

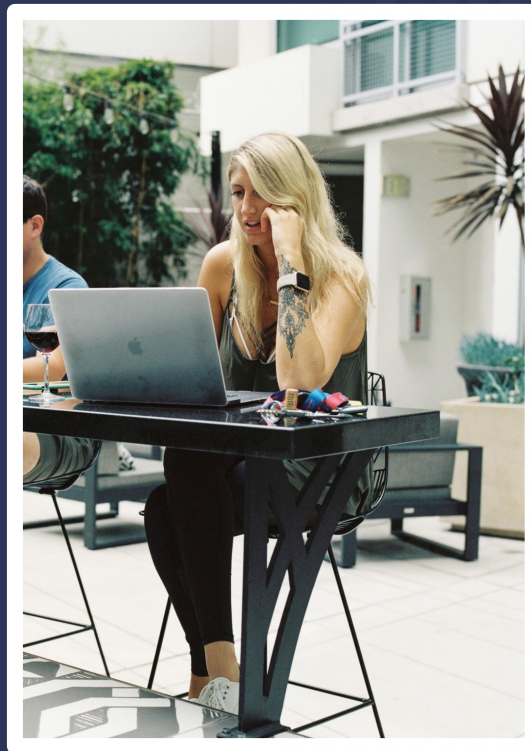
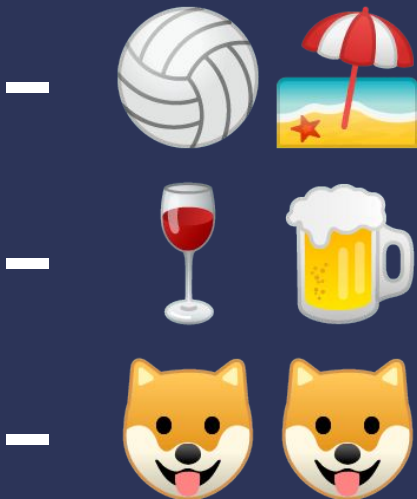
TestCon Europe 2019

Evolution of QA to GA: The Sensu Go QA Crucible

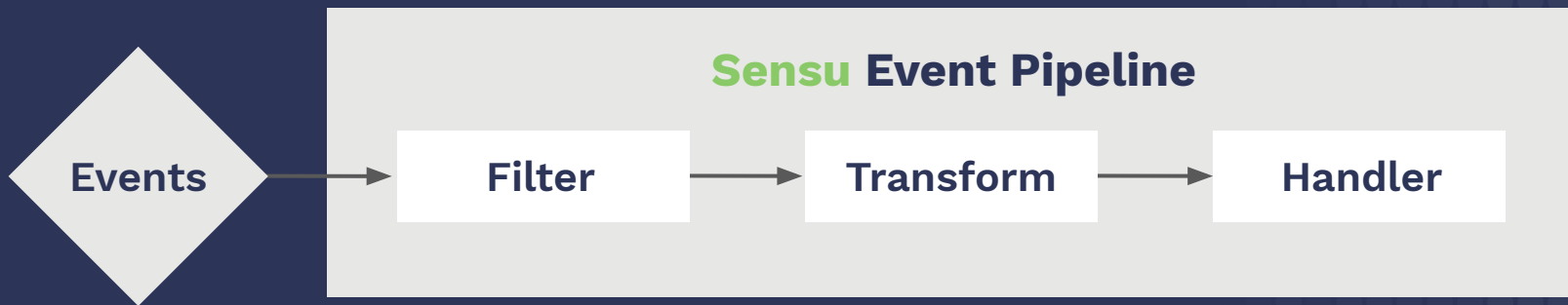
Nikki Attea
Software Engineer
Sensu Inc.



Hi, I'm Nikki.



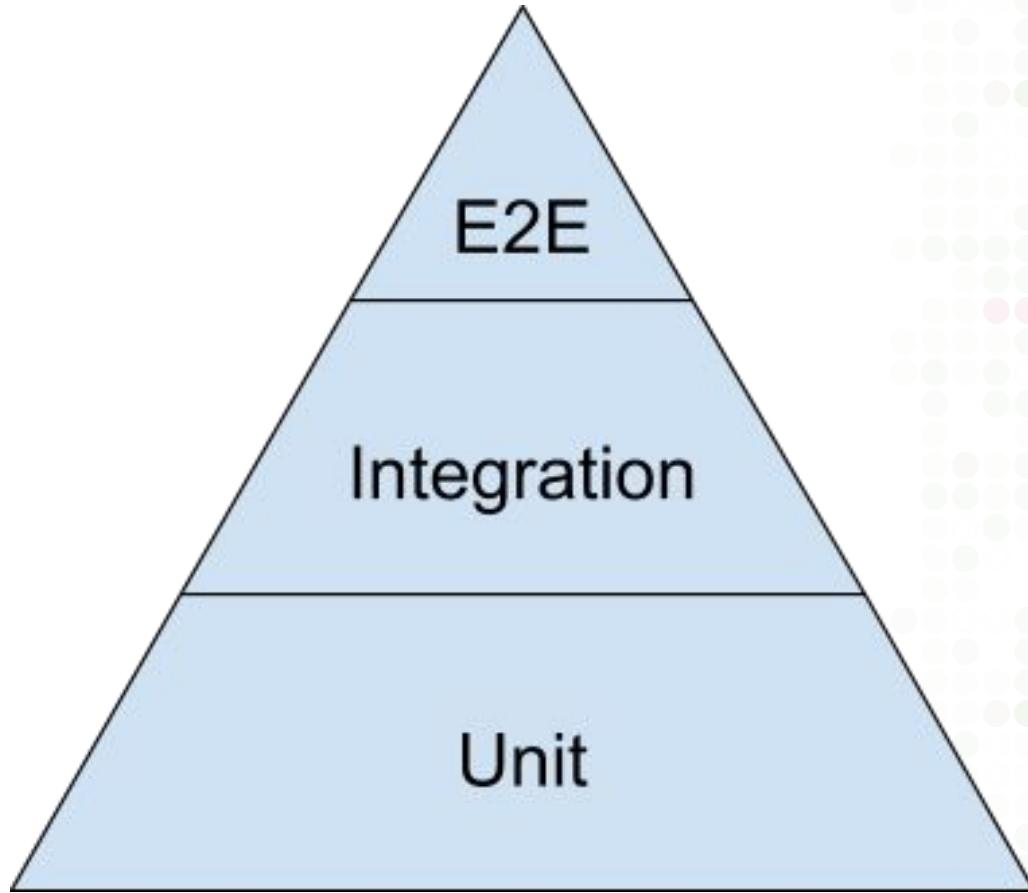
How does **Sensu** work?











