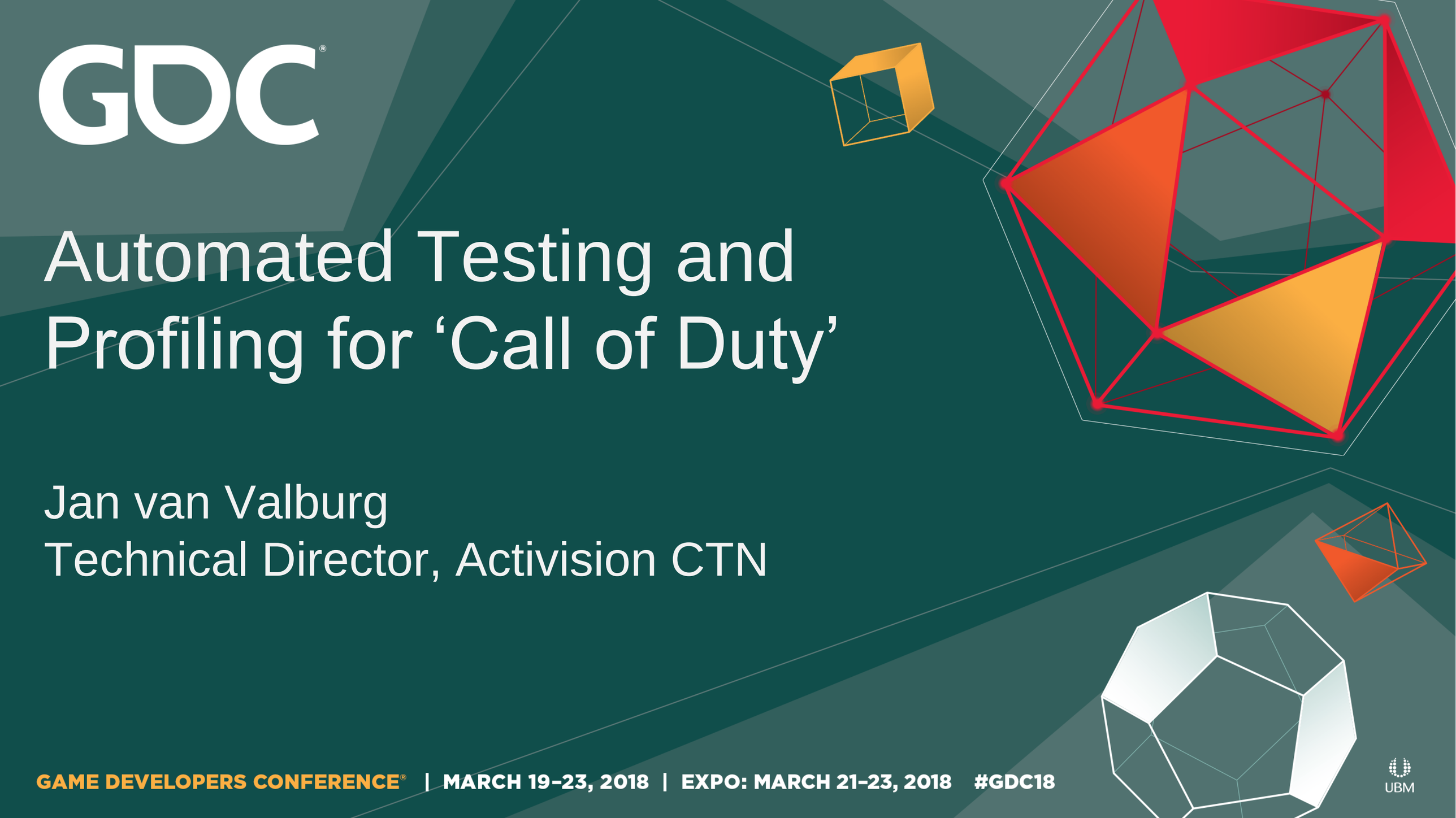


Automated Testing and Profiling for ‘Call of Duty’

Jan van Valburg
Technical Director, Activision CTN

GAME DEVELOPERS CONFERENCE® | MARCH 19–23, 2018 | EXPO: MARCH 21–23, 2018 #GDC18

UBM

Compass

DESTINY

TeamCity

Buildbot

Tree is open (fix in https://chromium.googlesource.com/chromium/src.git/+/f5c45c745a3259e9b8ddafcb25f4348d2a87067f)

Builds:	continuous | symbols | status
Dashboards:	perf | flakiness | stats
Chromium:	sources | reviews | bugs | dev | support
Sheriffs:	Chromium: robertocn, mastiz, tapted, sahel; Android: dtrainor, dgn; iOS: olivierrobin, eugenebut; Cros: groeck, xiaochu, fukino, tetsui; ChromeOS: glevin; GPU: ccameron; ANGLE: fjhenigman; Memory: None (channel is sheriff); Perf: pmeenan; Perfbot: rnephew; V8: None (channel is sheriff);
Trooper:	jchinlee, secondary: bpastene
Masters:	chromium.android | chromium.chromedriver | chromium.fyi | chromium.gpu | chromium.perf | chromium.perf.fyi | chromium.webkit | chromium.webrtc | chromiumos
TryServers:	tryserver.chromium.linux | tryserver.chromium.mac | tryserver.chromium.win | tryserver.chromium.android | tryserver.blink
Navigate:	about | customize | waterfall | console

Tree closers

Chromium	Win	Mac	Linux		
ChromiumOS		Official			
Memory		GPU			
Webkit					
Perf			LKGR		
GPU		GPU FYI			

Legend: Passed | Failed | Failed Again | Running | Exception | Offline | No data

		chromium	chromium.win	chromium.mac	chromium.linux		chromium.chromiumos			chromium.chrome	chromium.memory					chromium.webkit
					linux	android	default	debug	simplechrome		TSan v2	linux asan lsan msan	linux cfi	mac asan	chromeos asan	layout
fbcab2905dec	maxmorin@chromium.org															
896666a783ee	dgn@chromium.org															
f6f2de28d915	kitching@google.com															
5e309c349a30	bratell@opera.com															
a430566cda04	droger@chromium.org															
58237fb768d3	khushalsagar@chromium.org															
83f1a4eda0e8	xiaochengh@chromium.org															
5818fa1c1135	allada@chromium.org															
359c0bc601af	andypaicu@chromium.org															
853a0da41015	hidehiko@chromium.org															
5359bc041feb	v8-autoroll@chromium.org															
ed86c1e677e8	pmarko@chromium.org															
fffd46591868	blakeo@chromium.org															
11a22464ccf7	vasilii@chromium.org															
b65d478ac004	olivierrobin@chromium.org															
9c980c35fb16	eladalon@chromium.org															

```
# step 5: upload packages to central server. This needs passwordless ssh
# from the worker to the server (set it up in advance as part of worker setup)
uploadpackages = steps.ShellCommand(name="upload packages",
                                    description="upload packages",
                                    command="scp packages/*.rpm packages/*.deb packa
                                    haltOnFailure=True)

# create the build factory and add the steps to it
f_simplebuild = util.BuildFactory()
f_simplebuild.addStep(makeclean)
f_simplebuild.addStep(checkout)
f_simplebuild.addStep(makeall)
f_simplebuild.addStep(makepackages)
f_simplebuild.addStep(uploadpackages)
```

Wishlist

- Devkits are treated as first-class citizens
- Configuration comes from source control
- Deep integration of metrics and screenshots

CALL OF DUTY
ADVANCED WARFARE

CALL OF DUTY
INFINITE WARFARE

CALL OF DUTY
BLACK OPS

CALL OF DUTY
WWII

Compass

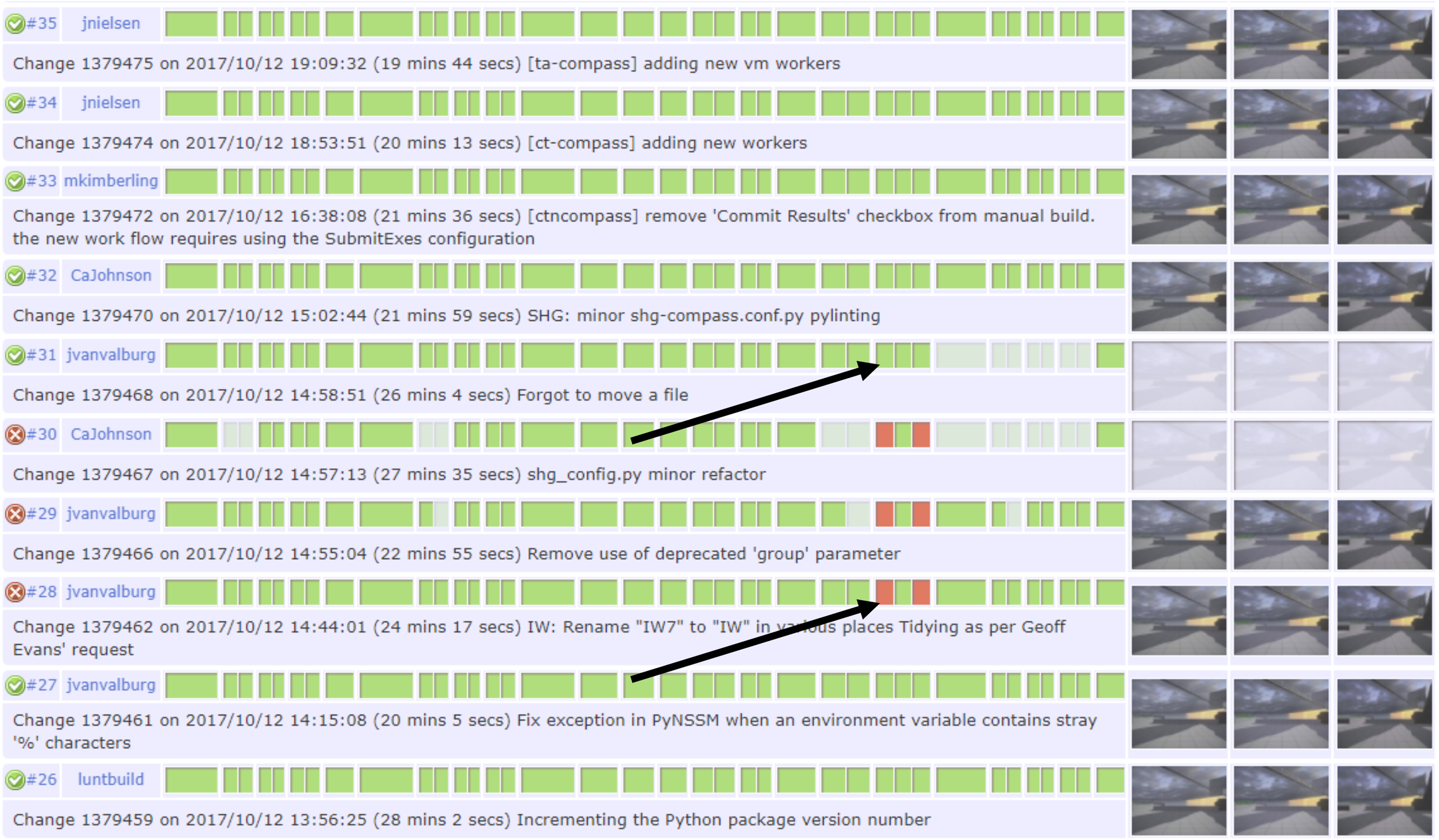
Some Stats

- 700 worker PCs
- 300 devkits (PS4/XB3)
- 900 unique users
- 50,000 tasks per day

