



GDC
Europe

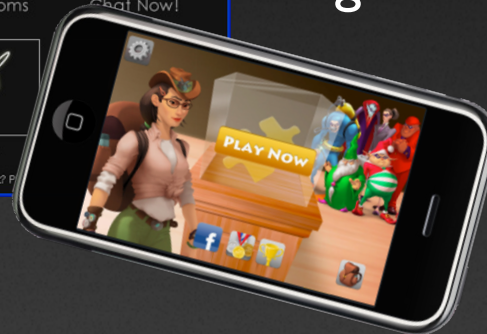
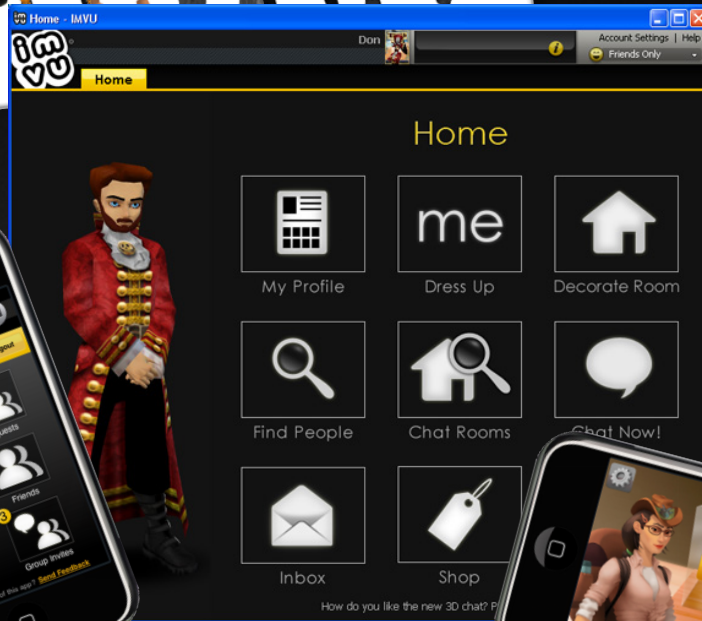
CONTINUOUS DEPLOYMENT

MOVE FAST AND RELEASE WITHOUT PAIN

Brett G. Durrett, VP Engineering & Operations, IMVU
GDC Europe, 2011 - Cologne, Germany



@bdurrett



Destination site
Chat and Games with Avatars
Revenue over \$40 million annually
Profitable
Engineering staff > 50 people



NO STAGING CLUSTER

NO QA REVIEW

Develop Feature
Increment



Verify on
Buildbot



Live in
Production



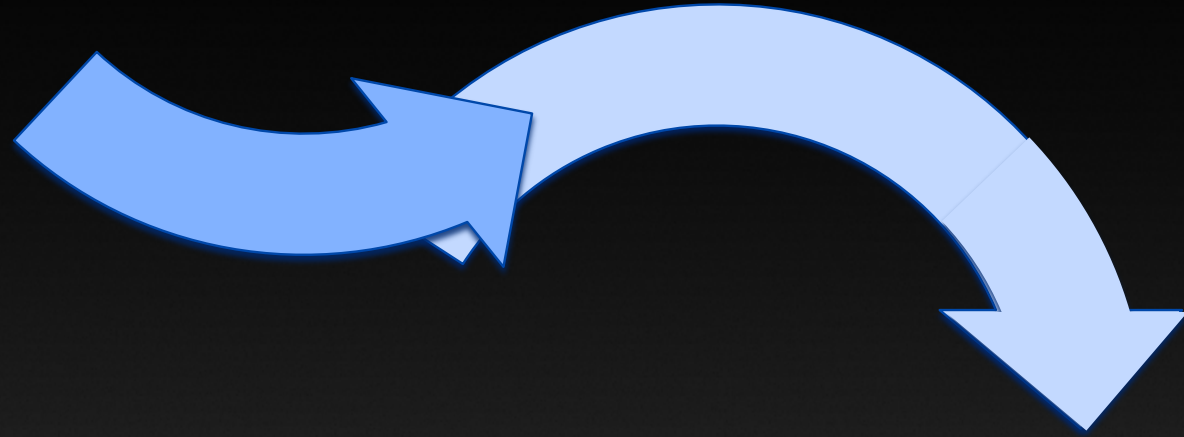
COMMIT CODE TO LIVE
IN PRODUCTION

WHY
THE
HELL
WOULD
YOU DO
THAT???



DEVELOP

RELEASE



PRAY
FOR
CUSTOMERS

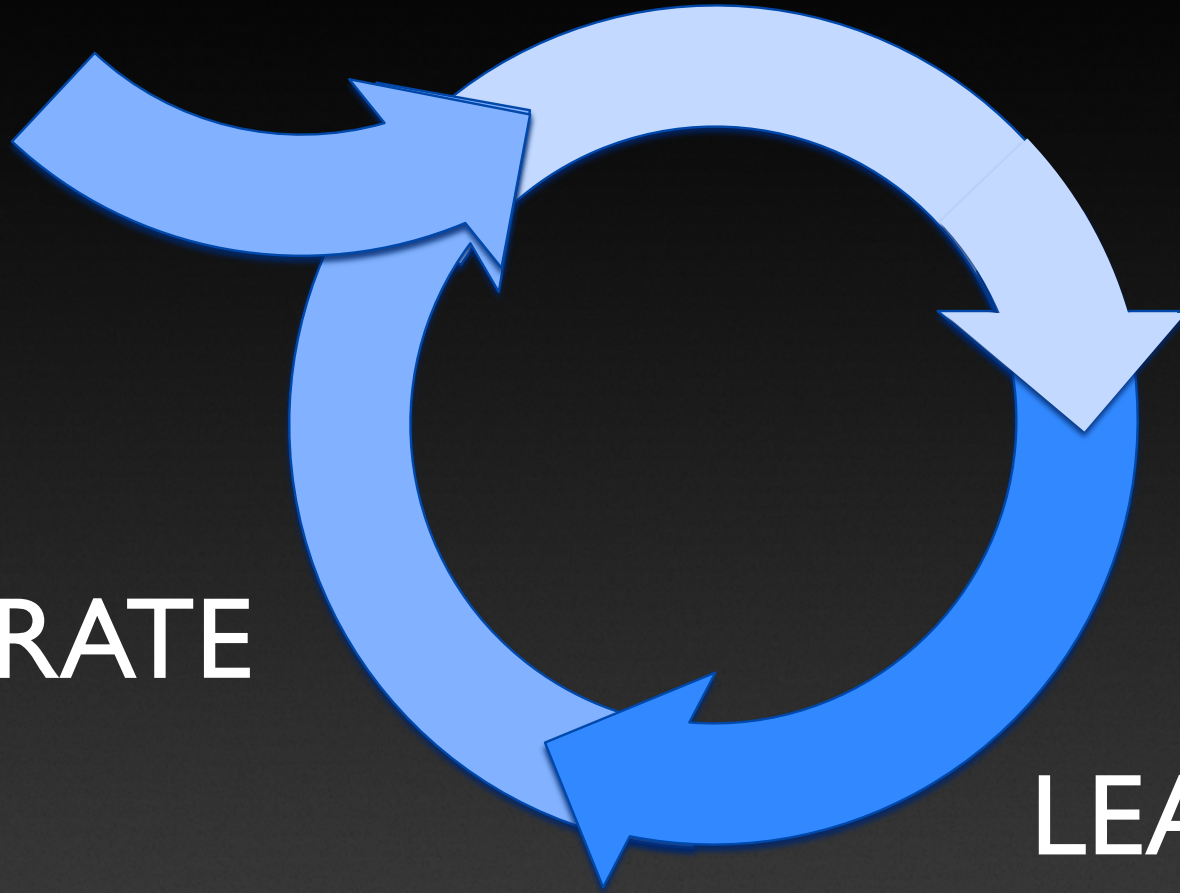


DEVELOP

RELEASE

ITERATE

LEARN





RELEASE OVERHEAD
REDUCES OPPORTUNITY
TO ITERATE

WAY EASIER TO FIND REGRESSIONS IN SMALL BATCHES OF COMMITS



VS.

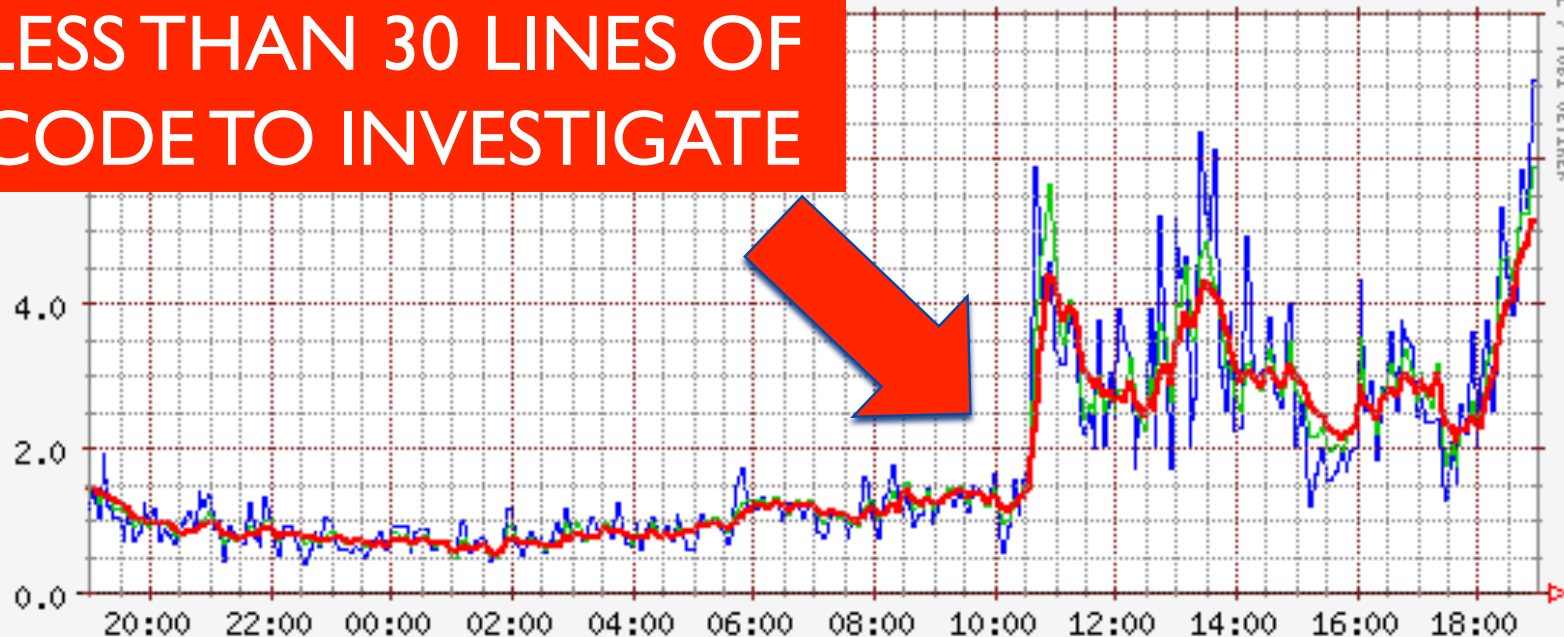


WAY EASIER TO FIND REGRESSIONS IN SMALL

AF001632 - db-shard-016-primary, customer-shard - Load Average

**LESS THAN 30 LINES OF
CODE TO INVESTIGATE**

processes in the run queue



VS.

FAST RESPONSE TIMES





	11	12	13	14	15	16	17	18	19	20	R	H	E	LOB
NYM	0	0	0	0	0	0	0	0	1	1	2	9	2	13
STL	0	0	0	0	0	0	0	0	1	0	1	15	0	22

MORE TURNS AT BAT

DON'T TAKE MY WORD FOR IT...

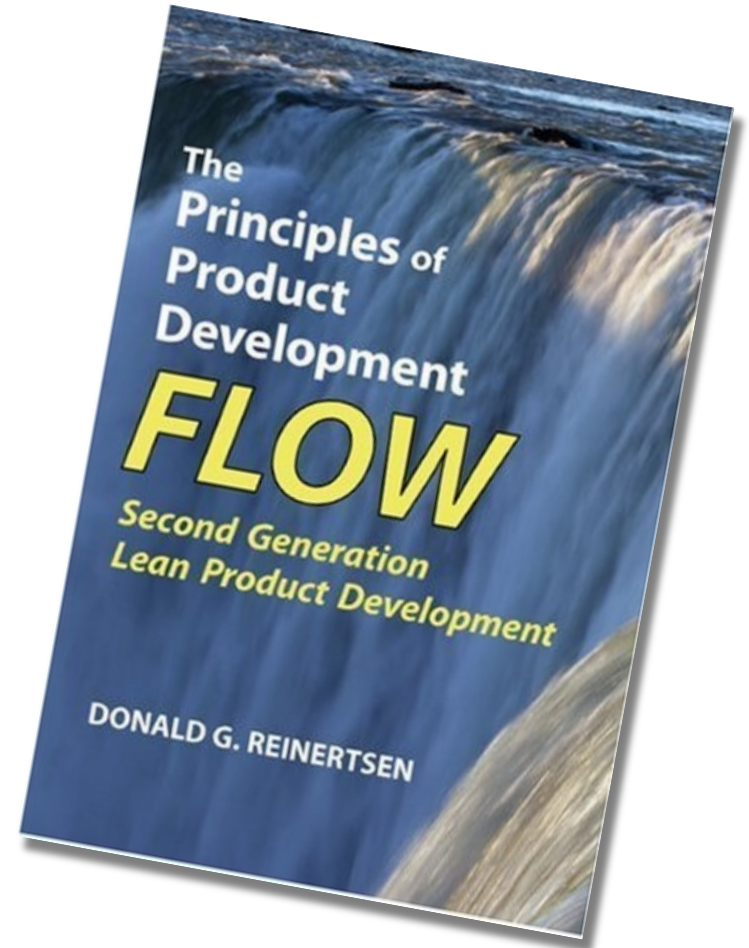
Reducing batch size...