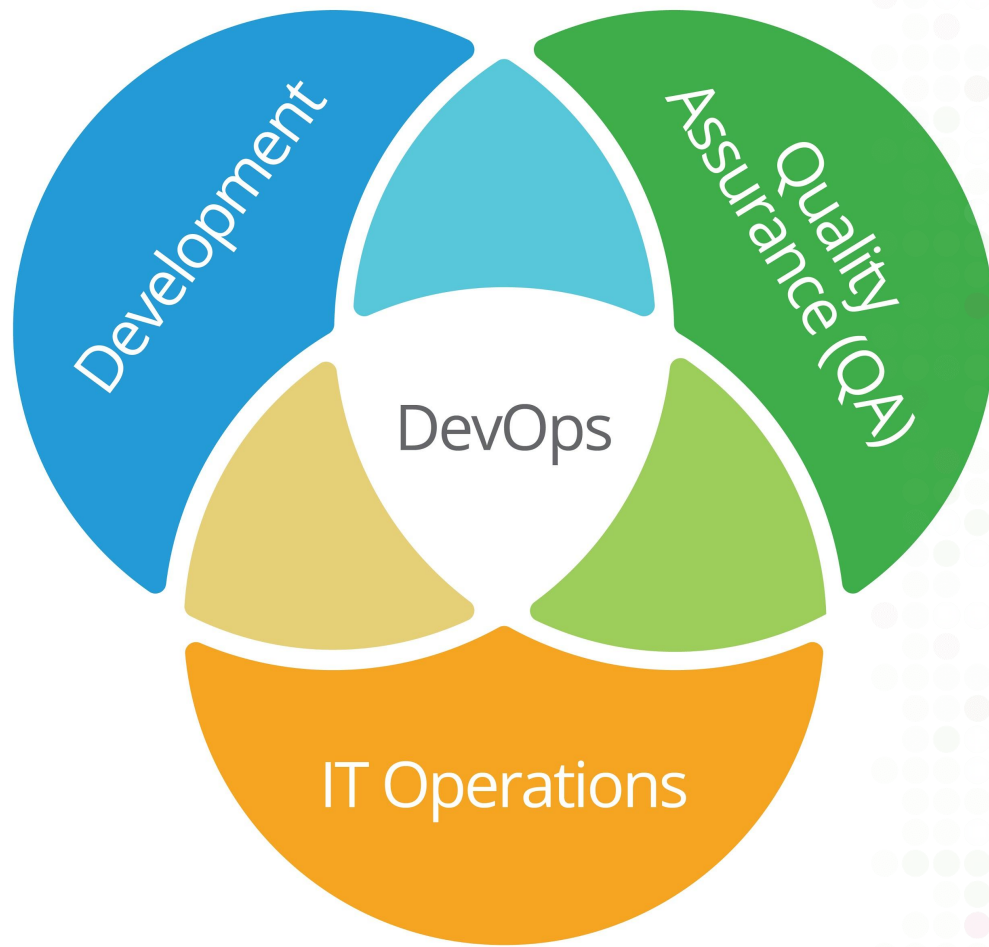
Sensu is **the original** monitoring event pipeline.

How does Sensu Inc operate?





	Unit	End-to-End
Fast		
Reliable		
Isolates Failures		
Simulates a Real User		



Building software is easy.



Kim Goodwin
@kimgoodwin

I am convinced that a lot of “technical debt” is really “problem definition debt.” It exists because nobody took the time to define how the tool or the data would need to be used over time, even though many of those uses are easy to anticipate.



Building software is easy.



