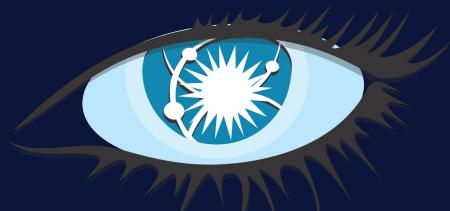




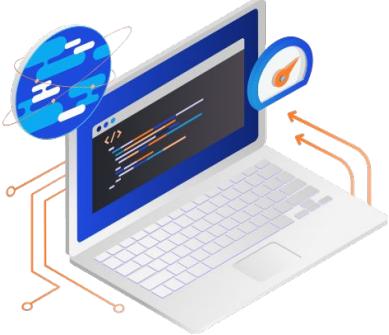
# Workshop online Series

## NoSQLBench with Cassandra



*cassandra*





# Your hosts



David Jones-Gilardi



Developer Advocate



DataStax happy  
Folks



Jack Fryer



Community Manager



Cédrick Lunven   
Developer Advocate



Aleksandr Volochnev   
Developer Advocate



# NoSQLBench with Apache Cassandra™

1

**Housekeeping and Setup**

2

**NoSQLBench What and Why**

3

**Executing Commands**

4

**Dashboarding + Grafana | Prometheus**

5

**Custom Workloads**

6

**Resources**



**What we're NOT  
doing today**

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# Disclaimer

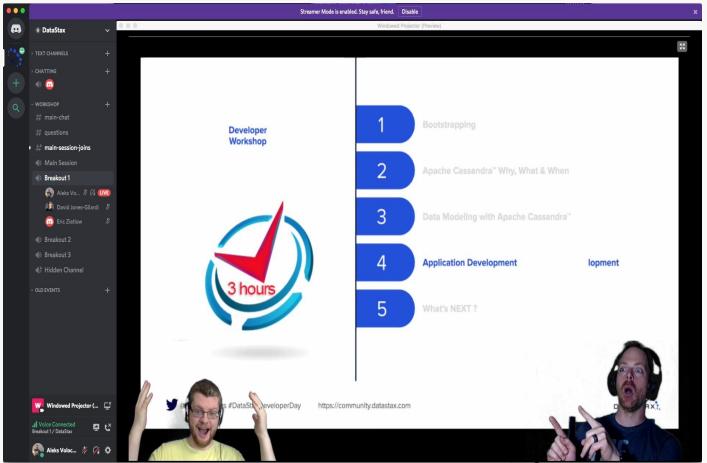
Today,

With limited time (2H), we won't introduce the basics of Apache Cassandra™ (like we do every other wednesday).

**DON'T WORRY (seriously):** You will be able to do the hands-on as we are showing step-by-steps.



## STREAMS



YouTube



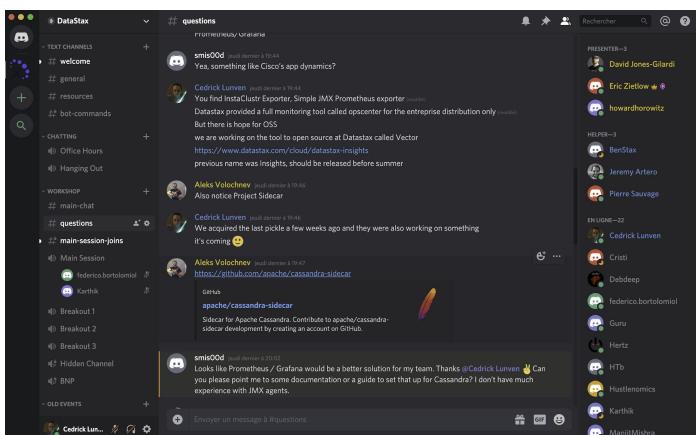
Twitch



## RUNTIME



## QUESTIONS



Discord



## MATERIALS



Slides



Notebooks



DockerFile



Github

← → C katacoda.com/datastax/ ⌂

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 DataStax, Learn Apache Cassandra with our Hands-on Exercises

@datastax  

More scenarios coming soon at <https://datastax.com/dev> and <https://academy.datastax.com>

