

DataStax

Developers

Build an E-commerce site on

Astra DB

Session #2: Shopping Cart





Cedrick
Lunven

Aleksandr
Volochnev

Jack
Fryer

Kirsten
Hunter

Stefano
Lottini

David
Gilardi

Ryan
Welford

Rags
Srinivas

Sonia
Siganporia

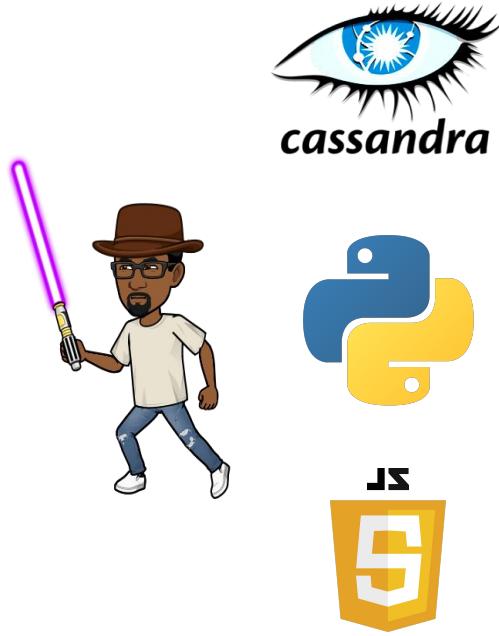
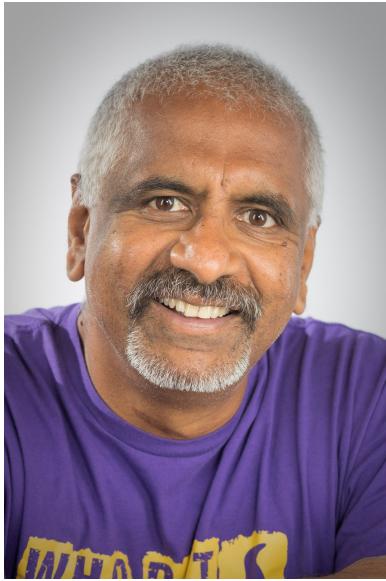
R

S



DataStax Developers Crew

Developer Advocate



- Developer/Architect
- Mechanical Engineer (so many moons ago)
- Distributed systems
- Love to teach and communicate
- Inner loop == developer productivity



Raghavan "Rags" Srinivas



@rags



@ragsns



@ragss

DBRE/Developer Advocate



@aaronploetz



@aploetz



@aploetz

- DB Engineer, Author
- Former SWE/DevOps/DB Lead @ W.W. Grainger & Target
- Leads S.O. "Cassandra" tag in rep.
- Worked as an author on:
 - Mastering Apache Cassandra 3.x
 - Seven NoSQL Databases in a Week



Aaron Ploetz





... series badge for your pleasure

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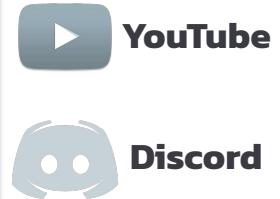
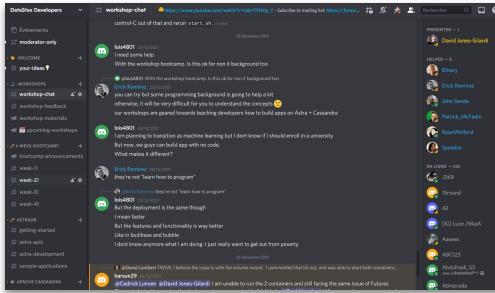
Agenda