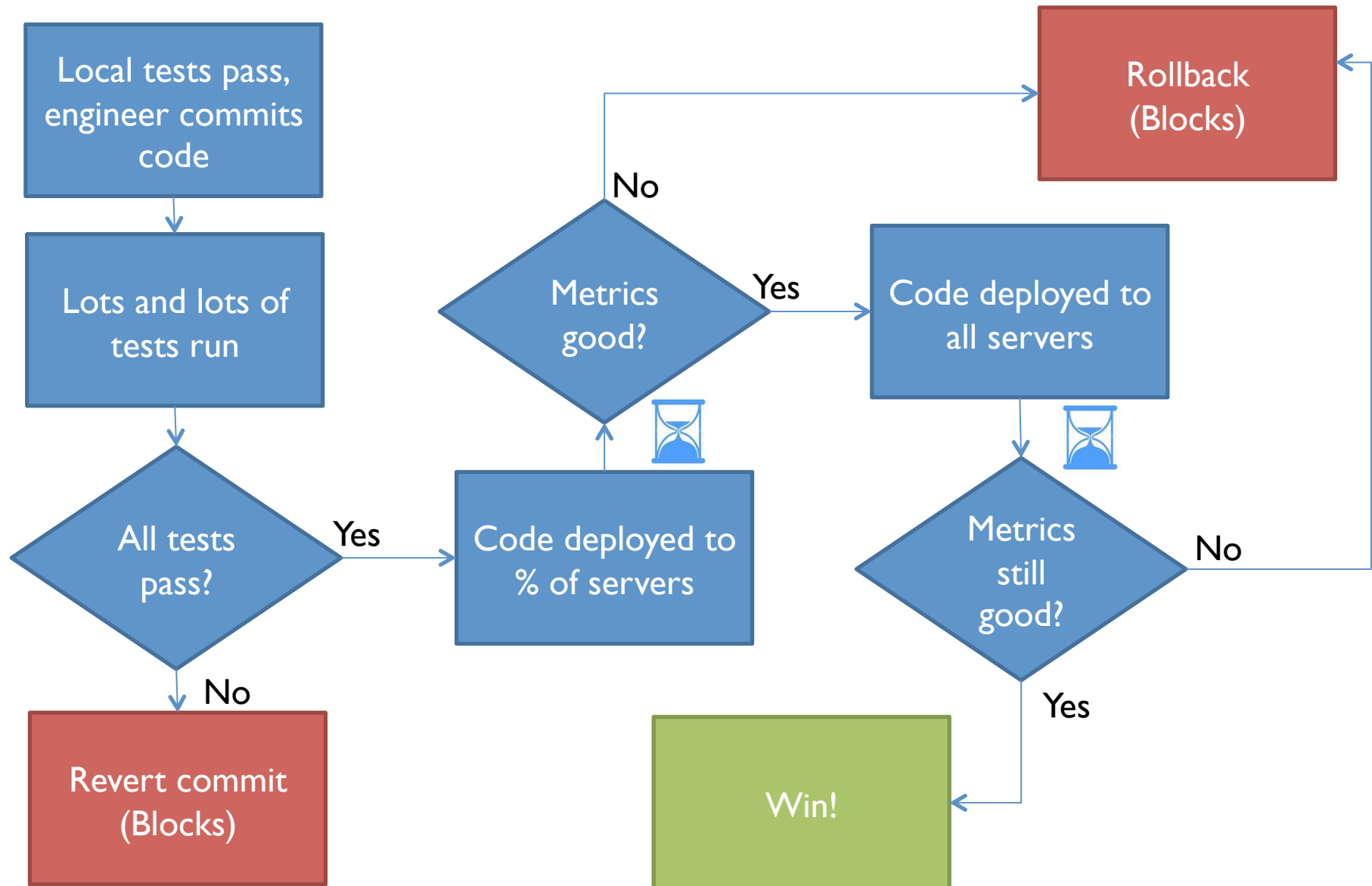
- reduces cycle time
- reduces variability in flow
- accelerates feedback
- reduces risk
- reduces overhead

Large batches...

- reduce efficiency
- inherently lower motivation and energy
- cause exponential cost and schedule growth
- lead to even larger batches

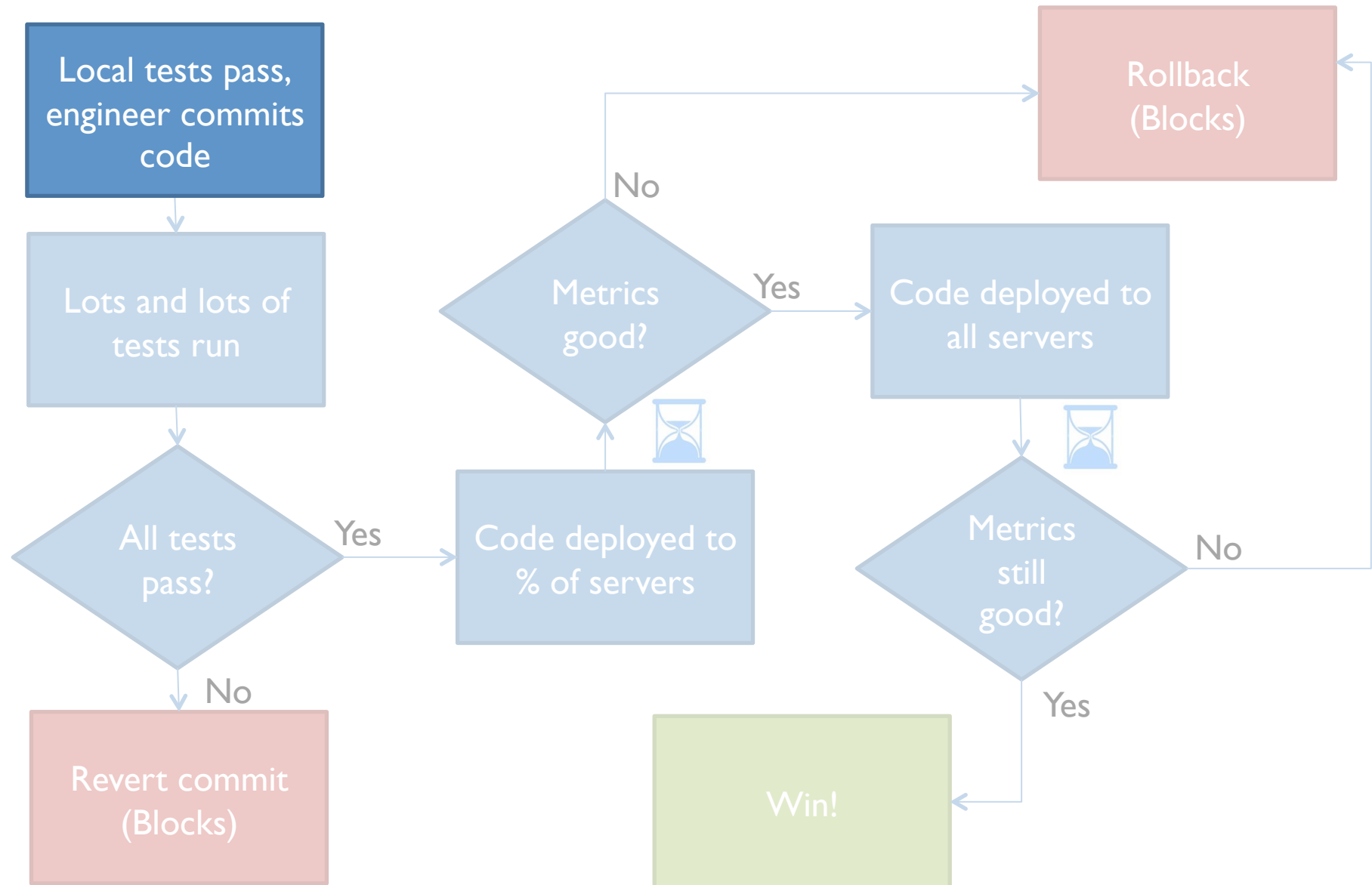
The entire batch is limited by its worst element

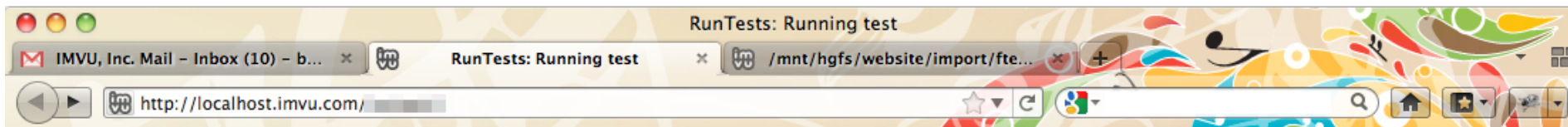






WARNING!
AUTOMATED TESTING





☒ Stop After Last Test ☐ Pause After Failure ☐ Run Tests In Random Order

☒ Only Run Selected Tests

Status: Running test Elapsed time: 00:01:01 # tests run: 7 / 15

Select Tag(s) Auto-Lookup Tag(s) Enter Test Names

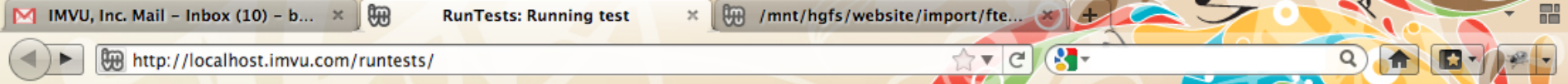
Filter On ☒ Also Check File Names ☒ Select