Share Your Success  

3 SCENARIOS Getting Started with Astra Several scenarios to get started using Astra API services. Start Course

7 SCENARIOS Apache Cassandra™ Learning Series for Developers Hands-on introduction to Apache Cassandra™ Start Course

7 SCENARIOS Cassandra: Try It Out! Get your first experience working with Apache Cassandra™ in just a few minutes. Start Course



Cassandra Developer Workshop

youtube.com/watch?v=v... | 17

PERSO ff4j DATASTAX TMP Other Bookmarks

YouTube FR

## Cassandra Lightweight Transactions

```
KVUser@cqlsh> SELECT * FROM killrvideo.user_credentials WHERE email = 'new_user@gmail.com';
email          | password | userid
new_user@gmail.com | password_A | 6d8d869d-6ff4-4bd8-be66-d4334f3d2e4b
(1 rows)
KVUser@cqlsh> UPDATE killrvideo.user_credentials SET password = 'password_XYZ'
... WHERE email = 'new_user@gmail.com'
... IF password = 'password_A';

Here's an UPDATE LWT
```

Operators: =, <, <=, >, >=, != and IN

1:07:47 / 2:33:37

An online workshop using the NoSQLBench benchmarking tool

Manage topics

91 commits, 1 branch, 0 packages, 0 releases, 1 contributor

Branch: master New pull request

SonicDMG Updated links for Katacoda Latest commit 7443274 1 hour ago

0-setup Updated Katacoda link 1 hour ago

1-executing-commands Rename README.MD to README.md 2 days ago

Edit

#main-chat

discord.com/channels/685554030159593522/68556034541...

PERSO ff4j DATASTAX TMP wks-k8s Content

Fellowship of the (Cas... Apache Cassandra

# main-chat

/home/ubuntu/node1/resources/cassandra/conf/cassandra-rackdc.properties , only then Start node1. Once it is up, start node2. if more explanation and create a thread to troubleshoot open a question on community.datastax.com

Jack Fryer Aujourd'hui à 12:16

@Jack Fryer Thanks for the vouchers  
I was able to pass both exams Cassandra Developer and Cassandra Administrator!  
@IO Epic congrats!!

NOUVEAU

Envoyer un message à #main-chat

~/nosqlbench (zsh)

| drwxr-xr-x   | 17  | davidgilardi | staff | 544       | Jun 1 20:45 .                    |
|--------------|-----|--------------|-------|-----------|----------------------------------|
| drwxr-xr-x+  | 40  | davidgilardi | staff | 1280      | Jun 2 11:35 ..                   |
| -rw-r--r--   | 1   | davidgilardi | staff | 4250      | May 29 11:43 cql-iot-allow-filt  |
| -rw-r--r--@  | 1   | davidgilardi | staff | 2587      | May 29 15:52 cql-iot-basic-all.  |
| -rw-r--r--@  | 1   | davidgilardi | staff | 537       | May 29 15:45 cql-iot-basic-main  |
| -rw-r--r--@  | 1   | davidgilardi | staff | 1024      | May 29 15:44 cql-iot-basic-ramp  |
| -rw-r--r--@  | 1   | davidgilardi | staff | 3358      | Jun 1 17:17 cql-iot-basic-scen   |
| -rw-r--r--@  | 1   | davidgilardi | staff | 2633      | May 29 20:23 cql-iot-basic-scen  |
| -rw-r--r--@  | 1   | davidgilardi | staff | 1169      | May 29 15:44 cql-iot-basic-sche  |
| -rw-r--r--   | 1   | davidgilardi | staff | 2621      | May 29 15:36 cql-iot-basic.yaml  |
| -rw-r--r--   | 1   | davidgilardi | staff | 4256      | May 27 09:39 cql-iot-modify.yaml |
| -rw-r--r--   | 1   | davidgilardi | staff | 4256      | May 31 15:06 cql-iot.yaml        |
| -rw-r--r--   | 1   | davidgilardi | staff | 2483      | May 27 10:09 cql-keyvalue.yaml   |
| -rw-r--r--   | 1   | davidgilardi | staff | 2919      | May 27 10:08 cql-tabular.yaml    |
| drwxr-xr-x   | 32  | davidgilardi | staff | 1024      | May 28 10:55 csv                 |
| drwxr-xr-x   | 456 | davidgilardi | staff | 14592     | Jun 2 10:45 logs                 |
| -rw-r--r--@  | 1   | davidgilardi | staff | 107559649 | Jun 1 08:18 nb.jar               |
| → nosqlbench |     |              |       |           |                                  |