**Building software is easy.
Shipping software is hard.**

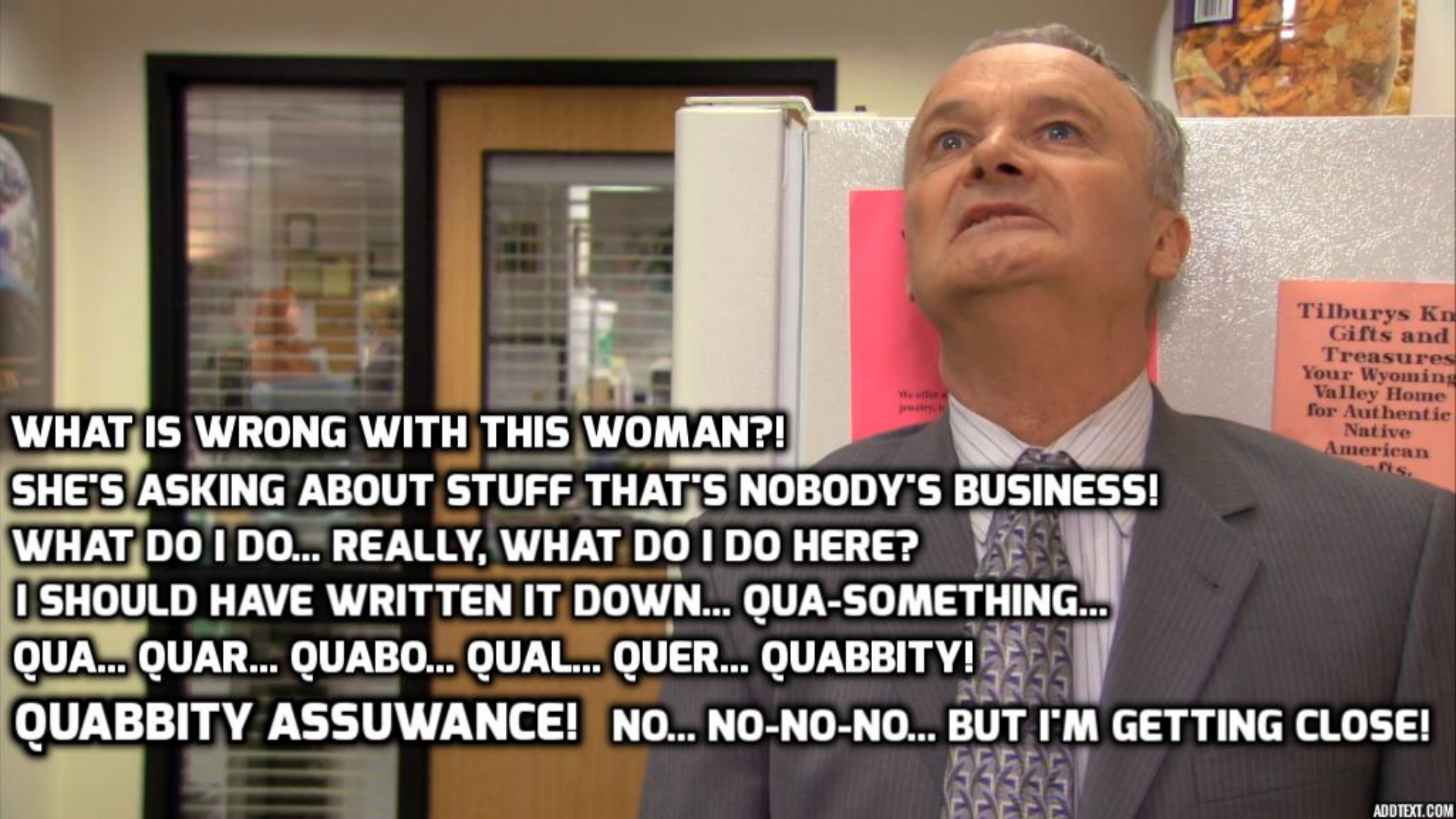


**Releases *should* be simple,
reliable, and reproducible.**



**Releases *were* complex,
chaotic, and inconsistent.**

**Some of it was bad.
Some of it was funny.
Deadlines are a real thing.**

A photograph of Michael Scott from the TV show 'The Office'. He is standing in a kitchen, looking upwards with a thoughtful expression. He is wearing a grey suit, a white shirt, and a patterned tie. In the background, there is a white refrigerator with a pink sign that reads 'Tilburys Kn Gifts and Treasures Your Wyoming Valley Home for Authentic Native American Gifts.' and a large jar of snacks on top. The text is overlaid on the bottom half of the image.

**WHAT IS WRONG WITH THIS WOMAN?!
SHE'S ASKING ABOUT STUFF THAT'S NOBODY'S BUSINESS!
WHAT DO I DO... REALLY, WHAT DO I DO HERE?
I SHOULD HAVE WRITTEN IT DOWN... QUA-SOMETHING...
QUA... QUAR... QUABO... QUAL... QUER... QUABBITY!
QUABBITY ASSUWANCE! NO... NO-NO-NO... BUT I'M GETTING CLOSE!**

Humble beginnings.

Clustering []

- **Agents will reconnect to a different backend if its backend becomes unavailable**
- **Cluster members can be removed from the cluster**
- **Cluster members can be added to the cluster**
- **Check scheduling works as expected**
- **Ad-hoc check scheduling works as expected**
- **Round-robin scheduling works as expected**
- **Losing $n/2-1$ members of the cluster does not interrupt service**
- **sensuctl cluster health**

Clustering [Nikki]

- Agents will reconnect to a different backend if its backend becomes unavailable
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- Losing $n/2-1$ members of the cluster does not interrupt service
- `sensuctl cluster health`





Pranay Pathole

@PPathole

Follow



This is what users do when you create an intuitive UI.





#1: Eliminate bias by adding instruction.

Clustering [Nikki]

- Agents will reconnect to a different backend if its backend becomes unavailable
 - ssh into backend-2
 - On backend-2, identify an agent registered with this backend
 - `journalctl -u sensu-backend -f|grep keepalive`
 - Stop backend-2
 - `sudo systemctl stop sensu-backend`
 - Wait 1-2 minutes and check if this agent recently sent a keepalive
 - `sensuctl entity info {AGENT_ID} --organization ops --environment dev`
- Cluster members can be removed from the cluster
 - Identify the ID of backend-2
 - `sensuctl cluster member-list`
 - Remove the member
 - `sensuctl cluster member-remove {ID}`
- Cluster members can be added to the cluster
 - ssh into backend-2
 - Delete the state-dir
 - `sudo rm -rf /var/lib/sensu/etcd`
 - Modify the backend config to replace the existing value of `etcd-initial-cluster-state` to `existing`
 - `sudo vi /etc/sensu/backend.yml`
 - Re-add backend-2 to the cluster
 - `sensuctl cluster member-add backend-2 https://{BACKEND2_IP}:2380`
 - Start back sensu-backend
 - `sudo systemctl start sensu-backend`
- Check scheduling works as expected
- Ad-hoc check scheduling works as expected
- Round robin scheduling works as expected

Clustering [UNOWNED]

1. Agents will reconnect to a **dionfig** to replace the existing value of **etcd-initial-cluster-state** to existing
 - i. `sudo vi /etc/sensu/backend.yml`
 - b. Re-add backend-2 to the cluster
 - i. `sensuctl cluster member-add backend-2 https://{BACKEND2_IP}:2380`
 - c. Start **back sensu-backfferent backend** if its backend becomes unavailable
 - i. `ssh into backend-2`

#2: Define acceptance criteria.

Resource	Feature	Function	Description	Test Commands/Instructions	Acceptance Criteria	Pass Fail	Known Issues	Completed by
Clustering	sensuctl	health	A user can get cluster health using sensuctl.	sensuctl cluster health	Command executes successfully. The cluster health status of 3 cluster members is displayed.	pass		Nikki
		member-add	A user can add a member to a cluster using sensuctl.	sensuctl cluster member-add backend-3 https://10.0.0.1:2380 sensuctl cluster member-list	Commands execute successfully. The cluster member backend-3 is displayed in the list.	pass		Nikki
		member-list	A user can list all members in a cluster using sensuctl.	sensuctl cluster member-list	Command executes successfully. All cluster members are displayed in the list.	pass		Nikki
		member-update	A user can update a member in a cluster using sensuctl.	sensuctl cluster member-update [id of backend-3] https://10.0.0.2:2380 sensuctl cluster member-list	Commands execute successfully. The cluster member backend-3 is displayed in the list with the updated fields.	pass		Nikki
		member-remove	A user can remove a member in a cluster using sensuctl.	sensuctl cluster member-remove [id of backend-3] sensuctl cluster member-list	Commands execute successfully. The cluster member backend-3 is no longer displayed in the list.	pass		Nikki
	etcd	external	A backend can serve as an etcd client and connect to an external etcd cluster.	sudo service sensu-backend status (on staging-backend-3) sensuctl event list (on staging-backend-3)	All commands execute successfully. Backend logs successful start up (no panic). External client can access events from the cluster.	pass		Nikki



