



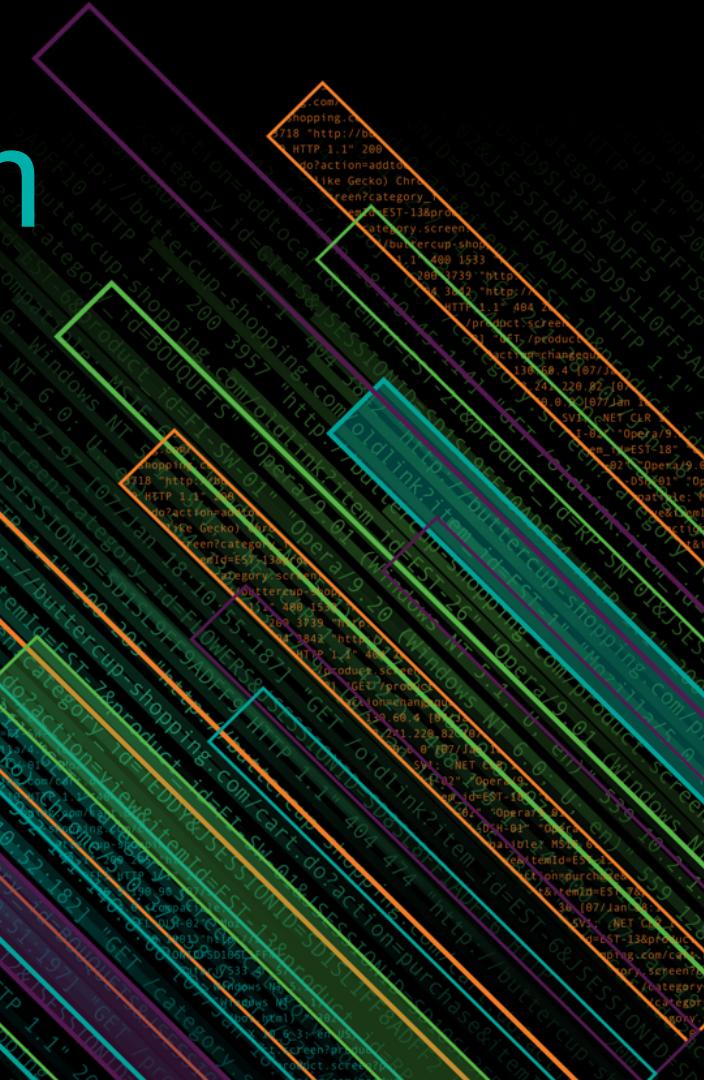
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What is Your DevOps Team Actually Doing?

Brandon Cipes | VP of DevOps | cPrime

Justin Evans | Director, Solutions Engineering | cPrime

October 4, 2018



Forward-Looking Statements

During the course of this presentation, we may make forward-looking statements regarding future events or the expected performance of the company. We caution you that such statements reflect our current expectations and estimates based on factors currently known to us and that actual events or results could differ materially. For important factors that may cause actual results to differ from those contained in our forward-looking statements, please review our filings with the SEC.

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“Software is Eating the World.”

Marc Andreessen

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“Software ate the world. Now it has indigestion. The antacid is DevOps.”

Some Guy

Questions Worth Answering...



What is a DevOps Team Anyway?



How Can You Monitor Your DevOps Teams?



Why Track What Your DevOps Teams Are Doing?

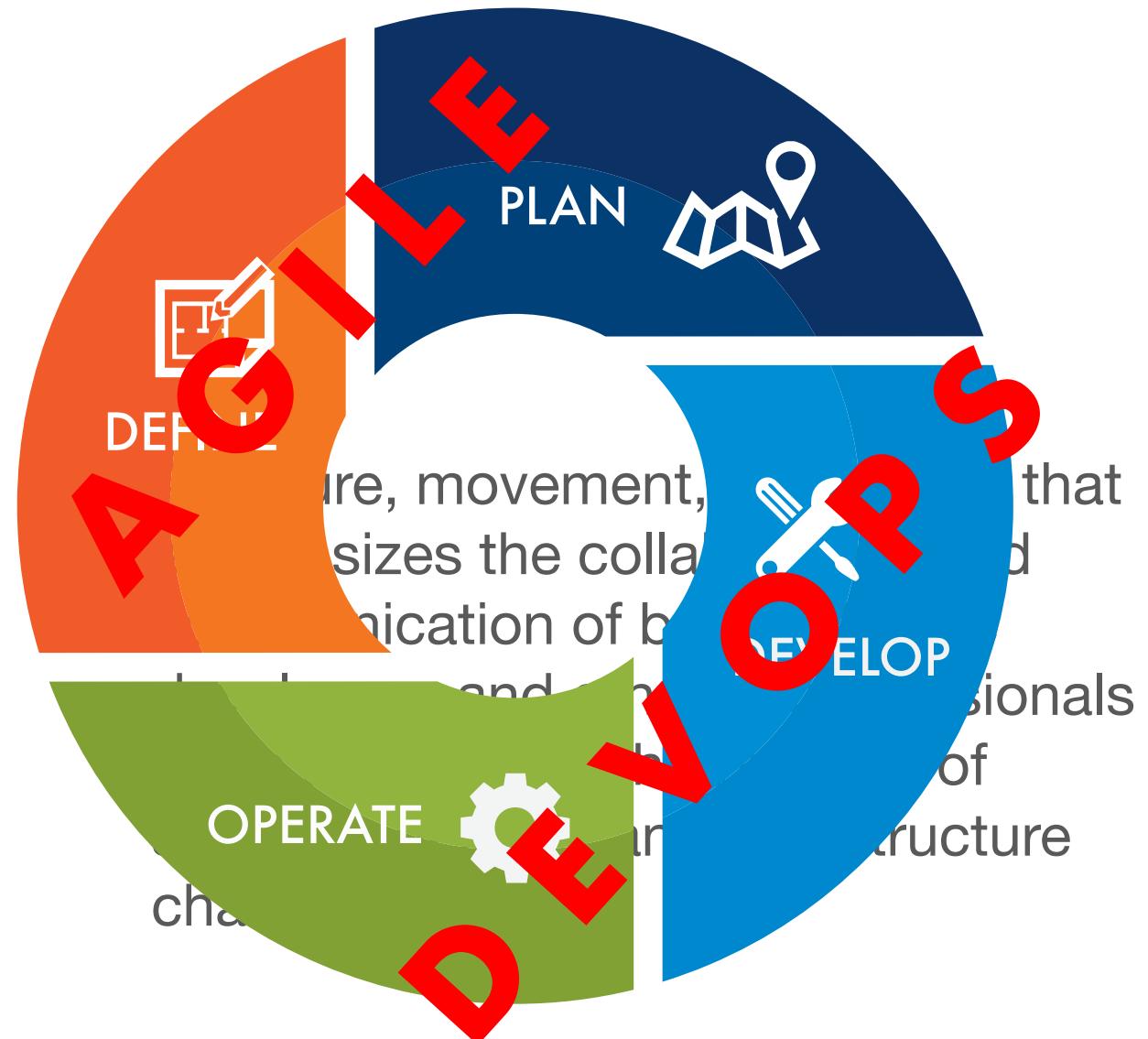
What is a DevOps Team Anyway?

