

Cocos HTML5解决方案

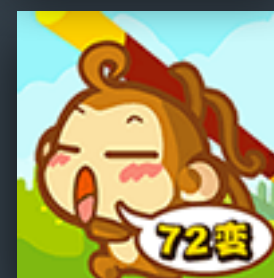
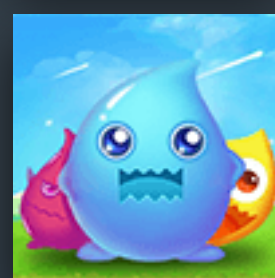
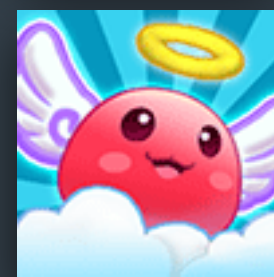
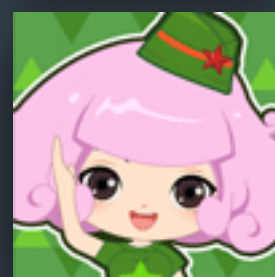
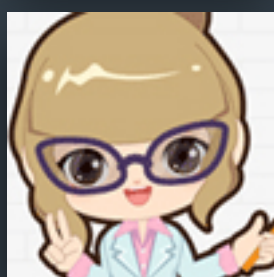
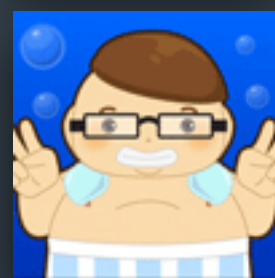
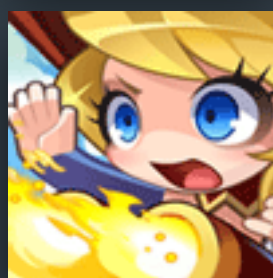
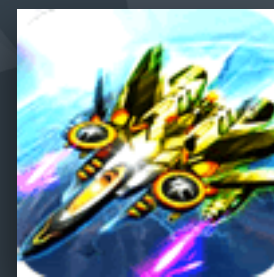
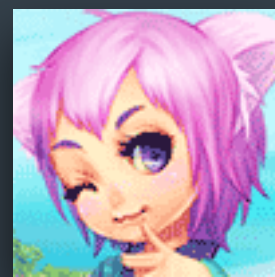
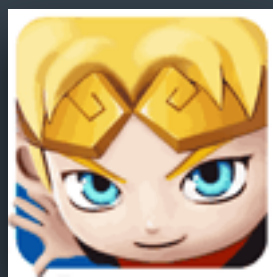
HTML5引擎以及Cocos Runtime技术详解

鲍健运
触控科技高级技术支持工程师



1. HTML5游戏生态

纯Web游戏（玩吧）



纯Web游戏 - 痛点

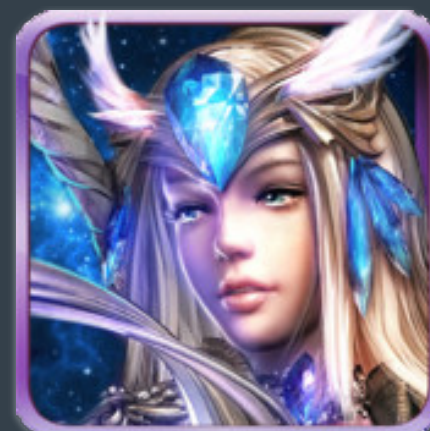
留存低



质量低

盈利能力弱

原生游戏



原生游戏 - 痛点

竞争激烈



渠道为王

流量成本高

新型渠道

巨大流量



即点即玩



Runtime



优秀质量



原生性能



Runtime trailer



2. Cocos2d-JS 简洁高效的HTML5引擎

Cocos2d-JS起源



Cocos2d-html5



Cocos2d-x JSB

Cocos2d-JS蜕变之路

COCOS2D-JS 3.0 Final

- Powerful toolchain and minimalist workflow
- One code base, run everywhere
- Hot update for assets and scripts



COCOS2D-JS V3.5

3D features
WP8 & Windows Universal App support
SpiderMonkey v33

2.1 Cocos2d-JS 之 全平台支持

全平台支持能力



全平台框架

Cocos2d-JS Games

Cocos2d-JS API

Cocos2d-html5

SceneGraph

Renderer

Actions

Animation

Event Manager

Audio

Resources

Physics

Editors

Cocos2d-x JSB

JS VM (SpiderMonkey)

JavaScript Bindings

Cocos2d-X

Browsers

Mobile
Browsers

WebApp

... ..

Android

iOS

Mac

Win32

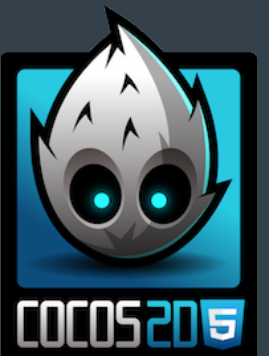
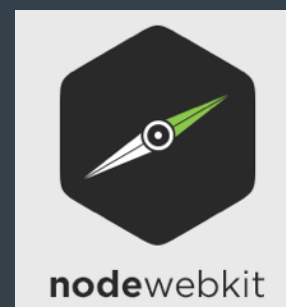
... ..

100% Open Source

2.2 Cocos2d-JS 之 简洁

Why JavaScript

简单



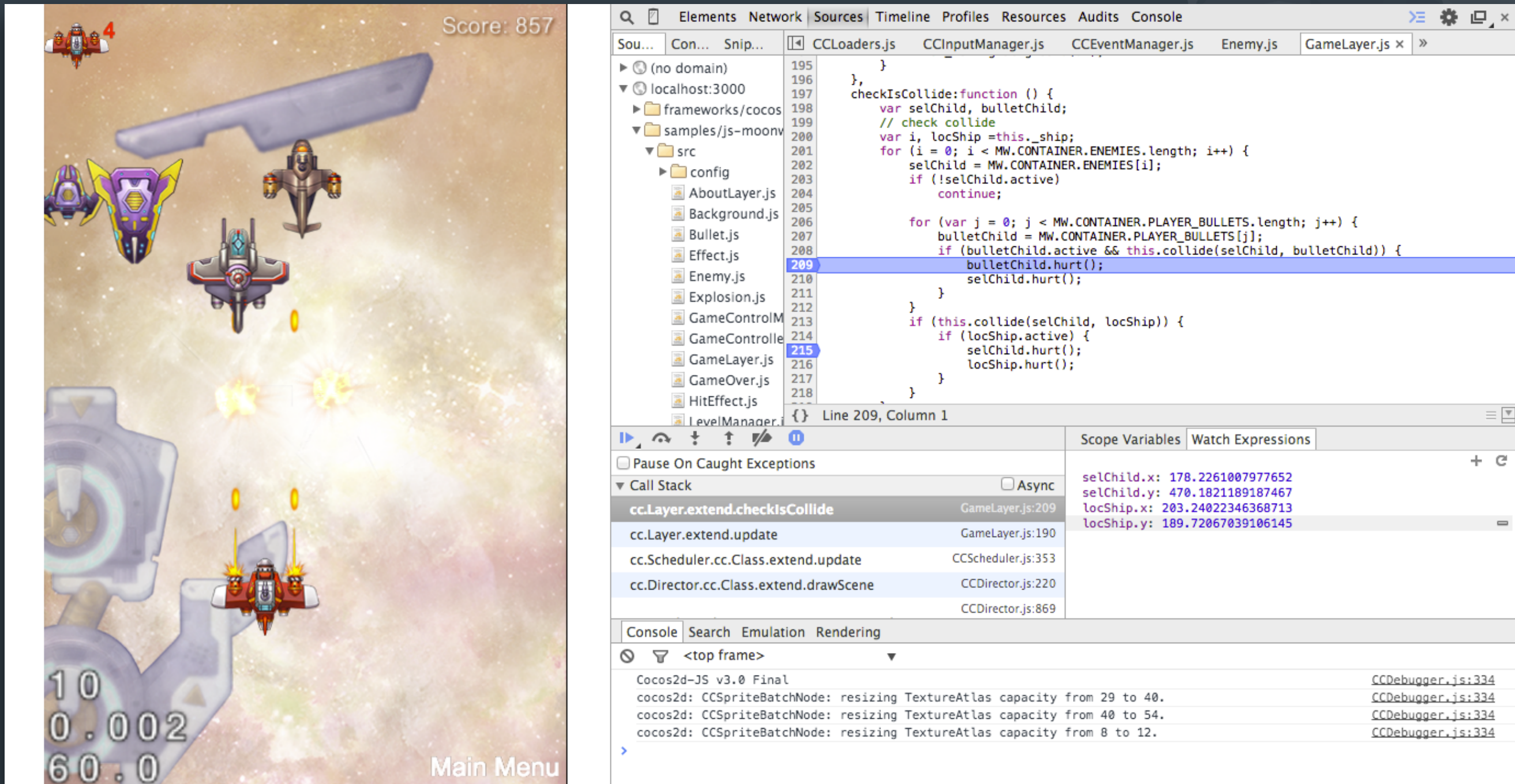
极简JS风格API

```
var sprite = new cc.Sprite('hero.png');
sprite.attr({
    x : 100,
    y : 200,
    scale : 0.5
});
sprite.rotation = 180;

var action = cc.rotateTo(0.5, 90)
               .repeat(5)
               .speed(0.5);

sprite.runAction(action);
```