What Compass Looks Like

Legend: Passed | Failed | Running | Exception | No data

	Bootstrap	Convert/Link Assets			Compass		Convert/Link Assets		Run Dedicated			Run Game									Screenshots (PS4)		
		all			Lint	Test	Convert Data	Compile Scripts Simple	PC	PS4	XB3	[illegible]			[illegible]			[illegible]			[illegible]	[illegible]	[illegible]
		PC	PS4	XB3								PC	PS4	XB3	PC	PS4	XB3	PC	PS4	XB3			
✓ #26765 alchapman																							
Change 1968696 [illegible]																							
✓ #26764 integrator																							
Change 1968688 [illegible]																							
✓ #26763 integrator																							
Change 1968684 [illegible]																							
✓ #26762 integrator																							
Change 1968681 [illegible]																							
✓ #26761 kmckisic																							
Change 1968674 [illegible]																							
✓ #26760 jminkoff																							
Change 1968661 [illegible]																							
✓ #26759 jminkoff																							
Change 1968653 [illegible]																							
✓ #26758 jminkoff																							
Change 1968643 [illegible]																							
✓ #26757 jminkoff																							
Change 1968642 [illegible]																							
✓ #26756 sgil																							
PreSubmit ✓ Change 1968637 [illegible]																							
✓ #26755 jminkoff																							
Change 1968634 [illegible]																							
✓ #26754 aroycewicz																							
Change 1968630 [illegible]																							
✓ #26753 jminkoff																							
Change 1968627 [illegible]																							
✓ #26752 dhorrocks																							
Change 1968623 [illegible]																							
✓ #26751 gsmith																							
Change 1968620 [illegible]																							
✓ #26750 gsmith																							
Change 1968617 [illegible]																							
✓ #26749 cpierro																							


#35 jnielsen
Change 1379475 on 2017/10/12 19:09:32 (19 mins 44 secs) [ta-compass] adding new vm workers
#34 jnielsen
Change 1379474 on 2017/10/12 18:53:51 (20 mins 13 secs) [ct-compass] adding new workers
#33 mkimberling
Change 1379472 on 2017/10/12 16:38:08 (21 mins 36 secs) [ctncompass] remove 'Commit Results' checkbox from manual build. the new work flow requires using the SubmitExes configuration
#32 CaJohnson
Change 1379470 on 2017/10/12 15:02:44 (21 mins 59 secs) SHG: minor shg-compass.conf.py pylinting
#31 jvanvalburg
Change 1379468 on 2017/10/12 14:58:51 (26 mins 4 secs) Forgot to move a file
#30 CaJohnson
Change 1379467 on 2017/10/12 14:57:13 (27 mins 35 secs) shg_config.py minor refactor
#29 jvanvalburg
Change 1379466 on 2017/10/12 14:55:04 (22 mins 55 secs) Remove use of deprecated 'group' parameter
#28 jvanvalburg
Change 1379462 on 2017/10/12 14:44:01 (24 mins 17 secs) IW: Rename "IW7" to "IW" in various places Tidying as per Geoff Evans' request
#27 jvanvalburg
Change 1379461 on 2017/10/12 14:15:08 (20 mins 5 secs) Fix exception in PyNSSM when an environment variable contains stray '%' characters
#26 luntbuild
Change 1379459 on 2017/10/12 13:56:25 (28 mins 2 secs) Incrementing the Python package version number

Console | History | Screens | EXE Sizes | Actions

Legend: Passed | Failed | Running | Exception | No data

		Compile Code								MyChanges		Convert/Link Assets									Test Game									Screenshots (PC)		
		Game			Dedicated Server			Tools		Build	Test	Compile Map	SP			MP			CP			SP			MP			CP			SP	MP	CP
		PS4	PC	XB3	PS4	PC	XB3	Pipeln	User				PS4	PC	XB3	PS4	PC	XB3	PS4	PC	XB3	PS4	PC	XB3	PS4	PC	XB3	PS4	PC	XB3			
#6446	integrator																															
Change 790836 on 2015/05/19 06:32:58 Merge from iw7-staging to iw7-dev: Change 790835 by integrator: Merge from iw7 to iw7-staging: Change 790834 by bliu: barrier cover foam fx																														FastFile ver. 310		
#6445	cbirtwistle																															
Change 790827 on 2015/05/19 05:05:19 Fix AssetViewer compile error from previous checkin																														FastFile ver. 310		
#6444	cbirtwistle																															
Change 790824 on 2015/05/19 04:52:07 [DNR] Fix IWG-21938. Particle lighting flickering on geotrails.																														FastFile ver. 310		
#6443	integrator																															
Change 790817 on 2015/05/19 03:42:19 Merge from iw7-staging to iw7-dev: Change 790814 by integrator: Copy from iw7-dev -> iw7-staging@790813 Change 790508 by Vishal: [DNR] Possible fix for COMET and PC mixed mode effect load timing issue Change 7905 Change 790815 by integrator: Built EXEs for None iw7\game\bin\BlackboxService/BlackboxService.exe iw7\game\bin\BlackboxService/BlackboxService.pdb																														FastFile ver. 310		
#6442	pmalin																															
Change 790808 on 2015/05/19 02:31:37 The .d3dbsp reflection probe structure now stores cubemap image and reflection probe information separately This [illegible] forms part of IWG-3844 - Reflections: Run-time Relighting Reviewed By: Peter Pon === Coders === * This change modifies the DiskGfxReflectionProbeHeader and related structures in qfiles.h to make it simpler to add other types of reflection probe cubemap images (gbuffer																														FastFile ver. 310		
#6441	integrator																															
Change 790802 on 2015/05/19 01:33:14 Merge from iw7-staging to iw7-dev: Change 790801 by integrator: Merge from iw7 to iw7-staging: Change 790799 by Danielo: add new anims fix paths fix elevator add dialog lots more! Change 790800 by glopez: updated																														FastFile ver. 310		
#6440	jvanvalburg																															
Change 790796 on 2015/05/19 00:32:16 Print a message to let Compass know that the cp_zmb level has started																														FastFile ver. 310		
#6439	integrator																															
Change 790789 on 2015/05/18 23:02:22 Merge from iw7-staging to iw7-dev: Change 790788 by integrator: Merge from iw7 to iw7-staging: Change 790785 by boon: Disabled placeholder details pane, because it was confusing people. Change 790786 by candice:																														FastFile ver. 310		
#6438	integrator																															
Change 790784 on 2015/05/18 22:32:16 Merge from iw7-staging to iw7-dev: Change 790783 by integrator: Merge from iw7 to iw7-staging: Change 790780 by erics: MP CLASS - Phaser - Converting V.E.F. and Adrenaline Mist to building killstreaks for the Pha																														FastFile ver. 310		
#6437	integrator																															
Change 790779 on 2015/05/18 22:02:19 Merge from iw7-staging to iw7-dev: Change 790778 by integrator: Merge from iw7 to iw7-staging: Change 790777 by david: ui weapon spin test. rendered files here, for the ui team: I:\departments\vfx\temp\ui_weapon																														FastFile ver. 310		
#6436	integrator																															
Change 790776 on 2015/05/18 21:33:22 Merge from iw7-staging to iw7-dev: Change 790775 by integrator: Merge from iw7 to iw7-staging: Change 790773 by geoffrey: gravity -updates to spaaaaaaaaaaaaaaace doooooooooooooooooooooooooonut -pathing/deets/clip																														FastFile ver. 310		
#6435	integrator																															
Change 790772 on 2015/05/18 21:02:11 Merge from iw7-staging to iw7-dev: Change 790771 by integrator: Merge from iw7 to iw7-staging: Change 790769 by jamchen: Coop - Fix 22725 - Error: type undefined is not a																														FastFile ver. 310		

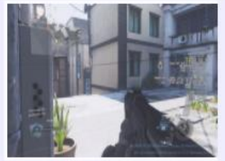
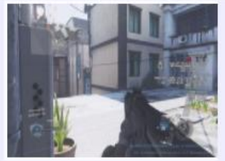
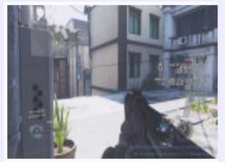
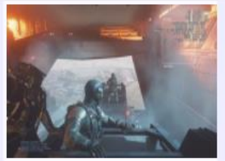
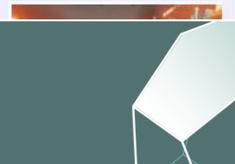
Failed: Run Game.mp_metrop....XB3
Task: Run Game.mp_metrop....XB3
Duration: 3 mins 58 secs
Status: Failed
A reliable command was cycled out. (CG)
1-iw7_test: Sys_Error ...xb3_main.obj, addr 0x000001062E05F2A0
1-iw7_test: Com_Error_Internal ...common.obj, addr 0x000001062DCD8C95
1-iw7_test: Com_Error ...common.obj, addr 0x000001062DCD85DD
1-iw7_test: CG_ServerCmdMP_ServerCommand ...cg_servercmds_mp.obj, addr 0x000001062D70DE61
1-iw7_test: CG_ServerCmdMP_ExecuteNewServerCommands ...cg_servercmds_mp.obj, addr 0x000001062D70BDD5
1-iw7_test: CG_SnapshotMP_SetNextSnap ...cg_snapshot_mp.obj, addr x000001062D7138B8
1-iw7_test: CG_SnapshotMP_ProcessSnapshots ...cg_snapshot_mp.obj, addr 0x000001062D711625