Hint: It's not 20 SysAdmins in a room...

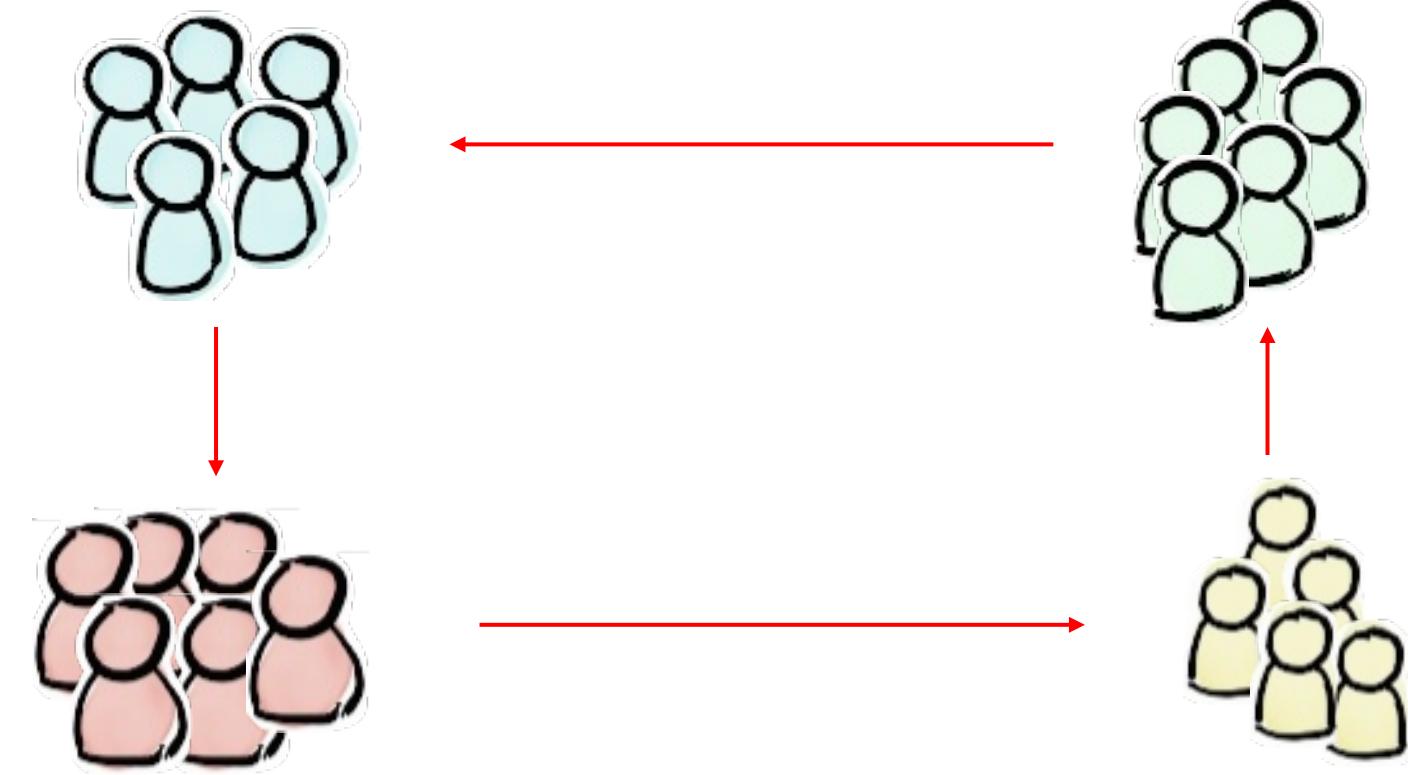
The What

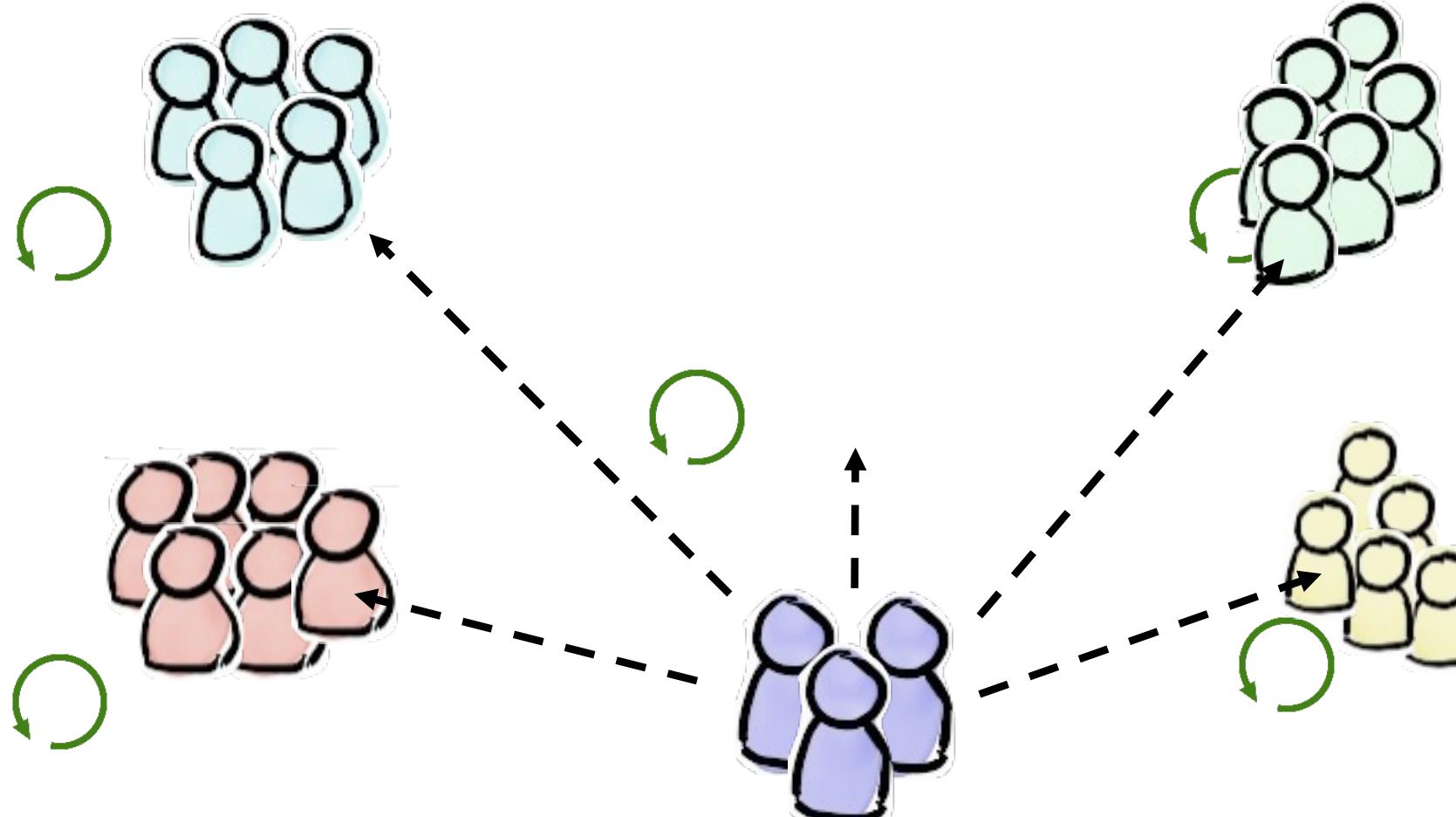


The iterative, incremental method of managing the design and build activities of engineering, IT and other business areas that aim to provide new product or service development in a highly flexible and interactive manner.