Chrome Dev Tool



Score: 857

Main Menu

10
0.002
60.0

Elements Network Sources Timeline Profiles Resources Audits Console

Sou... Con... Snip... CCLoaders.js CCInputManager.js CCEventManager.js Enemy.js GameLayer.js x »

```
195 }  
196 },  
197 checkIsCollide:function () {  
198     var selChild, bulletChild;  
199     // check collide  
200     var i, locShip =this._ship;  
201     for (i = 0; i < MW.CONTAINER.ENEMIES.length; i++) {  
202         selChild = MW.CONTAINER.ENEMIES[i];  
203         if (!selChild.active)  
204             continue;  
205  
206         for (var j = 0; j < MW.CONTAINER.PLAYER_BULLETS.length; j++) {  
207             bulletChild = MW.CONTAINER.PLAYER_BULLETS[j];  
208             if (bulletChild.active && this.collide(selChild, bulletChild)) {  
209                 bulletChild.hurt();  
210                 selChild.hurt();  
211             }  
212         }  
213         if (this.collide(selChild, locShip)) {  
214             if (locShip.active) {  
215                 selChild.hurt();  
216                 locShip.hurt();  
217             }  
218         }  
219     }  
220 }
```

Line 209, Column 1

Scope Variables Watch Expressions

☐ Pause On Caught Exceptions

Call Stack ☐ Async

- cc.Layer.extend.checkIsCollide GameLayer.js:209
- cc.Layer.extend.update GameLayer.js:190
- cc.Scheduler.cc.Class.extend.update CCScheduler.js:353
- cc.Director.cc.Class.extend.drawScene CCDirector.js:220
- CCDirector.js:869

Console Search Emulation Rendering

<top frame>

- Cocos2d-JS v3.0 Final CCDebugger.js:334
- cocos2d: CCSpriteBatchNode: resizing TextureAtlas capacity from 29 to 40. CCDebugger.js:334
- cocos2d: CCSpriteBatchNode: resizing TextureAtlas capacity from 40 to 54. CCDebugger.js:334
- cocos2d: CCSpriteBatchNode: resizing TextureAtlas capacity from 8 to 12. CCDebugger.js:334

