

Test Automation in Practice with *The World HD*

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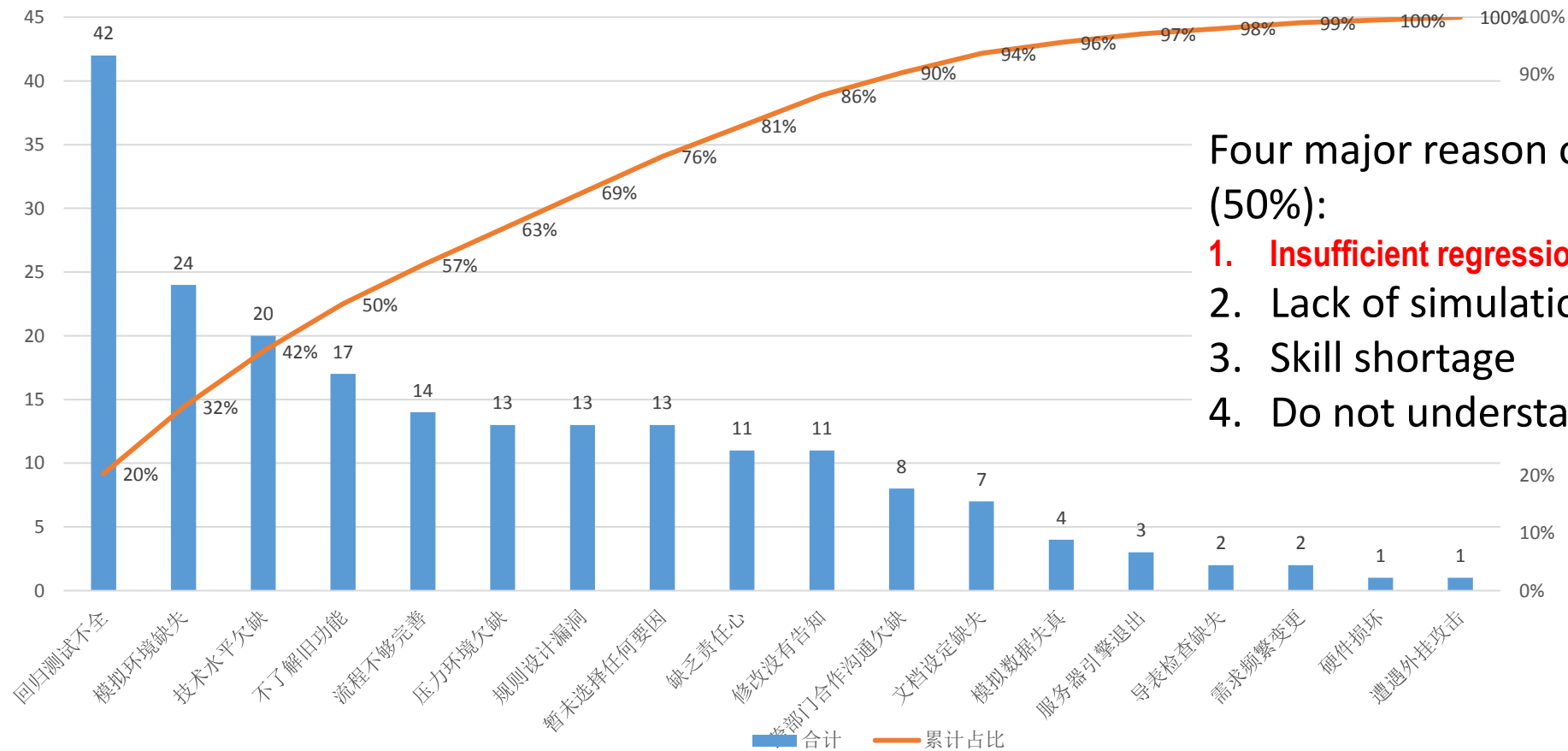
SHANGHAI INTERNATIONAL CONVENTION CENTER
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- Why?
- Functional Test Automation
- Performance and Load Testing
- Testing and Monitoring Tools

Why?

-Automated regression can reduce online accidents - Data Analysis

Overall defects and Pareto chart



Four major reason of online accidents (50%):

1. Insufficient regression test coverage
2. Lack of simulation environment
3. Skill shortage
4. Do not understand the old functions

Why?