The Who





Thanks to Spotify!

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The Where

Continuous Integration (CI)

Continuous Deployment
(CD)

Dynamic Cloud
Infrastructure (IaaS)

Test Automation

DevSecOps

Monitoring

How Can You Monitor Your DevOps Teams?

Where there's a will, there's a data set



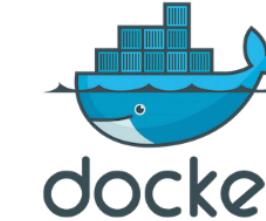
Bitbucket



Jenkins
Continuous Deployment
(CD)



CHEF Dynamic Cloud Infrastructure (IaaS)
kubernetes



Jenkins

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The How

Continuous Integration

Developer Commits Code to a DVCS

CI

CD

Test

DevSecOps

IaaS



Screenshot of a Bitbucket repository overview page. The page shows basic repository statistics: 68 branches, 99+ tags, 10 forks, and 9 watchers. It also displays recent activity and a list of pull requests. A large green arrow points from this screenshot towards the Splunk logo.

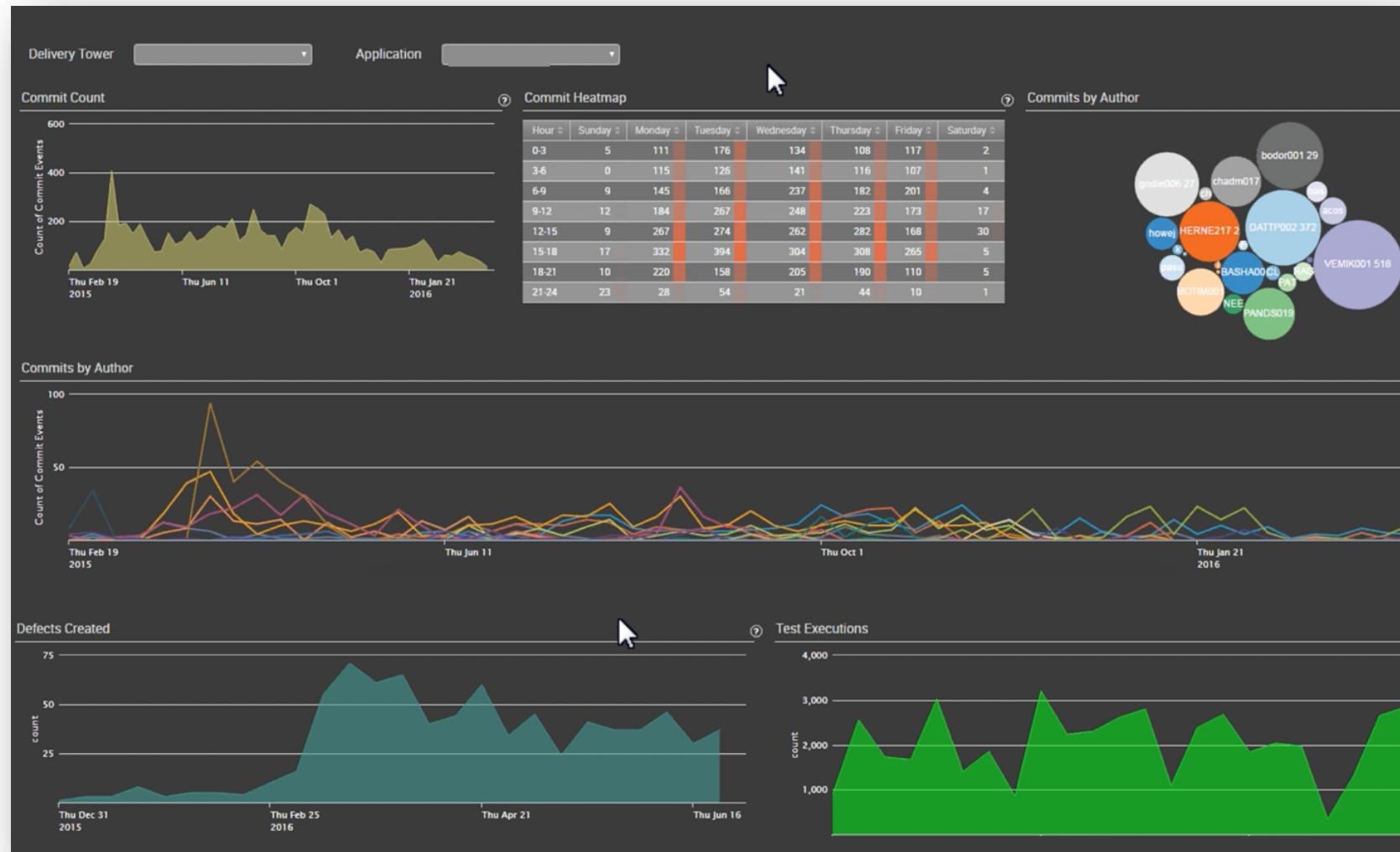
2018-09-25T21:31:01+00:00 | Code Committed

 Bitbucket

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Continuous Integration

Developer Commits Code to a DVCS



Continuous Deployment

Automated Build Plans React to Changes in DVCS

CI

CD

Test

DevSecOps

IaaS



All	CTHS	ISS	Integration	Sub-Systems		search	?	log
W	Name				Last Success	Last Failure	Last Duration	
	Common Codebase Metrics				N/A	3 hr 25 min - #113	2 hr 24 min	
	CT_Codebase Metrics				N/A	3 hr 25 min - #135	1 hr 10 min	
	CT_VDS Codebase Metrics				2 hr 14 min - #72	21 days - #28	8 min 30 sec	
	CTNS Codebase Metrics				N/A	23 hr - #31	2 hr 11 min	
	ISS_Codebase Metrics				N/A	3 hr 25 min - #124	2 hr 44 min	
	CodeBase Metrics				3 hr 25 min - #161	21 days - #115	16 min	
	Codebase Metrics				N/A	3 hr 25 min - #113	40 min	
	Codebase Metrics				N/A	3 hr 25 min - #128	40 min	
	cts_Codebase Metrics				3 hr 25 min - #227	12 days - #200	8 min 51 sec	
	database Metrics				N/A	3 hr 25 min - #130	3 min 24 sec	
	deployment				15 hr - #121	11 days - #103	24 min	
	codeBase Metrics				3 hr 25 min - #146	9 days 3 hr - #130	56 min	
	CodeBase Metrics				3 hr 25 min - #122	21 days - #126	32 min	
	CodeBase Metrics (next-ocbs)				2 hr 1 min - #50	29 days - #42	22 min	
	running				2 mo 2 days - #10	2 mo 2 days - #1	0 25 sec	
	S_Codebase Metrics				3 hr 25 min - #120	21 days - #74	8 min 9 sec	
	leaseGen				N/A	6 mo 7 days - #7	2 sec	
	SM_checkpoint_ISS_Build				16 hr - #53	22 days - #19	53 min	
	SM_ci_Build				1 hr 55 min - #129	21 days - #86	41 min	
	SM_ci_vtis_Build				2 hr 5 min - #131	21 days - #86	10 min	
	SM_ci_vtis_Build				40 min - #122	2 mo 2 days - #25	12 min	
	SM_ci_vtis_Runtime Tests				18 hr - #101	1 mo 3 days - #44	1 hr 2 min	
	SM_ci_vtis_CI				8 mo 11 days - #203	4 mo 14 days - #726	17 min	
	SM_env_Build				3 hr 8 min - #161	21 days - #115	11 min	
	SM_env_Runtime Tests				2 hr 56 min - #180	5 days 14 hr - #154	30 min	
	SM_env_Runtime Tests				2 hr 44 min - #138	1 mo 22 days - #154	19 min	