Eric 🏂 1:58 PM

5.0.0 is whatever makes it through the QA crucible



grepory 1:59 PM

QA crucible has a nice ring to it

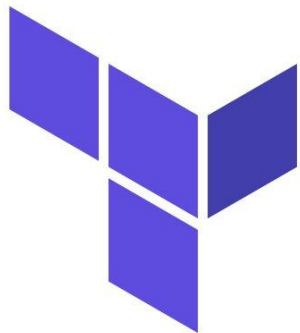


Eric 🏂 5:07 PM

@here the QA crucible has completed and this release candidate will become the GA 5.0.0 build on Wednesday! 🎉



**#3: Automate, but don't
over-automate.**



HashiCorp

Terraform



ANSIBLE



RSpec

Smoke tests. Vape tests.



```
describe package('sensu-go-backend') do
  it { should be_installed }
end
```

```
describe service('sensu-backend') do
  it { should be_running }
end
```

```
describe port(3000) do
  it { should be_listening }
end
```

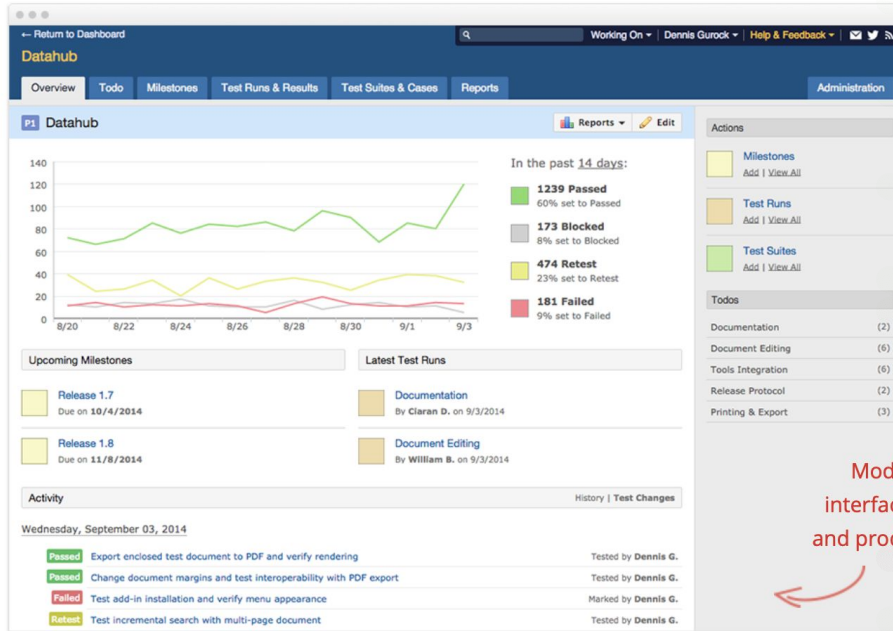
```
describe port(8080) do
  it { should be_listening }
end
```



#4: Implement test case management.

Modern test management for your team

Manage all your testing efforts in a central place



Web-based
your own
or host

Modern user
interface for a fast
and productive team



All in one place: manage, organize and track all your testing efforts in a central place.



Web-based: easily access TestRail with your entire team – either hosted on your or our servers.



Modern interface: testing with a beautiful and highly productive user interface.

Results & Comments ? History & Context ? Defects ?

Failed This test was marked as 'Failed'.

3/7/2019 9:19 PM
Nikki

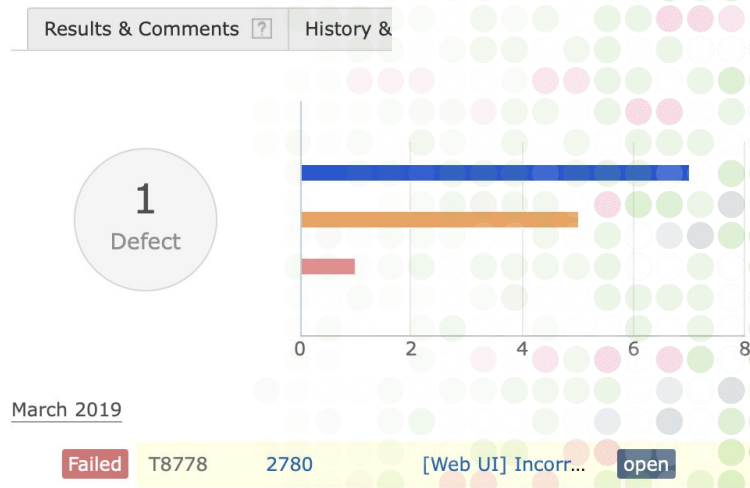
2780: [Web UI] Incorrect silenced state reflected in the status icon

Repository	Status	Milestone
sensu/sensu-go	open	-
Assignee	Labels	
-	web-ui	

Silencing proxy entities.. what do we do?

Expected Behavior
From the entities page, I should be able to silence a proxy entity. That proxy entity should reflect a silenced state with the silenced icon after it's created.

Current Behavior
From the entities page, I am able to silence a proxy entity. However the proxy entity does not reflect the silenced state with the silenced icon after it's created.



Sort: Section | Filter: None



clustering (0)

<input type="checkbox"/>	ID	Title	
--------------------------	----	-------	--

[Add Case](#) | [Add Subsection](#)

sensuctl (5)

<input type="checkbox"/>	ID	Title	
<input checked="" type="checkbox"/>	C149	health	<
<input type="checkbox"/>	C150	member-add	
<input type="checkbox"/>	C151	member-list	
<input type="checkbox"/>	C152	member-update	
<input type="checkbox"/>	C153	member-remove	

[Add Case](#) | [Add Subsection](#)

quorum (2)

<input type="checkbox"/>	ID	Title	
<input type="checkbox"/>	C154	member loss	
<input type="checkbox"/>	C1083	quorum loss	

[Add Case](#) | [Add Subsection](#)

etcd (2)

<input type="checkbox"/>	ID	Title	
<input type="checkbox"/>	C489	embedded	
<input type="checkbox"/>	C490	external	

[Add Case](#) | [Add Subsection](#)

C149 health

Type	Priority	Estimate
Functional	P2	None
Automation Type		
None		

Description

A user can get cluster health using sensuctl.