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# NoSQLBench with Apache Cassandra™

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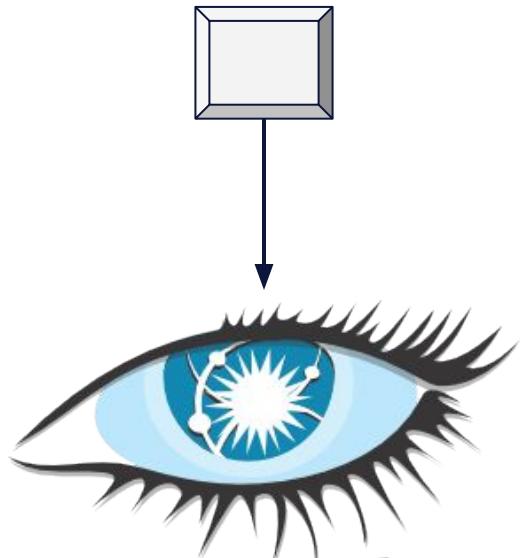
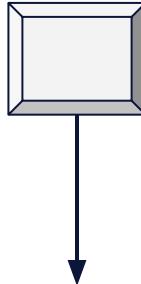
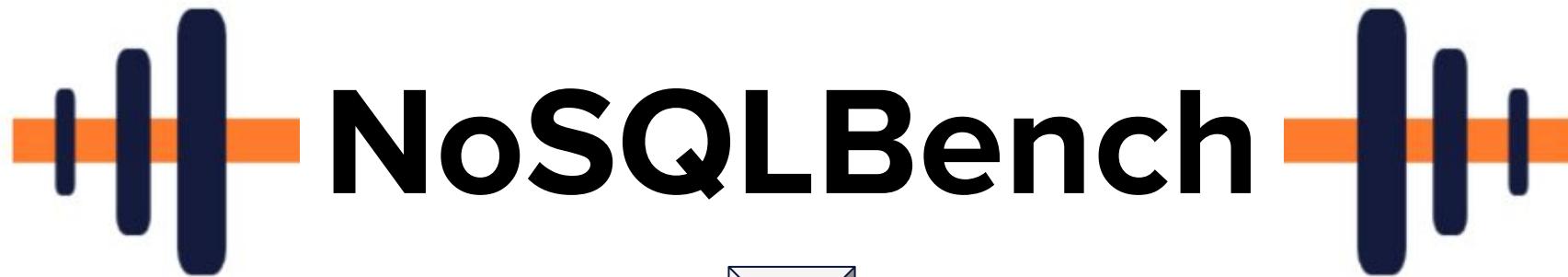
**Custom Workloads**

6

**Resources**



*"...is a serious **performance testing tool** for the  
NoSQL ecosystem"*



*cassandra*

DATASTAX

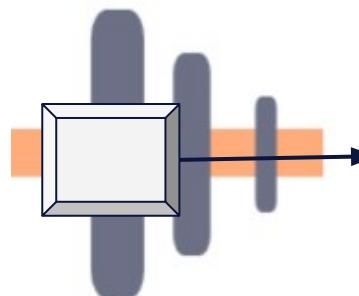
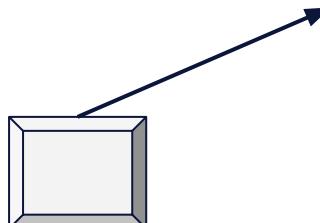
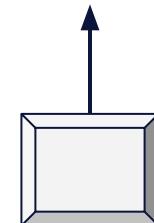
**Astra**