2018-09-25T21:32:29+00:00 | Build Successful



Jenkins

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Continuous Deployment

Automated Build Plans React to Changes in DVCS

Summary Overview [Show Filters](#)

Build Analytics Summary

Success Status	Failed Status	Aborted Status
8 events.	40 events.	0 events.
# of Build Masters	# of Build Slaves	Number of Build Plans
1	3	8

Build Plan Status by Master

	Jenkins Master	Job	Build	StartTime	Duration
1	jenkins.buttercuplabs.win	Buttercup Go Student 03/master	57	2017-06-30 09:41:06	00:02:02
2	jenkins.buttercuplabs.win	Buttercup Go Student 03/master/label=LabServer01	57	2017-06-30 09:41:06	00:01:59
3	jenkins.buttercuplabs.win	Buttercup Go Student 02/master	113	2017-06-30 09:31:53	00:02:06
4	jenkins.buttercuplabs.win	Buttercup Go Student 02/master/label=LabServer01	113	2017-06-30 09:31:53	00:02:03
5	jenkins.buttercuplabs.win	Buttercup Go Student 01/master	83	2017-06-30 09:25:33	00:02:04
6	jenkins.buttercuplabs.win	Buttercup Go Student 01/master/label=LabServer01	83	2017-06-30 09:25:33	00:02:00

Queue By Master Server

Number in Queue

Assumption

Sat Jun 10 2017 Sat Jun 17 Sat Jun 24 Sat Jul 1 Sat Jul 8 Date / Year

Build Server Analytics Summary

Total Job Time	Total Offline Slaves	Total Idle Slaves
690.78	0	0
Authentication: Failed	Authentication: Success	Number of Projects
994	13	2

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Automated Testing

Testing May Take Place Before, During, or After Deployment

Cl

CD

Test

DevSecOps

IaaS



2018-09-25T21:33:34+00:00 | All Tests Passed



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Automated Testing

Testing May Take Place Before, During, or After Deployment



Security

Vulnerability Detection is a Crucial Component of Test Automation

CI

CD

Test

DevSecOps

IaaS



Protocol	Port	Info	State	Updated
tcp	3632	distccd v1 (Ubuntu 4.2.4-1ubuntu4)	Open	October 09, 2011 13:42
udp	53	BIND 9.4.2	Open	October 09, 2011 13:41
tcp	53		Open	October 09, 2011 13:42
tcp	21	220 ProFTPD 1.3.1 Server (Debian) [::ffff:192.168.0.23]\x0d\x0a	Open	October 09, 2011 13:42
tcp	80	Apache/2.2.8 (Ubuntu) PHP/5.2.4-Zen-Ubuntu5.10 with Suhosin-Patch	Open	October 09, 2011 13:41
tcp	8180	Apache-Coyote/1.1	Open	October 09, 2011 13:41
tcp	3306	5.0.51a-Subuntu5	Open	October 09, 2011 13:42

2018-09-25T21:34:15+00:00 | No Vulnerabilities

RAPID7

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Security

Vulnerability Detection is a Crucial Component of Test Automation

Splunk > App: Rapid7 Nexpose for Splunk >

Administrator > Messages > Settings > Activity > Help > Find

Rapid7 Main Dashboard Asset Search Vulnerability Search Search Rapid7 Nexpose for Splunk

Rapid7 Main Dashboard Edit Export ...

Rapid7 Nexpose Filter Settings

Filter By Index: rapid7 Filter By Site: WannaCry Time Period: Last 24 hours

Total Assets: 45 Assets

Total Vulnerabilities: 191 Vulnerabilities

Total Riskscore: 81,666 Riskscore

Most Common Operating Systems:

Operating System	Percentage
Microsoft Windows 10	~45%
Microsoft Windows Server 2012 R2 Standard Edition	~10%
Microsoft Windows XP	~5%
Microsoft Windows Server 2003 SP2	~5%
Microsoft Windows Server 2008 R2 SP1	~5%
Microsoft Windows Server 2008 Enterprise Edition SP1	~5%
Microsoft Windows 8.1	~5%
Microsoft Windows 7 Enterprise Edition SP1	~5%

Most Critical Vulnerabilities:

WannaCry

Dynamic Cloud Infrastructure

Assets Spin Up / Assets Spin Down

Cl

CD

Test

DevSecOps

IaaS



Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP	IP
	us-west-2a	running	2/2 checks ...	None	ec2-52-37-231-222.us...	52.37.231.222	-
	us-west-2a	running	2/2 checks ...	None	ec2-54-71-98-41.us...	54.71.98.41	-
	us-west-2a	stopped			ec2-54-71-139-26.us...	54.71.139.26	-
	us-west-2b	running	2/2 checks ...	None	ec2-35-167-101-206.us...	35.167.101.206	-
	us-west-2b	running	2/2 checks ...	None	ec2-35-164-251-191.us...	35.164.251.191	-
	us-west-2b	running	2/2 checks ...	None	ec2-54-70-76-176.us...	54.70.76.176	-
	us-west-2b	running	2/2 checks ...	None	ec2-34-213-168-94.us...	34.213.168.94	-
	us-west-2b	running	2/2 checks ...	None	ec2-52-37-220-133.us...	52.37.220.133	-
	us-west-2b	running	2/2 checks ...	None	ec2-35-166-213-158.us...	35.166.213.158	-
	us-west-2b	running	2/2 checks ...	None	ec2-35-40-255-73.us...	52.40.255.73	-
	us-west-2b	running	2/2 checks ...	None	ec2-35-160-137-241.us...	35.160.137.241	-
	us-west-2b	running	2/2 checks ...	None	ec2-34-212-222-170.us...	34.212.222.170	-
	us-west-2b	running	2/2 checks ...	None	ec2-35-166-67-209.us...	35.166.67.209	-
28	us-west-2b	running	2/2 checks ...	None	ec2-52-34-102-142.us...	52.34.102.142	-

2018-09-25T21:35:06+00:00 | Microservice Deployed



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Dynamic Cloud Infrastructure