Steps

- 1 sensuctl cluster health

Expected Result

Command executes successfully. The cluster health status of 3 cluster members is displayed.

```
describe package('sensu-go-backend'), testrail_id: 479 do
  it { should be_installed }
end
```

```
describe service('sensu-backend'), testrail_id: 481 do
  it { should be_running }
end
```

```
describe port(3000), testrail_id: 482 do
  it { should be_listening }
end
```

```
describe port(8080), testrail_id: 483 do
  it { should be_listening }
end
```

R59

2019/09/09 QA Party - 5.13.0-rc.1

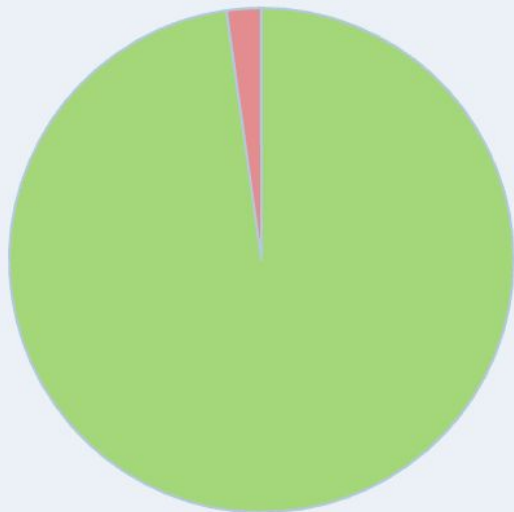


Reports ▾



Rerun

? This test run is completed. You can no longer modify this test run or add new test results.

**353 Passed**

98% set to Passed

**0 Blocked**

0% set to Blocked

**0 Retest**

0% set to Retest

**8 Failed**

2% set to Failed

98%

passed

0 / 361 untested
(0%).



#5: Hire employees with diverse experience.

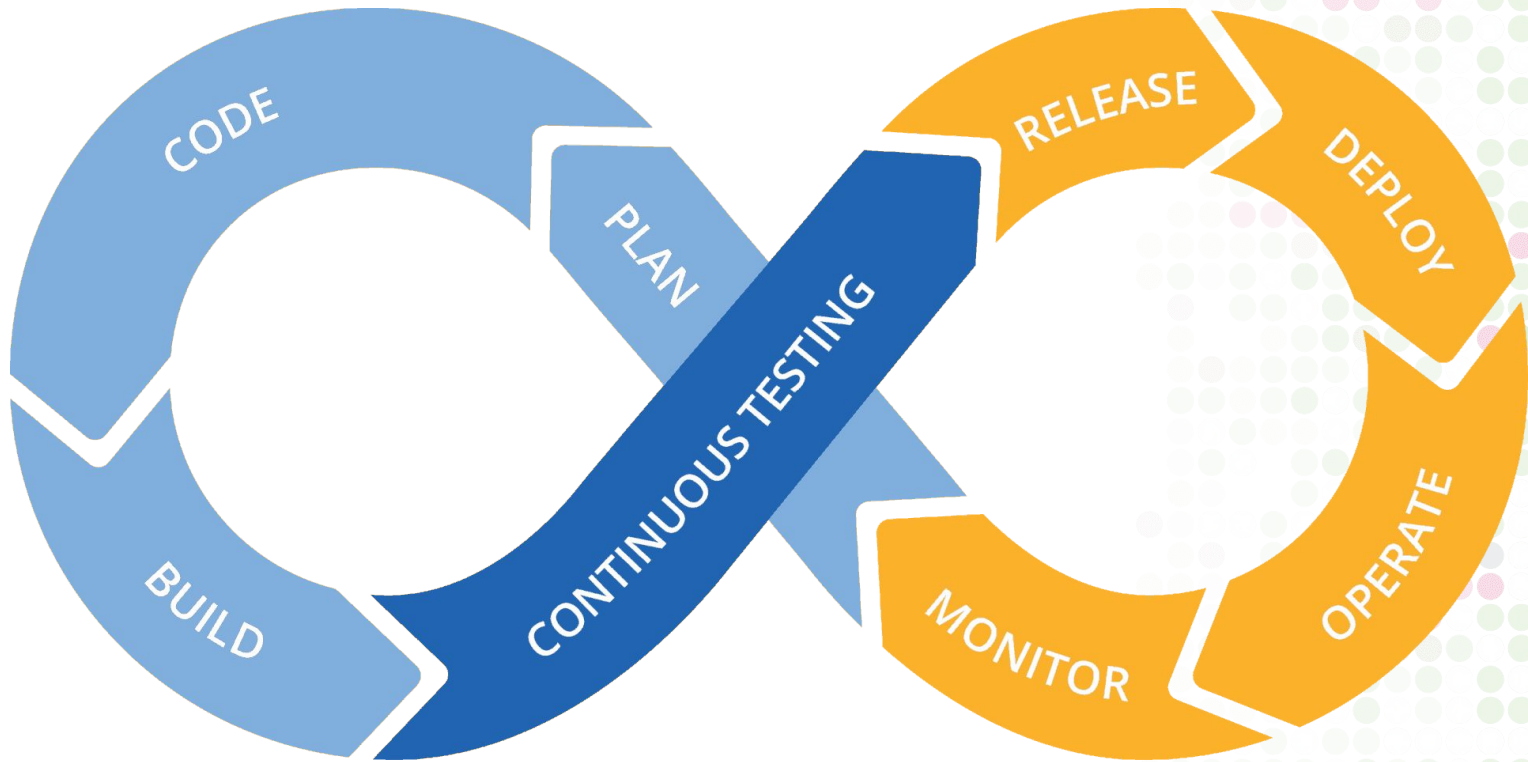
#1: Eliminate bias by adding instruction.

#2: Define acceptance criteria.

#3: Automate, but don't over-automate.

#4: Implement test case management.

#5: Hire employees with diverse experience.





Tests fail when an assertion in
our code **breaks**.