<input type="checkbox"/> #recentfail	<input type="checkbox"/> access_contro	<input type="checkbox"/> accesspass	<input type="checkbox"/> accounttakeov	<input type="checkbox"/> admin-scripts	<input type="checkbox"/> advertising	<input type="checkbox"/> ageverify	<input type="checkbox"/> ajax_funnel	<input type="checkbox"/> analytics	<input type="checkbox"/> analytics_track
<input type="checkbox"/> andy_cron	<input type="checkbox"/> api	<input type="checkbox"/> av_bundle	<input type="checkbox"/> avatar_naming	<input type="checkbox"/> avatarname_s	<input type="checkbox"/> badge	<input type="checkbox"/> bans	<input type="checkbox"/> bhn	<input type="checkbox"/> birthdays	<input type="checkbox"/> blog
<input type="checkbox"/> blue_bar	<input type="checkbox"/> bluecava	<input type="checkbox"/> brandport	<input type="checkbox"/> browser_profil	<input type="checkbox"/> buddies	<input type="checkbox"/> buddies_panel	<input type="checkbox"/> chat	<input type="checkbox"/> checkoutv3	<input type="checkbox"/> cis	<input type="checkbox"/> clickandbuy
<input type="checkbox"/> client_ad	<input type="checkbox"/> client_dashbo	<input type="checkbox"/> client_release	<input type="checkbox"/> clientsession	<input type="checkbox"/> conduit	<input type="checkbox"/> config	<input type="checkbox"/> contest	<input type="checkbox"/> coupon	<input type="checkbox"/> create_order	<input type="checkbox"/> creator
<input type="checkbox"/> credit_escrow	<input type="checkbox"/> creditcard_bla	<input type="checkbox"/> crewpon	<input type="checkbox"/> cron	<input type="checkbox"/> customer	<input type="checkbox"/> cybersource	<input type="checkbox"/> dashboard	<input type="checkbox"/> database	<input type="checkbox"/> decorated_roo	<input type="checkbox"/> device
<input type="checkbox"/> devtool	<input type="checkbox"/> dusty	<input type="checkbox"/> dynamic_singl	<input type="checkbox"/> earn	<input type="checkbox"/> economy	<input type="checkbox"/> experiment	<input type="checkbox"/> external_api	<input type="checkbox"/> facebook	<input type="checkbox"/> fact	<input type="checkbox"/> filter
<input type="checkbox"/> forum	<input type="checkbox"/> fraud	<input type="checkbox"/> fraud_reports	<input type="checkbox"/> frontdoor	<input type="checkbox"/> gallery	<input type="checkbox"/> games	<input type="checkbox"/> gateway	<input type="checkbox"/> general	<input type="checkbox"/> generosity	<input type="checkbox"/> giftlist
<input type="checkbox"/> gigya	<input type="checkbox"/> giveaway	<input type="checkbox"/> group	<input type="checkbox"/> help	<input type="checkbox"/> homepage_wi	<input type="checkbox"/> html_output	<input type="checkbox"/> html_render	<input type="checkbox"/> import	<input type="checkbox"/> imq	<input type="checkbox"/> imvuasset
<input type="checkbox"/> imvupush	<input type="checkbox"/> integrated_invi	<input type="checkbox"/> interest	<input type="checkbox"/> interstitial	<input type="checkbox"/> inventory	<input type="checkbox"/> inventory_json	<input type="checkbox"/> invite	<input type="checkbox"/> invite_external	<input type="checkbox"/> iphone	<input type="checkbox"/> ipn
<input type="checkbox"/> js_unit	<input type="checkbox"/> jsonp_services	<input type="checkbox"/> limited_bundle	<input type="checkbox"/> linkshare	<input type="checkbox"/> linux	<input type="checkbox"/> logging	<input type="checkbox"/> login_compreh	<input type="checkbox"/> login_page	<input type="checkbox"/> lookset	<input type="checkbox"/> mail
<input type="checkbox"/> marketing	<input type="checkbox"/> maxmind	<input type="checkbox"/> meebo	<input type="checkbox"/> memcache	<input type="checkbox"/> merch_page	<input type="checkbox"/> message	<input type="checkbox"/> message_widc	<input type="checkbox"/> mobileweb	<input type="checkbox"/> moderation	<input type="checkbox"/> mogile
<input type="checkbox"/> movies	<input type="checkbox"/> music	<input type="checkbox"/> music_mini	<input type="checkbox"/> mypage	<input type="checkbox"/> mystery_bundl	<input type="checkbox"/> myyearbook	<input type="checkbox"/> navigate	<input type="checkbox"/> neighborhood	<input type="checkbox"/> new_cis	<input type="checkbox"/> offer
<input type="checkbox"/> offerpalmustsh	<input type="checkbox"/> old_facebook	<input type="checkbox"/> one_click	<input type="checkbox"/> open_candy	<input type="checkbox"/> outfit	<input type="checkbox"/> pagestat	<input type="checkbox"/> password_stre	<input type="checkbox"/> paybycash	<input type="checkbox"/> payment	<input type="checkbox"/> paynova
<input type="checkbox"/> paypal	<input type="checkbox"/> paypal_vip	<input type="checkbox"/> peace	<input type="checkbox"/> peer_review	<input type="checkbox"/> peoplesearch	<input checked="" type="checkbox"/> pets	<input type="checkbox"/> phone	<input type="checkbox"/> photos	<input type="checkbox"/> pixels	<input type="checkbox"/> playspan
<input type="checkbox"/> ppc	<input type="checkbox"/> preference	<input type="checkbox"/> prepaid_vip	<input type="checkbox"/> prepaidcard	<input type="checkbox"/> pricing	<input type="checkbox"/> product	<input type="checkbox"/> product3d	<input type="checkbox"/> product_data	<input type="checkbox"/> product_metac	<input type="checkbox"/> product_recom
<input type="checkbox"/> product_searc	<input type="checkbox"/> product_subm	<input type="checkbox"/> productsale	<input type="checkbox"/> promotion	<input type="checkbox"/> public_room_s	<input type="checkbox"/> publicroom	<input type="checkbox"/> pulse	<input type="checkbox"/> pulse2	<input type="checkbox"/> push	<input type="checkbox"/> python
<input type="checkbox"/> python_report	<input type="checkbox"/> redesigned_st	<input type="checkbox"/> redirect	<input type="checkbox"/> refund	<input type="checkbox"/> registration	<input type="checkbox"/> relocated	<input type="checkbox"/> reseller	<input type="checkbox"/> retention	<input type="checkbox"/> revenue	<input type="checkbox"/> revenue_exten
<input type="checkbox"/> revenue_util	<input type="checkbox"/> revenue_web	<input type="checkbox"/> rss	<input type="checkbox"/> safety	<input type="checkbox"/> sauce	<input type="checkbox"/> saved_card	<input type="checkbox"/> schemas	<input type="checkbox"/> security	<input type="checkbox"/> selenium	<input type="checkbox"/> seo
<input type="checkbox"/> service_top	<input type="checkbox"/> session	<input type="checkbox"/> share	<input type="checkbox"/> share_the_doc	<input type="checkbox"/> shop	<input type="checkbox"/> shopping_spre	<input type="checkbox"/> shoutout	<input type="checkbox"/> signup	<input type="checkbox"/> simpletest	<input type="checkbox"/> socialvibe
<input type="checkbox"/> solr	<input type="checkbox"/> sticker	<input type="checkbox"/> store	<input type="checkbox"/> store_backenc	<input type="checkbox"/> store_frontend	<input type="checkbox"/> store_unicorns	<input type="checkbox"/> subpoena_rep	<input type="checkbox"/> subscription	<input type="checkbox"/> table_size	<input type="checkbox"/> tep_db_perform
<input type="checkbox"/> test3	<input type="checkbox"/> testing_framev	<input type="checkbox"/> tier	<input type="checkbox"/> time	<input type="checkbox"/> tokens	<input type="checkbox"/> tos	<input type="checkbox"/> tracking	<input type="checkbox"/> translation	<input type="checkbox"/> trust_level	<input type="checkbox"/> unicode
<input type="checkbox"/> unicorns	<input type="checkbox"/> unicorns_admi	<input type="checkbox"/> unicorns_exha	<input type="checkbox"/> unicorns_reg	<input type="checkbox"/> unicorns_secti	<input type="checkbox"/> unicorns_syste	<input type="checkbox"/> usage_stats	<input type="checkbox"/> uservice	<input type="checkbox"/> utilities	<input type="checkbox"/> video
<input type="checkbox"/> vip	<input type="checkbox"/> vip_eligibility	<input type="checkbox"/> vip_via_ppc	<input type="checkbox"/> vip_via_sms	<input type="checkbox"/> vip_winback	<input type="checkbox"/> voucher	<input type="checkbox"/> wealth	<input type="checkbox"/> web_myaccou	<input type="checkbox"/> webservice	<input type="checkbox"/> whos_online
<input type="checkbox"/> widget	<input type="checkbox"/> wishlist	<input type="checkbox"/> work_queue	<input type="checkbox"/> yui	<input type="checkbox"/> zipcode_challe	<input type="checkbox"/> non_selenium	<input type="checkbox"/> windows			

Show Test Output All ☒ Passed ☒ Failed ☒ Running ☒ Skipped ☒ Waiting ☒

Select All Tests ☒ Selenium Tests ☒

RunTests: Running test



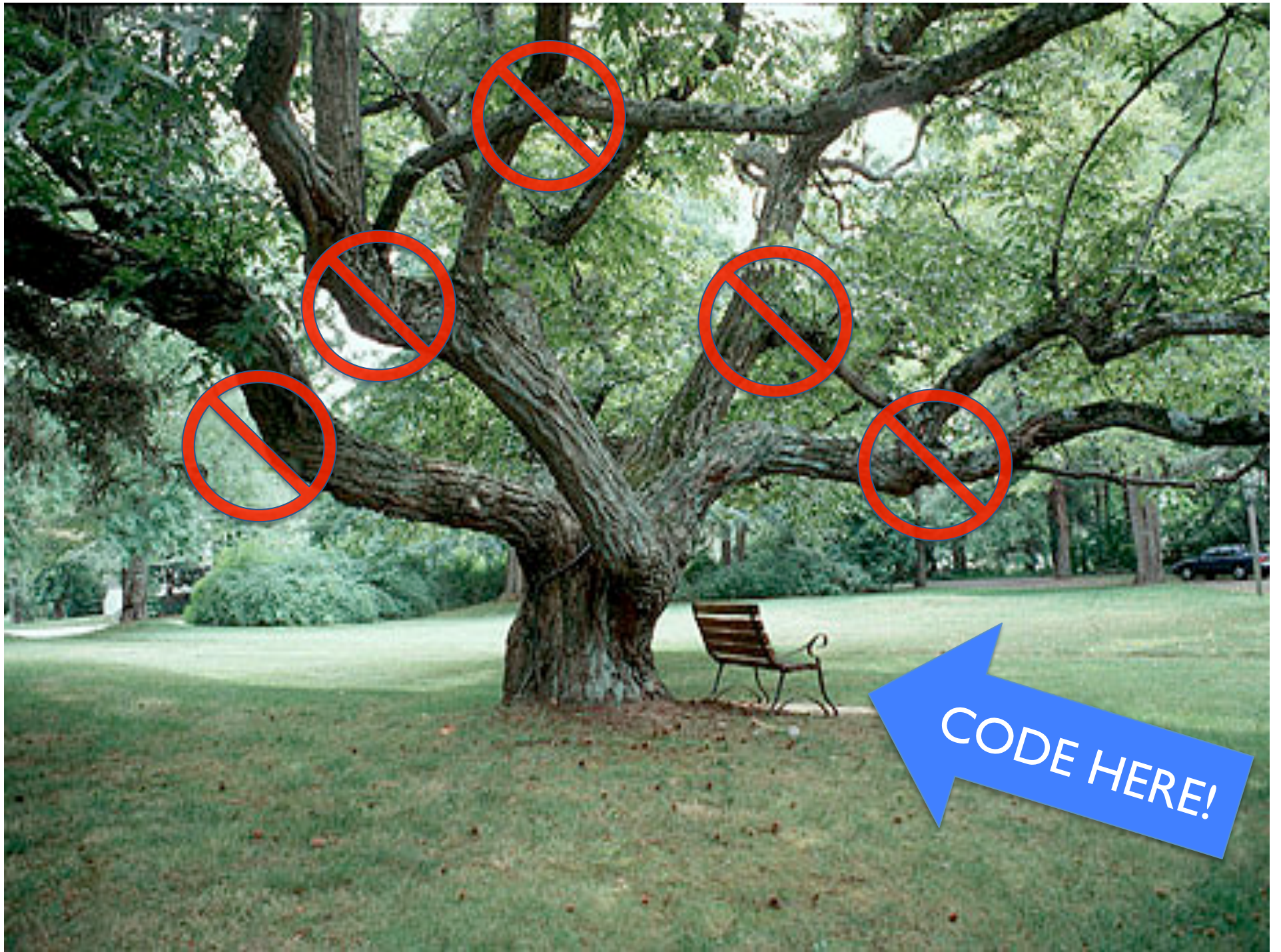
<input type="checkbox"/> forum	<input type="checkbox"/> fraud	<input type="checkbox"/> fraud_reports	<input type="checkbox"/> nonadult	<input type="checkbox"/> gallery	<input type="checkbox"/> catalog/fest_buddies_panel.php	<input type="checkbox"/> generosity	<input type="checkbox"/> gnuist
<input type="checkbox"/> gigya	<input type="checkbox"/> giveaway	<input type="checkbox"/> group	<input type="checkbox"/> help	<input type="checkbox"/> home	<input type="checkbox"/> catalog/fest_web_add_contact.php	<input type="checkbox"/> imq	<input type="checkbox"/> imvuasset
<input type="checkbox"/> imvupush	<input type="checkbox"/> integrated_invi	<input type="checkbox"/> interest	<input type="checkbox"/> interstitial	<input type="checkbox"/> inven	<input type="checkbox"/> catalog/fest_web_data_updater-v4.php	<input type="checkbox"/> external	<input type="checkbox"/> ipn
<input type="checkbox"/> js_unit	<input type="checkbox"/> jsonp_services	<input type="checkbox"/> limited_bundle	<input type="checkbox"/> linkshare	<input type="checkbox"/> linux	<input type="checkbox"/> catalog/includes/functions/fest_messages.php	<input type="checkbox"/> page	<input type="checkbox"/> mail
<input type="checkbox"/> marketing	<input type="checkbox"/> maxmind	<input type="checkbox"/> meebo	<input type="checkbox"/> memcache	<input type="checkbox"/> merc	<input type="checkbox"/> catalog/skudb/fest_test3.php	<input type="checkbox"/> eweb	<input type="checkbox"/> moderation
<input type="checkbox"/> movies	<input type="checkbox"/> music	<input type="checkbox"/> music_mini	<input type="checkbox"/> mypage	<input type="checkbox"/> myst	<input type="checkbox"/> catalog/skudb/fest_test3_buddy.php	<input type="checkbox"/> borhood	<input type="checkbox"/> new_cis
<input type="checkbox"/> offerpalmostsh	<input type="checkbox"/> old_facebook	<input type="checkbox"/> one_click	<input type="checkbox"/> open_candy	<input type="checkbox"/> outfit	<input type="checkbox"/> fest_selenium_add_buddy.php	<input type="checkbox"/> rcah	<input type="checkbox"/> payment
<input type="checkbox"/> paypal	<input type="checkbox"/> paypal_vip	<input type="checkbox"/> peace	<input type="checkbox"/> peer_review	<input type="checkbox"/> peop	<input type="checkbox"/> home/includes/fest_functions_common.php	<input type="checkbox"/> s	<input type="checkbox"/> pixels
<input type="checkbox"/> ppc	<input type="checkbox"/> preference	<input type="checkbox"/> prepaid_vip	<input type="checkbox"/> prepaidcard	<input type="checkbox"/> pricin	<input type="checkbox"/> home/includes/fest_functions_inbox.php	<input type="checkbox"/> ct_data	<input type="checkbox"/> product_metac
<input type="checkbox"/> product_search	<input type="checkbox"/> product_subm	<input type="checkbox"/> productsale	<input type="checkbox"/> promotion	<input type="checkbox"/> publi	<input type="checkbox"/> import/fest_buddy.php	<input type="checkbox"/> 2	<input type="checkbox"/> push
<input type="checkbox"/> python_reports	<input type="checkbox"/> redesigned_st	<input type="checkbox"/> redirect	<input type="checkbox"/> refund	<input type="checkbox"/> regis	<input type="checkbox"/> import/fest_buddy_service.php	<input type="checkbox"/> ion	<input type="checkbox"/> revenue
<input type="checkbox"/> revenue_util	<input type="checkbox"/> revenue_web	<input type="checkbox"/> rss	<input type="checkbox"/> safety	<input type="checkbox"/> sauc	<input type="checkbox"/> import/fest_selenium_avatar_widget.php	<input type="checkbox"/> ity	<input type="checkbox"/> selenium
<input type="checkbox"/> service_top	<input type="checkbox"/> session	<input type="checkbox"/> share	<input type="checkbox"/> share_the_doc	<input type="checkbox"/> shop	<input type="checkbox"/> import/fest_selenium_avatar_widget_comprehe	<input type="checkbox"/> p	<input type="checkbox"/> simplestest
<input type="checkbox"/> solr	<input type="checkbox"/> sticker	<input type="checkbox"/> store	<input type="checkbox"/> store_backenc	<input type="checkbox"/> store	<input type="checkbox"/> import/fest_selenium_avatar_widget_comprehe	<input type="checkbox"/> rription	<input type="checkbox"/> table_size
<input type="checkbox"/> test3	<input type="checkbox"/> testing_framev	<input type="checkbox"/> tier	<input type="checkbox"/> time	<input type="checkbox"/> token	<input type="checkbox"/> import/fest_selenium_avatar_widget_comprehe	<input type="checkbox"/> ation	<input type="checkbox"/> trust_level
<input type="checkbox"/> unicorns	<input type="checkbox"/> unicorns_admi	<input type="checkbox"/> unicorns_exha	<input type="checkbox"/> unicorns_reg	<input type="checkbox"/> unicc		<input type="checkbox"/> oice	<input type="checkbox"/> utilities
<input type="checkbox"/> vip	<input type="checkbox"/> vip_eligibility	<input type="checkbox"/> vip_via_ppc	<input type="checkbox"/> vip_via_sms	<input type="checkbox"/> vip_voucher		<input type="checkbox"/> web_myaccou	<input type="checkbox"/> websevice
<input type="checkbox"/> widget	<input type="checkbox"/> wishlist	<input type="checkbox"/> work_queue	<input type="checkbox"/> yui	<input type="checkbox"/> zipcode_challe		<input type="checkbox"/> windows	<input type="checkbox"/> whos_online