Assets Spin Up / Assets Spin Down

CloudTrail **Config** **Billing Reports** **Alerts** **Search**

Splunk App for AWS

Config Overview

62 CREATES 266 UPDATES 39 DELETES 367 TOTAL CHANGES

Changes by Resource Type 17m ago

resourceType	Last Activity	count	percent
AWS::EC2::Instance	2014-11-05 19:14:00 +0000	104	37%
AWS::EC2::Subnet	2014-11-05 16:13:01 +0000	55	19%
AWS::EC2::Volume	2014-11-05 20:39:12 +0000	43	15%
AWS::EC2::SecurityGroup	2014-11-05 16:13:02 +0000	31	11%
AWS::EC2::VPC	2014-11-05 16:13:01 +0000	19	7%
AWS::EC2::NetworkAcl	2014-11-05 14:03:59 +0000	11	4%
AWS::EC2::NetworkInterface	2014-11-05 14:39:01 +0000	11	4%
AWS::EC2::InternetGateway	2014-10-28 04:13:00 +0000	7	2%

Changes by AWS Region and Type 17m ago

Changes Over Time 17m ago

Events

Time

CREATE DELETE UPDATE

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So Many Applications!!!

The collage includes the following components:

- Bitbucket Overview:** Shows project statistics like 68 branches, 99+ tags, and 10 forks.
- Atlassian Crowd:** Lists developer landing pages and bugs.
- Jenkins Build Queue:** Shows multiple Jenkins instances running builds.
- CloudWatch Metrics:** A dashboard showing various database metrics across different services.
- Metasploit Community:** An overview of available exploit modules.
- Amazon CloudWatch Metrics:** A detailed view of EC2 instance monitoring data.
- JIRA Test Suite:** A screenshot of a JIRA board showing test cases and their status.
- Amazon CloudWatch Metrics:** Another view of CloudWatch Metrics data, showing specific log entries for various services.

DevOps Activity != KPIs

Monitoring is the First Step

2018-09-25T21:31:01+00:00 | Code Committed

2018-09-25T21:32:29+00:00 | Build Successful

2018-09-25T21:33:34+00:00 | All Tests Passed

2018-09-25T21:34:15+00:00 | No Vulnerabilities

2018-09-25T21:35:06+00:00 | Microservice Deployed

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Why Track What Your DevOps Teams Are Doing?

Who needs data anyway?

Why Did You Go DevOps?

Remind yourself of the fundamentals...

- ▶ Increase Velocity & Decrease Lead-Times
 - ▶ Improve Quality & Release Predictability
 - ▶ Improve App Reliability & Performance

“Process & Culture” KPIs

“Team Technical Proficiency” KPIs

“End-User Experience” KPIs

“Process & Culture” KPIs

Can you build more product capability faster?

Size of Deployments

One change, one build

Frequency of Deployments

Think in hours, not weeks

Lead Time

What gets in the way

“Team Technical Proficiency” KPIs

Is your team improving how they work?

Automated Test Failure Rate

How well is the code working

Time to Build

You're going to be doing this a lot

Deployment Failures

How stable is the deployment process

“End-User Experience” KPIs

Are you meeting users' expectations in usability and performance?

Product Error Rates

How well is the application working

Product Performance

Functionality doesn't matter if it's too slow

Uptime & SLAs

***It should probably be up
and running***

Bonus! -> “Feedback Loop” KPIs

How do you get better at anything?

Time to Detection

These can't wait

Time to Recovery

Remember those SLAs?

Learning

RCAs should connect to fixes

Benefits

Promotion Worthy Metrics



46x more frequent deployments

22% less time on unplanned work

96x faster recoveries from failures

5x lower change failure rate

430x shorter lead times

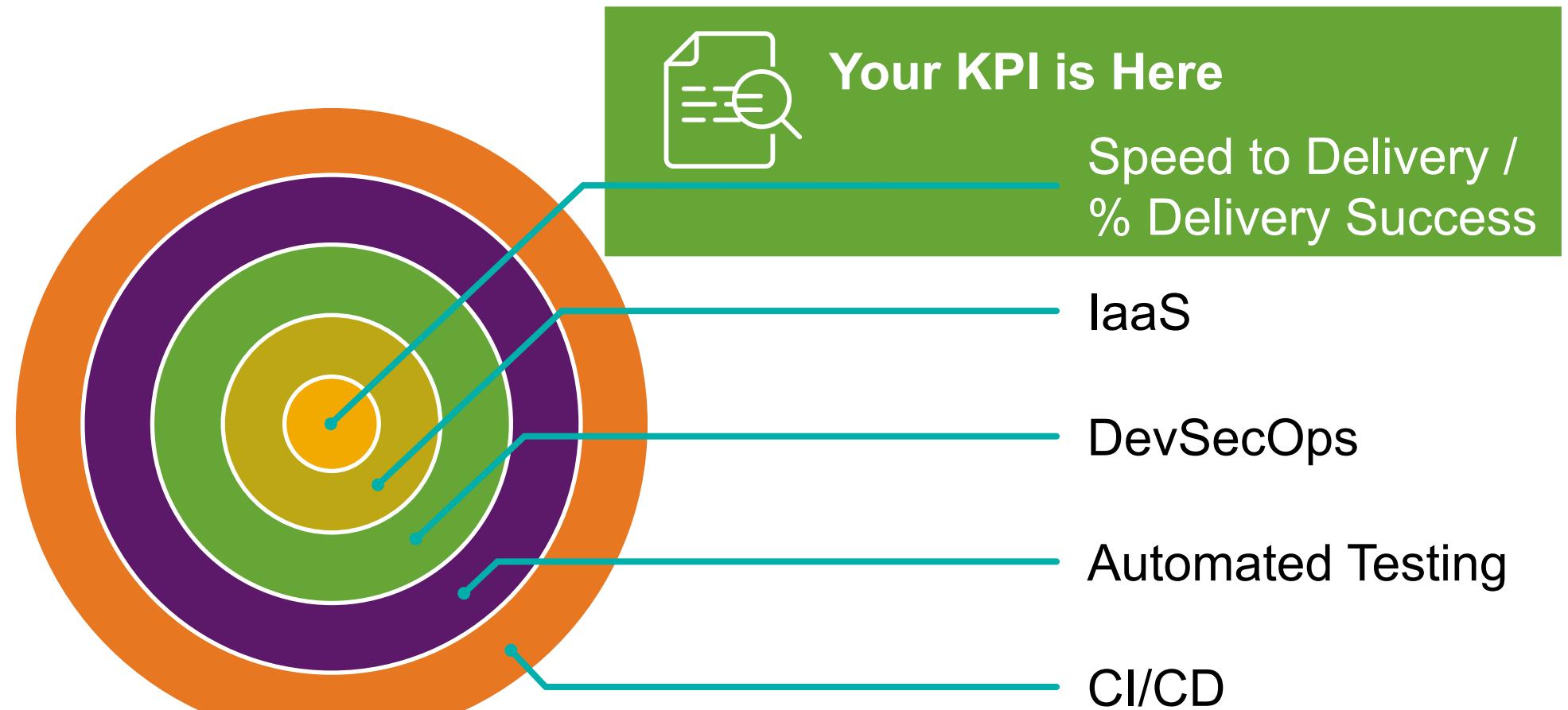
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Things to Remember