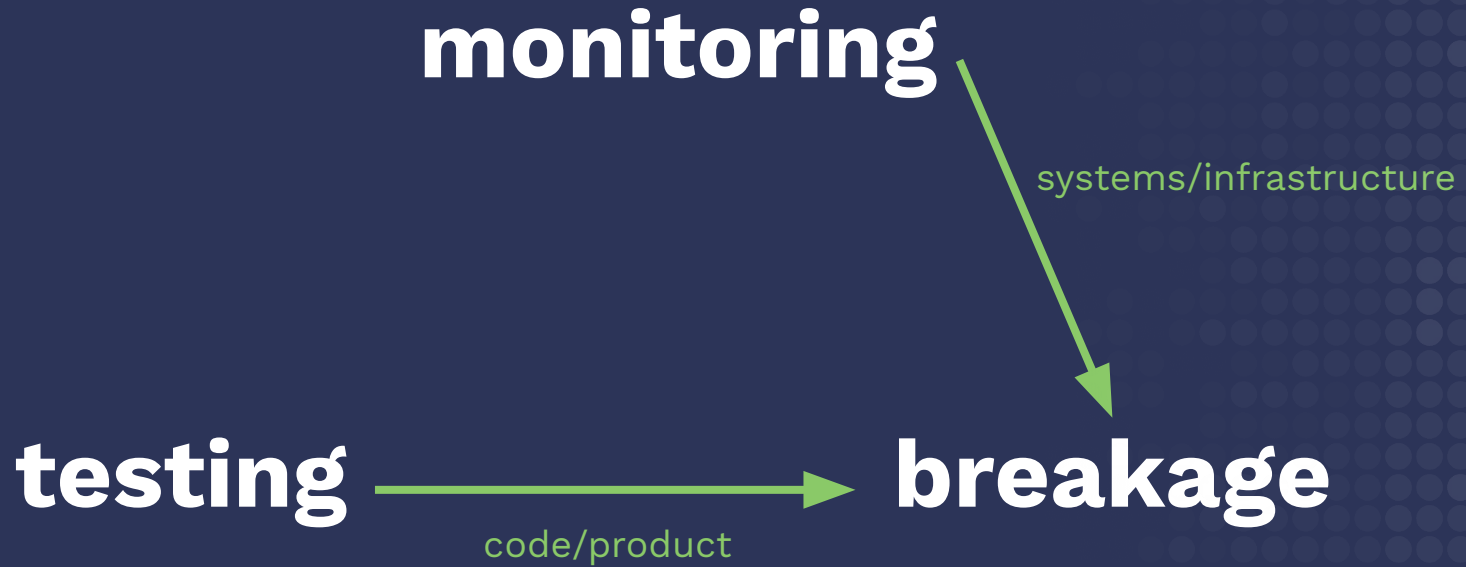


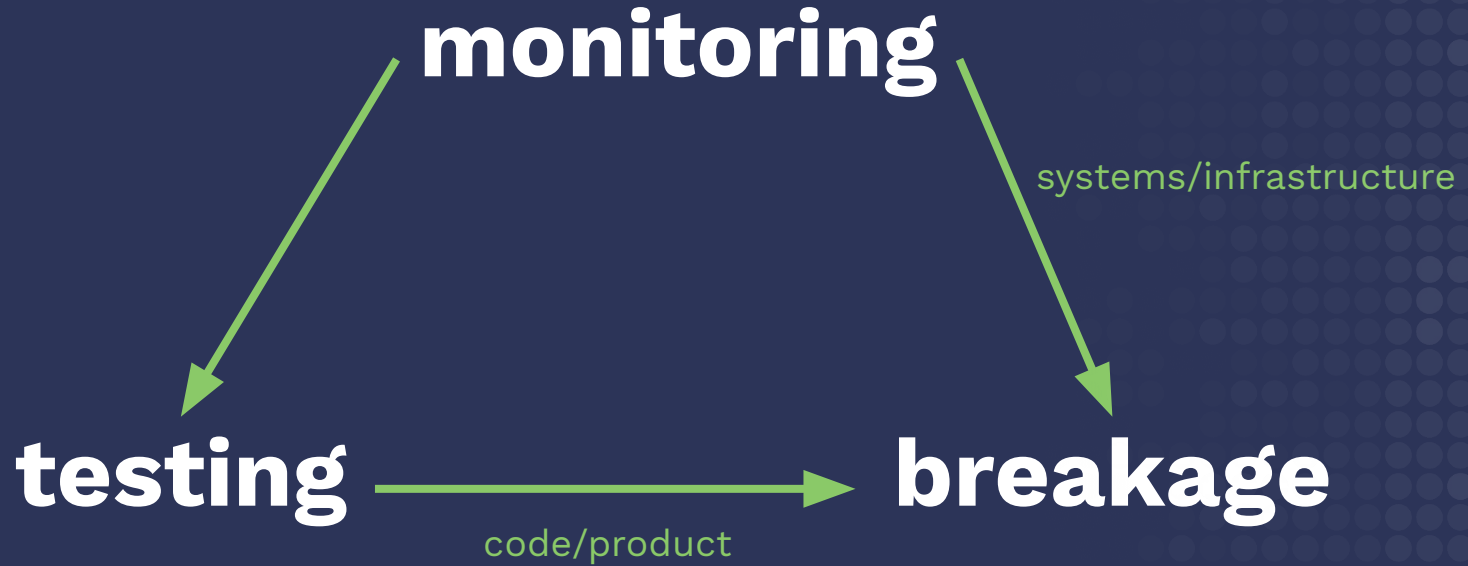
Tests fail when an assertion in
our code **breaks**.

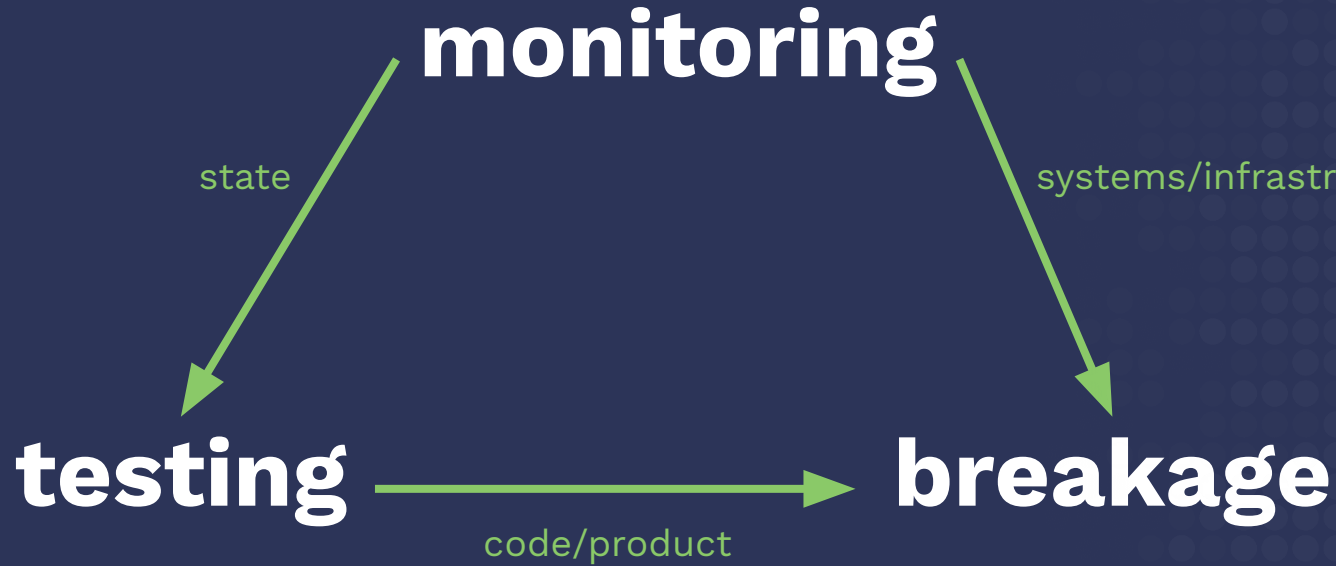
Monitoring detects and alerts
us when our system **breaks**.