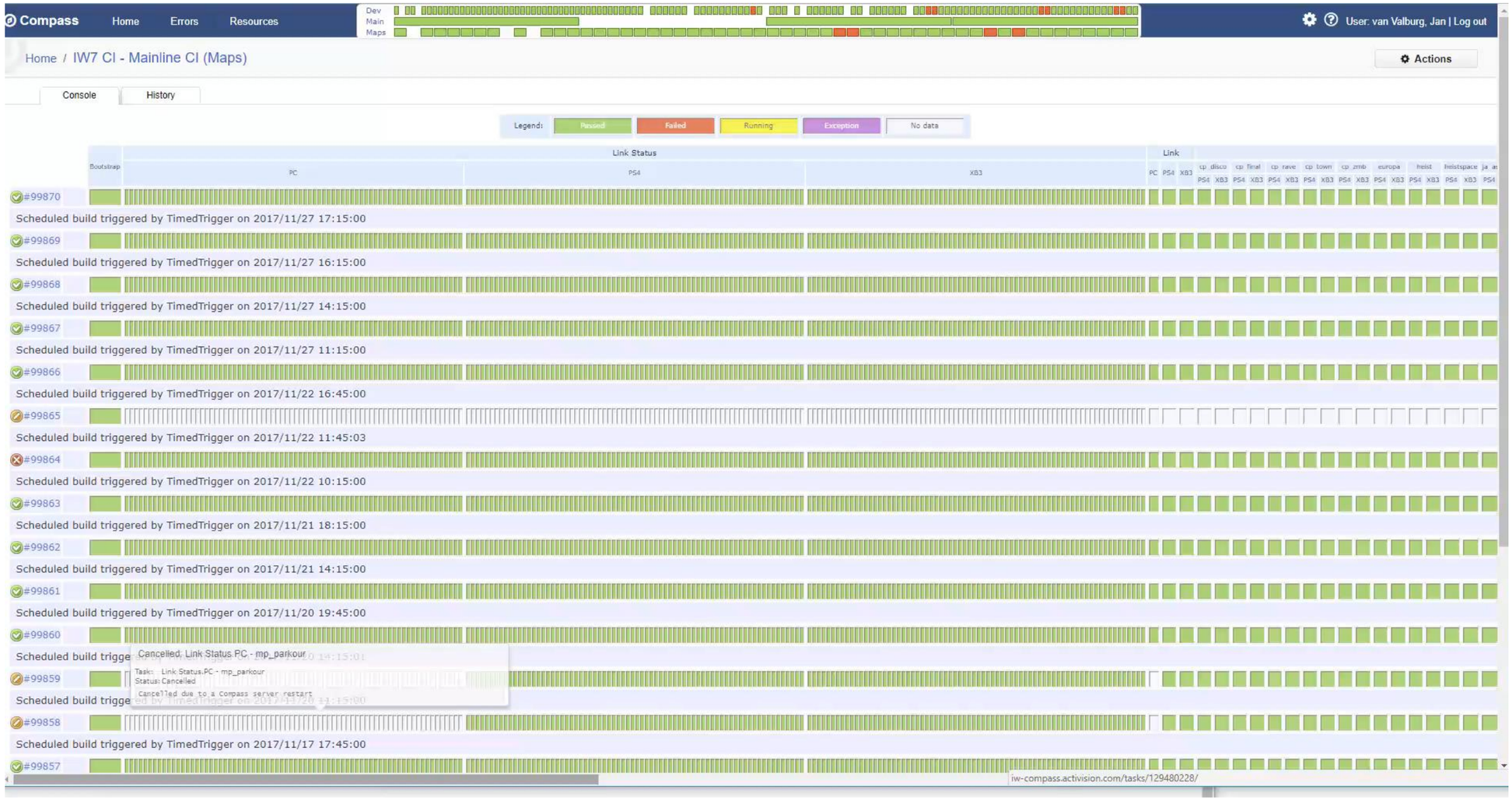
Run Game

	moon_port			mp_metrop...			sa_vips		
XB3	PC	PS4	XB3	PC	PS4	XB3	PC	PS4	XB3

: unknown weapon 'iw7_m4_zmr_hb' in GetWeaponLootTable Error: (file
well as updated the required damage values Presubmit #60022 Successful Whitelist

Screenshots (PS4)

cp_zmb	moon_port	mp_metropolis	sa_vips
			
			
			
			
			


Compass
Home
Errors
Resources
Dev
Main
Maps
User: van Valburg, Jan | Log out
Home / IW7 CI - Mainline CI (Maps)
Actions
Console
History
Legend:
Passed
Failed
Running
Exception
No data
Link Status
Link
Bootstrap
PC
PS4
XB3
#99870
Scheduled build triggered by TimedTrigger on 2017/11/27 17:15:00
#99869
Scheduled build triggered by TimedTrigger on 2017/11/27 16:15:00
#99868
Scheduled build triggered by TimedTrigger on 2017/11/27 14:15:00
#99867
Scheduled build triggered by TimedTrigger on 2017/11/27 11:15:00
#99866
Scheduled build triggered by TimedTrigger on 2017/11/22 16:45:00
#99865
Scheduled build triggered by TimedTrigger on 2017/11/22 11:45:03
#99864
Scheduled build triggered by TimedTrigger on 2017/11/22 10:15:00
#99863
Scheduled build triggered by TimedTrigger on 2017/11/21 18:15:00
#99862
Scheduled build triggered by TimedTrigger on 2017/11/21 14:15:00
#99861
Scheduled build triggered by TimedTrigger on 2017/11/20 19:45:00
#99860
Cancelled, Link Status.PC - mp_parkour
Task: Link Status.PC - mp_parkour
Status: Cancelled
Cancelled due to a Compass server restart
#99859
#99858
Scheduled build triggered by TimedTrigger on 2017/11/17 17:45:00
#99857
iw-compass.activision.com/tasks/129480228/

Main

Dev

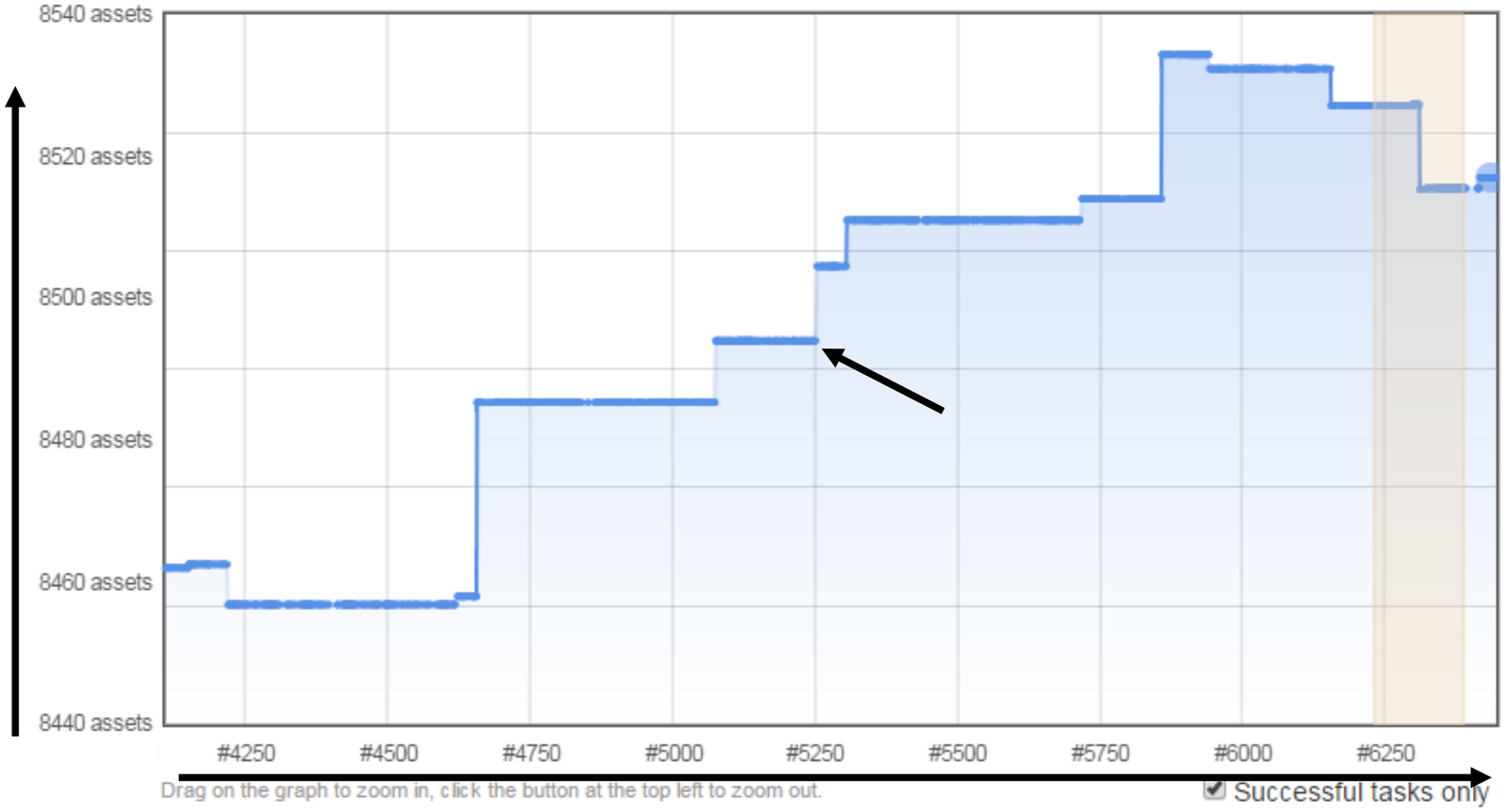
2 NEW ERRORS

No new output received for > 900 seconds

Unable to allocate memory

Unable to allocate memory

Task Statistics: Shader



Changes #6435 -> #6436

#6436 - Merge from iw7-staging to iw7-dev: Change 790775 by integrator: Merge from iw7 to iw7-staging: Change 790773 by geoffrey: gravity -updates to spaaaaaaaaaaaaaaace doooooooooooooooooooooooooonut - pathing/deets/clip