Livestream: youtube.com/DataStaxDevs

Questions: <https://dtsx.io/discord>

Agenda



Games and quizzes: menti.com



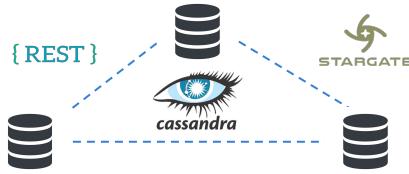
Mentimeter



1

Attend the live sessions

Database + GraphQL + PlayGround



DataStax
Astra DB



The screenshot shows the Gitpod IDE interface. On the left, the Explorer sidebar lists project files for "StargateDemoApplication.java" and "MongoDBDemoApplication.java". The right side displays two code editors. The top editor contains Java code for "StargateDemoApplication.java" and the bottom one for "MongoDBDemoApplication.java". Below the code editors are toolbars for "PROBLEMS", "OUTPUT", "TERMINAL", and "DEBUG CONSOLE". Logos for "npm", "node.js", "Maven", and "Dockerfile" are visible. At the bottom is a navigation bar with "gitpod / workspace / workshop / spring - stargate \$".

Gitpod

The screenshot shows a GitHub repository page for "DataStax-Examples / todo-astra-jamstack-netlify". The page includes a code editor, a pull requests section, and a detailed commit history for the "master" branch. The commit history shows 177 commits ahead of "tjke/master". The right sidebar provides links for "astra.datastax.com/register" and "astra.datastax.com/quickstart".

GitHub

O'REILLY
Katacoda KATACODA OVERVIEW & SOLUTIONS

Connect to Astra (Cassandra as a Service) with CQL Shell

Step 1 of 5

Create your Astra DB Database

If you don't have an Astra account, set one up - it's easy!

Go to the Astra DB page in your browser astra.datastax.com.

Let's create the database. Follow the steps outlined here. To make it easy, we have recommended the values you should use for this scenario.

NOTE: If you already have an Astra DB database with values that differ from what we suggested, you may have to adapt some of the operations in this scenario accordingly, or create an additional response with the designated values.

If you don't already have an Astra DB database, when you log in for the first time you'll see a screen that looks like the image below.

Choose Plan & Provider



Katacoda



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Complete Workshops Labs

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Part 2 of common e-tail use cases.

- Show real, scalable solutions backed by:

DataStax

Astra DB



SPRING BOOT



Technologies Stack



Atomicity

Consistency

Isolation

Durability

Basic

Availability

Soft State

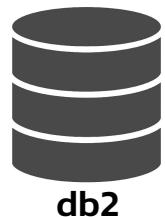
Eventual Consistency

 No distributed transaction Cross Services

Service A
Order Management



Service B
Customers

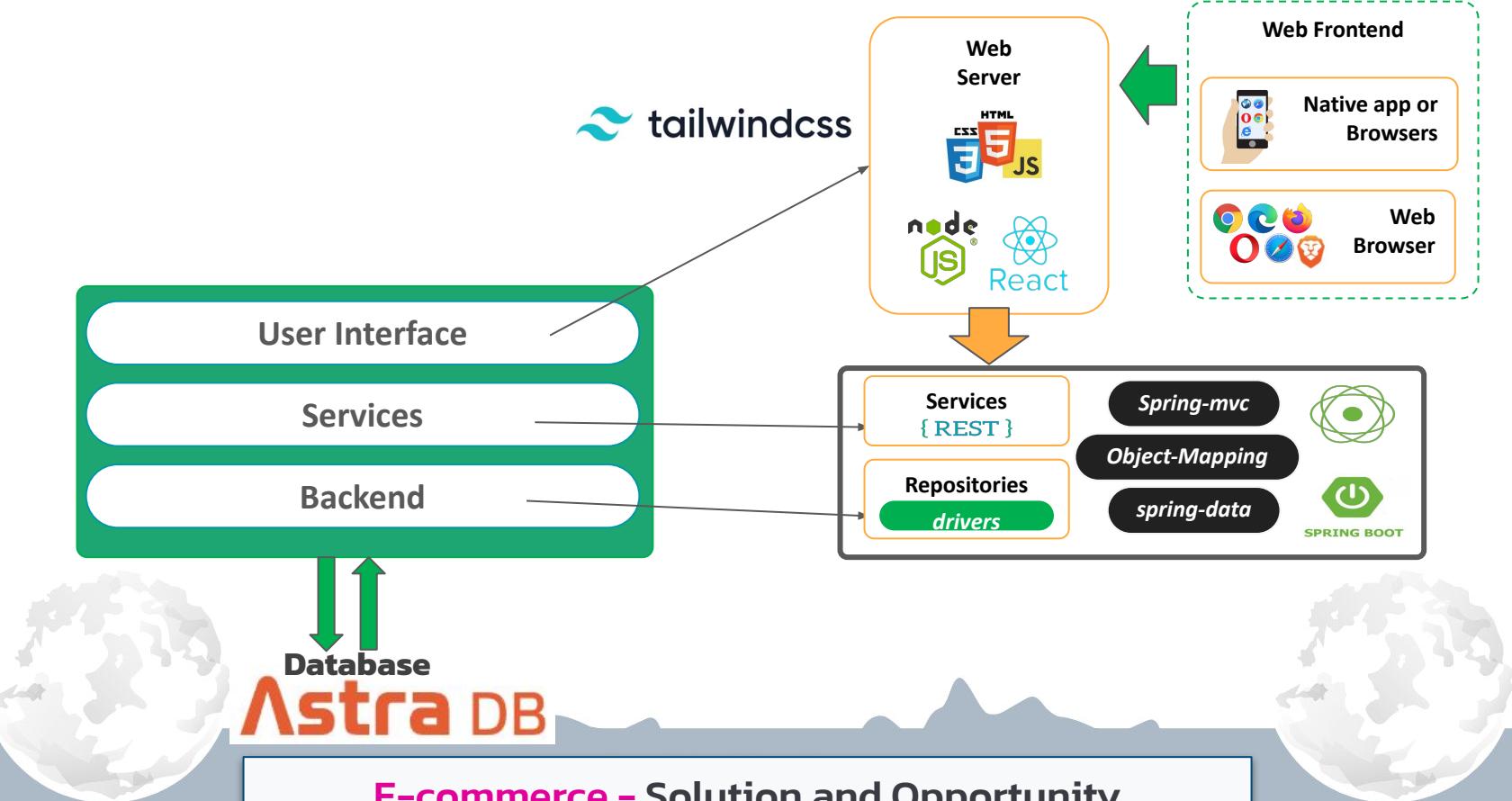


 AP System with Idempotence

 Event Sourcing, CQRS



From "ACID' to "BASE"



Why Astra DB? Can other DBs handle this?



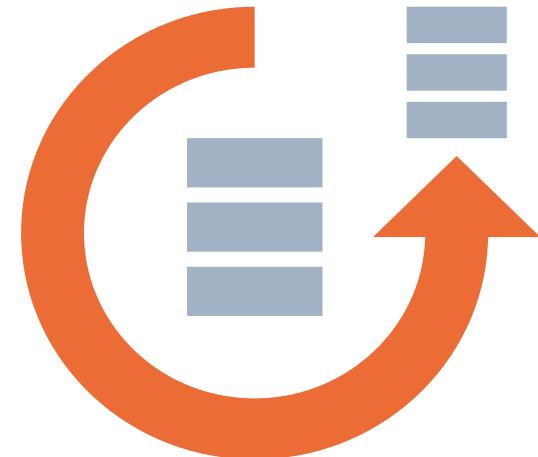
Astra DB

Why not a relational database?

Astra DB

RDBMS:

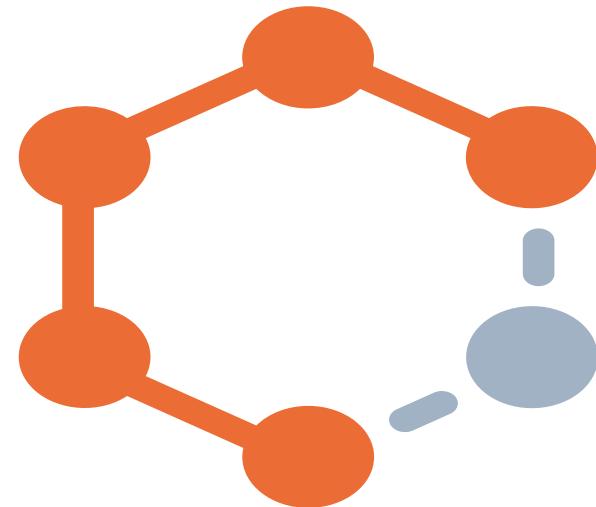
- Scaling (H/V) is limited.
- Data distribution is an add-on, rather than a core component.
- Geographic distribution is problematic.