+



ITERATION 2

The screenshot shows the Sensu Dashboard interface. At the top, there are navigation links for 'Current Events', 'Stashes', 'Clients', 'Checks', and 'Info'. Below this is the 'Events Count' section, which displays '2 total', '1 critical', '1 warning', and '0 unknown'. A search filter is present below the counts. The main part of the dashboard is a table with three columns: 'Client', 'Check', and 'Output'. The table contains two rows of event data. The first row is highlighted in light red and shows a critical event for 'sensu.localdomain' on the 'check_rspec_tests' check, with the output '266 examples, 1 failure'. The second row is highlighted in light orange and shows a warning event for 'sensu.localdomain' on the 'ntpd_spec.rb_9' check, with the output 'Service ntpd should be running'. Two red arrows point from text labels at the bottom to the first and second rows of the table. The first arrow points to the first row and is labeled 'Summary results'. The second arrow points to the second row and is labeled 'Individual test failures'. At the bottom of the dashboard, there is a copyright notice: '© Copyright Sorintan, Inc. 2013 License (MIT)'.

Client	Check	Output
sensu.localdomain	check_rspec_tests	266 examples, 1 failure
sensu.localdomain	ntpd_spec.rb_9	Service ntpd should be running

Summary results

Individual test failures

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bonsai.sensu.io/assets/nikkixdev/sensu-serverspec-events

github.com/nikkixdev/sensu-serverspec-events



```
---
type: Asset
api_version: core/v2
metadata:
  name: sensu-serverspec-events_osX_amd64
  labels:
  annotations:
    io.sensu.bonsai.url: https://bonsai.sensu.io/assets/nikkixdev/sensu-serverspec-events
    io.sensu.bonsai.api_url: https://bonsai.sensu.io/api/v1/assets/nikkixdev/sensu-serverspec-events
    io.sensu.bonsai.tier: Community
    io.sensu.bonsai.version: 0.1.0
    io.sensu.bonsai.namespace: nikkixdev
    io.sensu.bonsai.name: sensu-serverspec-events
    io.sensu.bonsai.tags: serverspec, ruby, rspec, go, golang, sensu-go, test, testing,
      monitoring, devops, automation, e2e
spec:
  url: https://assets.bonsai.sensu.io/8d60ac53e01f034bd9b088b111cc3f24a58ea658/sensu-serverspec-events\_0.1.0\_darwin\_amd64.tar.gz
  sha512: da42db8d8b8b0f343861daf4ee6bd55294372a1353403bec243690cefdb289e3141c73159c7ddef112efaafa1ba0b49f7b2a526c215489ff3374c83add5c408b
  filters:
    - entity.system.os == 'darwin'
    - entity.system.arch == 'amd64'
```







Home



Events



Entities



Checks



Filters



Handlers



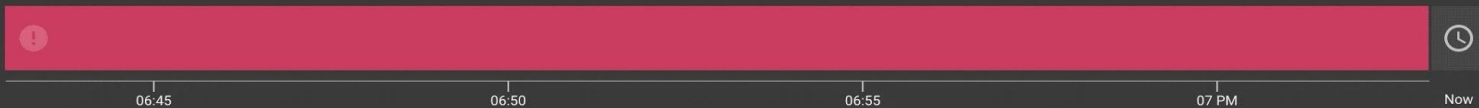
Mutators



Silences

✓ RESOLVE RE-RUN SILENCE DELETE

Timeline



Check Result

Status	critical (2)	Check	execution-timeout
Total State Change	0%	Entity	staging-agent-0
Last OK	Never	Issued at	Sep 30, 7:02 PM
Occurrences	90	Ran at	7:02 PM for 2.00s
Max Occurrences	90		

Execution timed out

CHECK CONFIGURATION SUMMARY

Related Entities

- staging-agent-1
The agent was last seen **seconds ago**.
- ✓ switch3
Proxy entity.
- ✓ staging-agent-3

Entity Summary

Entity	staging-agent-0
Status	critical (2)
Last Seen	15 minutes ago
Subscriptions	metrics, misc, round-robin, proxy, switches, entity:staging-agent-0