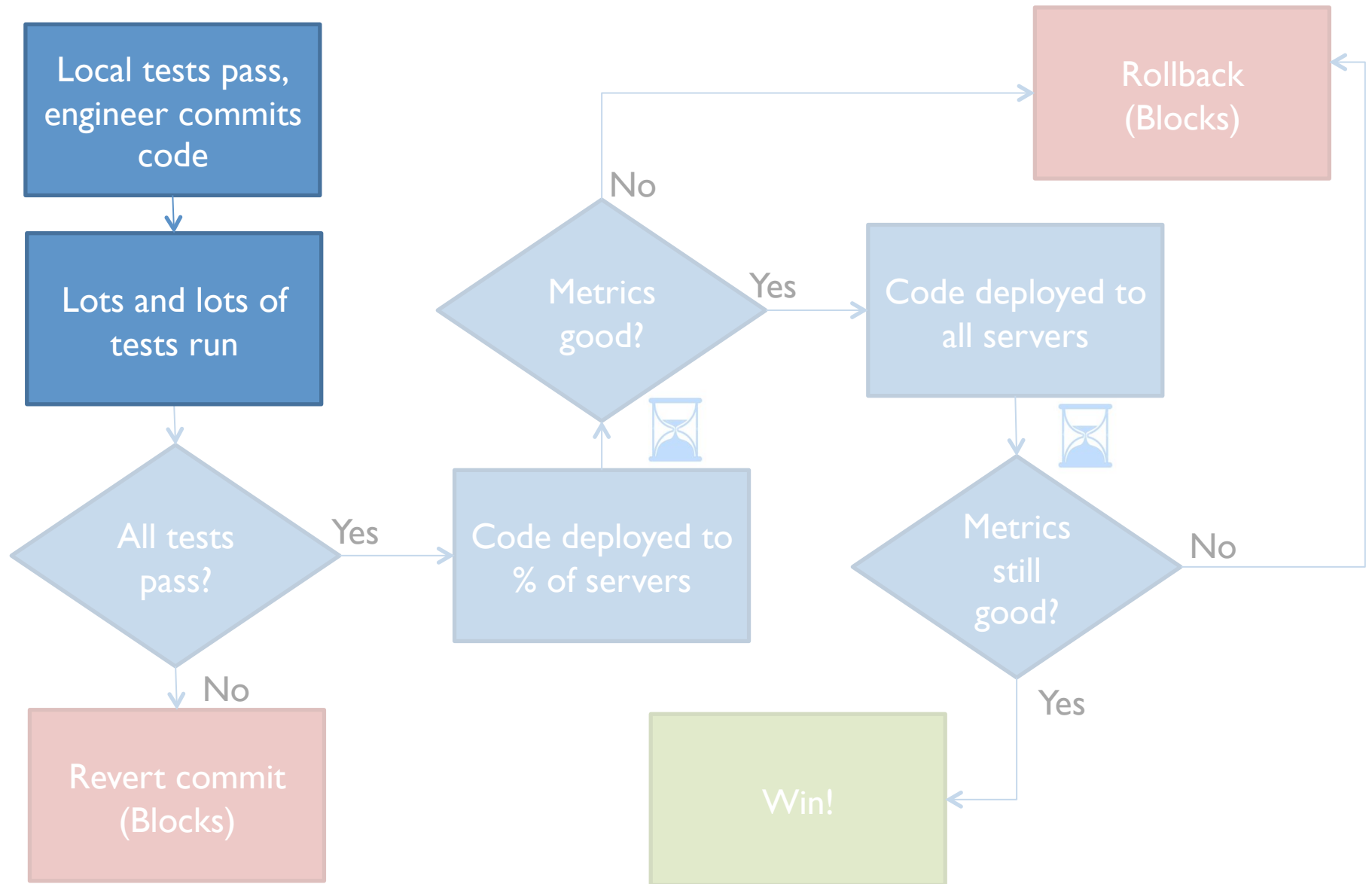
Show Test Output All ☒ Passed ☒ Failed ☒ Running ☒ Skipped ☒ Waiting ☒

Select All Tests ☒ Selenium Tests ☒

<input checked="" type="checkbox"/> catalog/setup_sandbox.php	100%	output passed 0m 1s
<input checked="" type="checkbox"/> catalog/setup_sandbox_database.php	100%	output passed 0m 8s
<input checked="" type="checkbox"/> schemas/autoschema.php	100%	output passed ⚠ 0m 27s
<input checked="" type="checkbox"/> catalog/setup_sandbox_database_post_auto_schema.php	100%	output passed ⚠ 0m 8s
<input checked="" type="checkbox"/> catalog/includes/functions/fest_memcache_sanity.php	100%	output passed ⚠ 0m 1s
<input checked="" type="checkbox"/> import/fest_redis_base.php	100%	output passed 0m 2s
<input checked="" type="checkbox"/> catalog/fest_db_load.php	100%	output passed ⚠ 0m 2s
<input checked="" type="checkbox"/> api/fest_pet_create.php	100%	output passed 0m 2s
<input checked="" type="checkbox"/> api/fest_pet_feed.php	100%	output passed 0m 1s
<input checked="" type="checkbox"/> api/fest_pet_play.php	0%	running 🔄
<input checked="" type="checkbox"/> api/fest_pet_status.php	0%	
<input checked="" type="checkbox"/> api/fest_pet_types.php	0%	
<input checked="" type="checkbox"/> catalog/admin-scripts/crons/fest_pet_notifications.php	0%	
<input checked="" type="checkbox"/> catalog/admin-scripts/fest_manage_pet.php	0%	
<input checked="" type="checkbox"/> import/fest_pet.php	0%	

http://localhost.imvu.com/import/fest_selenium_avatar_widget.php





CONTINUOUS INTEGRATION



Buildbot



Jenkins



ATLASSIAN
BAMBOO[®]

Console View

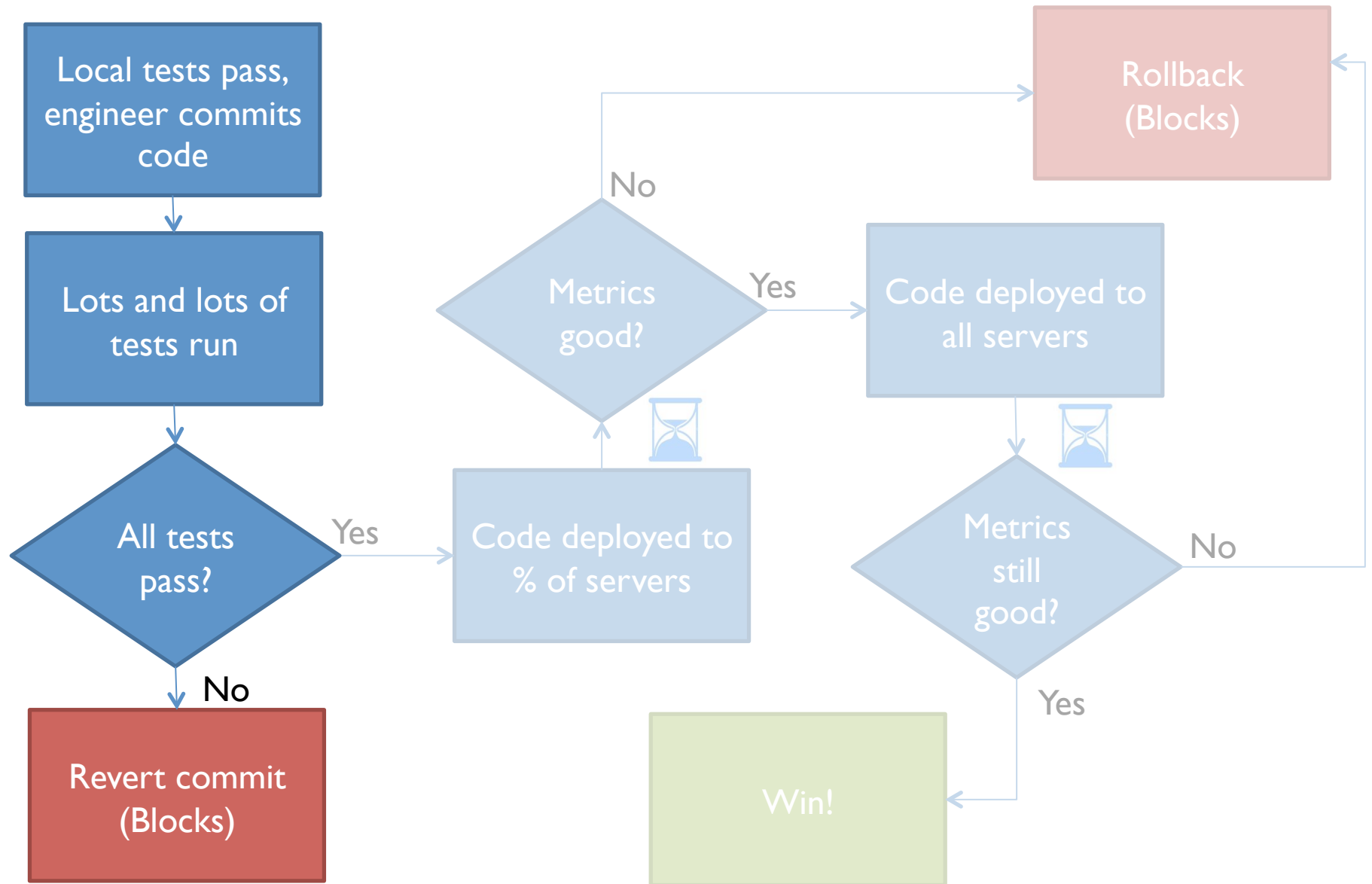
Commit Lock Status: no lock
Push Lock Status: no lock
[Production Push Status](#)
[Past 30-Day Rollback Graph](#)

Operation	Started	Finished	Duration	Person	Revision
Update staging website	2011-05-12 14:36:36	2011-05-12 14:36:40	4s	jlee	107656
Production push	2011-05-12 14:36:40	2011-05-12 14:39:59	199s	jlee	107656

Legend: Passed Failed Failed Again Running Exception Offline No data

Go

	aggregator	distributor	web	Pulled Slave
	<div></div>	<div></div>	<div></div>	<div></div>
107660	cit	<div></div>	<div></div>	<div></div>
Imvu_revert reverting r107657 for mey. Fixing Bulldbot. Skip module check. Allow tabs.				
107657	mey	<div></div>	<div></div>	<div></div>
Adding DRV's for legeacy profit calculations. <ul style="list-style-type: none">distributor: Web distributor failed - stdiolinu-08-05: Run Tests failed - stdiolinu-08-07: Run Tests failed - stdiolinu-08-08: Run Tests failed - stdiolinu-09-06: Run Tests failed - stdio				
107656	jlee	<div></div>	<div></div>	<div></div>
Added cron to migrate existing Gigya registrations to customer log				
107644	ngarcia	<div></div>	<div></div>	<div></div>
updating Modern Japanese: bundle landing page copy				
107639	awong	<div></div>	<div></div>	<div></div>
Separate the socialvibe functionality and the socialvibe notifier functionality into separate rollouts for now, so we can run the notifier by QA without the rest of the world seeing it. Added stub method for the new emit popup js to be filled as we get the notifier done.				
107629	erehling	<div></div>	<div></div>	<div></div>
assert valid product-ids in a bunch of functions to trace a database error <ul style="list-style-type: none">distributor: Web distributor failed - stdiolind-17-05: Run Tests failed - stdiolinu-18-08: Run Tests failed - stdio				
107626	dcao	<div></div>	<div></div>	<div></div>
updating ap bundle with edited contents				
107625	jlee	<div></div>	<div></div>	<div></div>
Modified Gigya registration/linking to record to customer log				