You need some kind of action item from all this

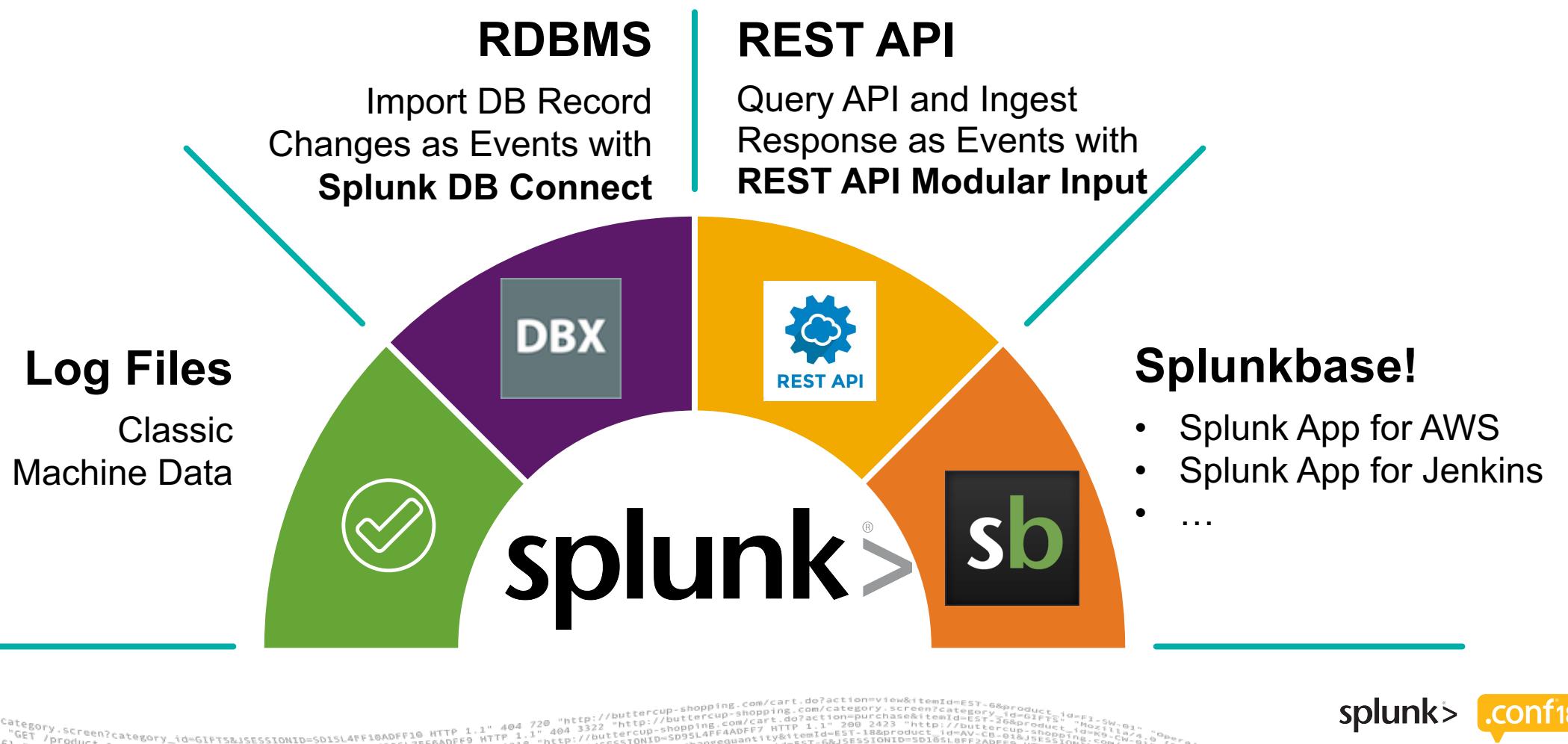
Aggregate All The Things

If You Want to Make Fabric, You're Going to Need Threads



It's Not Just Logs

Log Files Do Not Necessarily Contain All Important Events



splunkbase

If it Can Integrate, There Will Be an App

The screenshot shows the Splunkbase interface for the 'Splunk Essentials For Application Analytics' app. The top navigation bar includes 'splunk>enterprise', 'App: Splunk Essentials For Application Analytics', 'Administrator', 'Messages', 'Settings', 'Activity', 'Help', 'Find', and a search icon. Below the navigation is a banner with the app's logo and name: 'splunk> essentials for App Analytics'. The main content area features an 'Introduction' section with text about the app's purpose and examples, followed by five cards illustrating different analytics use cases:

- Application Monitoring and Triage**: Features 16 Examples! Track Issues by looking at Application Logs and Metrics to help in triage of unexpected issues.
- Customer Experience Monitoring**: Features 8 Examples! End User Experience is critical in determining how to determine the customer experience and the health of your application.
- Application Modernization**: Features 1 Examples! In part of the digital transformation journey we need to make sure we can monitor new technology and compare and contract changes within the environment.
- Application Release Analytics**: Features 1 Examples! When you start taking your journey toward automation. We need to make sure the Applications that were releasing are properly loaded and verified.
- Application Lifecycle Analytics**: Features 2 Examples! The Software Development Lifecycle is focused on looking at each stages of the development and figuring out the missing link.