Database: Why not a RDBMS?

Document Store:

- Strong consistency limits throughput.
- Reads become CPU-bound.
- Schema is actually important!
- Heterogeneous node types complicate DevOps.*



*Not an issue for “serverless” implementations.



Astra DB:

- No operational overhead
- Geographic Awareness
- Not cloud vendor bound
- “No touch” Scalability



Database: Why Astra DB?



Jump to README step #2

Astra DB

<https://github.com/datastaxdevs/workshop-ecommerce-app#2-create-astra-db-instance>



Astra DB – Sign up for a free account!



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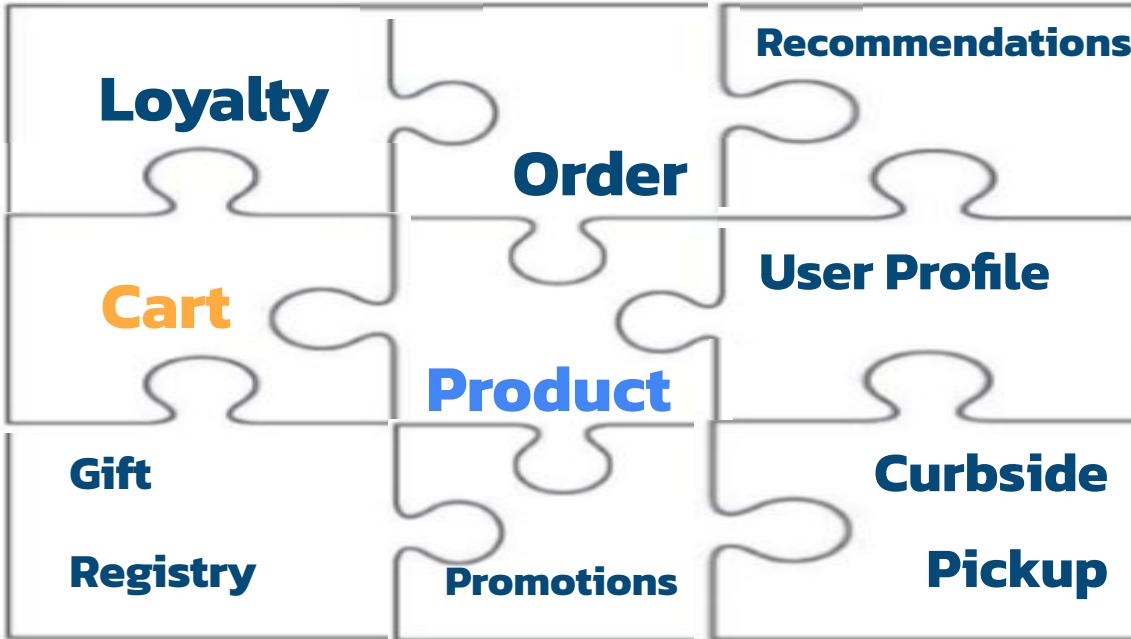