Log File contents

IMVU, Inc. Mail - Inbox (15) - ... x My IMVU x BuildBot: Web x Log File contents x

http://webbuildbot.corp.imvu.com:8010/builders/lind-17-07/builds/7194/steps/RunTe Google

Test rooms/ftest_lister_neighborhoods.php failed (status='failed - Test started at 2011-06-28 15:14:56 and ended at 2011-06-28 15:16:15')

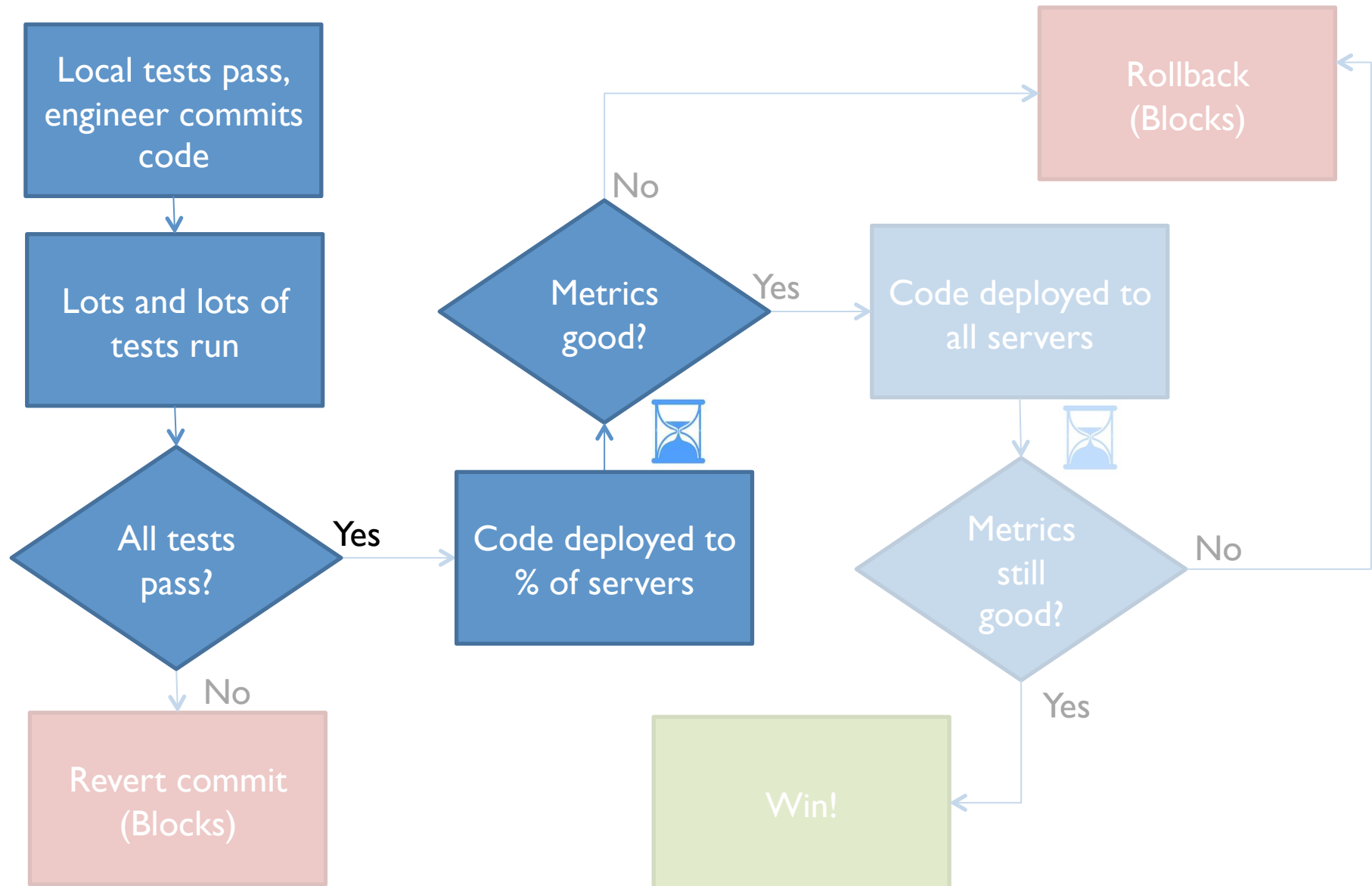
View test output file on BuildBot: http://lind-17-07.corp.imvu.com/test_output/110628_1508/rooms_ftest_lister_neighborhoods.php.html

Manually run test locally: http://localhost.imvu.com/rooms/ftest_lister_neighborhoods.php

Output from rooms/ftest_lister_neighborhoods.php:

```
failed - Test started at 2011-06-28 15:14:56 and ended at 2011-06-28 15:16:15
error_log *** [28-Jun-2011 15:15:00] //////////////////////////////////////
error_log *** [28-Jun-2011 15:15:00] /home/cit/imvu/website/import/customer.php (919)
error_log *** [28-Jun-2011 15:15:00] dusty_log:
error_log *** [28-Jun-2011 15:15:00] 'sauce enforced, got no sauce, 6160938'
error_log *** [28-Jun-2011 15:15:00] //////////////////////////////////////
error_log *** [28-Jun-2011 15:15:03] Headers were sent before jrcache_done called. filename= line=0 url=/catalog/web_index.php:
error_log *** [28-Jun-2011 15:15:03] PHP Notice: Undefined offset: 1290 in /home/cit/imvu/website/import/neighborhoods.php on line 1290
error_log *** [28-Jun-2011 15:15:04] Headers were sent before jrcache_done called. filename= line=0 url=/rooms/show-room-details.
error_log *** [28-Jun-2011 15:15:07] ////////////////////////////////////// :: index.php:11 (dispatch) / dispatcher
error_log *** [28-Jun-2011 15:15:07] /home/cit/imvu/website/import/customer.php (919) :: index.php:11 (dispatch) / dispatcher
error_log *** [28-Jun-2011 15:15:07] dusty_log: :: index.php:11 (dispatch) / dispatcher
error_log *** [28-Jun-2011 15:15:07] 'sauce enforced, got no sauce, 6160939' :: index.php:11 (dispatch) / dispatcher
error_log *** [28-Jun-2011 15:15:07] ////////////////////////////////////// :: index.php:11 (dispatch) / dispatcher
error_log *** [28-Jun-2011 15:15:08] Headers were sent before jrcache_done called. filename= line=0 url=/catalog/web_index.php:
error_log *** [28-Jun-2011 15:15:10] Headers were sent before jrcache_done called. filename= line=0 url=/rooms/show-room-details.
error_log *** [28-Jun-2011 15:15:12] ////////////////////////////////////// :: index.php:11 (dispatch) / dispatcher
error_log *** [28-Jun-2011 15:15:12] /home/cit/imvu/website/import/customer.php (919) :: index.php:11 (dispatch) / dispatcher
error_log *** [28-Jun-2011 15:15:12] dusty_log: :: index.php:11 (dispatch) / dispatcher
error_log *** [28-Jun-2011 15:15:12] 'sauce enforced, got no sauce, 6160940' :: index.php:11 (dispatch) / dispatcher
error_log *** [28-Jun-2011 15:15:12] ////////////////////////////////////// :: index.php:11 (dispatch) / dispatcher
error_log *** [28-Jun-2011 15:15:14] Headers were sent before jrcache_done called. filename= line=0 url=/catalog/web_index.php:
error_log *** [28-Jun-2011 15:16:15] //////////////////////////////////////
error_log *** [28-Jun-2011 15:16:15] /home/cit/imvu/website/import/solr.php (322)
error_log *** [28-Jun-2011 15:16:15] dusty_log:
```







CLUSTER IMMUNE SYSTEM

IS IT IMPORTANT TO YOUR BUSINESS?

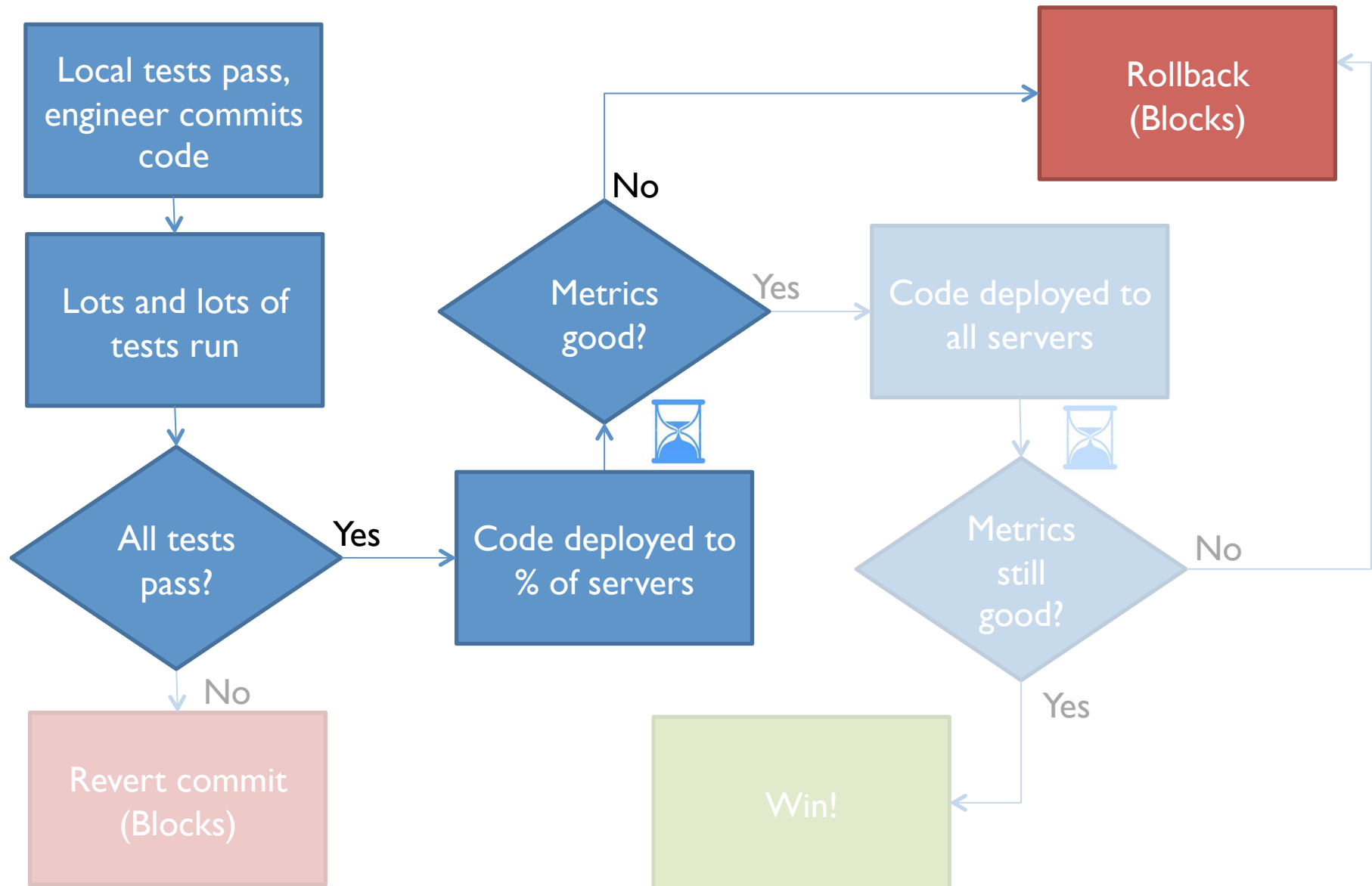
MONITOR IT

SYSTEM PERFORMANCE

Apache Connections Monitor	OK	2010-08-20 13:58:57
Apache Server Log Size Limit	OK	2010-08-20 13:33:03
Capacity Based LA Check	OK	2010-08-20 13:57:18
Cybersource API Check	OK	2010-08-20 12:04:42
DNS Drone Configuration Test	OK	2010-08-20 12:05:51
DNS Drone Running	OK	2010-08-20 12:07:00
Host Clock Skew	OK	2010-08-20 13:55:59
IMVU Apache Log Size Check Inconvenient	OK	2010-08-20 13:54:02
IMVU PHP Fatal Error Check	OK	2010-08-20 13:54:49
IMVU Webserver HTTP	OK	2010-08-20 13:55:32
NTPd Running	OK	2010-08-20 13:56:44
Validate Networking Configuration Monitor	OK	2010-08-20 12:14:31
Webserver HTML Homepage Check	OK	2010-08-20 13:59:54
cron running	OK	2010-08-20 13:51:14
disk space high priority	OK	2010-08-20 13:33:03
eAccelerator 0.9.5.3 enabled check	OK	2010-08-20 13:57:50
eAccelerator Functionality	OK	2010-08-20 13:05:11
webserver load	OK	2010-08-20 13:59:42

BUSINESS PERFORMANCE

Apache Restarts by Nagios	OK	2010-08-20 14:00:50
Bulk Import AOL Simple	 OK	2010-08-20 13:55:28
Bulk Import Gmail Simple	OK	2010-08-20 13:52:24
Bulk Import Hotmail Simple	OK	2010-08-20 14:01:20
Bulk Import Yahoo Simple	OK	2010-08-20 14:00:09
Cacti Poller Complete In Time	 OK	2010-08-20 14:00:05
Cacti Updating Check	OK	2010-08-20 14:01:15
Chat Service Monitor	 UNKNOWN	2010-08-20 13:57:11
Check database backups based on last success run	OK	2010-08-20 12:04:37
Client Release Exception Rate	OK	2010-08-20 13:37:08
Customer Registration Quality	OK	2010-08-20 13:59:53
Customer Registration Stale Queue Delay	OK	2010-08-20 14:00:13
Customer Shard Usage	 CRITICAL	2010-08-20 12:09:14
Cybersource Successful Orders Rate [Off-Peak Hours]	OK	2010-08-20 06:58:03
Cybersource Successful Orders Rate [Peak Hours]	OK	2010-08-20 14:00:30