-Automated regression can reduce online accidents - Data Analysis

- Typical client game test points – 20000; a few thousand test points for mobile games
- Manual test weekly coverage – 30 points/person
- Complete manual regression's code coverage - 30-40%

Why?

-Automated regression can reduce online accidents - Case Analysis

- [Specific Example 1]

Why?

-Automation can increase test efficiency

- [Specific Example 2]

- Why?
- Functional Test Automation
- Performance and Load Testing
- Testing and Monitoring Tools

Functional Test Automation

- AirTest executing automated regression test based on screen recognition
- Engine built-in test SDK
- Automated test script

•AirTest Mobile game automated test system

• Demo Video

solotest_zrd

×

solotest_zrd2

×

solotestzrd_noscri

×

huijTest

×

sm_zrd

×

sm_mi

×

smtest_zrd

×

执行中

unisdkttest

×

solotest1ss

×

smtest_sumsang

×

sm_mi2

×

sm_mi2_taj

×

1001副本回归

×

已完成

airtest1

×

unisdk_zrd

×

unisdk_samsung

×

airtest1	2015-08-10T18:28:56	waiting	link
airtest1	2015-08-19T14:24:39	success	link
testsolotest	2015-08-18T18:52:08	success	link
smtest0811	2015-08-24T15:52:06	fail	link
smtest_zrd	2015-08-13T10:28:04	waiting	link
solotest2	2015-08-18T20:16:01	/	link
smtest_sumsang	2015-08-25T12:56:36	running	link
sm_mi2	2015-08-25T19:33:35	running	link
sm_mi2_taj	2015-08-25T19:26:04	running	link
1001副本回归	2015-08-25T19:50:13	running	查看报告
1002副本测试	/	/	查看报告

收起显示

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我的任务

共0个任务

筛选

GO

任务名称	执行时间	最新结果	最新报告	成功次数	测试平台	测试类型	最新使用设备	测试用例	任务操作
------	------	------	------	------	------	------	--------	------	------

显示全部

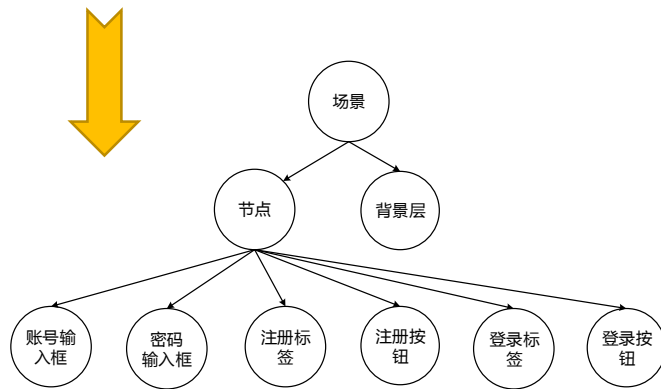
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- AirTest Mobile game automated test system
 - Core technology - image matching algorithm
 - SIFT algorithm improvement