全栈游戏引擎

Modules

SceneGraph

Renderer

Actions

Animation

Event Manager

Audio

Resources

Physics

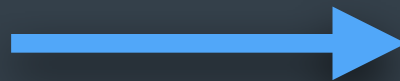
Editors

2.3 Cocos2d-JS 之 高效

渲染优化

- 渲染指令过滤
- 缓存渲染指令
- 缓存Transform

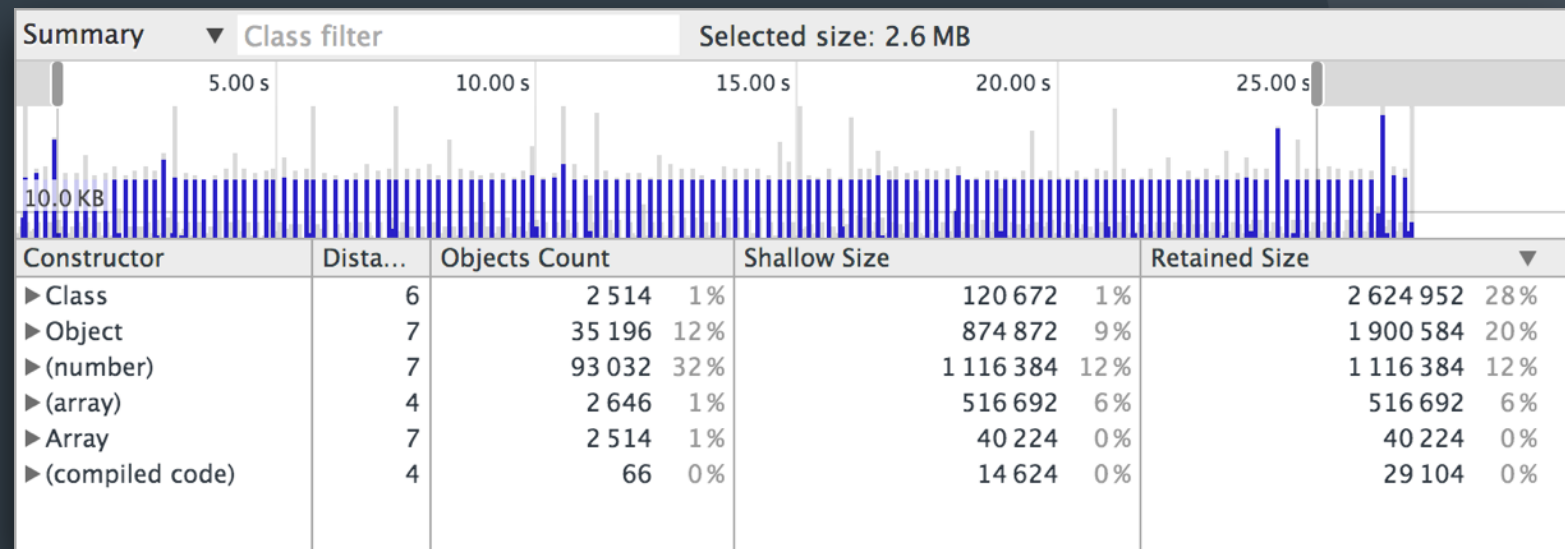
渲染优化 - Baked Layer



内存优化 - Object Pool

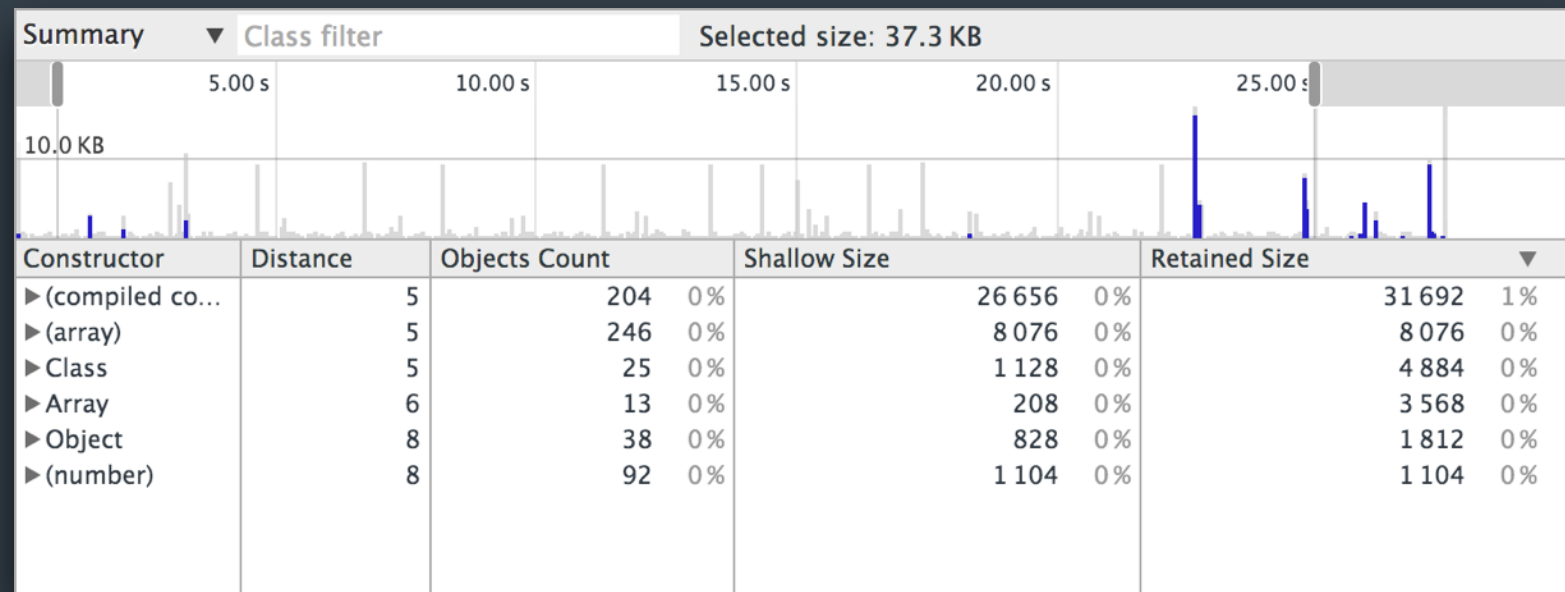
Before

2.6MB

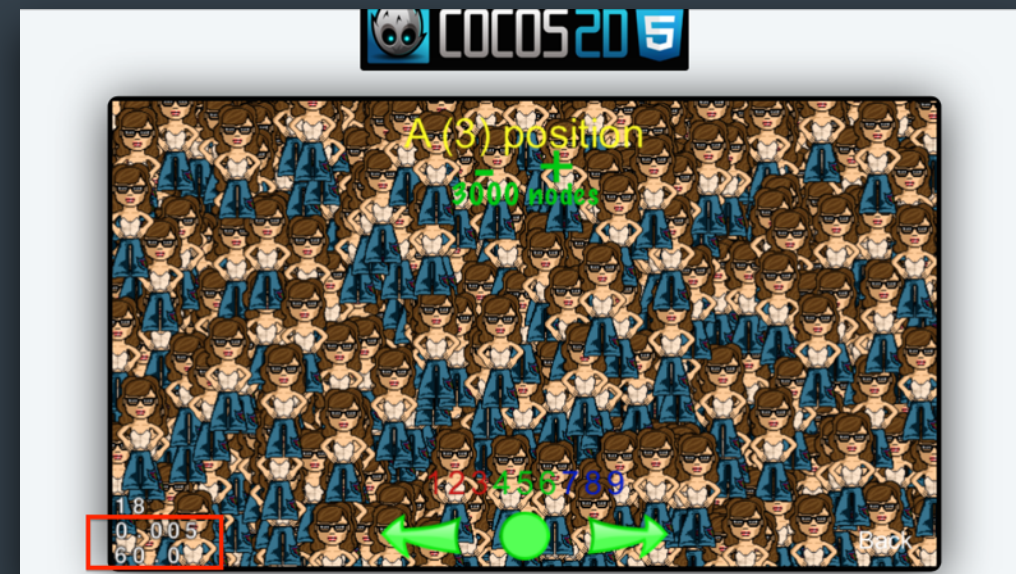
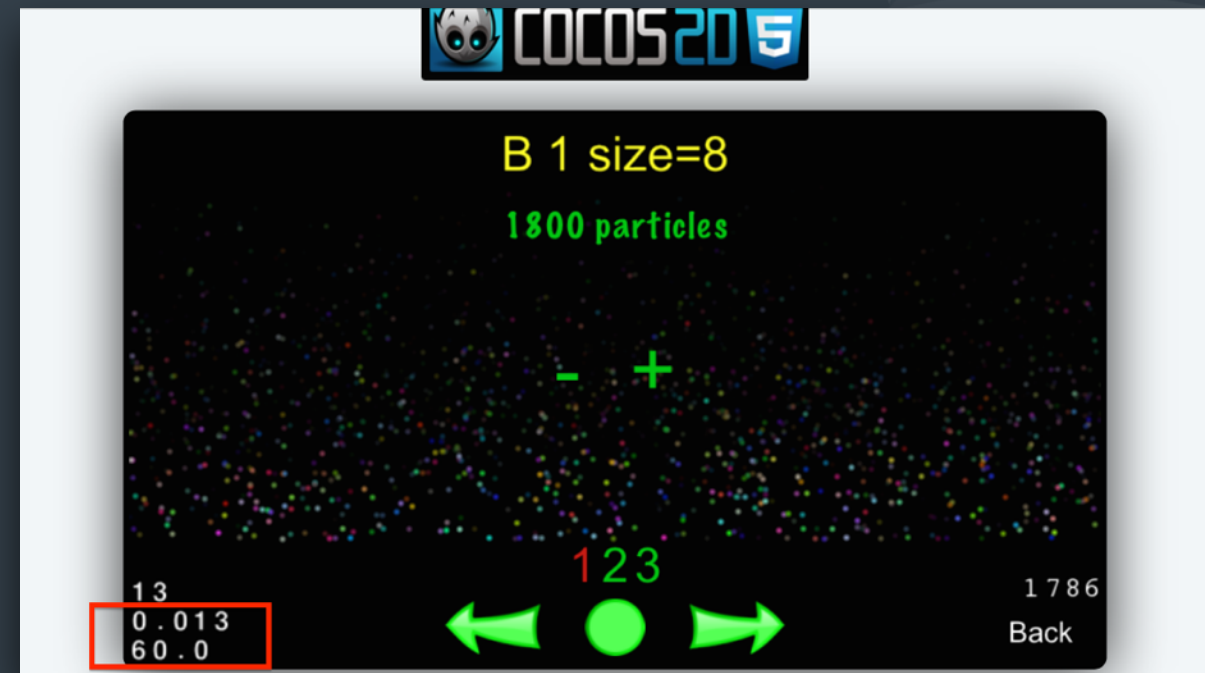


After

37KB

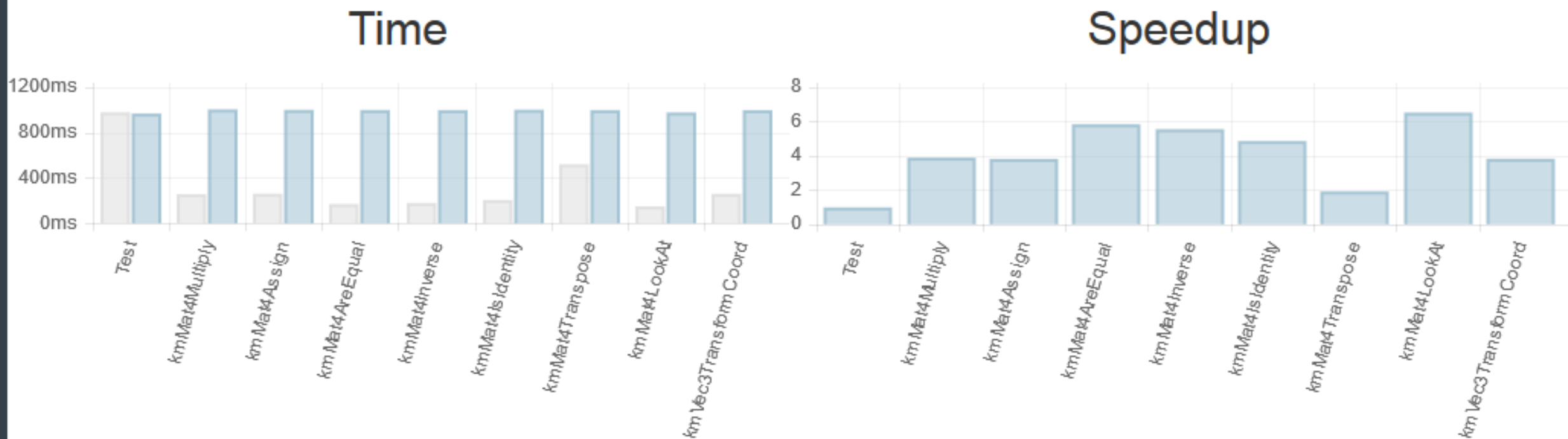


WebGL - iOS & Android 5

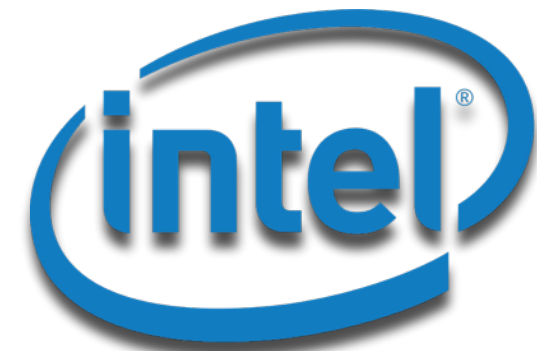


SIMD - ECMAScript 7

Results



Test: Iterations(876094831), SIMD(981ms), Non-SIMD(970ms), Speedup(0.99)
kmMat4Multiply: Iterations(15863480), SIMD(258ms), Non-SIMD(1006ms), Speedup(3.90)
kmMat4Assign: Iterations(77528725), SIMD(262ms), Non-SIMD(1002ms), Speedup(3.82)
kmMat4AreEqual: Iterations(21687198), SIMD(171ms), Non-SIMD(1001ms), Speedup(5.85)
kmMat4Inverse: Iterations(635039), SIMD(180ms), Non-SIMD(1000ms), Speedup(5.56)
kmMat4IsIdentity: Iterations(116185707), SIMD(206ms), Non-SIMD(1004ms), Speedup(4.87)
kmMat4Transpose: Iterations(111254749), SIMD(522ms), Non-SIMD(1000ms), Speedup(1.92)
kmMat4LookAt: Iterations(3458365), SIMD(150ms), Non-SIMD(979ms), Speedup(6.53)
kmVec3TransformCoord: Iterations(16723701), SIMD(261ms), Non-SIMD(999ms), Speedup(3.83)



HTML5游戏性能优化方向

- 降低填充率 (资源和场景结构)
- 减少渲染指令 (Baked Layer)
- 降低内存使用 (对象缓冲池)

2.4 Cocos Workflow & Toolchain

One Cocos

3D Scene Editor

Visualise your game world in 3D

Complete Toolchain

Take you through the process from idea to finish

Cocos Store

Get awesome packages from the community



- ✓ Supports C++, Lua and JavaScript
- ✓ Be able to select different versions of frameworks
- ✓ Can copy-paste across different projects
- ✓ Nested animations

整合：完整工具链

ANYSDK
One click to package for over 60 stores. Easily write your own plugin to meet new requirements. Enterprise solution for complete privacy.

FRAMEWORK
Industry leading performance with lite footprint, while loaded with complete and powerful 2D & 3D features

Runtime & Play
New distribution channel, distributed into browsers, super APPs, with native quality contents

CODE IDE
Make your games come to life with scripts in either JavaScript or Lua. Easily write code with complete code hinting and comprehensive debugging

EDITOR
Allows artists to create game assets and designers to make prototypes with all-in-one WYSIWYG editor.