IMVU Push Status - Metrics of phase 2 of revision 110581

Pushed by henstein between 2011-06-20 12:36:47 and 2011-06-20 12:39:17. **This push was rolled back.**

Debugging Resources

[View/Manage Push Config Limits](#) | [Most recent dies](#) | [Most recent errors](#) | [System Cacti graphs](#) | [Slow queries](#)

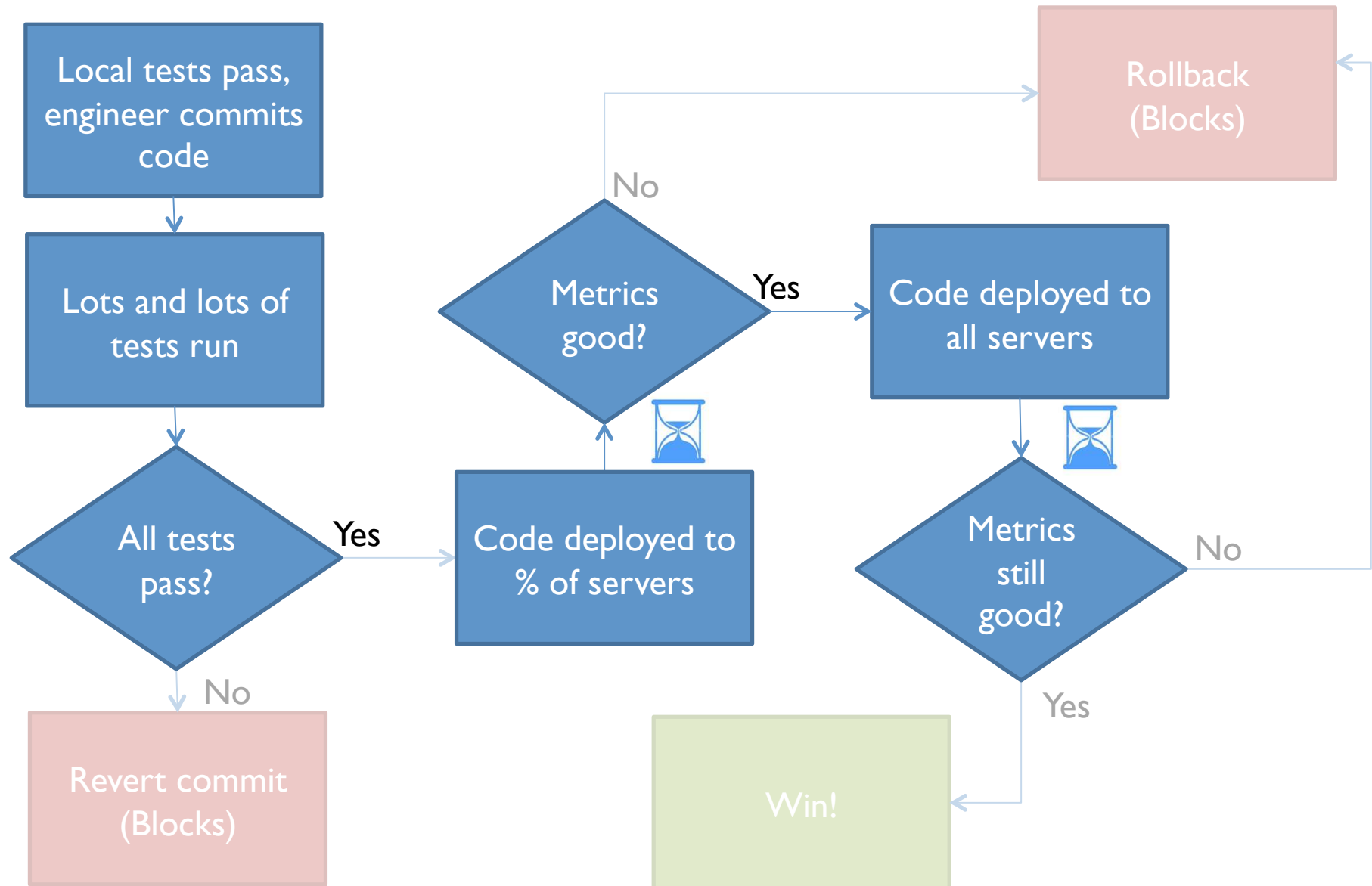
Push Monitoring Gauges & Readings

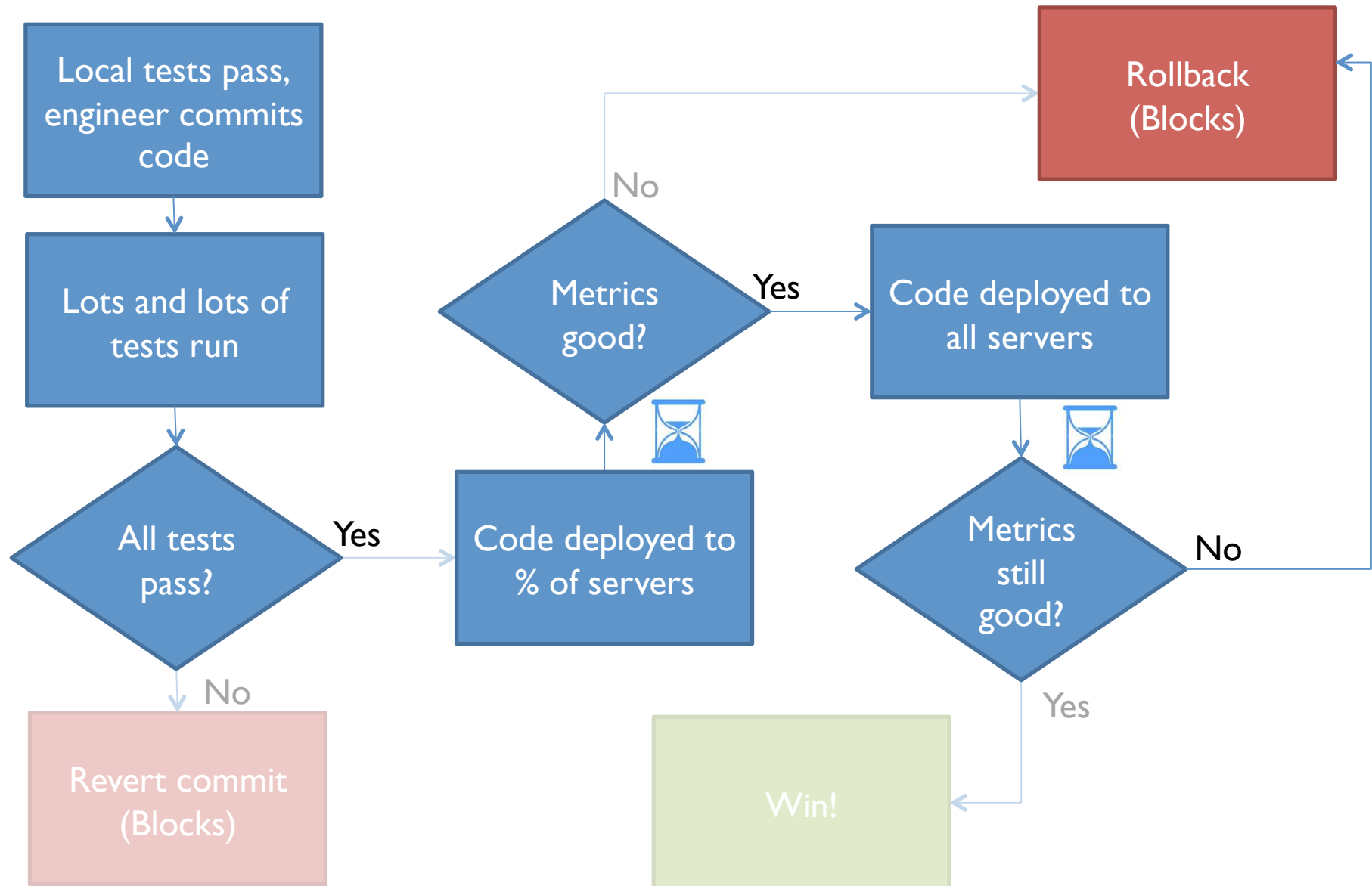
[loadavg1](#) | [cpu_idle](#) | [tcp_errors](#) | [php_errors](#) | [apache_messages](#) | [registrations](#) | [crashes](#) |