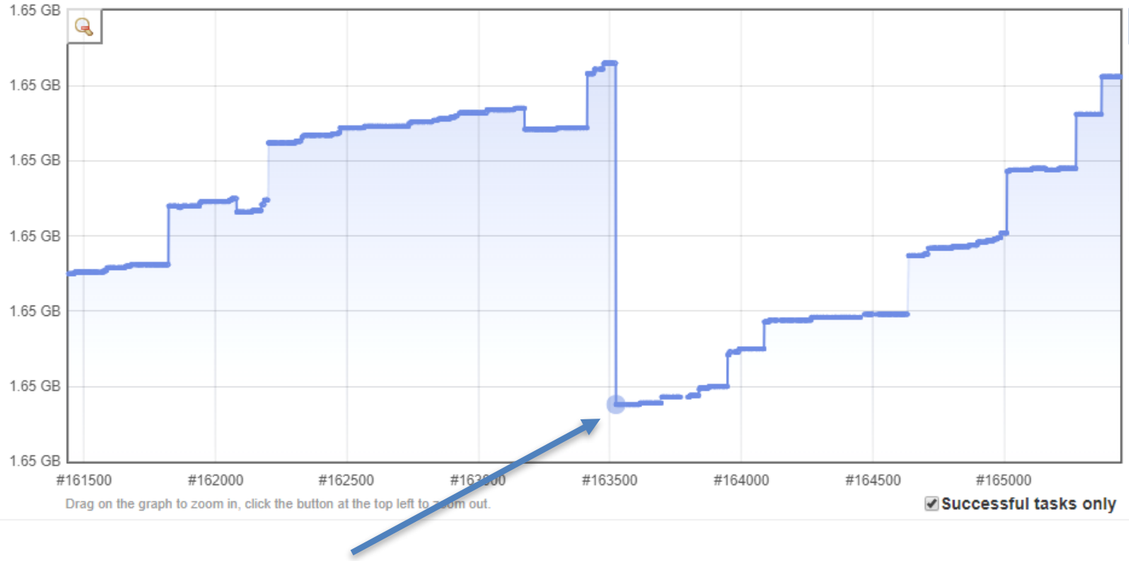
Change 790776 by integrator

Group	Name	Description	Value	Change	50 | **250** | 1000
Global	Bootstrap time	Duration of the Bootstrap step	1 secs		
	Unlock iw7:/iw7/game time	Duration of the Unlock iw7:/iw7/game step	3 secs		
	Sync iw7 time	Duration of the Sync iw7 step	48 secs		
	Clean Workspace time	Duration of the Clean Workspace step	530.00 ms		
	Junction Paths time	Duration of the Junction Paths step	1 secs		

Map	Size of map assets	95.74 MB		
Xanim	Size of xanim assets	118.32 MB		
Material	Size of material assets	1.55 MB		
Shader	Size of shader assets	6.12 MB		
Xmodel	Size of xmodel assets	1.04 GB	▼-2.17 MB	
Other	Size of other assets	155.31 MB		
Techset	Size of techset assets	1.85 MB	▲+1.24 KB	
Image	Size of image assets	243.68 MB		
Total	Total size of all assets	1.65 GB	▼-2.17 MB	

Task Statistics: Total

Resources: VM_Worker_#059



Changes #163523 -> #163524 -2.17 MB

#163524 - [TU16] Memory savings, for MP 26.2mb & CP 6.3mb and a little in SP/global. Details below; common_core_mp veh_mil_air_ca_dropship_mp, lod0 variant sharing = -2.4mb mp_mw_dist_soldier, do_not_use = -1.1mb barrier_cover_foam_128, do_not_use = -2.6mb mp_robot_c8, lod0 variant sharing = -8.2mb venom_drone_wm, reduced verts on
Change 1379912 by pmccabe on 2017/06/28 19:05:26

Compare to: IW7Main # 16352 Go

Group	Name	Description	Value		50 | 250 | 1000
Global	11 measurements				
ffsplit	6 measurements				
Asset Counts	9 measurements				
Asset Sizes	Map	Size of map assets	95.74 MB		
	Xanim	Size of xanim assets	118.32 MB		
	Material	Size of material assets	1.55 MB		
	Shader	Size of shader assets	6.12 MB		
	Xmodel	Size of xmodel assets	1.04 GB	-2.17 MB	
	Other	Size of other assets	155.31 MB		
	Techset	Size of techset assets	1.85 MB	+1.24 KB	
	Image	Size of image assets	243.68 MB		
	Total	Total size of all assets	1.65 GB	-2.17 MB	
Store	2 measurements				

mp_riot

PC

>75FPS	100%	100%	100%	95%	98%	99%	100%	99%	100%
>60FPS	100%	100%	100%	97%	98%	99%	100%	99%	100%
GPU	▼6	▼6	▼6	▼6	▼6	▼5	▼6	▼6	▼6
CPU	▼3	▼3	▼3	▼3	▼3	▼3	▼3	▼3	▼3

mp_rivet

PC

>75FPS	19%	64%	30%	68%	10%	55%	22%	67%	36%
>60FPS	40%	82%	37%	87%	37%	79%	49%	80%	65%
GPU	▲19	▲12	▲20	▲12	▲18	▲13	▲17	▲11	▲14
CPU	▲17	▲14	▲25	▲11	▲16	▲12	▲19	▲14	▲15

mp_skyway

PC

>75FPS	98%	100%	99%	100%	98%	96%	98%	96%	99%	100%
>60FPS	98%	100%	100%	100%	99%	97%	98%	97%	99%	100%
GPU	7	7	7	7	8	7	7	8	7	6
CPU	2	3	3	3	3	2	3	3	3	3

phparade

PC

>75FPS	99%	99%	99%	100%
>60FPS	99%	99%	99%	100%
GPU	8	5	5	5
CPU	3	2	2	2

phspace

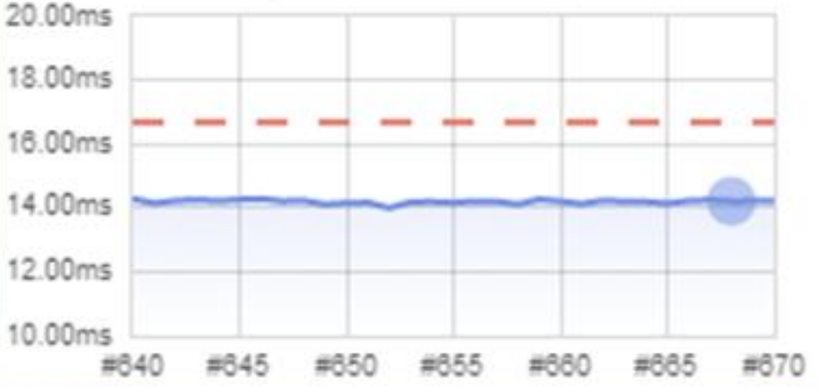
PC

>75FPS	83%	88%	83%	94%	99%	100%	100%	99%	100%	99%	96%
>60FPS	88%	94%	91%	99%	99%	100%	100%	100%	100%	100%	97%
GPU	▲12	▲9	▲12	12	6	5	5	▲7	6	6	6
CPU	4	3	3	3	3	3	3	3	3	4	3

shipcrib_moon #10: moon armory

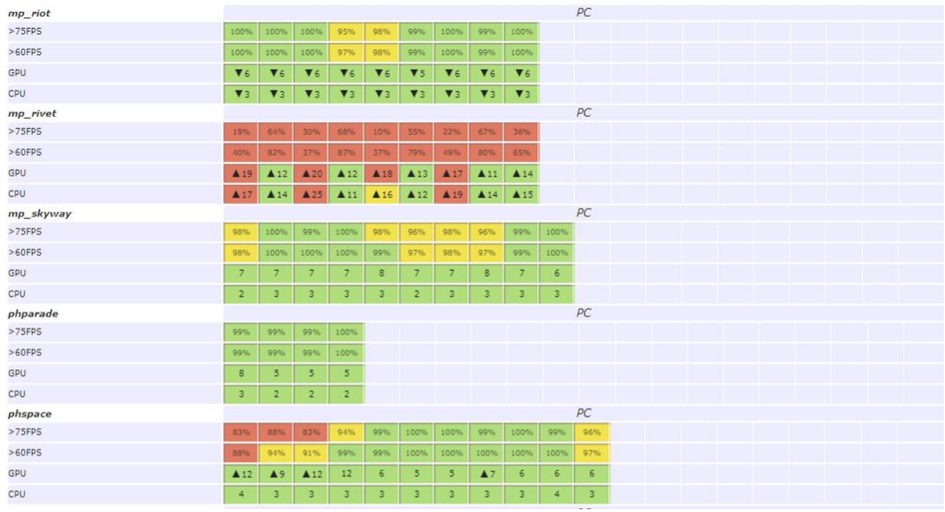
GPU: 14.22 ms

Compared to IW7Perf #668



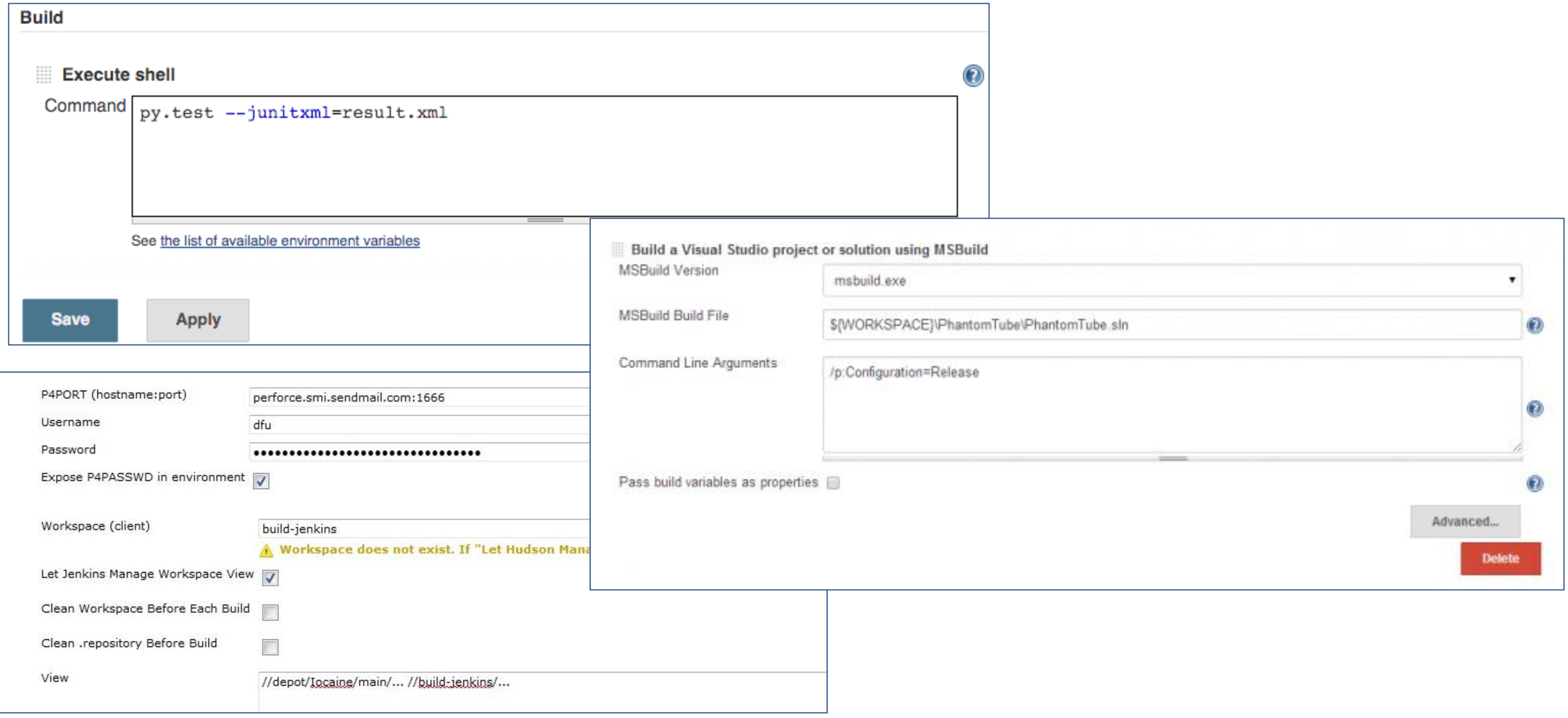
Screenshot / Perf Capture Method

- QA Plays the game and finds locations with bad performance
- Locations are entered into a .yaml file
- Compass teleports the player to each location and captures performance data
- Automated testing complements human testing