IDEA

DESIGN

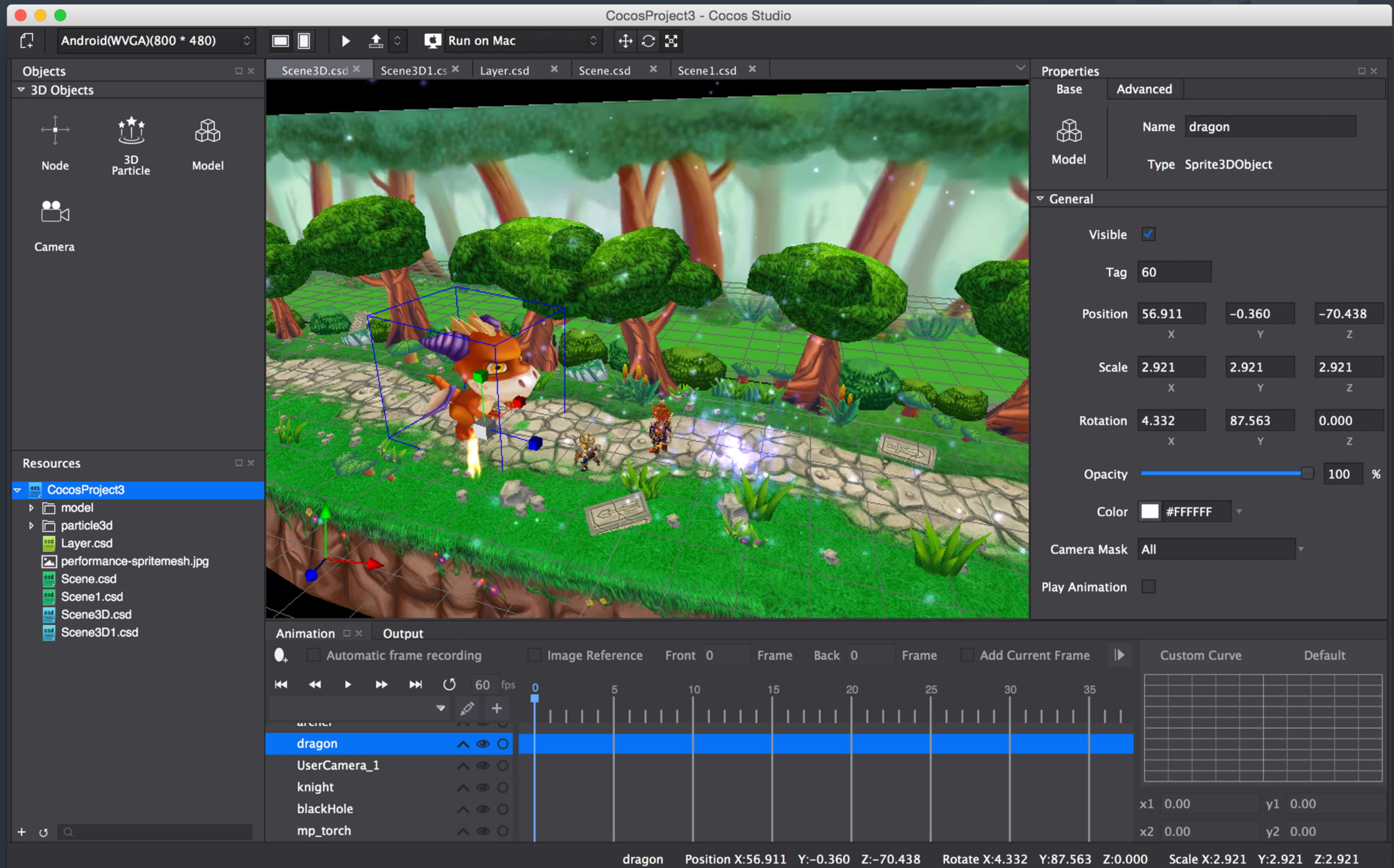
DISTRIBUTE

DEPLOY

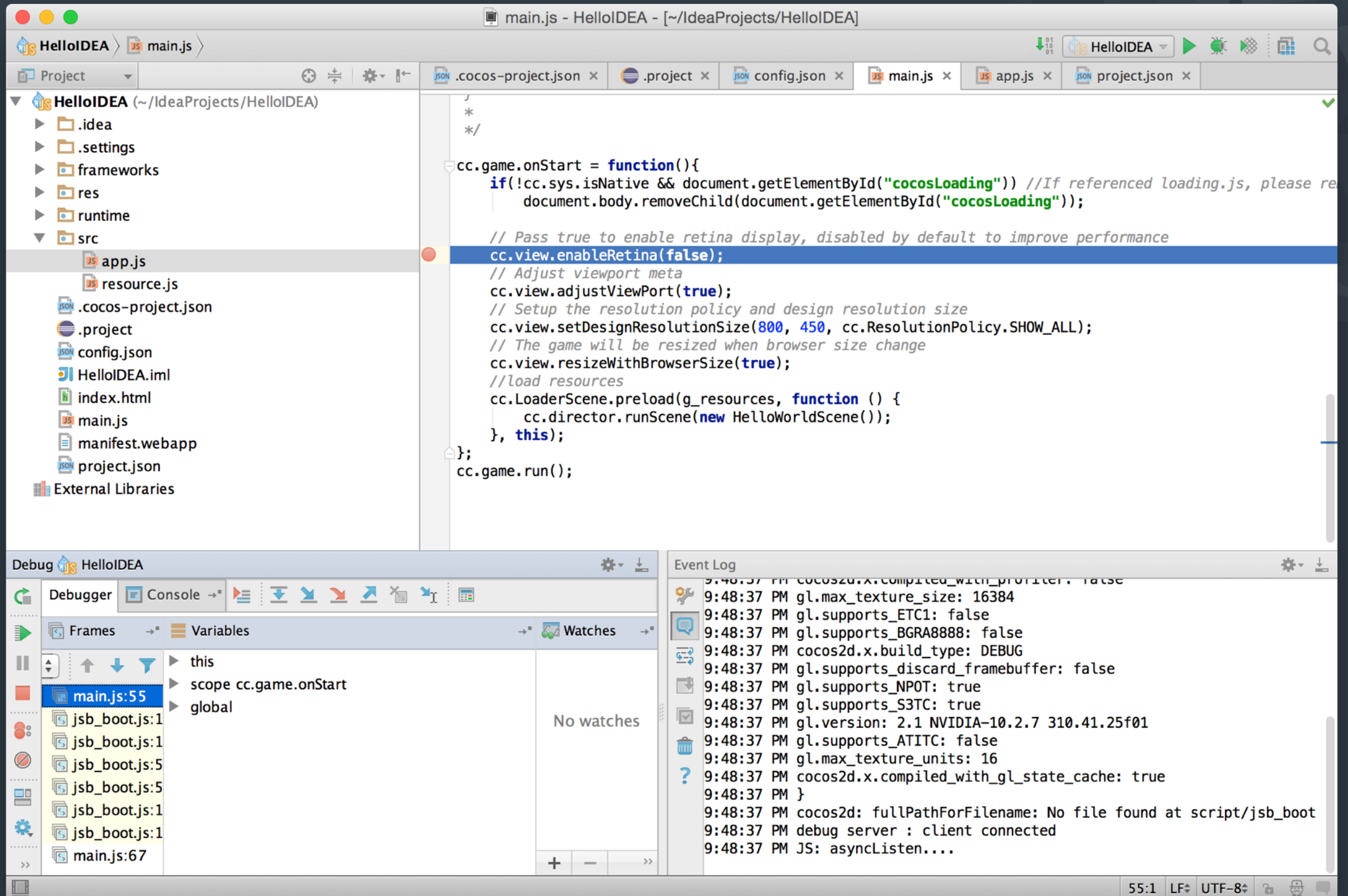
DEBUG

DEVELOP


Cocos Studio v2.2



Code IDE v2.0-beta



Cocos Store




Cocos 2015开发者大会 (春季)
Power up, game on!


Log in | Sign up

Projects
Tutorial
Cocos Store
Download
Feedback

← → ↺

Featured Tools Plugin Widget Source Others


Searching 





Featured


More>


Hot



Cocos2d-x v3.5



Cocos Framework



AnySDK



Android SDK



Android NDK



JDK



Cocos2d-js v3.4



FantasyWarrior



EarthWarrior3D


Cocos3d sample


Zwoptex


Particle Designer


Tiled


Cocos Code IDE

1. Cocos Code IDE v1.2.0
Tools

2. Android NDK
Tools

3. Cocos3d samples
Source

4. Android SDK
Tools

5. Cocos2d-js v3.3
Others

6. Tiled
Tools

7. JDK

AnySDK本地打包工具

首页



安妮市场



打包工具



自助开发(Beta)