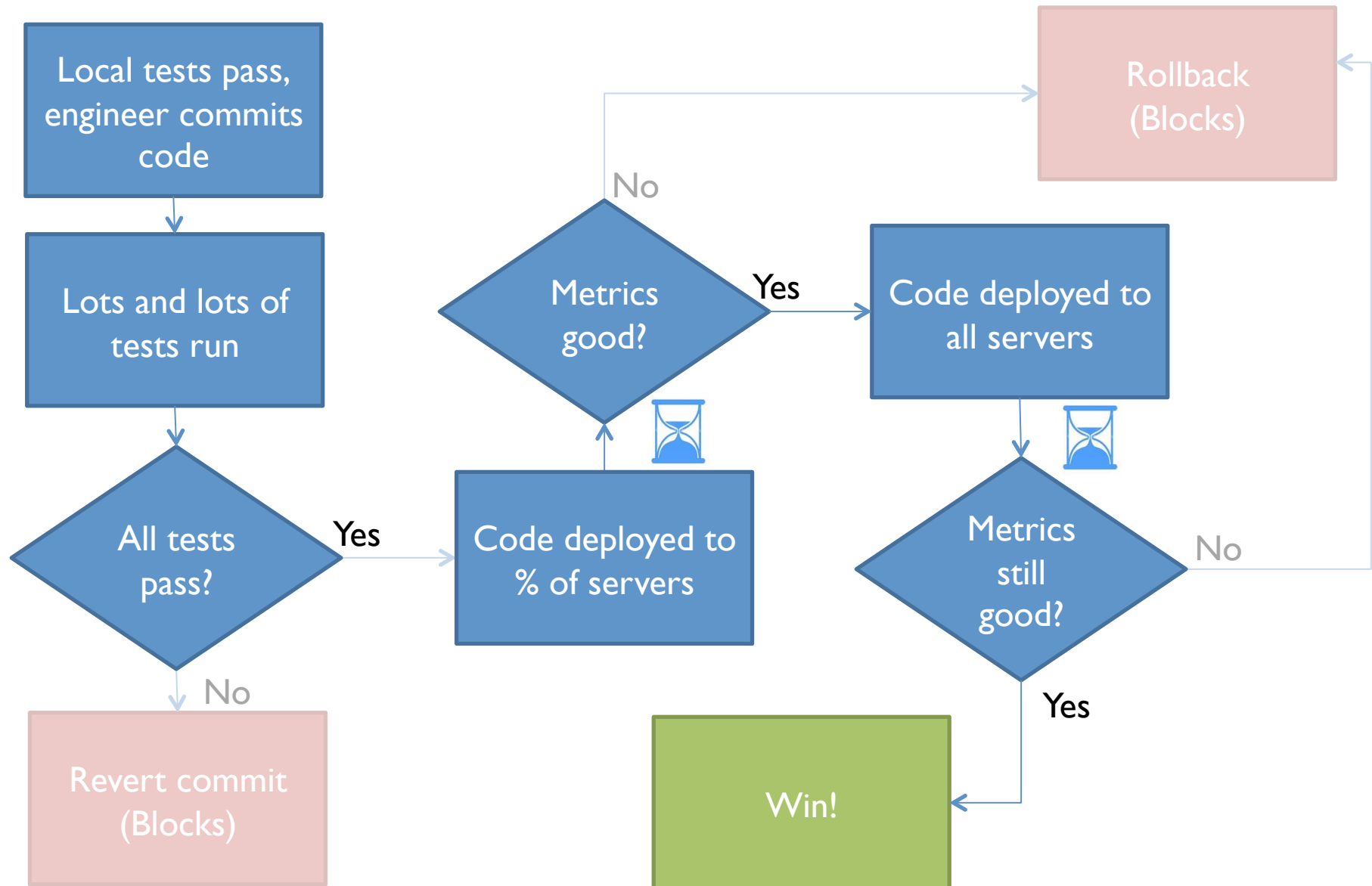
loadavg1



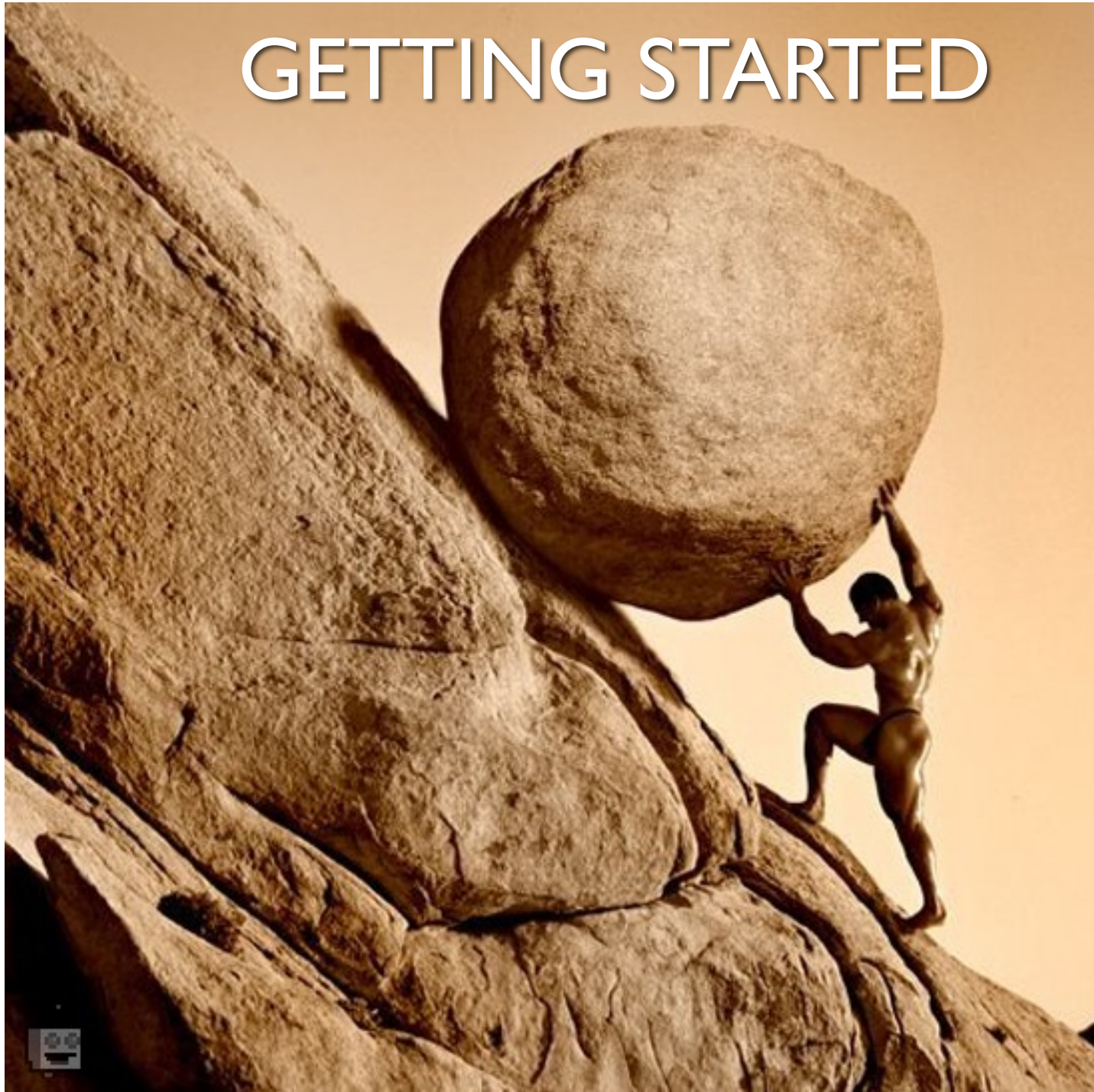
Host	Host Type	Pre-Push	Post-Push	Delta	Threshold	Additional Info
aggregate-chat-loadavg1	avg	4.13	4.95	0.82 (19.84%)	>6	Error log
aggregate-memcache-loadavg1	avg	0.61	0.59	-0.02 (-3.28%)	>6	Error log
aggregate-shards-customer-loadavg1	avg	1.23	1.35	0.12 (9.78%)	>6	Error log
aggregate-shards-master+read-loadavg1	avg	6.03	6.84	0.82 (13.61%)	>6	Error log
aggregate-shards-master-loadavg1	avg	2.64	1.69	-0.95 (-35.98%)	>6	Error log
aggregate-www-loadavg1	avg	3.51	3.25	-0.26 (-7.41%)	>6	Error log
af001384	chat	2.77	4.02	1.25 (45.13%)	>8	Error log
af001416	chat	6.83	6.86	0.03 (0.44%)	>8	Error log
af001527	chat	3.39	5.79	2.40 (70.80%)	>8	Error log
af001530	chat	5.60	6.22	0.62 (11.07%)	>8	Error log







GETTING STARTED





COMMIT TO MAKING FORWARD PROGRESS

NEW PRODUCT

START WITH SANDBOX

JUST PUSH!

IDEAL TIME FOR FAILURES!!!

ESTABLISHED PRODUCT

START WITH PRODUCTION

AUTOMATE DEPLOYS

BUILD CONFIDENCE



EXPECT
SOME
HURDLES

The Trickier Bits

- Catching issues that fail slowly
 - `SELECT * FROM growing_table WHERE 1`
- Some critical areas cause hard lock-ups
 - MySQL
 - Memcached
- Lack of test coverage of older code
 - Not an issue if you start with test coverage
- Outsourcing
- Standard code review tools





~~BUILD ISOLATION!~~

FASTER TEST RUNS
BUY HARDWARE
SORT TESTS BY SPEED
DEPENDENCY INJECTION

AND...
THE HYPOTHESIS BUILDER!

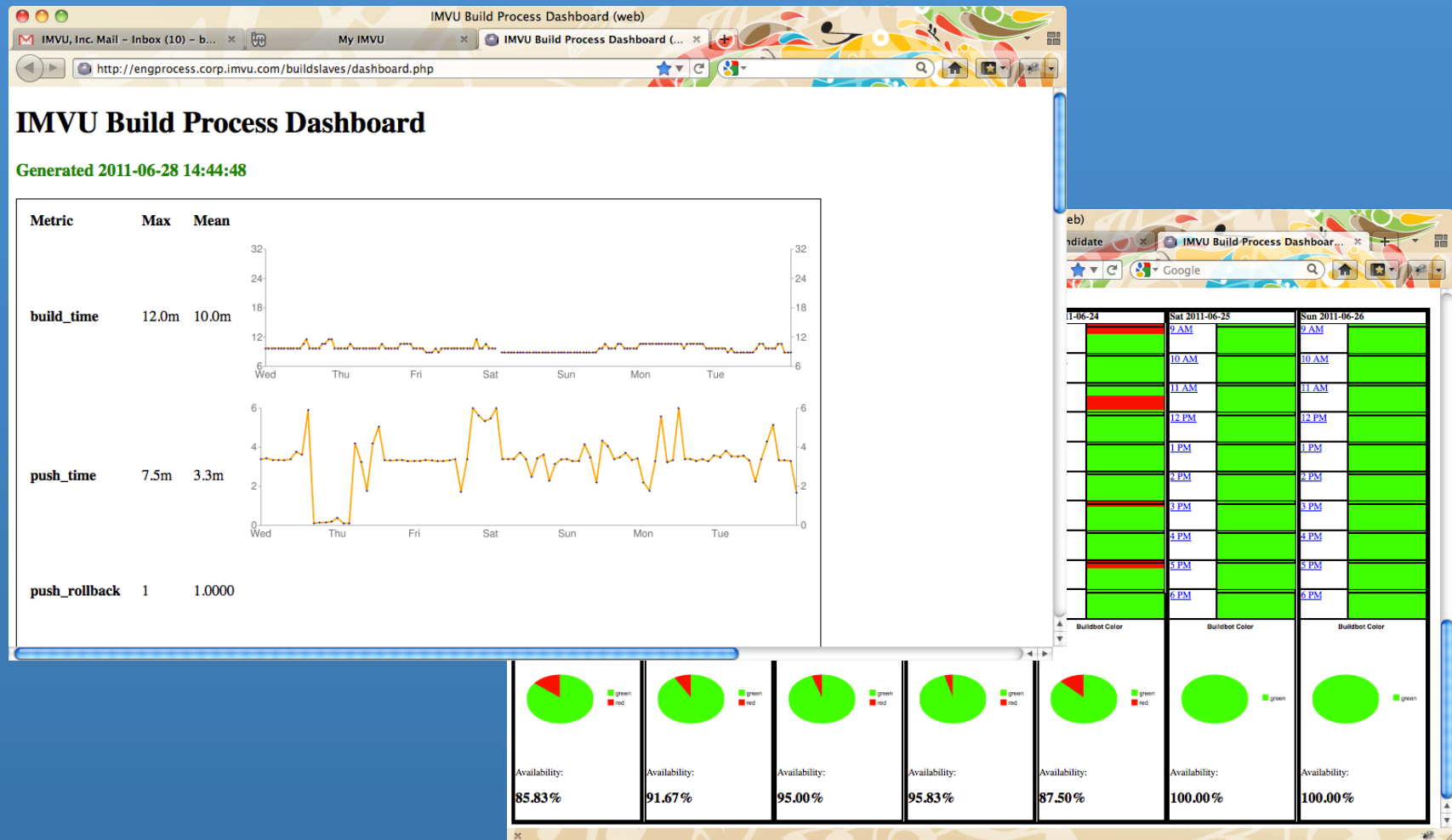
FLAKY TESTS



INTERMITTENT TESTS
HAVE HUGE COSTS!

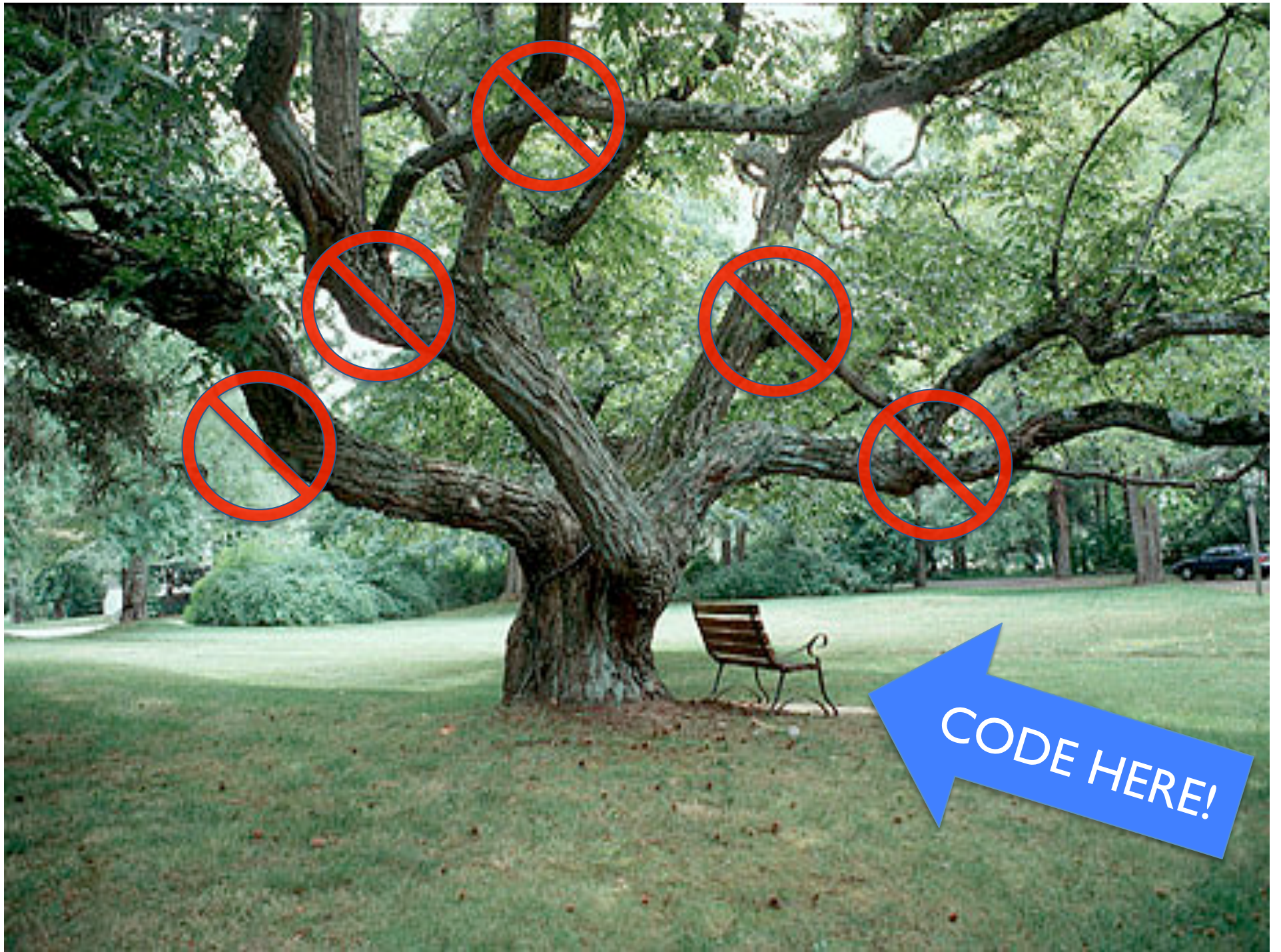
BUILD SYSTEMS ARE CRITICAL BUSINESS FUNCTIONS

RUN THEM THAT WAY!





INTEGRATION WITH A/B TESTING




```
$experiment = array(
    'name' -> 'GDCEurope2011',
    'initial_rollout' => '0',
    'branches' => array(
        'Enhanced' => 0.5,
        // can specify multiple weighted branches
    )
);

// Helper function for readability
function user_should_see_test_feature( $uid = NULL ) {
    return get_branch_for_customer( $uid,
    $experiment ) ) == 'Enhanced';
    // assigns customer if first time called
}

// The experiment branch
if( user_should_see_test_feature( $uid ) ) {
    // behavior for experiment
} else {
    // control behavior
}
```

This is Production Server

Brett@

Filter Experiment List By

Filter clear Live Filter

- Bundles
- Exclusive Offers
- Experiments
- Feature Rollouts
- Force Rollout by Cookie

• IMVU Config Monitor

• Revenue

• Spam Cleaner

ATEAM:ClientDownload Promo ?