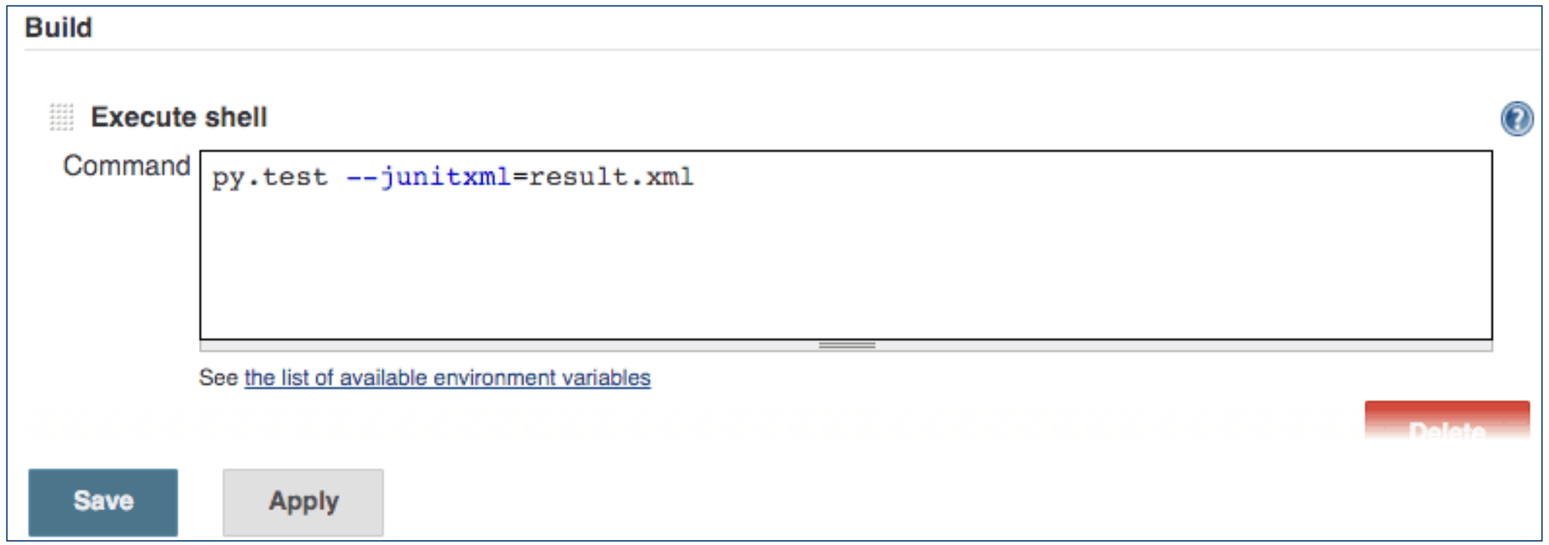


mp_riot										*PC*
>75FPS	100%	100%	100%	95%	98%	99%	100%	99%	100%	
>60FPS	100%	100%	100%	97%	98%	99%	100%	99%	100%	
GPU	▼6	▼6	▼6	▼6	▼6	▼5	▼6	▼6	▼6	
CPU	▼3	▼3	▼3	▼3	▼3	▼3	▼3	▼3	▼3	
mp_rivet										*PC*
>75FPS	19%	64%	30%	68%	10%	55%	22%	67%	36%	
>60FPS	40%	82%	37%	87%	37%	79%	49%	80%	65%	
GPU	▲19	▲12	▲20	▲12	▲18	▲13	▲17	▲11	▲14	
CPU	▲17	▲14	▲25	▲11	▲16	▲12	▲19	▲14	▲15	
mp_skyway										*PC*
>75FPS	98%	100%	99%	100%	98%	96%	98%	96%	99%	100%
>60FPS	98%	100%	100%	100%	99%	97%	98%	97%	99%	100%
GPU	7	7	7	7	8	7	7	8	7	6
CPU	2	3	3	3	3	2	3	3	3	3
phparade										*PC*
>75FPS	99%	99%	99%	100%						
>60FPS	99%	99%	99%	100%						
GPU	8	5	5	5						
CPU	3	2	2	2						
phspace										*PC*
>75FPS	83%	88%	83%	94%	99%	100%	100%	99%	100%	99%	96%
>60FPS	88%	94%	91%	99%	99%	100%	100%	100%	100%	100%	97%
GPU	▲12	▲9	▲12	12	6	5	5	▲7	6	6	6
CPU	4	3	3	3	3	3	3	3	3	4	3

How Compass Tasks Are Run


Build
Execute shell
Command
py.test --junitxml=result.xml
See the list of available environment variables
Save
Apply
Depot
P4PORT (hostname:port)
perforce.smi.sendmail.com:1666
Username
dfu
Password
Expose P4PASSWD in environment
Project Details
Workspace (client)
build-jenkins
Workspace does not exist. If "Let Hudson Mana
Let Jenkins Manage Workspace View
Clean Workspace Before Each Build
Clean .repository Before Build
View
//depot/Iocaine/main/... //build-jenkins/...
Build a Visual Studio project or solution using MSBuild
MSBuild Version
msbuild.exe
MSBuild Build File
${WORKSPACE}\PhantomTube\PhantomTube.sln
Command Line Arguments
/p:Configuration=Release
Pass build variables as properties
Advanced...
Delete