•Functional test – engine built-in test SDK

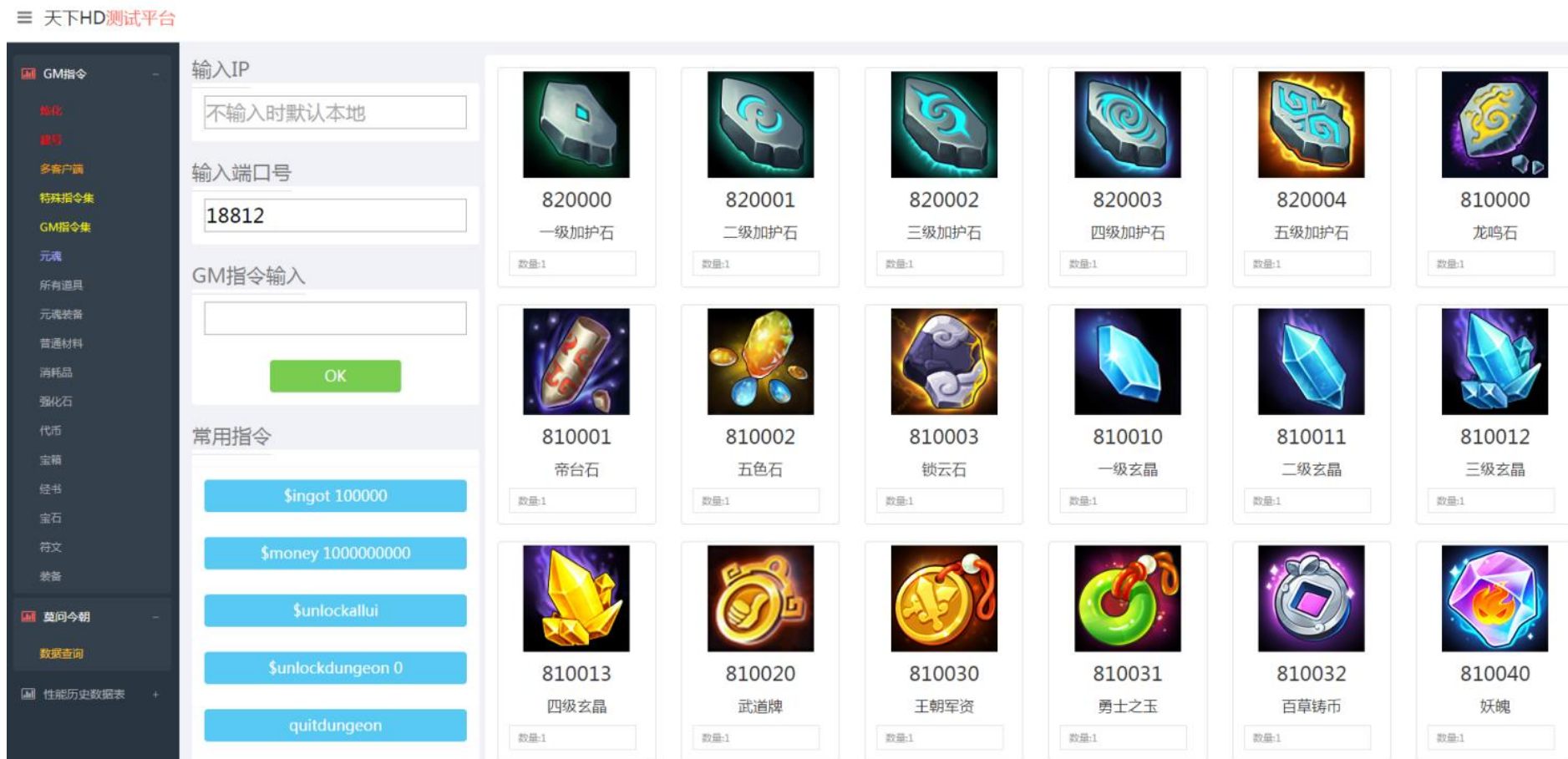


```

--获取所有的输入框（账号输入框和密码输入框贴图和类型是一样的，所以ID也是一样的）
local editBoxes = test.waitForObjects({'Texture':'ui/bg_blank.png','ClassName':'EditBox'})
--获取账号输入框（可以用相对位置来区分这两种输入框，上面账号，下面密码）
local userEditBox = test.getTopObject(editBoxes)
--获取密码输入框（易变的位置属性不用来生成ID。但稳定的相对位置可用来过滤对象）
local pwdEditBox = test.getBottomObject(editBoxes)
--
userEditBox.setText('avatar')
pwdEditBox.setText('1523465')
--获取登录标签
local loginLabel = test.waitForObjects({'String':'登录','ClassName':'Label'})[1]
test.tap(loginLabel)
--等待登陆成功，出现奖章图标
local medalID = test.waitForObjects({'Texture':'common/ico_cups.png','ClassName':'Sprite'})
local medal = test.waitForObjects(medalID)
assert(medal ~= nil and #medal ~= 0, 'login failed')
test.recordTest('Finish login!')
--初始化玩家位置（程序接口）
G_Player.server:chat_in_channel(CONFIG.WORLD_CHANNEL, '$teleport 500 500 1')
    
```