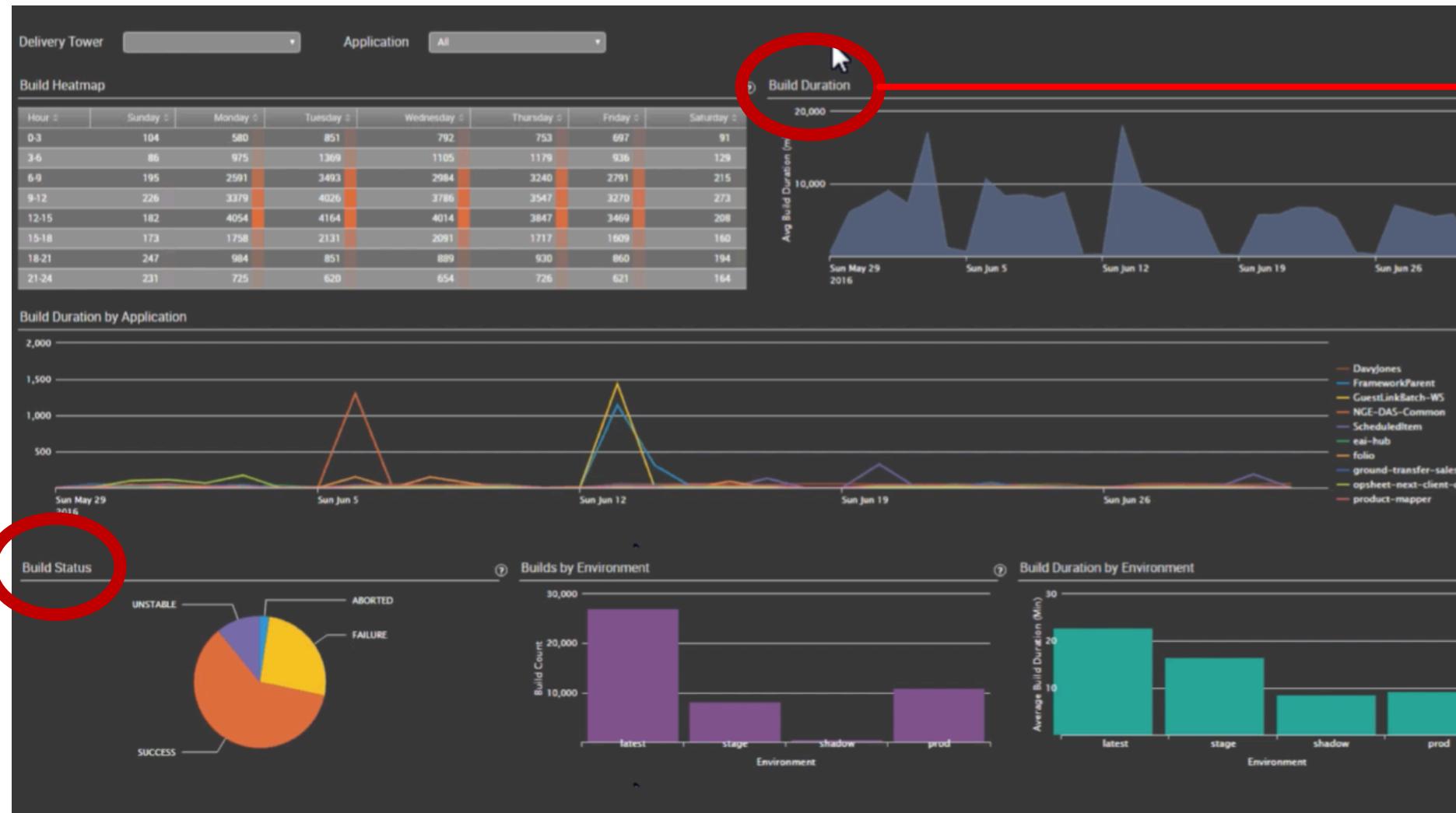
In One Place

Size and Complexity



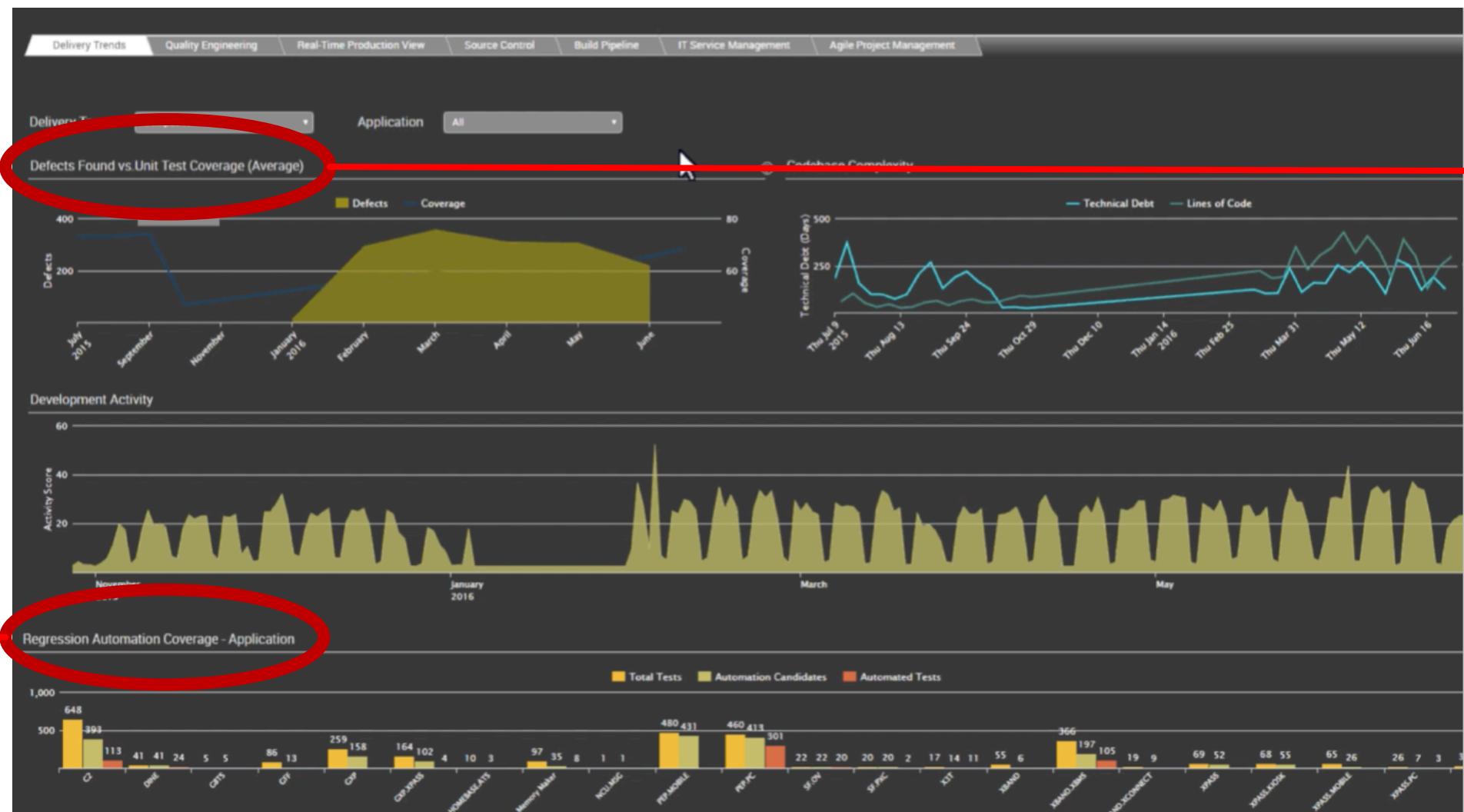
In One Place

Builds and Time



In One Place

Tests and Defects



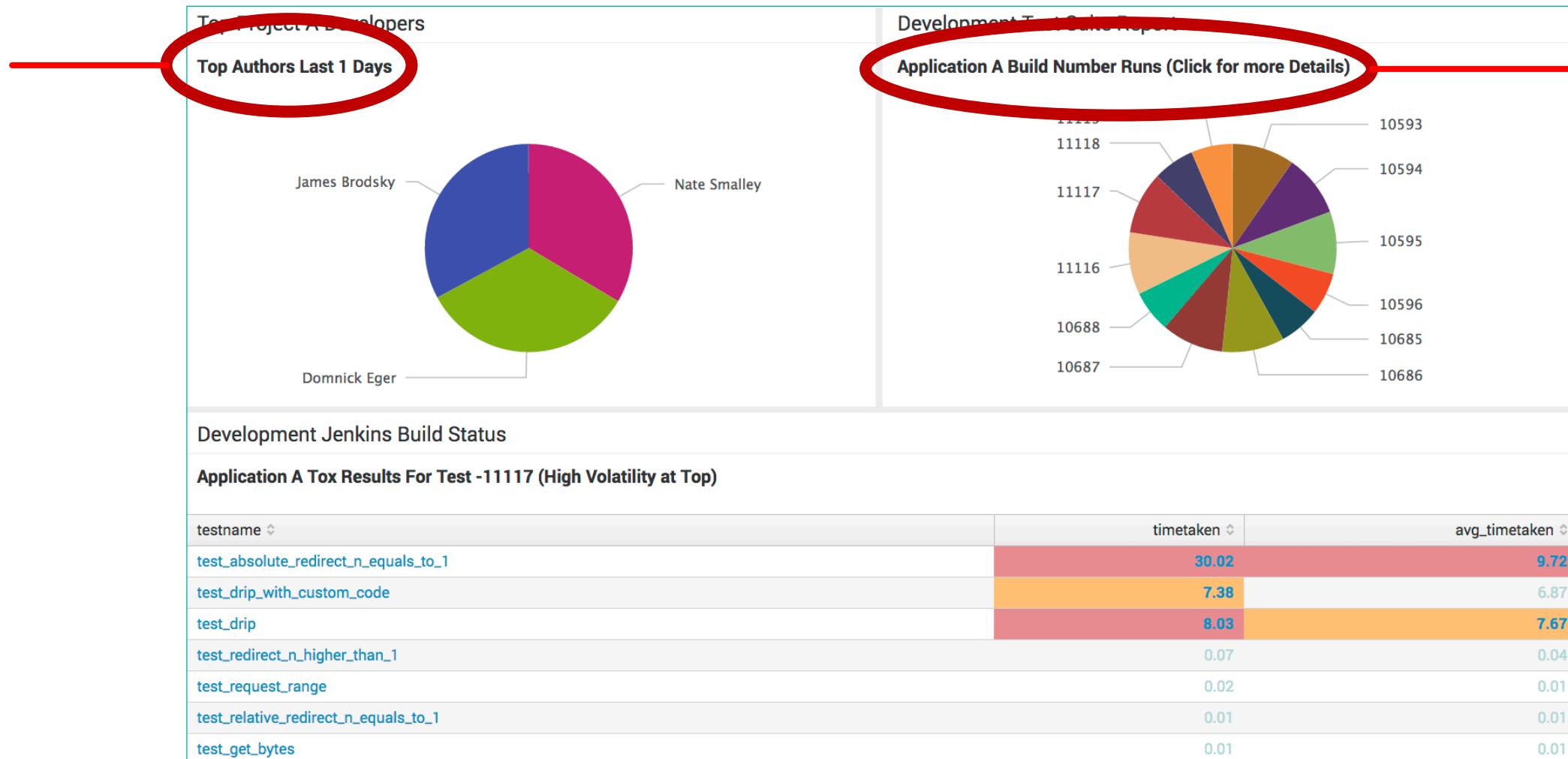
In One Place

Releases and Readiness



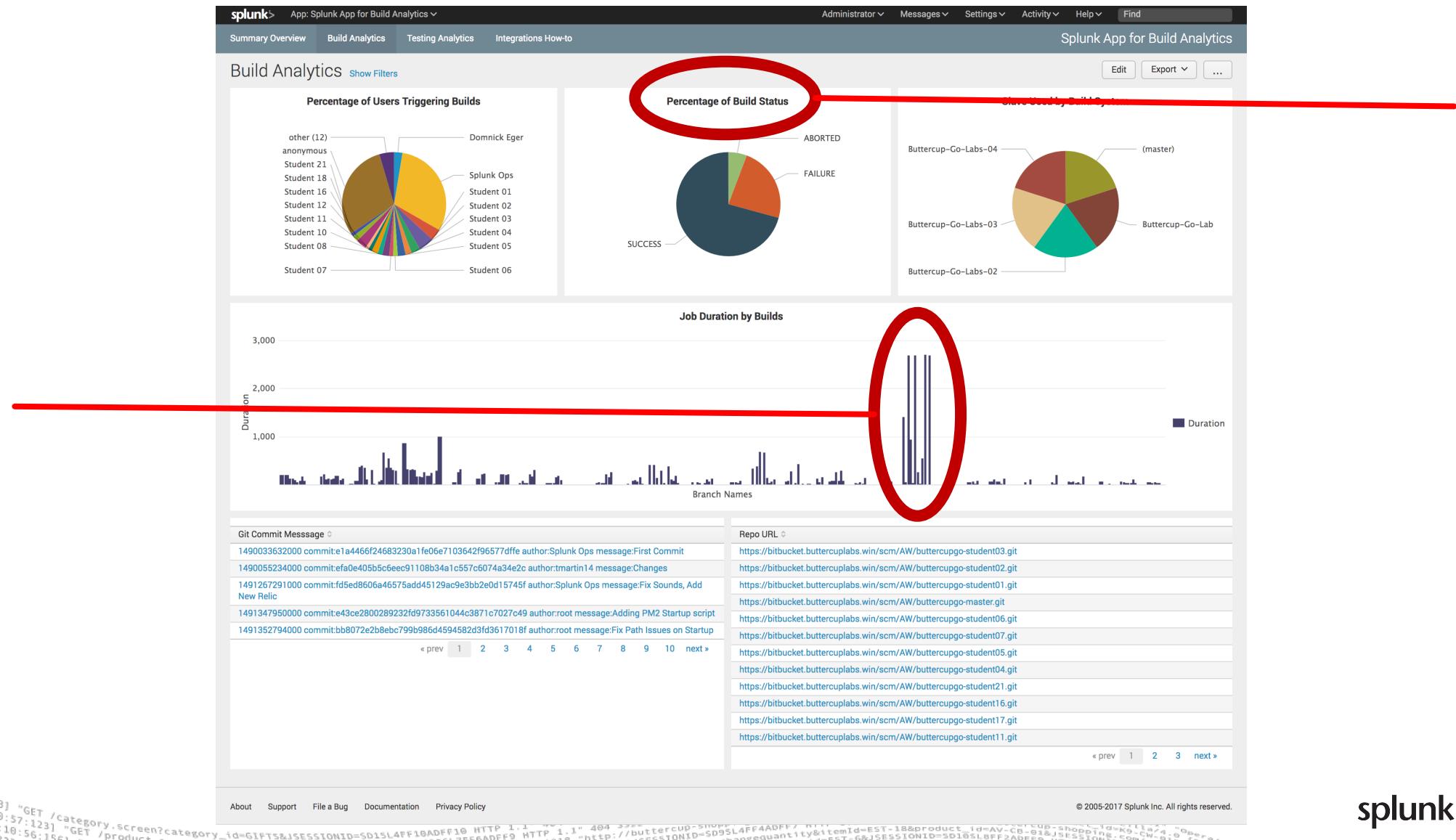
In One Place

Individuals and Applications



In One Place

Exceptions and Anomalies



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Key Takeaways

1. You do DevOps so you have a LOT of tools to stay on top of
2. Tools have their respective data and reports, but the info is siloed
3. Aggregating machine data in one place can give the insights you need to improve

Q&A

Thank You

Don't forget to rate this session
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