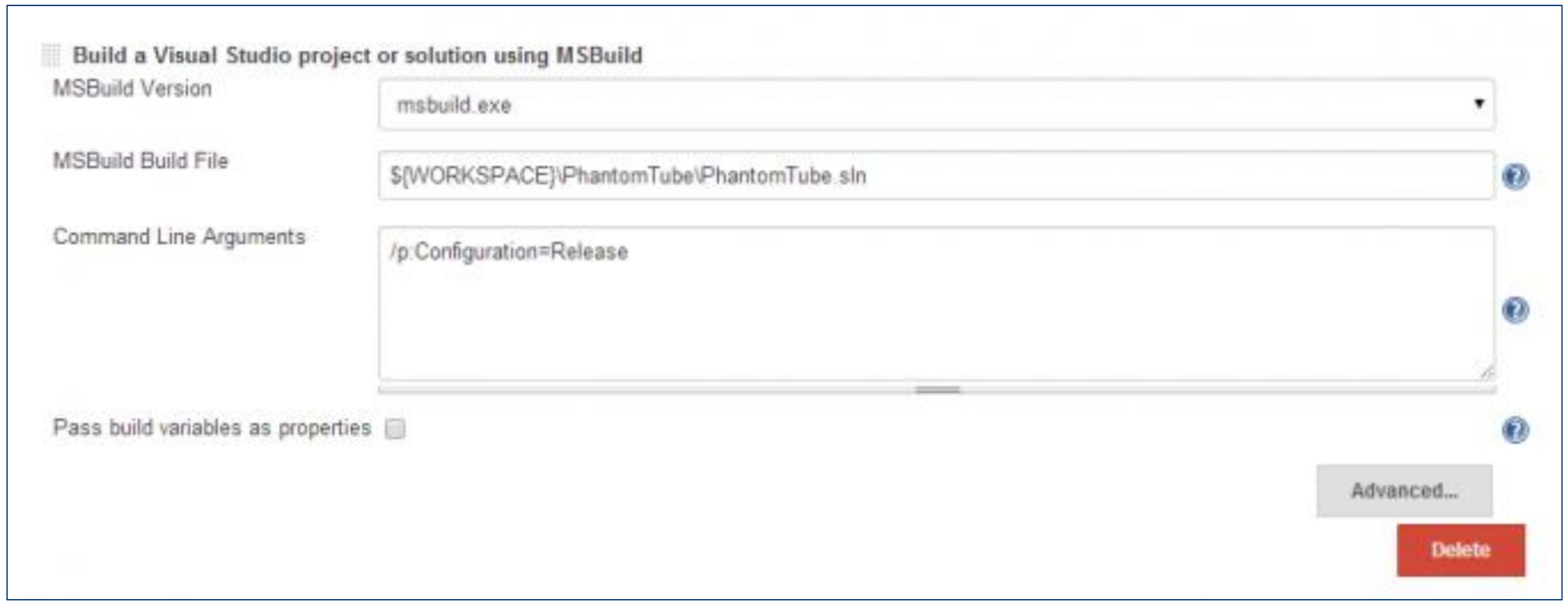
Jenkins



Compass

```
sh('py.test –junitxml=result.xml')
```

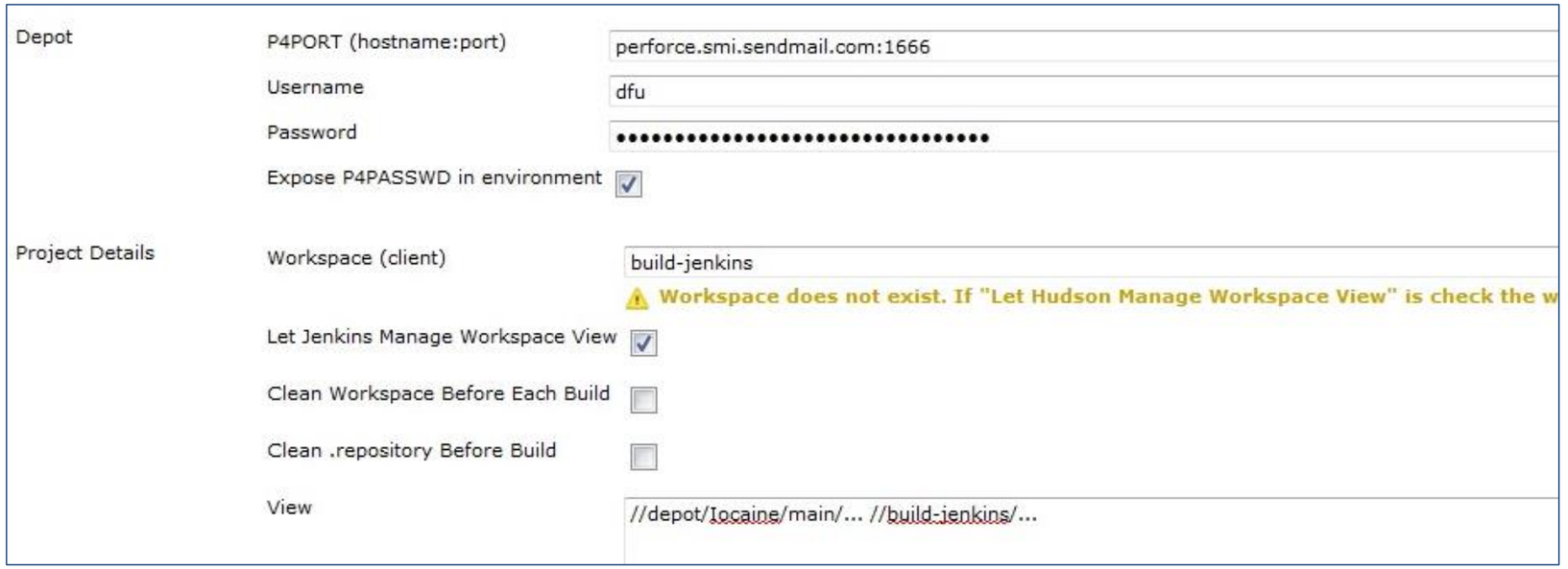
Jenkins



Compass

```
build_solution('PhantomTube\PhantomTube.sln',
               configuration='Release')
```

Jenkins

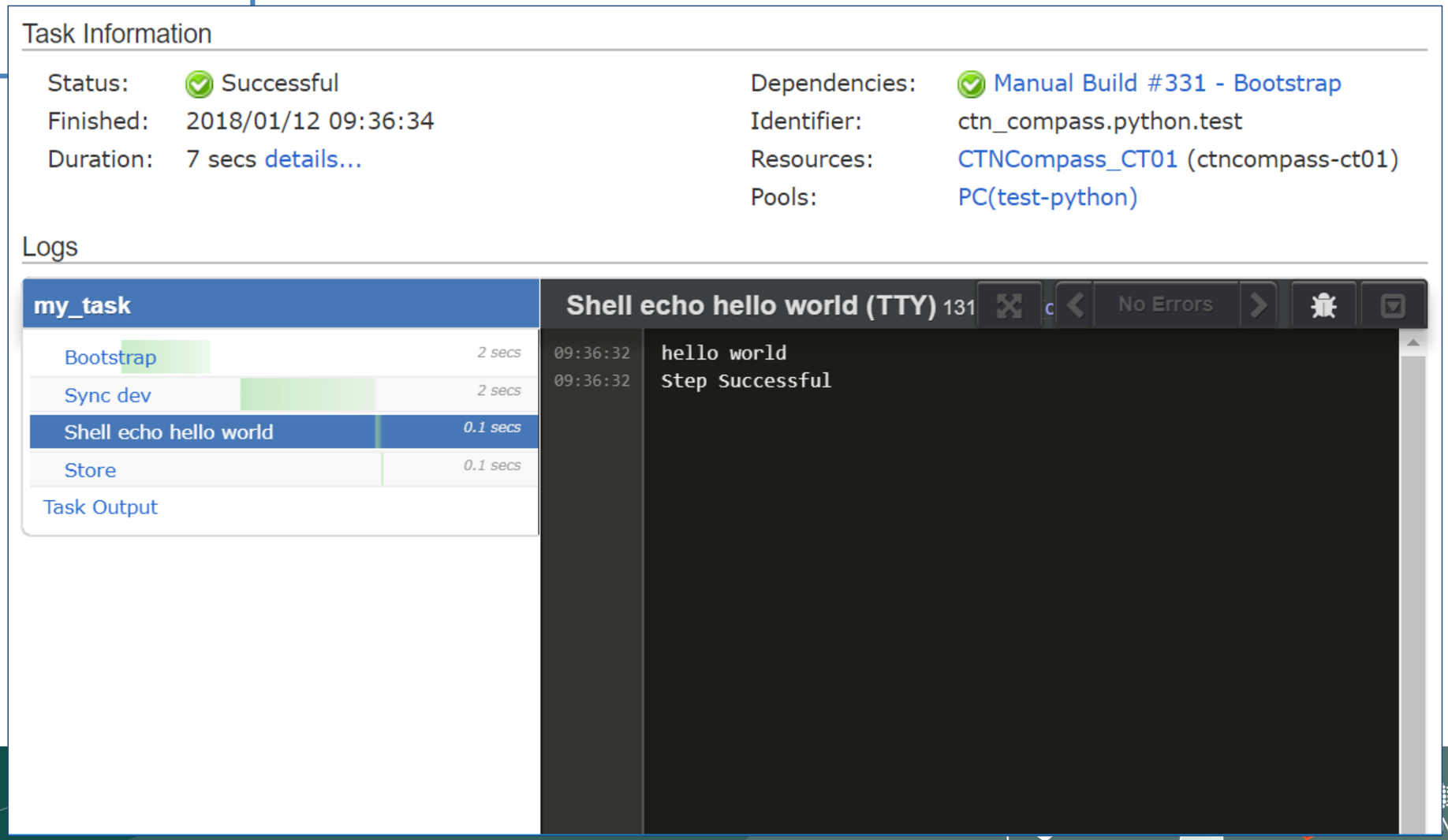


Compass

```
P4Repository('perforce.smi.sendmail.com:1666',
             username='dfu', client='build-Jenkins')
```

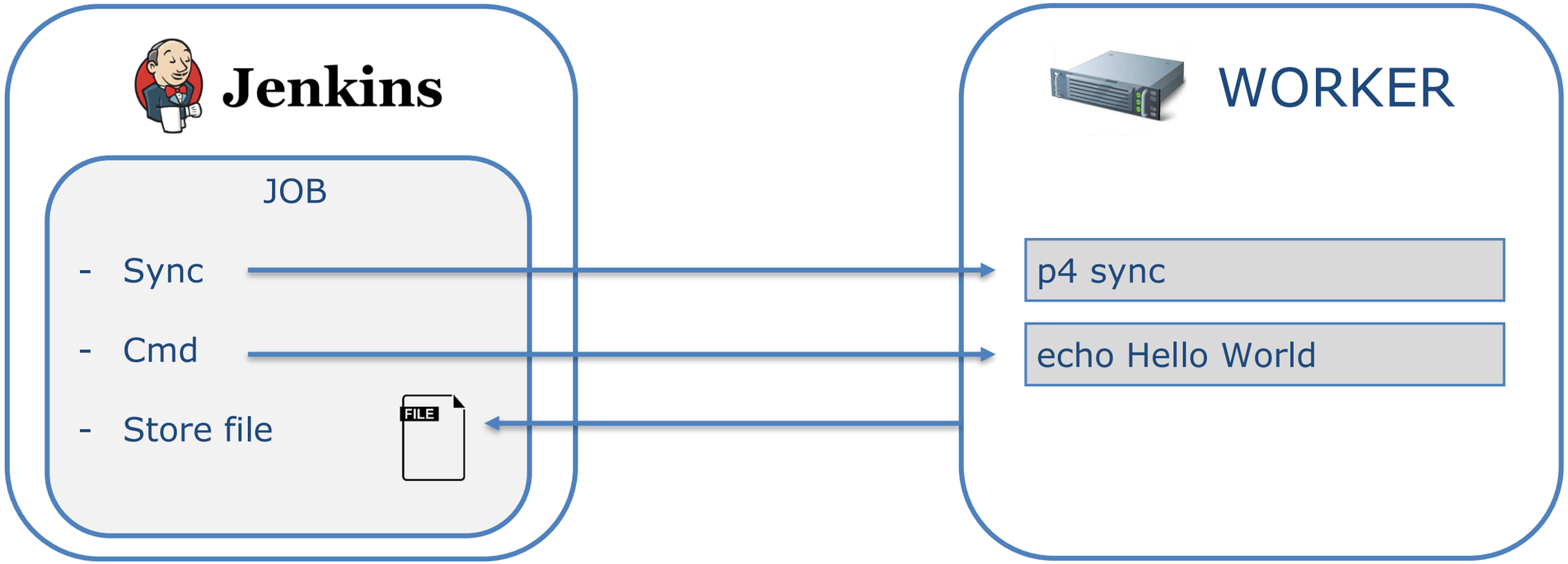
```
@task('my_task’)
def test():
    sync('dev')

    sh('echo hello world')

    Measurement.new(name='Example', group='Data’,
                    value=data['example_measurement'])

    store(['output.json’])
```

```
@task('my_task')
def test():
    sync('dev')

    sh('echo hello world')

    Measurement.new(name='Example', group='Data',
                    value=data['example_measurement'])

    store(['output.json'])
```