TCP/IP

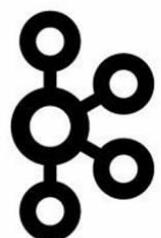
...etc

HTTP

NoSQLBench



mongoDB

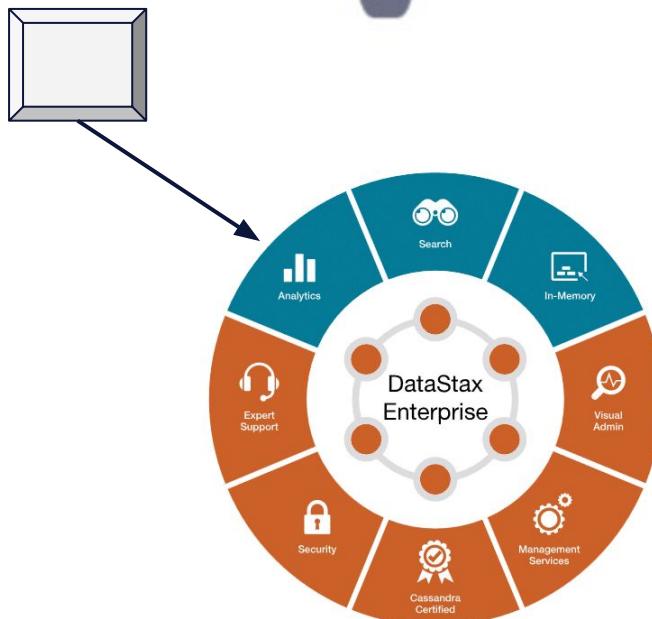
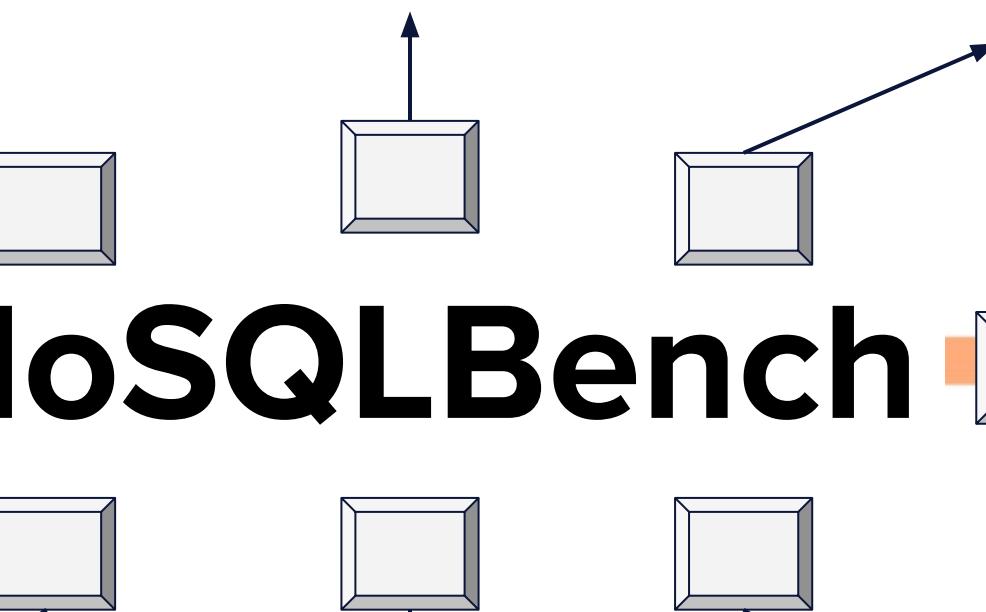


kafka



cassandra

TCP/IP



(9 panels)