Agenda



E-commerce Subsystems

Astra DB



Use Cases - Ecommerce Subsystems

Shopping Cart

Astra DB

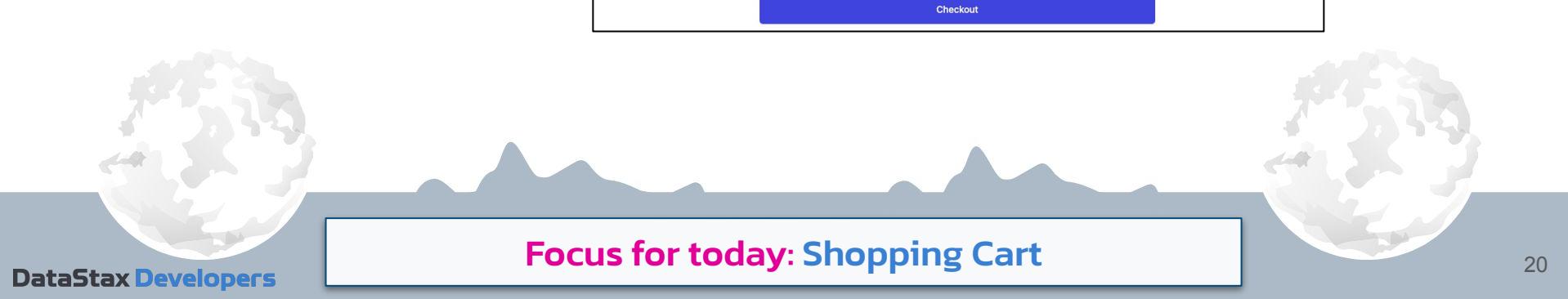
- User Cart Data
- Cart Products

The screenshot shows a shopping cart page with the following details:

Product	Description	Price
DataStax Gray Track Jacket	gray Large	\$44.99
Apache Cassandra 3.0 Contributor T-Shirt	black Large	\$15.99

Subtotal: \$60.98
Shipping and taxes will be calculated at checkout.

Checkout



Focus for today: Shopping Cart

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Cassandra Data Modeling

Data modeling for:

- Performance
- Tables built to suit a query

Pros:

- Fast reads
- Simple query model

Cons:

- Data duplication (*but that's ok*)
- Manual integrity enforcement



Employees			
userId	firstName	lastName	department
1	Edgar	Codd	Engineering
2	Raymond	Boyce	Engineering
3	Sage	Lahja	Math
4	Juniper	Jones	Botany