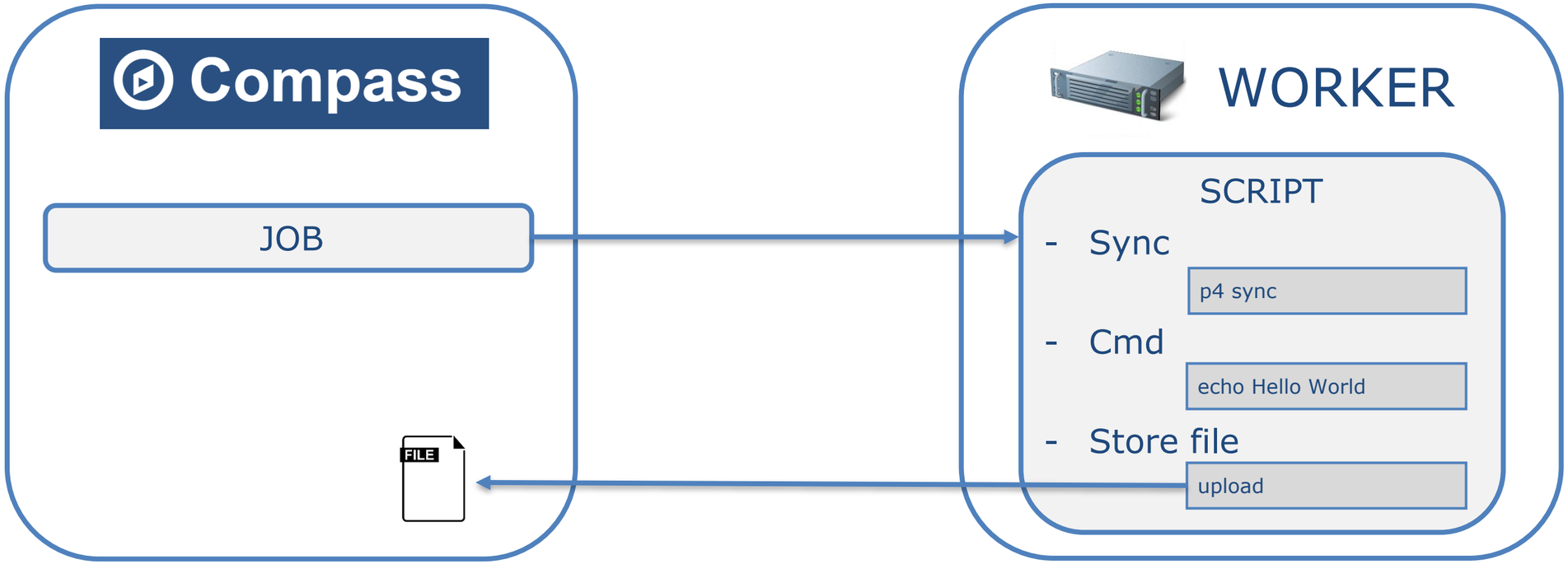


```
@task(resources=[PC(), PS4()])
def run_game():
    sync(['game.elf'])
    with resource_manager.acquire_resource('PS4') as target:
        target.Reset()

        target.LaunchGame('game.elf')

        sleep(20)

        Screenshot.capture(target, 'Test', ‘Test screenshot')
```

How scripts are run traditionally



How scripts are run on Compass



Benefits: Configuration as Code

- Debug scripts locally or on the server
- Easy to write. Easy to understand.
- All the power of the Python ecosystem

Benefits: Configuration in SCM

- History
- Ability to re-run old checkins
- Test configuration using proof build
- Branching configurations
- Empower users to write and maintain their own tests

Benefits: Configuration in SCM

- History
- Ability to re-run old checkins
- Test configuration using proof build
- Branching configurations
- Empower users to write and maintain their own tests

Drawbacks

- Learning curve
- More difficult to get going initially

Provisioning

- All software on our workers is installed using Puppet
- Puppet service on worker talks to the Puppet Master
- Will install/uninstall software as needed
- Looking at switching to Windows Containers (Docker)

Provisioning

- All software on our workers is installed using Puppet
- Puppet service on worker talks to the Puppet Master
- Will install/uninstall software as needed
- **Looking at switching to Windows Containers (Docker)**

Error Bucketing / Auto Retry

Error Bucketing

- Need a way to track incidence of errors
- When did they first start happening
- How often do they happen

```
02:29:42  Savegame used 15% of its buffer (926 of 6144 KB).
02:29:42  Save Game Total Time = 80981 us
02:29:42  Writing savegame "AUTOSAVE_LEVELSTART" to file "savegame.svg".
02:29:42  Done writing savegame "AUTOSAVE_LEVELSTART".  Time to write: 0 ms
02:29:44  ]kill
02:29:44  Assert Expression [0x3DEFF66F]:
02:29:44      (cent->prevState.apos.trType == TR_INTERPOLATE)
02:29:44          cent->prevState.apos.trType == TR_INTERPOLATE
02:29:46  ASSERTBEGIN ----------------------------------------------------------
02:29:46  [0x3DEFF66F]
02:29:46  WebLink:
02:29:46      (cent->prevState.apos.trType == TR_INTERPOLATE)
02:29:46          cent->prevState.apos.trType == TR_INTERPOLATE
02:29:46  Module:  G:\1-game_test.exe
02:29:46  File:    cgame_sp\cg_ents_sp.cpp
02:29:46  Line:    1591
02:29:46  1-game_test:    CG_EntitySP_CalcPlayerLerpPositions        ...cg_ents_sp.o
```

Assert: (cent->prevState.apos.trType == TR_INTERPOLATE)

Error Key Examples

- Assert: packedCheckSums[checkSumCount] != 0
- Connect failed: The console is not yet ready to process requests.
- gfx_d3d\r_scene_add.cpp(1228,24): error : use of undeclared identifier 'R_WARM_WORLD_VOLUME_DECAL_EXCEEDED_LIMIT’
- Failed to upload file: Out of disk space

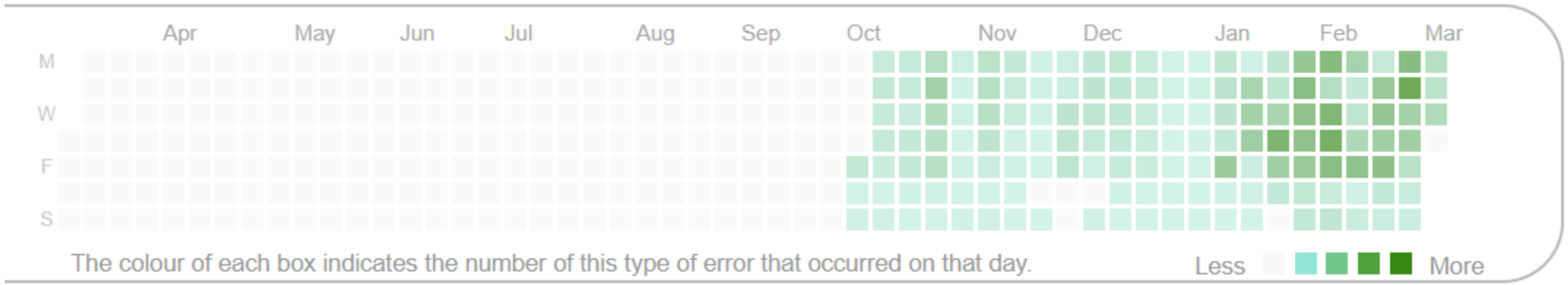
"□Unable to allocate memory"

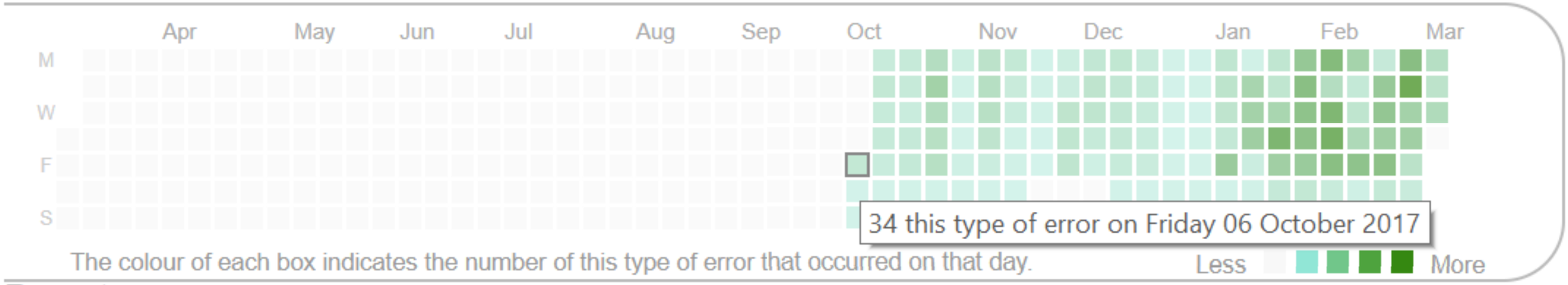
Hash	0xe126e4a17f79096
Count	2614
Retries	0/3 successful (0%)
Title	□Unable to allocate memory
Link	http://iwjira.activision.com/browse/IWH-11553
Mute	No
Auto Retry	Auto-detect

Edit

Occurrences Overview

#




Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
M
W
F
S
34 this type of error on Friday 06 October 2017
The colour of each box indicates the number of this type of error that occurred on that day.
Less
More

Recent occurrences

Buildconfig	Task	Finished	Resources	Screenshot
IW CI - Main-Dev CI	#6124 - Run Game.mp_battle.XB3 - Screenshots	2017/10/20 04:23:34	DevkitHost__002 (iw-cmps-vm002) Lab_XB3_5 (10.160.66.140)	
IW Nightly - Game Profiling	#162 - Run Game.mp_battle.XB3 - Screenshots	2017/10/20 04:16:13	DevkitHost__022 (iw-cmps-vm022) Lab_XB3_6th_Alpha (6th-xb3-alpha)	
IW Nightly - Game Dev Profiling	#148 - Run Game.mp_battle.XB3 - Replay Asserts	2017/10/20 04:28:04	DevkitHost__045 (iw-cmps-vm045) Lab_XB3_6th_Delta (10.160.67.211)	
IW CI - Main CI	#15087 - Run Game.mp_battle.XB3 - Screenshots	2017/10/20 02:17:59	DevkitHost__011 (iw-cmps-vm011) Lab_XB3_2 (compass-xb3-2)	
IW CI - Main CI	#15086 - Run Game.mp_battle.XB3 - Screenshots	2017/10/20 01:13:21	DevkitHost__052 (iw-cmps-vm052) Lab_XB3_6th_Golf (10.160.66.200)	
IW CI - Main CI	#15085 - Run Game.mp_battle.XB3 - Screenshots	2017/10/20 00:56:30	DevkitHost__011 (iw-cmps-vm011) Lab_XB3_2 (compass-xb3-2)	
IW CI - Main CI	#15084 - Run Game.mp_battle.XB3 - Screenshots	2017/10/19 23:51:21	DevkitHost__011 (iw-cmps-vm011) Lab_XB3_2 (compass-xb3-2)	
IW CI - Main CI	#15083 - Run Game.mp_battle.XB3 - Screenshots	2017/10/19 23:19:17	DevkitHost__051 (iw-cmps-vm051) Lab_XB3_2 (compass-xb3-2)	
IW CI - Main CI	#15082 - Run Game.mp_battle.XB3 - Screenshots	2017/10/19 22:22:54	DevkitHost__092 (iw-cmps-vm092) Lab_XB3_6th_Golf (10.160.66.200)	
IW CI - Main CI	#15079 - Run Game.mp_battle.XB3 - Screenshots	2017/10/19 21:51:30	DevkitHost__051 (iw-cmps-vm051) Lab_XB3_6th_Delta (10.160.67.211)	
IW CI - Main CI (Maps)	#1872 - Run Game.mp_battle.XB3 - Screenshots	2017/10/19 22:03:10	DevkitHost__051 (iw-cmps-vm051) Lab_XB3_5 (10.160.66.140)	