- Functional test - automated test script

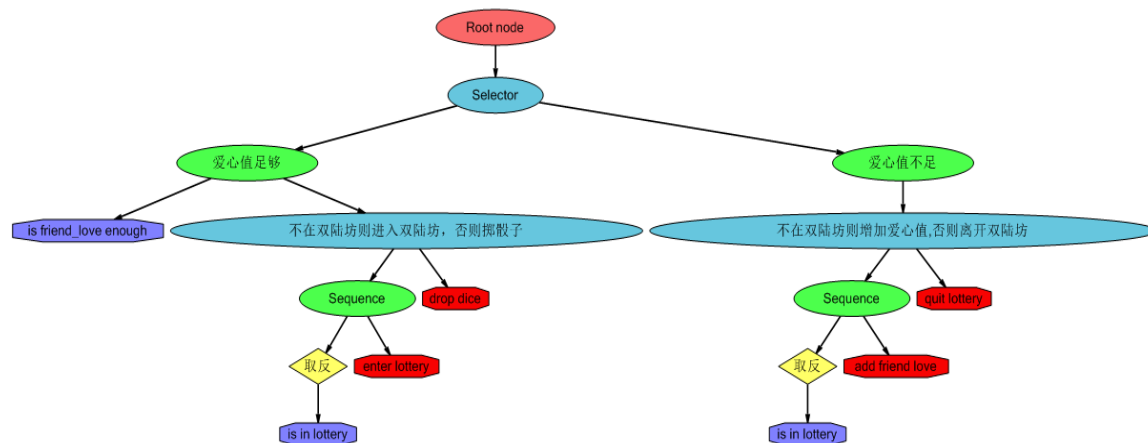
- Demo Video



- Functional test - automated test script

- Principle
- Code example
- Behavior tree

- Functional test - automated test script
- behavior tree



```
import sys
import time
import random

from misc.bt.bt import bt_consts
from misc.bt.bt import bt_node
from misc.bt.bt.bt_node import btnodeproperty

class AddFriendLove(bt_node.ActionNode):
    '''add friend love'''

    @staticmethod
    def step(bt_node, actor):
        actor.conn.modules.ui.HomeUI.gm_commond('$friend_love 1000')
        setattr(actor, 'friend_love', 1000)
        return bt_consts.SUCCESS

class EnterLottery(bt_node.ActionNode):
```

- Why?
- Functional Test Automation
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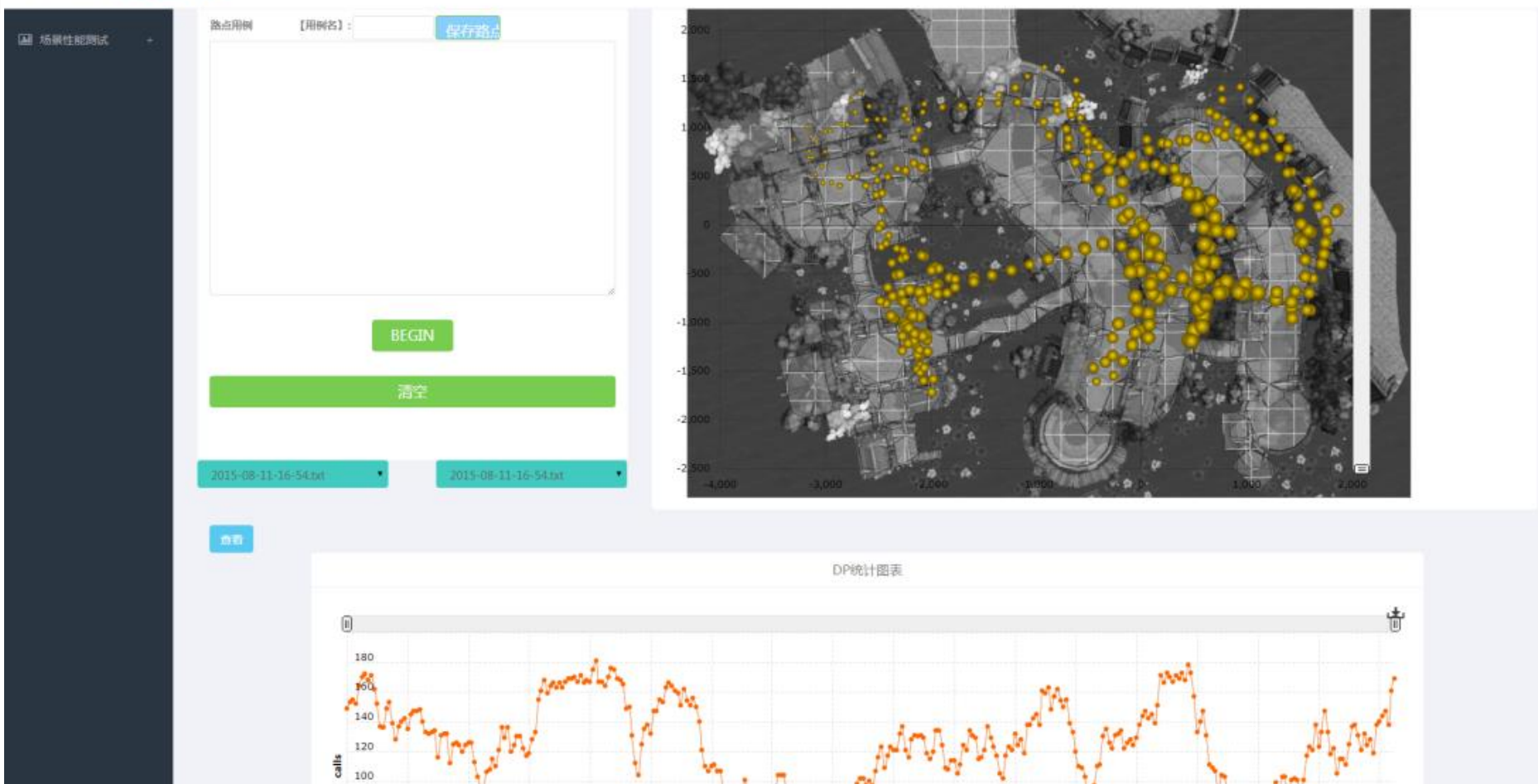
- Performance Testing