ful Ops



Error Counts



# Why Benchmark?

head



p99 client overhead



service time distribution



service time range



# Why Benchmark?

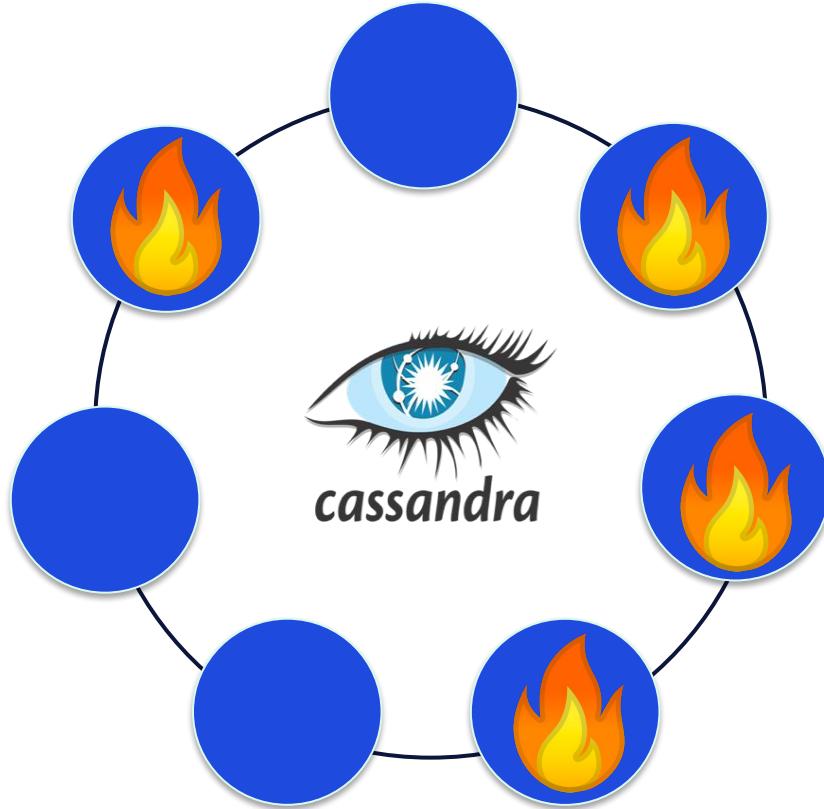
| comments_by_user |          |   |   |
|------------------|----------|---|---|
| userid           | UUID     | K |   |
| commentid        | TIMEUUID | C | ↓ |
| videoid          | UUID     |   |   |
| comment          | TEXT     |   |   |

| comments_by_video |          |   |   |
|-------------------|----------|---|---|
| videoid           | UUID     | K |   |
| commentid         | TIMEUUID | C | ↓ |
| userid            | UUID     |   |   |
| comment           | TEXT     |   |   |

# Why Benchmark?

| comments_by_user |          |   |     |
|------------------|----------|---|-----|
| userid           | UUID     | K | C ↓ |
| commentid        | TIMEUUID | C | ↓   |
| videoid          | UUID     |   |     |
| comment          | TEXT     |   |     |

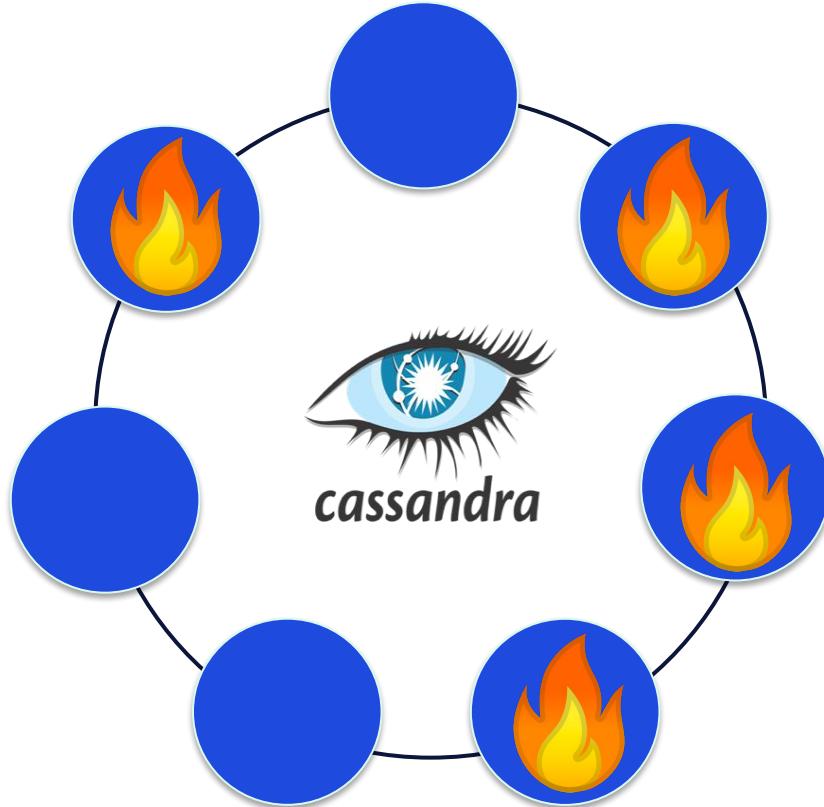
| comments_by_video |          |   |     |
|-------------------|----------|---|-----|
| videoid           | UUID     | K | C ↓ |
| commentid         | TIMEUUID | C | ↓   |
| userid            | UUID     |   |     |
| comment           | TEXT     |   |     |