To Users

0%

Closed On

control

ATEAM: InSignup ?

To Users

100%

Closed On

include

ATEAM:

CLOSE
EXPERIMENTS

To Users

100%

Closed On

Open / Active

ATEAM:NewTriggerEmails2010 ?

To Users

100%

Closed On

new_emails

ATEAM:SendTo Registration ?

To Users

0%

Closed On

Open / Active

ATEAM:Sept2010Promo ?

To Users

0%

Closed On

Open / Active

ATEAM: Captcha ?

To Users

QA and Admin only

Closed On

Open / Active

CASH: Experiment ?

To Users

QA and Admin only

Closed On

Open / Active

CASH:PreventWeakPasswords ?

To Users

10%

Closed On

prevent_registration

CONTROL
PARTICIPANTS

To Users

QA and Admin only

Closed On

Open / Active

To Users

100%

Closed On

Open / Active

Start date: 2010

End date: 2010

Run Report

☒ Flush cache

AMC:avatar

Add Buckets

delete

Bucket

All accounts that logged into client

☒ Logged into client

Experiment:

delete

Bucket

appendation

☒ Logged into client

Experiment:

		control	appendati on
User Count		148266	150702
female	%	20.19	20.22
	%		
	%	69.36	69.06
	%		
	%		
	%	0.24	0.23
	%	0.57	0.59
	%	35.50	35.37
	%	29.48	29.61
	%	25.80	25.93
	%	1.54	1.51
	%	5.50	5.44
	%	2.18	2.14
	%	43.59	44.39
	%	15.74	16.01
	136.91	135.30	

UNDESIRE RESULT

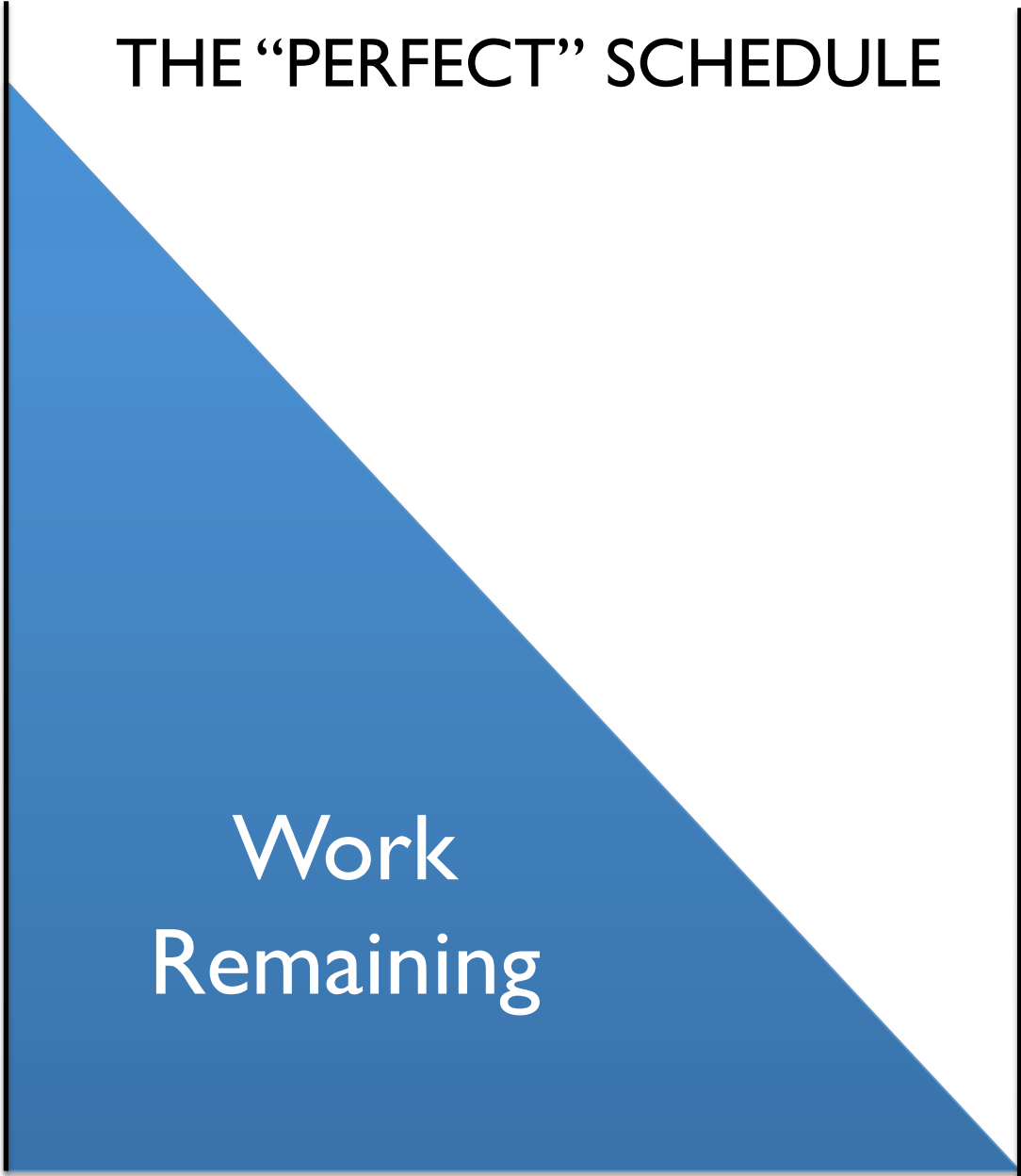
DESIRED RESULT

NO STATISTICAL SIGNIFICANCE

	Control	Treatment
Samples	64630 / 148266	66903 / 150702
Mean	0.43591	0.44394
Variance	0.24589	0.24686
P-value: 0.000010		
Significance: 99.9990%		
Chance of occurring randomly: 0.0010%		

THE “PERFECT” SCHEDULE

Work
Remaining



IF YOU HIT THIS
CONSISTENTLY YOU
ARE SAND-BAGGING!

Cycle Start

Planned Cycle End

REALITY STRIKES RELEASE DRIVES FEATURES

When releases
happen every 15
minutes, this *can* be
arbitrary

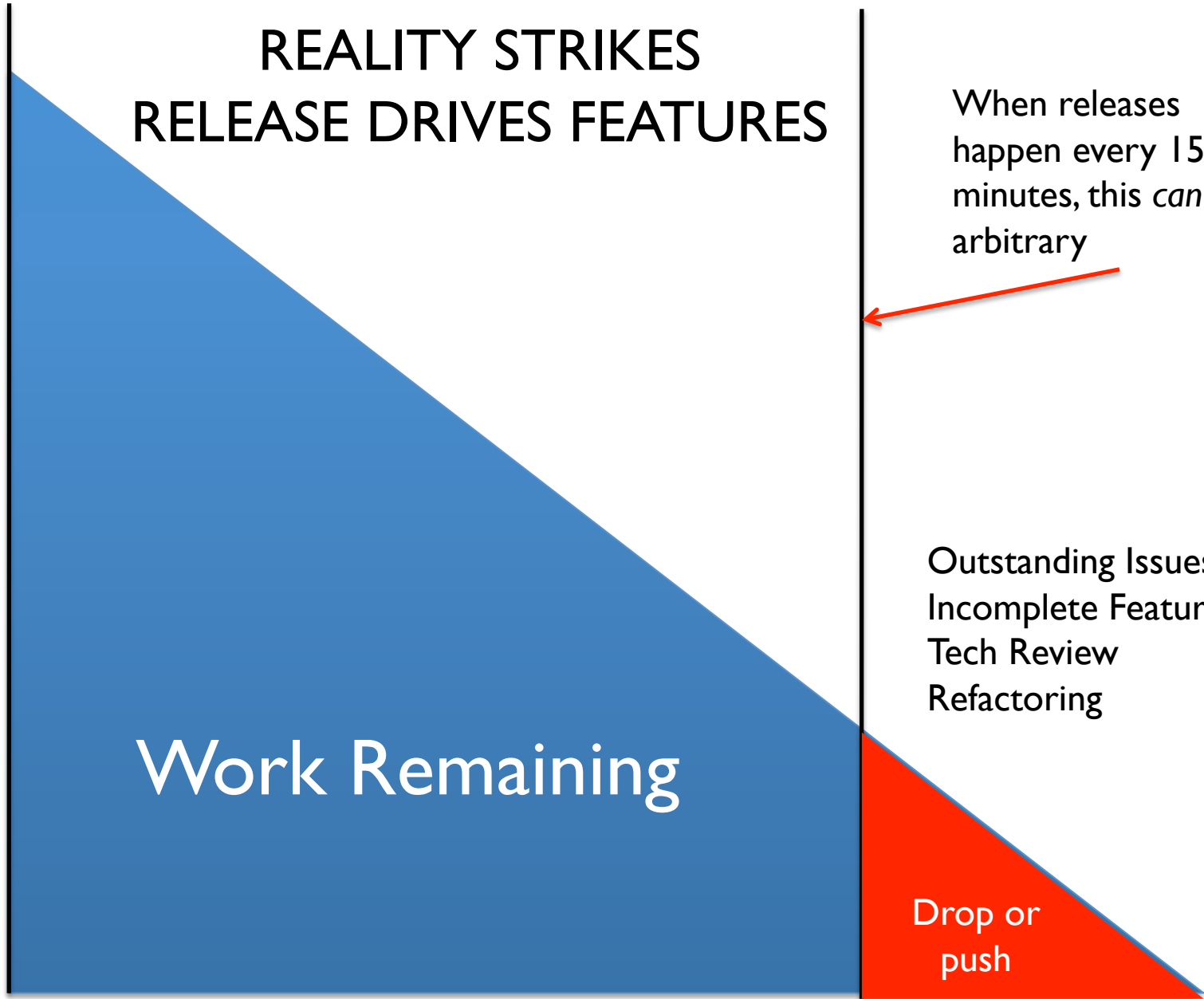
Outstanding Issues
Incomplete Features
Tech Review
Refactoring

Work Remaining

Drop or
push

Cycle Start

Planned Cycle End



FEATURES DRIVE RELEASE

Work Remaining

The diagram illustrates the concept of 'Work Remaining' over a cycle. A blue triangle represents the work remaining, starting from a high point at 'Cycle Start' and decreasing linearly to a point at 'Cycle End Goal'. A red triangle, labeled 'Overage', represents the work remaining after the 'Cycle End Goal' but before the 'Cycle End'. The x-axis is marked with 'Cycle Start', 'Cycle End Goal', and 'Cycle End'. A vertical dashed line separates the 'Work Remaining' area from the 'Overage' area.

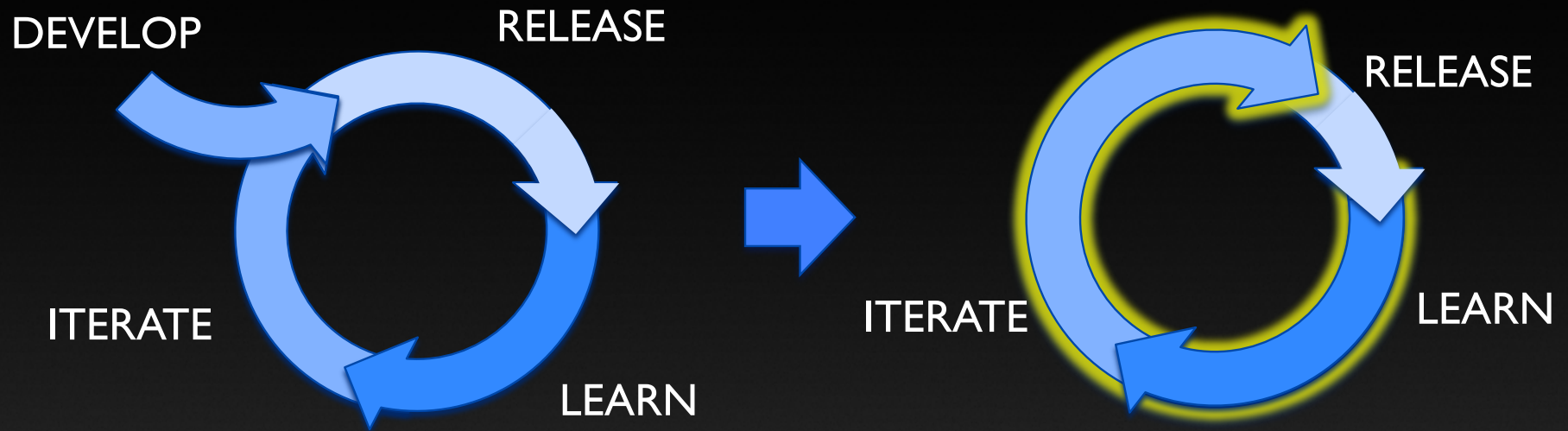
Overage

Cycle Start

Cycle End Goal

Cycle End

CONTINUOUS DEPLOYMENT



SPEND TIME BUILDING YOUR GAME
NOT BUILDING YOUR CODE



EMPOWERED!



Thank You! Any Questions?

Brett G. Durrett

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Twitter: @bdurrett

Tweet this talk!



#gdceurope

IMVU recognized as:

Inc. 500

<http://bit.ly/dv52wK>

Red Herring 100:

<http://bit.ly/bbz5Ex>

Best Place to Work:

<http://bit.ly/aAVdp8>

(and we're hiring)

<http://www.imvu.com/jobs>



Thanks!

- Single Lane Traffic Photo:

<http://www.flickr.com/photos/onebigchickenman/4869442019/>