- Scene performance
- Fluency test
- Server load test
- Weak network test (2G/3G/4G)

Performance Testing

•Scene Performance

≡ 天下HD场景DP测试平台



Performance Testing

- Server Load Test

Performance Testing

•Delay Test



Performance Testing

•Weak Network Test



弱网络环境设置

ATC弱网络

#功能选项1#	打开设置			
#功能选项2#	关闭设置			
#功能选项3#	网络模式			
mode	3G-Avg	IP	192.168.3.111	Execute
#功能选项4#	查看设备状态			
#功能选项5#	断网			
#功能选项6#	开网			
#功能选项7#	自定义限速			
#功能选项8#	wifi切换			

uplink	downlink
Bandwidth	Bandwidth
in kbps	in kbps
Latency	Latency
Delay	Delay
0	0
Show more	Show more
Loss	Loss
Percentage	Percentage
0	0
Show more	Show more
Corruption	Corruption
Percentage	Percentage
0	0
Show more	Show more
Reorder	Reorder
Percentage	Percentage
0	0
Show more	Show more

- Why?
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Productivity Tool

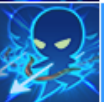
•DSP Calculator

DpsCalculator

IP: 127.0.0.1 Port: 18812 清空 开始 结束 54.280000

伤害统计

角色: 4127

技能图标	次数	总伤害	比重
	23	18076.0	3.93%
	56	76151.0	16.57%
	36	37889.0	8.24%
	14	14322.0	3.12%
	45	32964.0	7.17%

dps: 8490.99

战斗信息

00000000 [友方]的技能10220对10101[敌方]造成了1820.0点暴击伤害
00000000 释放技能 10200
00000000 [友方]的技能10200对10101[敌方]造成了1207.0点暴击伤害
00000000 [友方]的技能10200对10101[敌方]造成了696.0点暴击伤害
00000000 释放技能 10200
00000000 [友方]的技能10200对10101[敌方]造成了982.0点暴击伤害