# Why Benchmark?

| comments_by_user |          |   |     |
|------------------|----------|---|-----|
| userid           | UUID     | K | C ↓ |
| commentid        | TIMEUUID | C | ↓   |
| videoid          | UUID     |   |     |
| comment          | TEXT     |   |     |

| comments_by_video |          |   |     |
|-------------------|----------|---|-----|
| videoid           | UUID     | K | C ↓ |
| commentid         | TIMEUUID | C | ↓   |
| userid            | UUID     |   |     |
| comment           | TEXT     |   |     |



$$2I = (A + \eta)^2 + \kappa^2 \text{ and}$$
$$L = \left( \frac{4K(I+K)}{P_{SP} - P_0} \right)$$

Support

bench Showcase

art Example

g Workloads

Workloads

Types

e

Functions

# Welcome to NoSQLBench

Welcome to the documentation for NoSQLBench. This is a power tool that emulates real application track performance, sizing and data model testing without writing your own testing harness.

To get started right away, jump to the [Quick Start Example](#) from the menu on the left.

To see the ways you can get NoSQLBench, check out the project site [DOWNLOADS.md](#).

## What is NoSQLBench?

NoSQLBench is a serious performance testing tool for the NoSQL ecosystem.

**NoSQLBench brings advanced testing capabilities into one tool that are not found in other testing tools:**

- You can run common testing workloads directly from the command line. You can start doing this now.
- You can generate virtual data sets of arbitrary size, with deterministic data and statistically shaped data.
- You can design custom workloads that emulate your application, contained in a single file, based on your needs.
- You can immediately plot your results in a docker and grafana stack on Linux with a single command.
- When needed, you can open the access panels and rewire the runtime behavior of NoSQLBench to script in a simple scripting environment with Javascript.



```
→ nosqlbench java -jar nb.jar ./cql-iot --progress console:1s --docker-metrics
10:13:35.286 [main] WARN io.nosqlbench.engine.cli.NBCLI - Docker Containers are started,
in your browser: http://<host>:3000 and http://<host>:9090
Logging to logs/scenario_20200602_101335_305.log
cqliot_default_000: 100.00%/Running (details: min=0 cycle=3 max=3) (last report)
cqliot_default_001: 0.01%/Running (details: min=0 cycle=1277 max=10000000)
cqliot_default_001: 0.05%/Running (details: min=0 cycle=5147 max=10000000)
cqliot_default_001: 0.09%/Running (details: min=0 cycle=9361 max=10000000)
cqliot_default_001: 0.14%/Running (details: min=0 cycle=14370 max=10000000)
cqliot default 001: 0.21%/Running (details: min=0 cycle=20508 max=10000000)
```

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# YOUR LAPTOP



# CLOUD INSTANCE



# Online Workshops

---



## Exercise #1 : NoSQLBench Intro

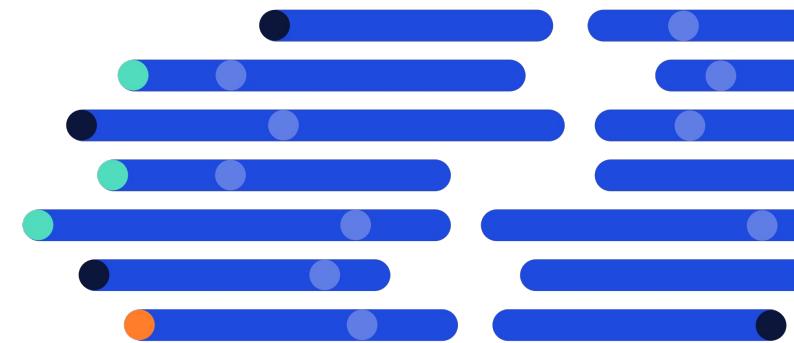


Katacoda

<https://katacoda.com/datastax/courses/nosqlbench-intro/nosqlbench>



<https://github.com/DataStax-Academy/nosqlbench-workshop-online/tree/master/1-executing-commands>