工具宝箱

新闻

游戏葡萄专访AnySDK

AnySDK v1.5 更新发

AnySDK美女主程黄艳

AnySDK上线企业版 类



技术支持

← 个人中心



Anny

头衔：AnySDK达人

个人信息

手机: 180

QQ: 25

邮箱: 61@qq.com

公司信息

名称: AnySDK8811

公司地址: 厦门

用户认证

普通用户: 已认证

退出帐号



AnySDK企业版

私有设备

高可控性

高私密性

高服务性



AnySDK企业版

Google推荐



Cocos Play & Runtime

Just a Moment

Workflow

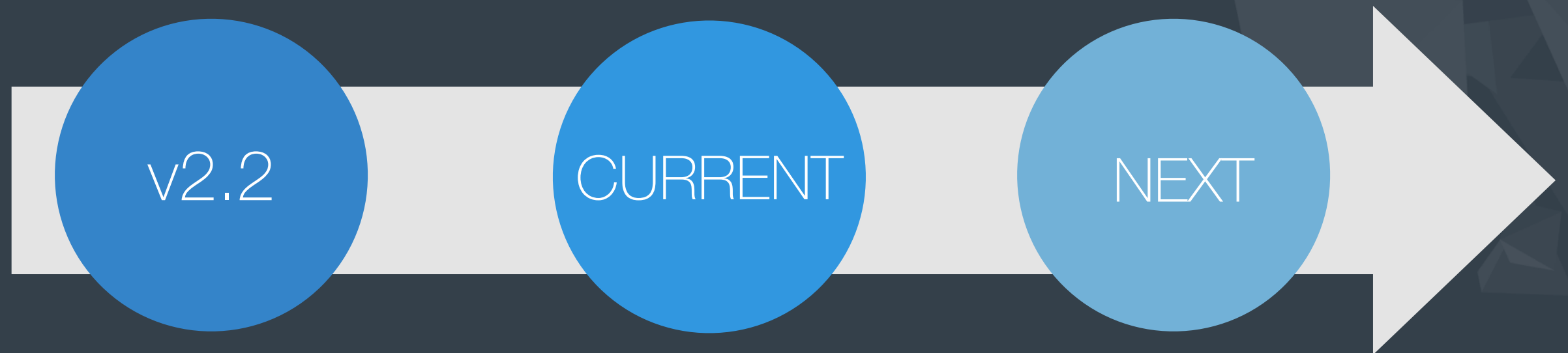
Talk is cheap

DEMO

3D Roadmap



3D Roadmap for Editor

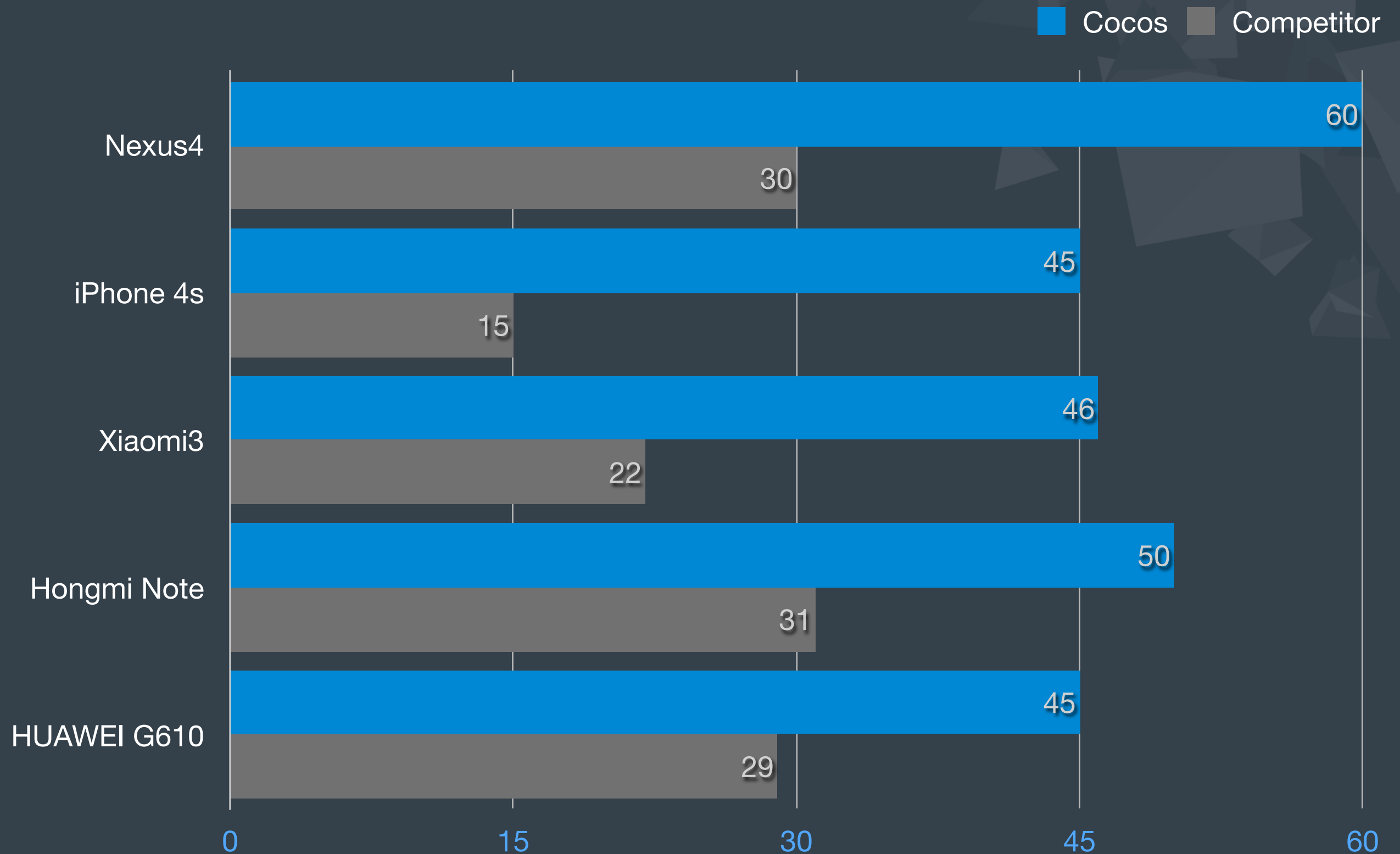


- ✓ 3D models:
 - ✓ character
 - ✓ scene
 - ✓ animation
- ✓ 3D cameras
- ✓ 3D Particles
- ✓ 3D Node for Hierarchy

- 3D lights
- Skybox
- Terrain
- Convert FBX to C3B automatically

- 3D Physics
- Navigation Mesh and Path Finding

3D Performance



3D Demo - Editor



3D Demo - Food of Gods



JavaScript

极简API

100%开源

强大工具链



Cocos2d-JS

3D游戏支持

优秀性能

全平台统一

深厚积累

3. Cocos Runtime技术细节披露

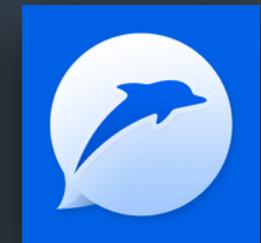
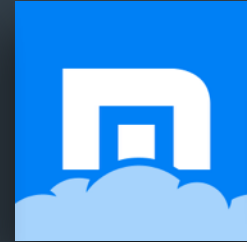
Why Runtime

HTML5瓶颈



HTML5
< canvas >

商业化能力



3.1 Cocos Runtime框架

What's Runtime



安卓原生游戏



Cocos Runtime



What's Runtime

100% Native Performance!

