)

URL	Description
GET /show	Dynamic code coverage HTML report showing live coverage. Clickable with drill-downs just like the static version (查看覆盖率报告)
POST /client	Allows you to post a coverage object for client-side code coverage from the browser. Must be a JSON object with a Content-type: application/json header. This object is aggregated with the stats already present on the server (client 上传覆盖率数据)
GET /download	Download a zip file with coverage JSON, HTML and lcov reports (下载覆盖率报告)
POST /reset	Reset coverage to baseline numbers (重置覆盖率数据)

截图—设计接口

POST

/reponame/coverage/client

API Description

上传当前页面覆盖率信息

Request Parameter

Parameter	Data Type	Required	Description
version	String	true	版本

Head

必须包含 [Content-Type: 'application/json']

Body

window.__coverage__, 即覆盖率数据信息

Request URL

https://test.qunhequnhe.com:8888/reponame/coverage/client

GET

/reponame/coverage/show

API Description

查看详细覆盖率信息

Request Parameter

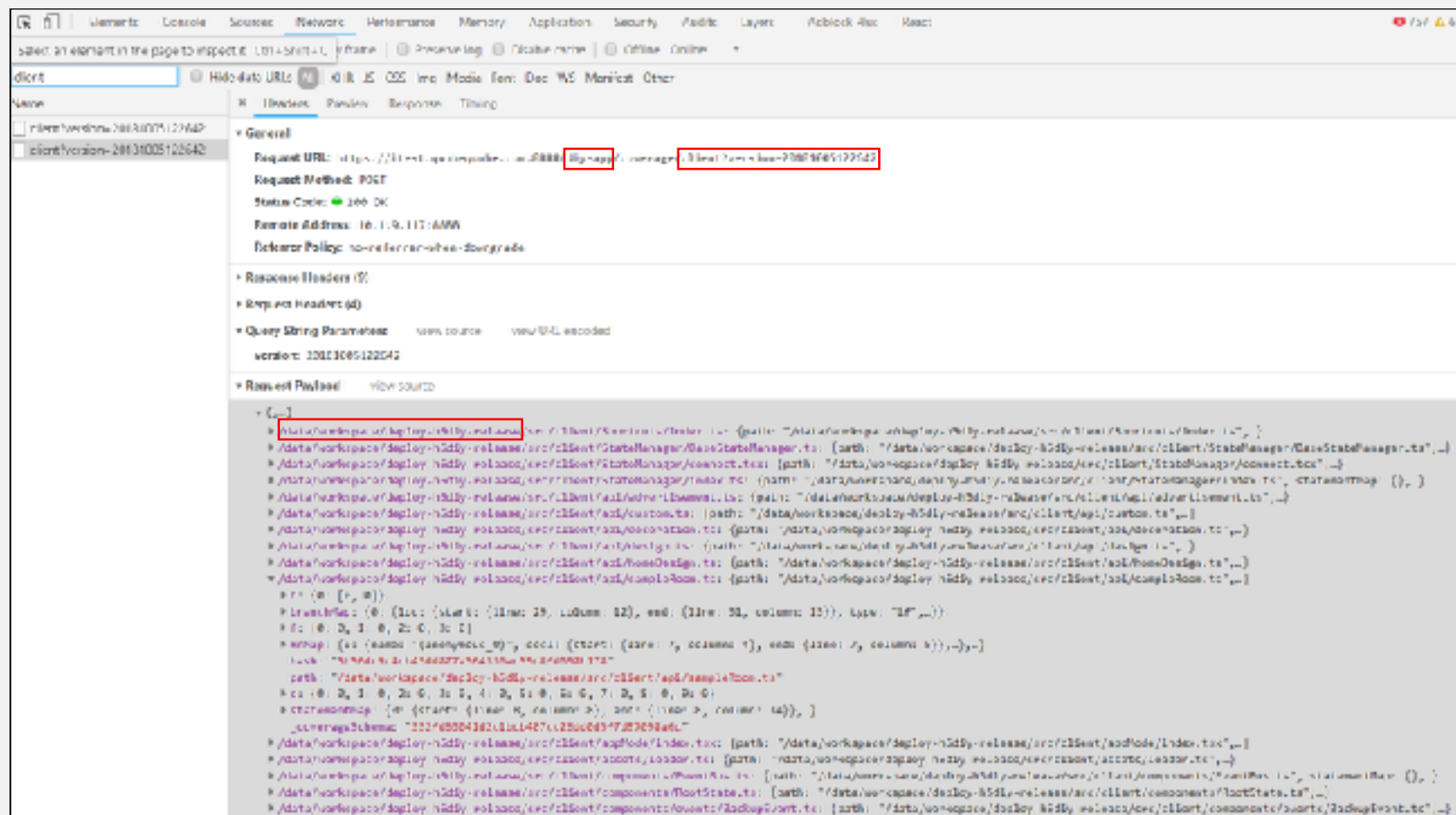
Parameter	Data Type	Required	Description
w	String	false	workspace名称, 必须和jenkins中的一致
v	String	false	version, 需查看覆盖率的版本
p	String	false	path, 详细的文件路径
o	String	false	object, true可查看覆盖率信息(JSON)

Request URL

https://test.qunhequnhe.com:8888/reponame/coverage/show

返回

截图—上传覆盖率数据 调接口区分工程和版本



The screenshot displays a REST client interface with the following details:

- Request URL:** `https://test.qianqian.com:8080/signage/scoverage`
- Request Method:** POST
- Status Code:** 200 OK
- Remote Address:** 10.1.9.11:8080
- Referer Policy:** no-referrer-when-downgrade
- Response Headers (5):**
- Request Headers (6):**
- Query String Parameters:** `version=2021005122642`
- Request Payload:** `view source`
- Response Body:** A JSON object with a `path` field containing a long string: `"/data/workspace/deploy-h5diy-release/arc/cilbert/StateManager/BaseStateManager.ts"...`