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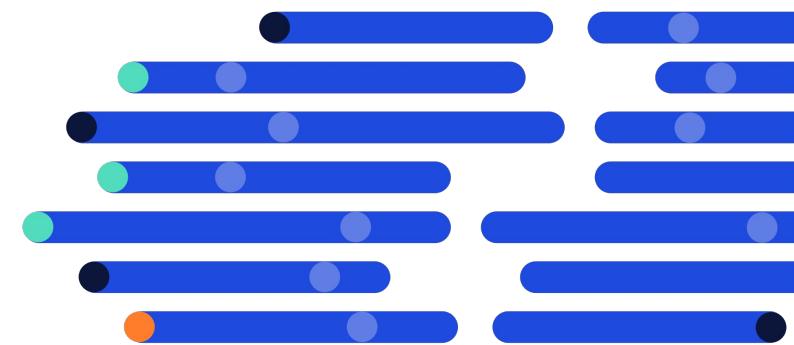
## Exercise #2 : Metrics with Grafana



<https://katacoda.com/datastax/courses/nosqlbench-intro/nosqlbench-grafana>



<https://github.com/DataStax-Academy/nosqlbench-workshop-online/tree/master/2-grafana-metrics>



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# Online Workshops

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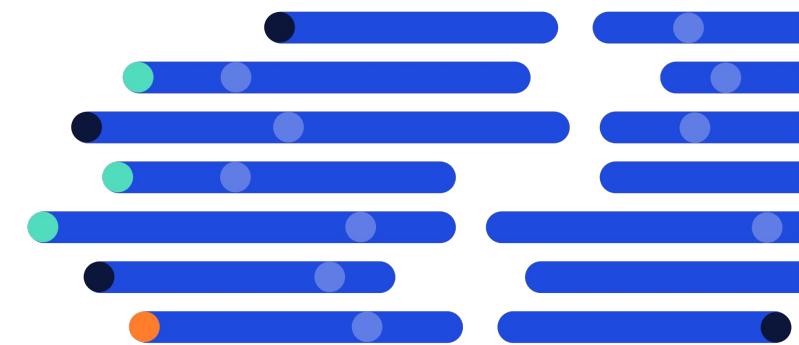
## Exercise #3 : Custom workloads



<https://katacoda.com/datastax/courses/nosqlbench-intro/nosqlbench-modify-workload>



<https://github.com/DataStax-Academy/nosqlbench-workshop-online/tree/master/3-custom-workloads>



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# Developer Resources

**LEARN**

Join [academy.datastax.com](https://academy.datastax.com)  
Free online courses - Cassandra certifications

**ASK/SHARE**

Join [community.datastax.com](https://community.datastax.com)  
Ask/answer community user questions - share your expertise

**SUBSCRIBE !**

Follow us @DataStaxDevs  
We are on Twitter - Youtube - Twitch!

Slides and code for this course are available at  
<https://academy.datastax.com/resources/cassandra-developer-workshop>

**REVIEW**

Accelerate  
<https://www.datastax.com/accelerate/why-tomorrows-cassandra-deployments-will-be-on-kubernetes>



# Training Courses at DataStax Academy

- Free self-paced DSE 6 courses
  - [DS201: DataStax Enterprise 6 Foundations of Apache Cassandra™](#)
  - [DS210: DataStax Enterprise 6 Operations with Apache Cassandra™](#)
  - [DS220: DataStax Enterprise 6 Practical Application Data Modeling with Apache Cassandra™](#)
  - [DS330: DataStax Enterprise 6 Graph](#)
  - [DS332: DataStax Enterprise 6 Graph Analytics \(NEW\)](#)