Home



Events



Entities



Checks



Filters



Handlers



Mutators



Silences

```

`run_specs'", "/Library/Ruby/Gems/2.3.0/gems/rspec-core-3.8.0/lib/rspec/core/runner.rb:87:in
`run'", "/Library/Ruby/Gems/2.3.0/gems/rspec-core-3.8.0/lib/rspec/core/runner.rb:71:in `run'", "/Library/Ruby/Gems/2.3.0/gems/rspec-
core-3.8.0/lib/rspec/core/runner.rb:45:in `invoke'", "/Library/Ruby/Gems/2.3.0/gems/rspec-core-3.8.0/exe/rspec:4:in `main>']}},
{"id": "./spec/backend/checks_spec.rb[19:1]", "description": "Check created.", "full_description": "A user can create a check using
sensuctl. Check
created.", "status": "passed", "file_path": "./spec/backend/checks_spec.rb", "line_number": 176, "run_time": 0.305585, "pending_message": null},
{"id": "./spec/backend/checks_spec.rb[20:1]", "description": "Event exists.", "full_description": "A user can execute an adhoc check
using sensuctl. Event
exists.", "status": "passed", "file_path": "./spec/backend/checks_spec.rb", "line_number": 184, "run_time": 4.511424, "pending_message": null},
{"id": "./spec/backend/checks_spec.rb[21:1]", "description": "Check is displayed.", "full_description": "A user can get info about a
check using sensuctl. Check is
displayed.", "status": "passed", "file_path": "./spec/backend/checks_spec.rb", "line_number": 201, "run_time": 0.303016, "pending_message": null},
{"id": "./spec/backend/checks_spec.rb[22:1]", "description": "Checks are listed.", "full_description": "A user can list all checks using
sensuctl. Checks are
listed.", "status": "passed", "file_path": "./spec/backend/checks_spec.rb", "line_number": 209, "run_time": 0.383845, "pending_message": null},
{"id": "./spec/backend/checks_spec.rb[23:1]", "description": "Check is deleted.", "full_description": "A user can delete a check using
sensuctl. Check is
deleted.", "status": "passed", "file_path": "./spec/backend/checks_spec.rb", "line_number": 217, "run_time": 0.579635, "pending_message": null},
{"id": "./spec/backend/checks_spec.rb[24:1]", "description": "Entity and event
exist.", "status": "passed", "file_path": "./spec/backend/checks_spec.rb", "line_number": 228, "run_time": 0.601499, "pending_message": null},
{"id": "./spec/backend/checks_spec.rb[25:1]", "description": "Splay is 27 seconds apart.", "full_description": "[Known bug] A proxy check
request can be scheduled evenly over a splay. Splay is 27 seconds
apart.", "status": "passed", "file_path": "./spec/backend/checks_spec.rb", "line_number": 241, "run_time": 15.375635, "pending_message": null},
{"id": "./spec/backend/checks_spec.rb[25:2]", "description": "Proxy events are executed 60 seconds apart per check
execution.", "full_description": "[Known bug] A proxy check request can be scheduled evenly over a splay. Proxy events are executed 60
seconds apart per check
execution.", "status": "failed", "file_path": "./spec/backend/checks_spec.rb", "line_number": 251, "run_time": 0.563245, "pending_message": null},
{"class": "RSpec::Expectations::ExpectationNotMetError", "message": "expected 0 to be within 1 of 60", "backtrace":
["/Library/Ruby/Gems/2.3.0/gems/rspec-support-3.8.0/lib/rspec/support.rb:97:in `block in
<module:Support>", "/Library/Ruby/Gems/2.3.0/gems/rspec-support-3.8.0/lib/rspec/support.rb:106:in
`notify_failure'", "/Library/Ruby/Gems/2.3.0/gems/rspec-expectations-3.8.2/lib/rspec/expectations/fail_with.rb:35:in
`fail_with'", "/Library/Ruby/Gems/2.3.0/gems/rspec-expectations-3.8.2/lib/rspec/expectations/handler.rb:40:in
`handle_failure'", "/Library/Ruby/Gems/2.3.0/gems/rspec-expectations-3.8.2/lib/rspec/expectations/handler.rb:50:in `block in
handle_matcher'", "/Library/Ruby/Gems/2.3.0/gems/rspec-expectations-3.8.2/lib/rspec/expectations/handler.rb:27:in
`with_matcher'", "/Library/Ruby/Gems/2.3.0/gems/rspec-expectations-3.8.2/lib/rspec/expectations/handler.rb:48:in
`handle_matcher'", "/Library/Ruby/Gems/2.3.0/gems/rspec-expectations-3.8.2/lib/rspec/expectations/expectation_target.rb:65:in
`to'", "/Users/nikkixdev/go/src/github.com/sensu/sensu-go-qa-crucible/spec/backend/checks_spec.rb:265:in `block (2 levels) in <top
(required)>", "/Library/Ruby/Gems/2.3.0/gems/rspec-core-3.8.0/lib/rspec/core/example.rb:254:in

```

test case management systems **vs.** monitoring solutions

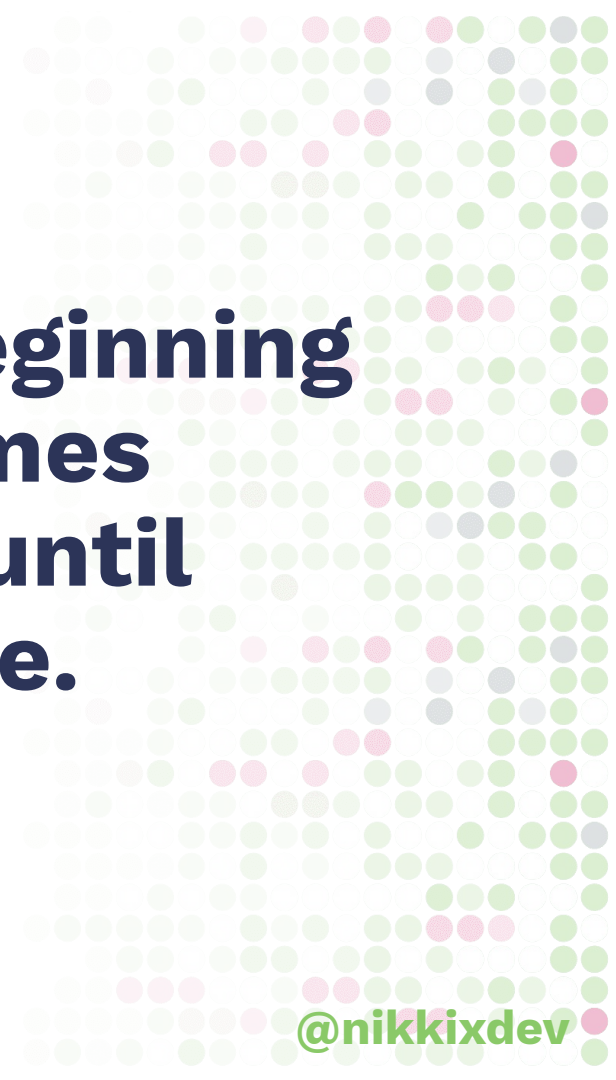


More than **tripled** initial test coverage.

Decreased test execution time by **~66%**.

Decreased complexity by a lot.

Increased reliability by a lot.



**Fixing an issue at the beginning
is between 10 and 50 times
cheaper than leaving it until
the testing phase is done.**

ntrs.nasa.gov

Questions?