详情

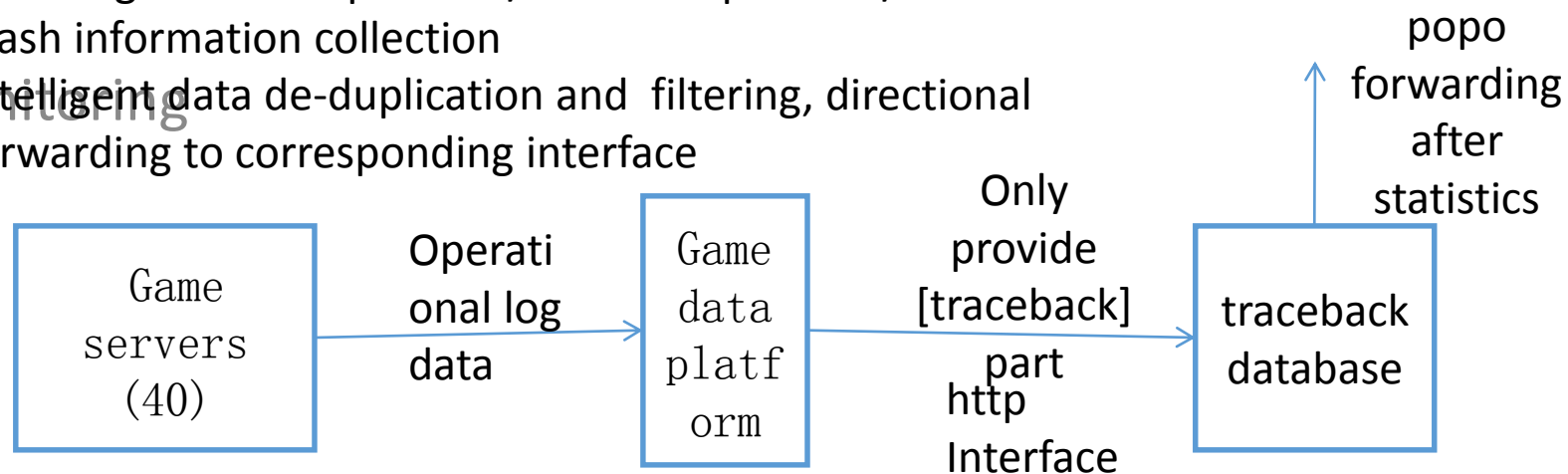
技能名: 影矢 技能等级: 9

技能描述: 召唤真身, 对前方区域进行弹幕射击, 忽视敌人大量护甲, 并使敌人进入5级破甲状态; 有概率冻结敌人

	最小值	最大值	次数	总计	概率
命中	625.0	1627.0	18	21356.0	50.00%
暴击	1041.0	2470.0	11	16533.0	30.56%
未命中			7		19.44%

Monitoring

- Including server script error / client script error / client crash information collection
- Intelligent data de-duplication and filtering, directional forwarding to corresponding interface
- Online Exception Monitoring



序号	类型	时间	服务器	次数	md5	操作
118652	萝卜忒 - 说: (2015-04-09 16:12:02)		10011	1447	0-076-000-0-1-01-01-01-004-5300516	详情 查看
117410	服务器异常: 第1000次触发					查看
124214	-----					查看
118677	<type 'exceptions.AttributeError'> file_name: ../server\distserver\game\GameService2.py func_name: get_entity_method line_no: 184					查看
121550	----- 😊					查看
124223	server_trace	2015-04-07 15:20:33	10011	000	0377cc33704e3003e1ccc0cd773019b	删除 查看

Online monitoring public opinion

Monitoring

•Monitoring

ment



Bugs

Bug统计

本月

历史全部

人物

元魂

其他

副本

装备

Rest

每页显示

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条记录

Search:

标题	关键词	发帖时间	关注人数	情感值
【游戏卡顿统一收集贴】出现卡顿情况可以来本帖反馈哦	卡, 卡顿, 环境, 副本, 组队	2015-07-22	1635	3.4
【游戏卡顿统一收集贴】出现卡顿情况可以来本帖反馈哦	卡, 卡顿, 副本, 环境, 组队	2015-07-22	1600	3.6
JJC钻石组前20, 闪退一次赢10分变扣6分掉4个名次	闪退, 题, 问, 断网, 胜负	2015-08-03	1030	4.8
炼化石bug	属性, 一条, 条, 两条, 总共	2015-08-14	951	5.9
明天更新延迟多少个小时?	更新, 发表, 主城, 签到, 半天	2015-08-06	885	4.9
盘古套装BUG大神请进	小白, 盘古, 黄帝, 不屈, 李白	2015-08-09	853	5.9
希望新区出小白活动和解决弃剑开盾被神佑反噬的bug	攻击, 盘古, 小白, 冰熊, 听雨	2015-08-16	808	1.9
虽然卡顿的问题有好转, 但是新的频繁掉线问题又来了...	尼玛, 掉线, 网费, sb, 猛日	2015-08-14	802	1.6
4g网络连不上游戏, 换成2g完全没问题, 啥情况?	赶紧, 弄	2015-08-15	789	0
不知道是不是bug	装备, 速度, 属性, 虚, 套	2015-08-14	776	2.7

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