# Cassandra The Definitive Guide

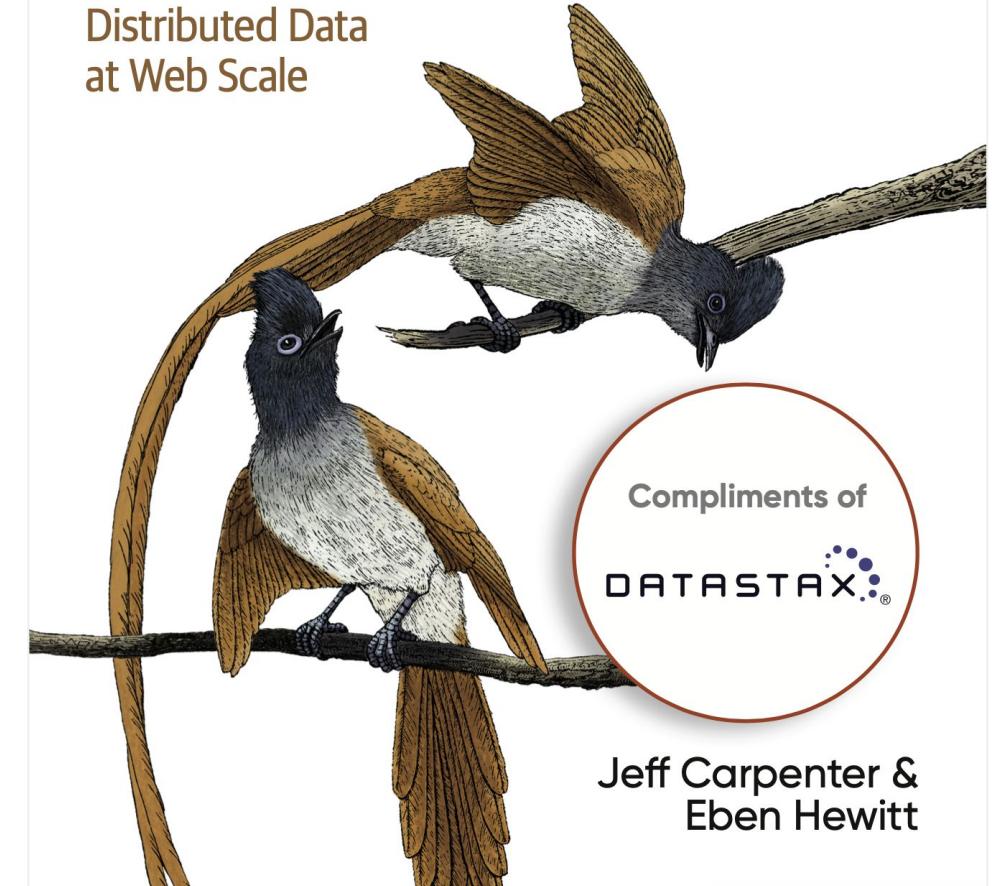
<https://www.datastax.com/resources/ebook/oreilly-cassandra-definitive-guide>

O'REILLY®

Third  
Edition

# Cassandra The Definitive Guide

Distributed Data  
at Web Scale



Jeff Carpenter &  
Eben Hewitt

# Upcoming events

| Date | Time     | Content  | Type                |
|------|----------|--|---------------------|
| 6/11 | 12pm IST | Cassandra Developer Workshop - Kubernetes APAC | WORKSHOP = HANDS-ON |



@DataStaxDevs #DataStaxDeveloperDay

<https://community.datastax.com>



---

# What's NEXT ?

---

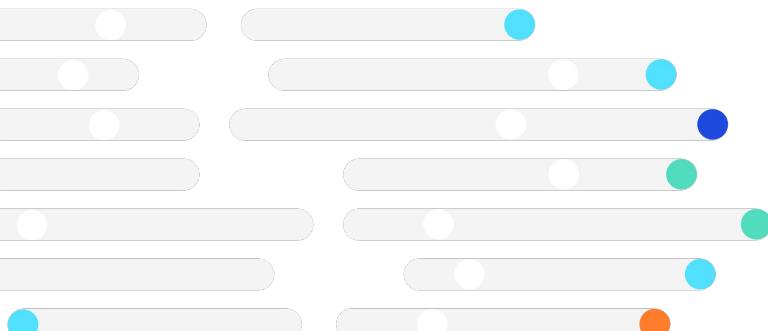
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**Thank you**

**SURVEY**