Native Game

HTML5 Game

Lua/JavaScript VM

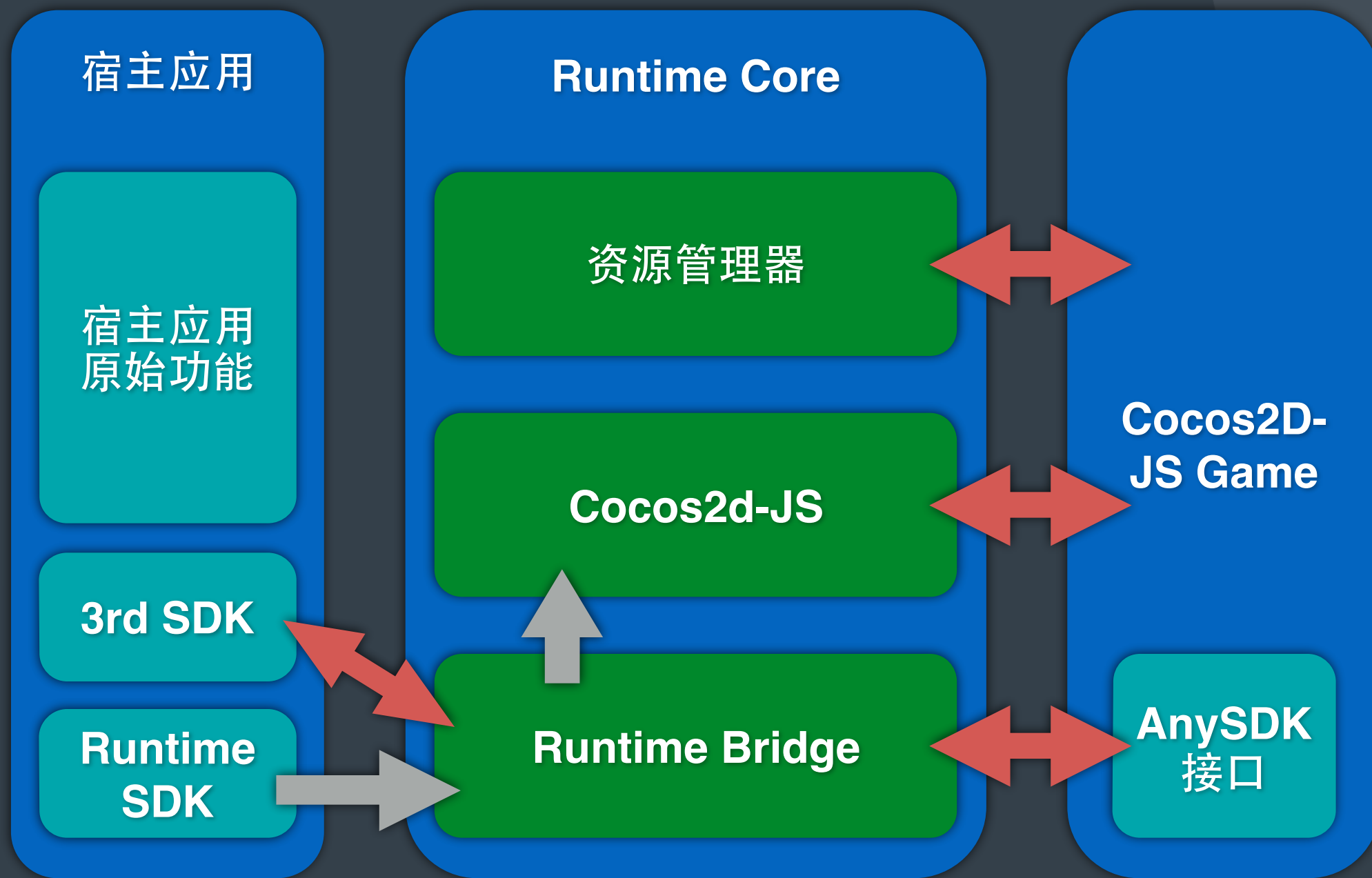
Web Engine

Native Engine

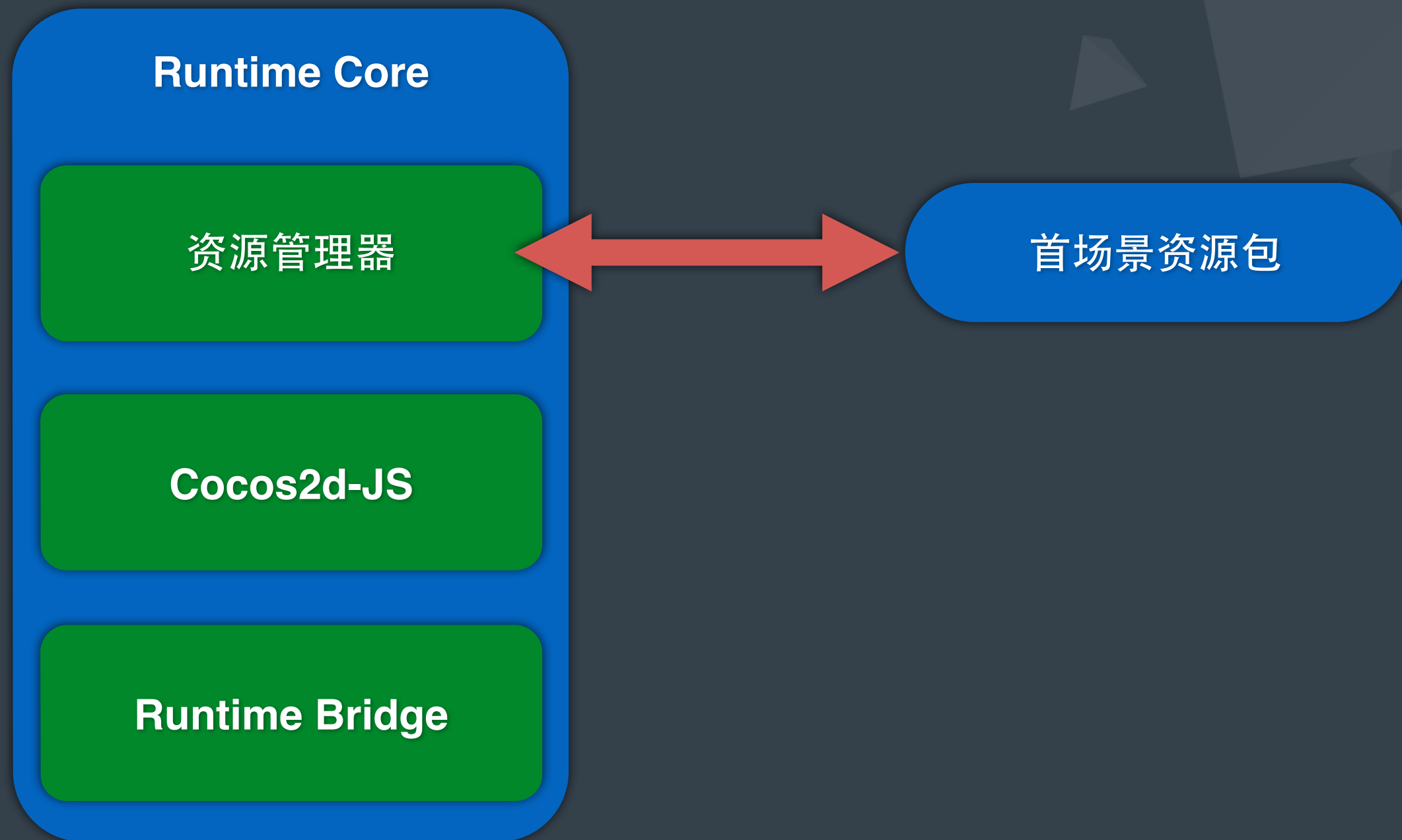


Android

Runtime框架



Runtime资源加载



What's Runtime

Runtime is Native !

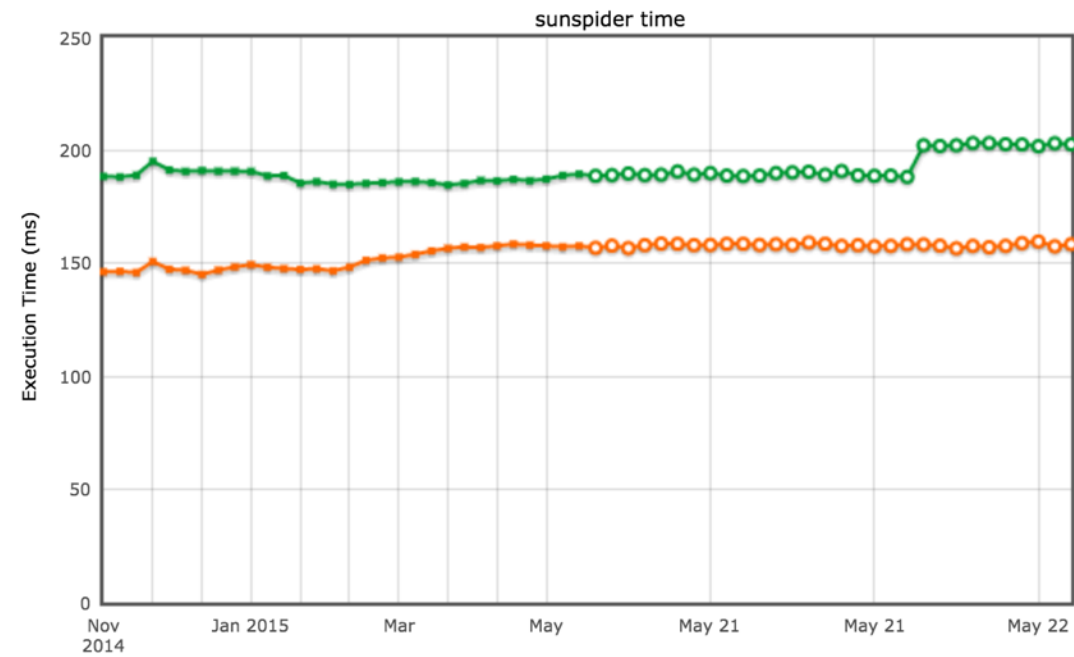
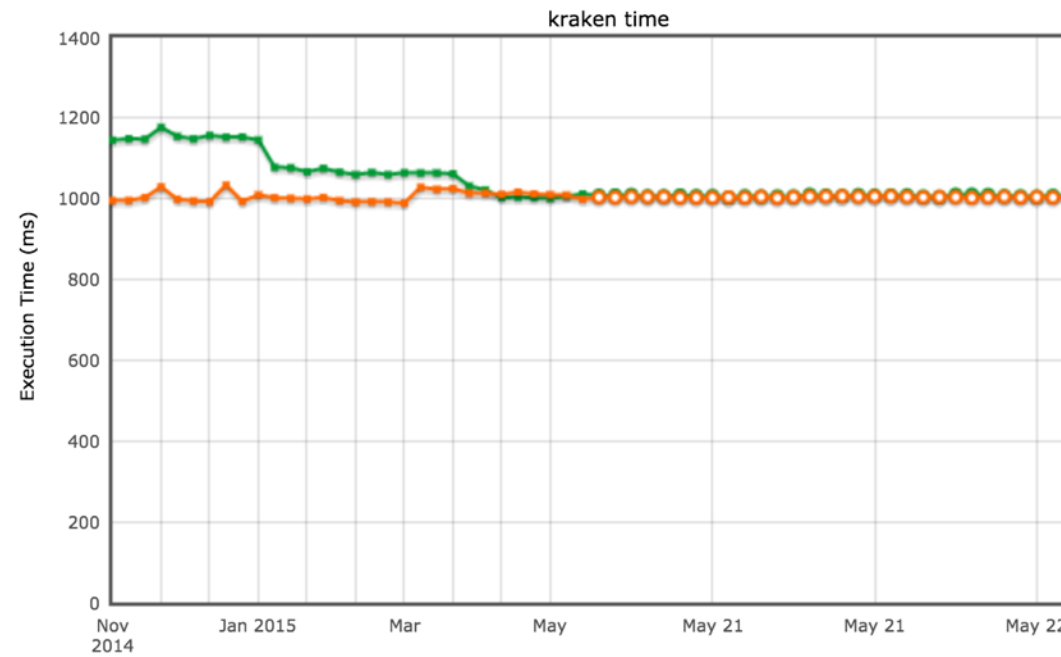
3.2 Cocos Runtime性能优势

Runtime Performance



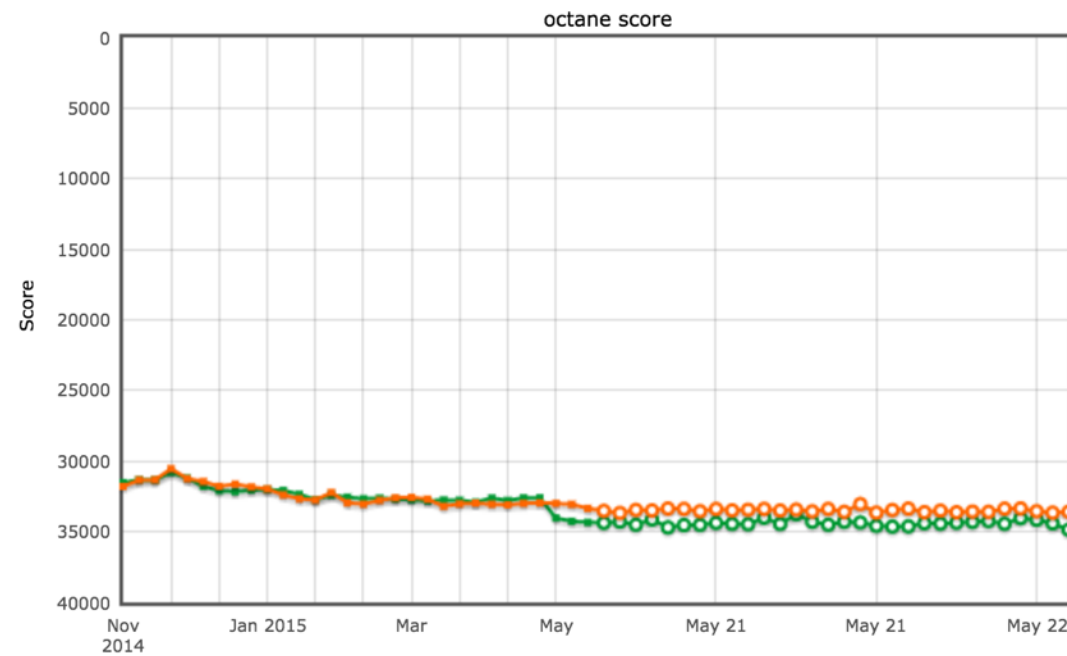
SpiderMonkey

This slave has only started reporting since Nov 2014. To see older datapoints, please look at the old slave: <http://arewefastyet.com/#machine=11>



- Chrome (v8)
- Firefox (Ion)
- Chrome (v8-turbofan)
- Firefox (Ion, backtracking)
- Firefox (Ion, unboxed objects)

Machines »
Breakdown »
About »