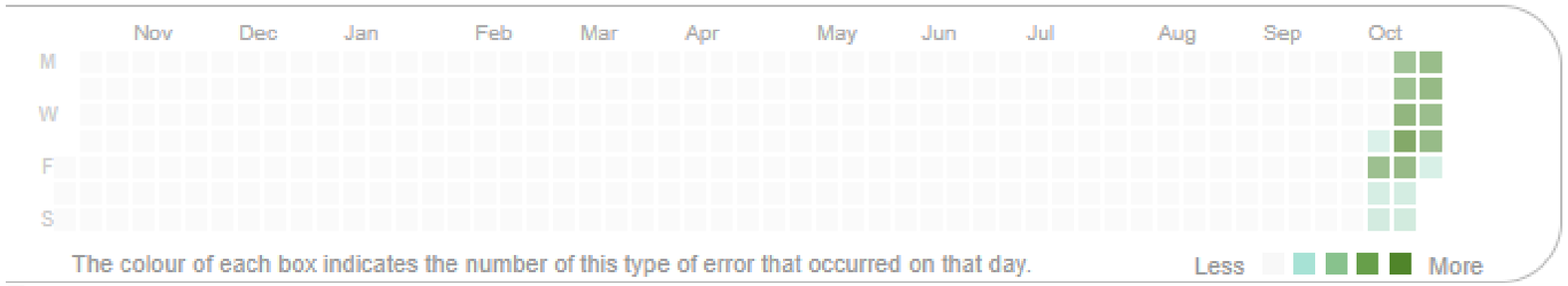
"□Unable to allocate memory"

Hash	0xe126e4a17f79096
Count	1487
Retries	0/3 successful (0%)
Title	□Unable to allocate memory
Link	http://iwjira.activision.com/browse/IWH-11553
Mute	No
Auto Retry	Auto-detect

Edit

Occurrences Overview

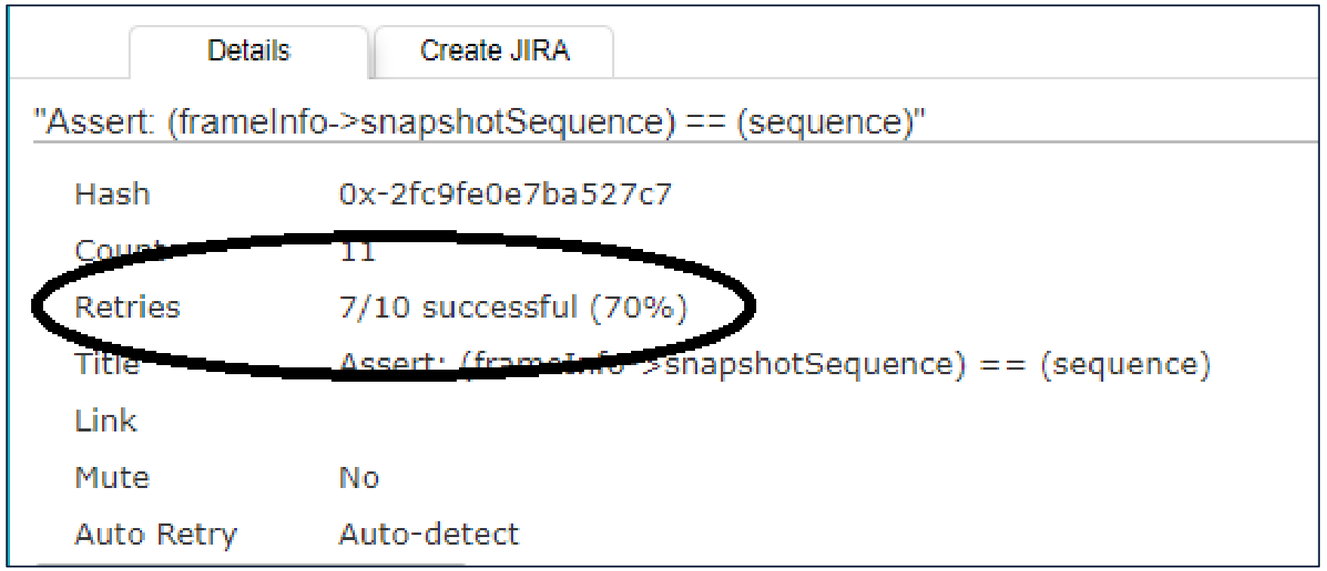
#



Recent occurrences

Buildconfig	Task	Finished

Auto Retry


Details
Create JIRA
"Assert: (frameInfo->snapshotSequence) == (sequence)"
Hash 0x-2fc9fe0e7ba527c7
Count 11
Retries 7/10 successful (70%)
Title Assert: (frameInfo->snapshotSequence) == (sequence)
Link
Mute No
Auto Retry Auto-detect

Auto Retry

Auto Retry Mode	○ Off
	○ On (retry task up to three times)
	◉ Auto-detect (let Compass decide whether to retry or not)
	○ Cooldown (temporarily disable the resource, and retry the task on another resource)
	○ Disable (disable the resource, and retry the task on another resource)

Pain Points

- Stability
- Scalability
- Maintenance

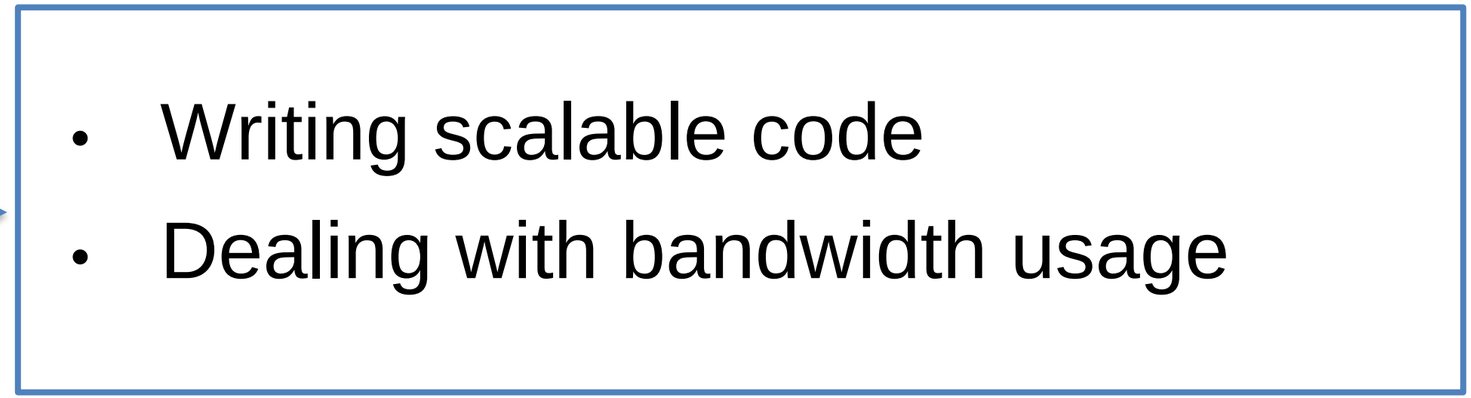
Pain Points

- **Stability**
- Scalability
- Maintenance

- Stability is crucial
- Debugging live servers: stressful

Pain Points

- Stability
- **Scalability**
- Maintenance



Pain Points

- Stability
- Scalability
- **Maintenance**

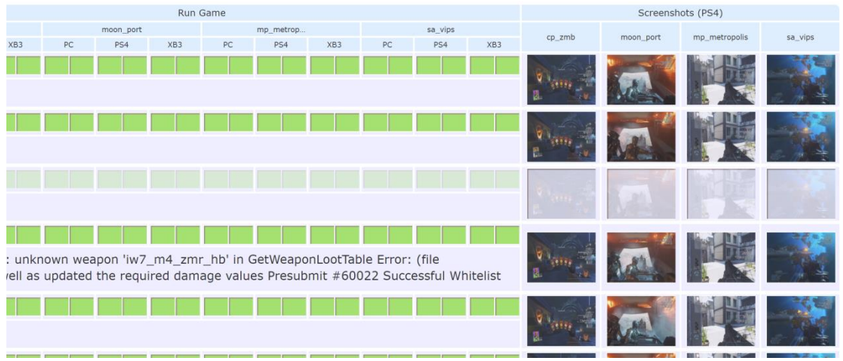
- Large scale automation -> maintenance overhead
- Use self-healing systems

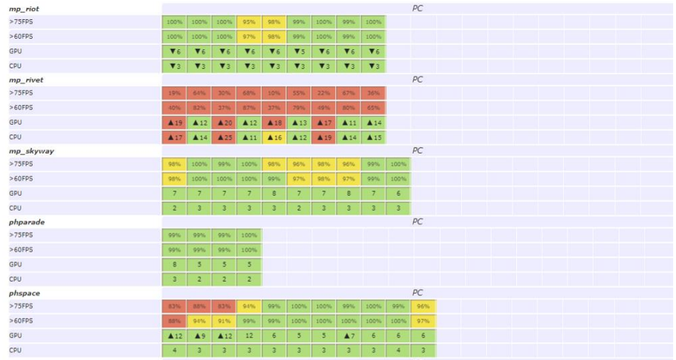
Applying this to existing buildservers

(What if I don’t want to write a Buildserver from scratch?)

Applying this to existing buildservers

Compass Webapp UI: Python + Flask





Applying this to existing buildservers

Compass Webapp UI: Python + Flask

Applying this to existing buildservers

Metrics tracking/graphing

Map	Size of map assets	95.74 MB		
Xanim	Size of xanim assets	118.32 MB		
Material	Size of material assets	1.55 MB		
Shader	Size of shader assets	6.12 MB		
Xmodel	Size of xmodel assets	1.04 GB	▼-2.17 MB	
Other	Size of other assets	155.31 MB		
Techset	Size of techset assets	1.85 MB	▲+1.24 KB	
Image	Size of image assets	243.68 MB		
Total	Total size of all assets	1.65 GB	▼-2.17 MB	

Applying this to existing buildservers

Metrics tracking/graphing using InfluxDB/Grafana

Applying this to existing buildservers

Configuration as code

```
@task('my_task')
def test():
    sync('dev')

    sh('echo hello world')

    Measurement.new(name='Example', group='Data',
                    value=data['example_measurement'])

    store(['output.json'])
```

Compass

Thank you!

Jan van Valburg

jan.van.valburg@activision.com

@janvanvalburg