Cocos 绑定层级

Cocos2d-JS Games

Cocos2d-JS API

Auto Bindings

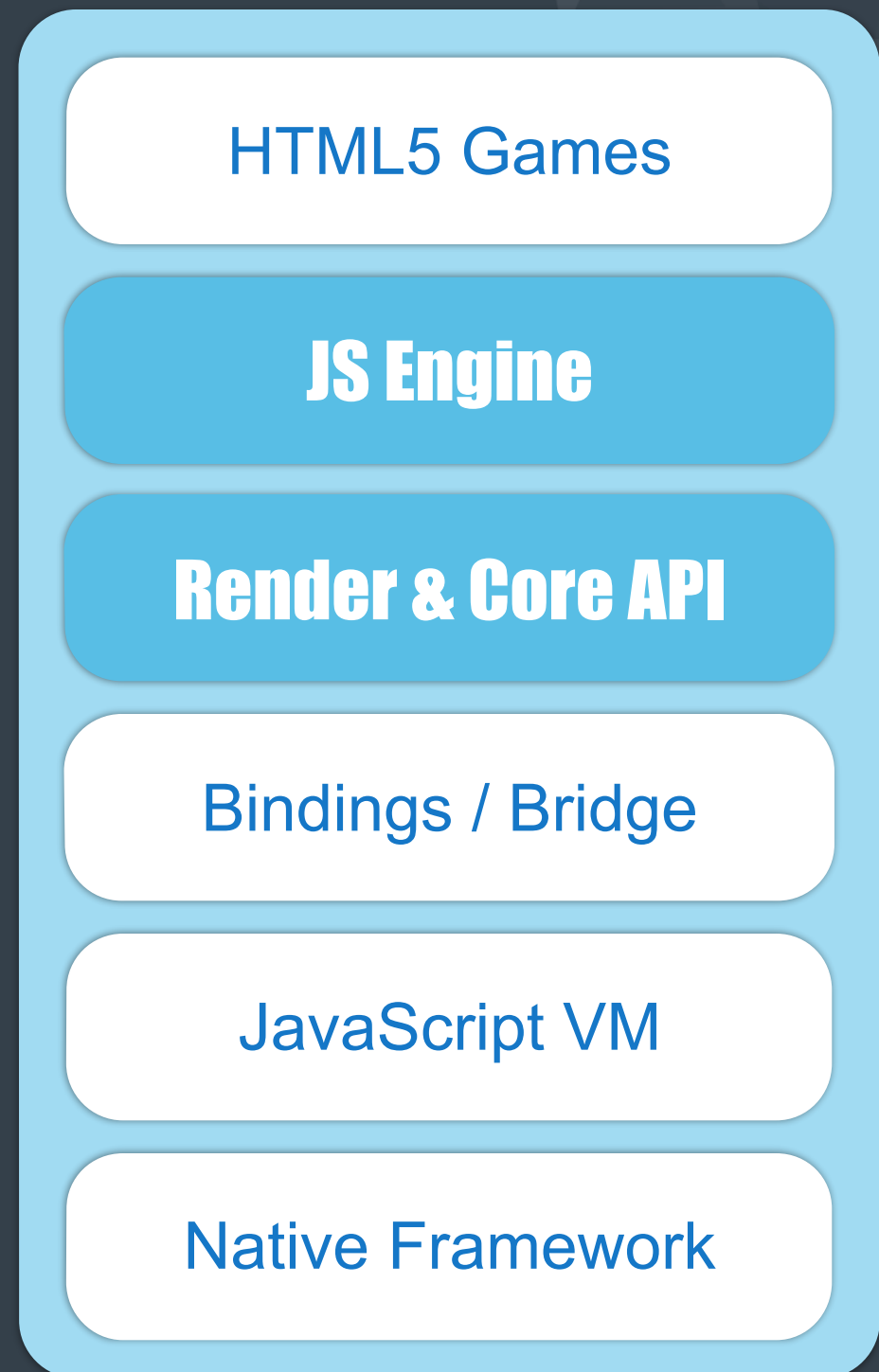
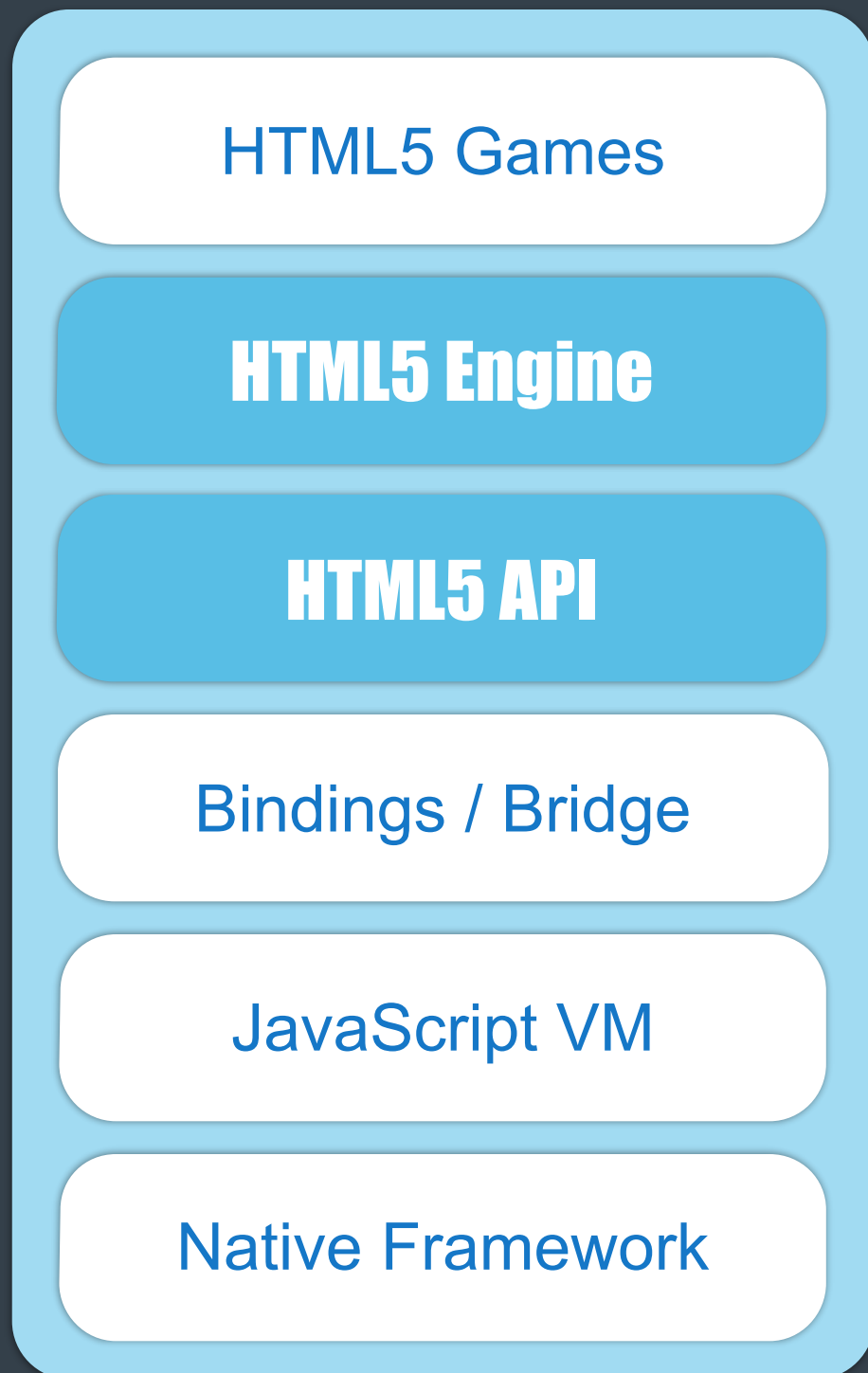
Manual Bindings

JS Wrappers

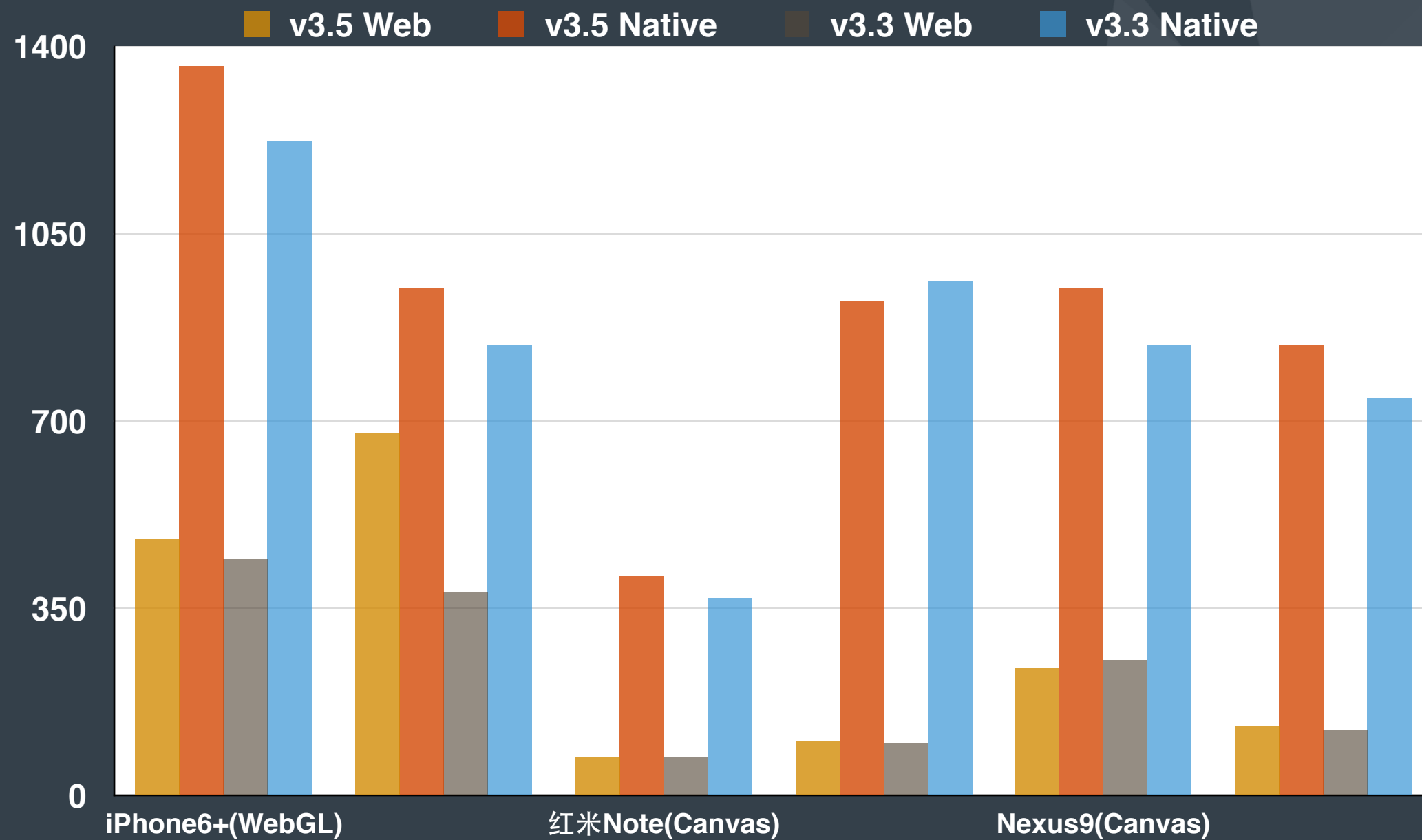
JavaScript VM (SpiderMonkey)

Cocos2d-X

其他可能的绑定层级



性能对比



Lua & C++ 支持

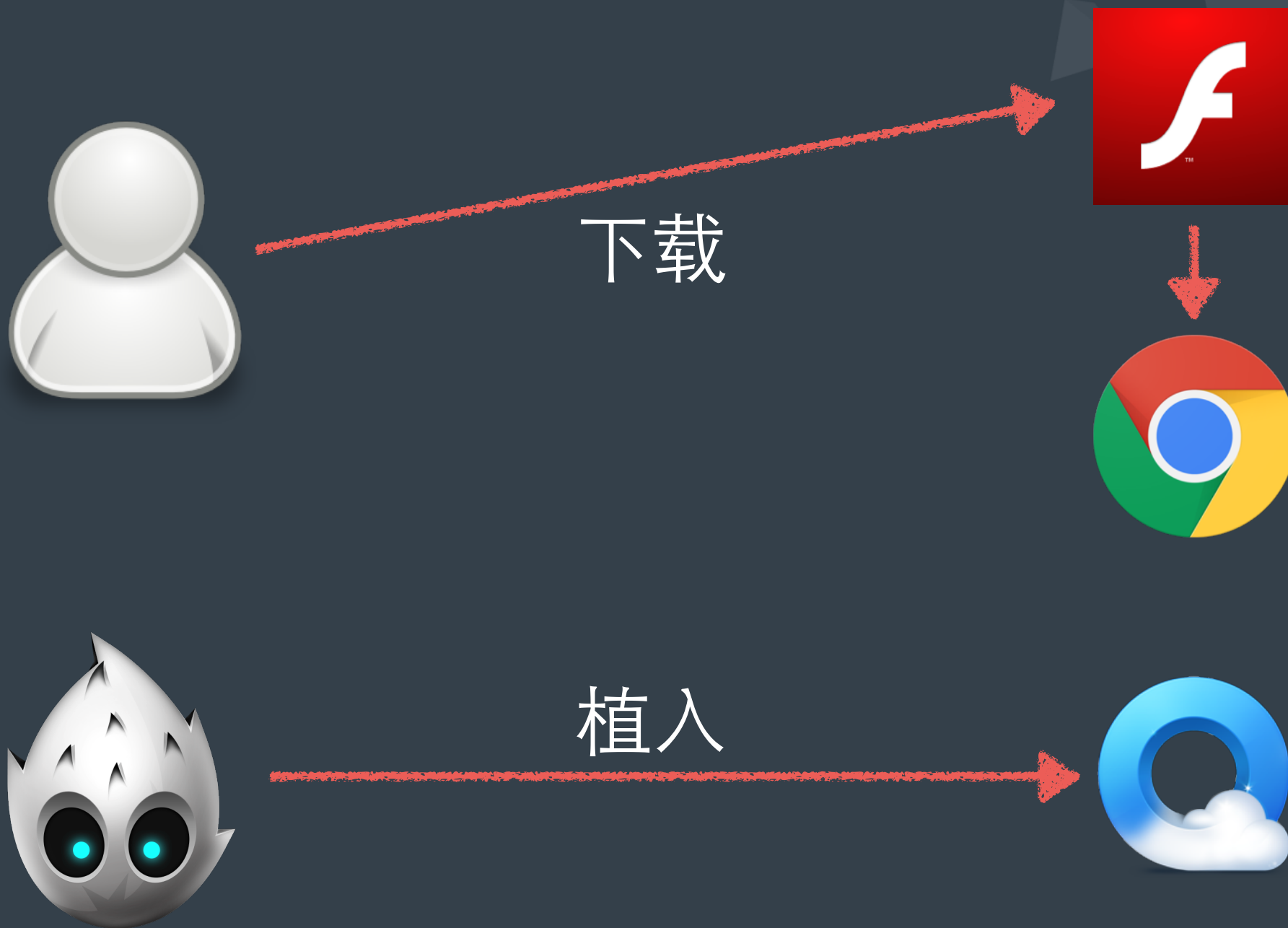


C++



3.3 Cocos Runtime商业化新机遇

Runtime集成方式



Runtime 服务

用户

分享

支付

统计

广告

推送

crash

视频

ANYSDK

复苏世界里
一个就够了

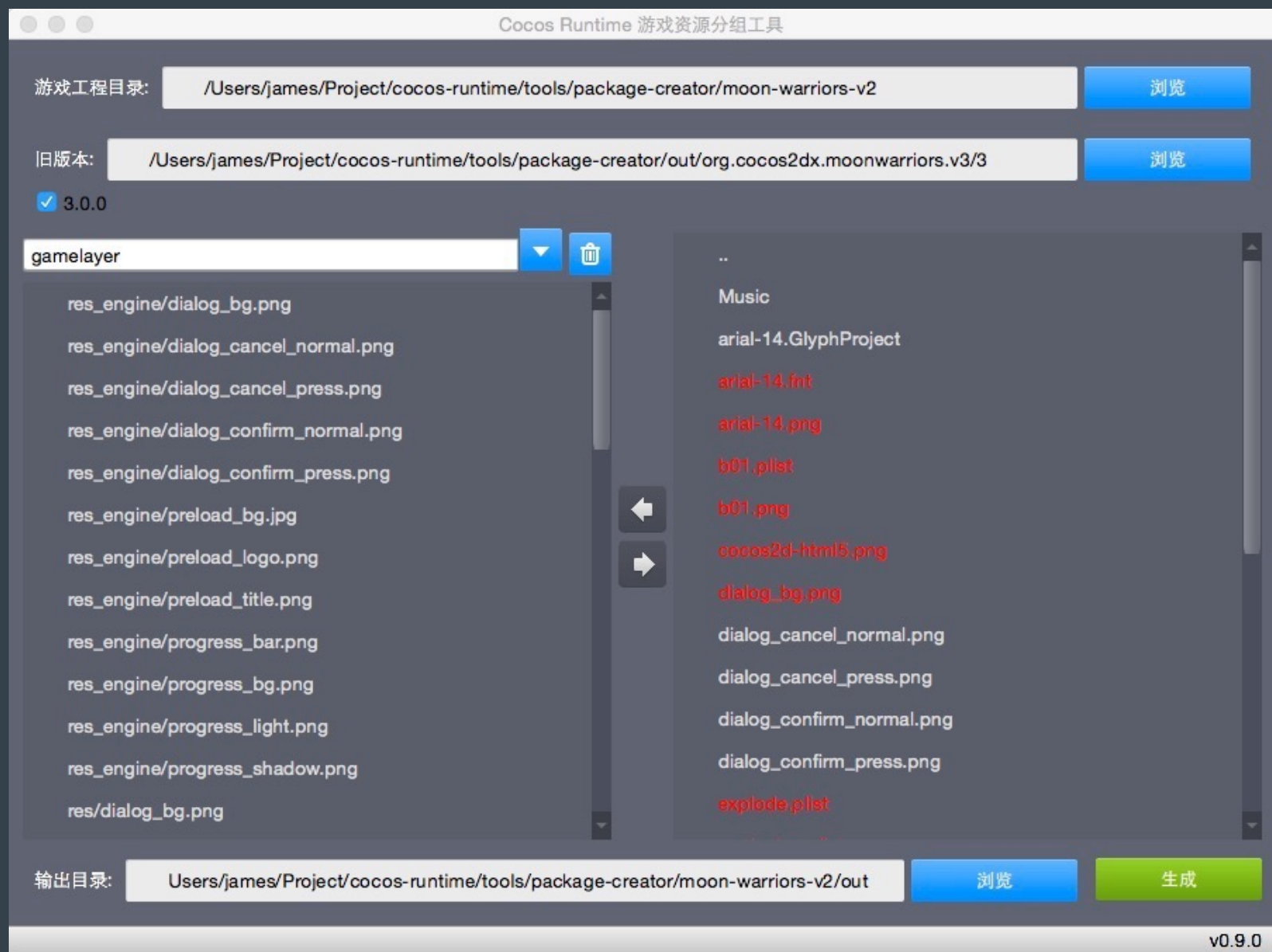
3.4 Cocos Runtime x Cocos Play

Runtime & Play

- 一样的技术架构
- 一套工具
- 一个产品
- 默认集成在引擎中

4. 接入Cocos Runtime

Runtime接入流程



获取接入文档与工具

移植游戏到Runtime

客户端使用AnySDK对接支付，社交等服务

服务端对接服务

与渠道联调服务

上线

总结

- HTML5行业痛点
- Cocos2d-JS引擎
- Cocos Runtime技术细节
- Cocos Runtime接入



THANK YOU !

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