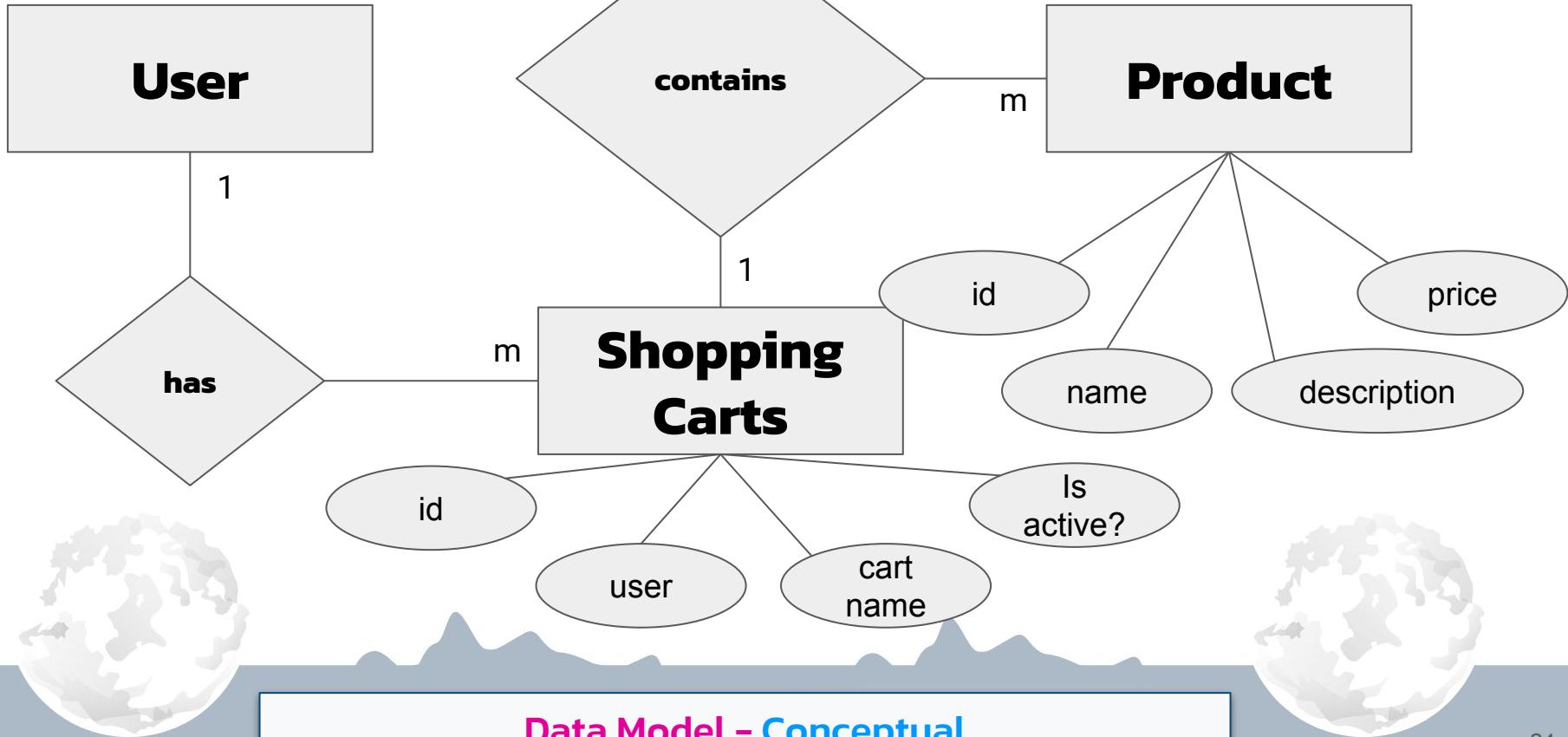
Data Modeling - Denormalization

Tips for Large Scale:

- Data **queried** together should be **stored** together.
- Use **high-cardinality** keys.
- **No** full table scans!
- Keep things **small!**
 - Partitions
 - Result sets



Data Modeling “Cassandra Style”



Queries

- Need to be able to query a user's "active" cart.
- Need to query all carts for a user.
- User needs to view all products in their cart.
- User needs to add a product to their active cart.
- User needs to remove a product from their active cart.



Data Model - Queries to Support



Anti-bot/malware measures:

- 60 day TTL (time to live).

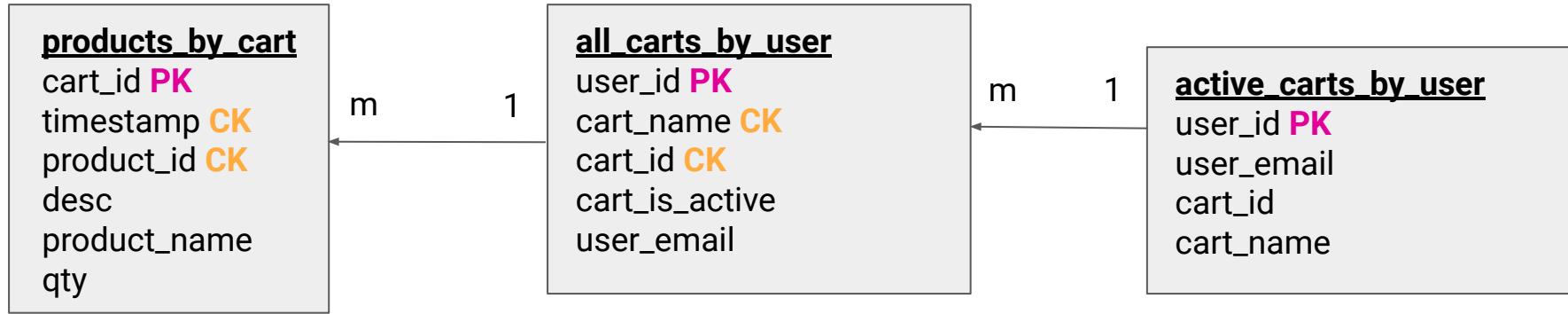
```
default_time_to_live = 5184000
```

Old carts in the DB are avenues of attack!

- Rate limiter on product-add service.

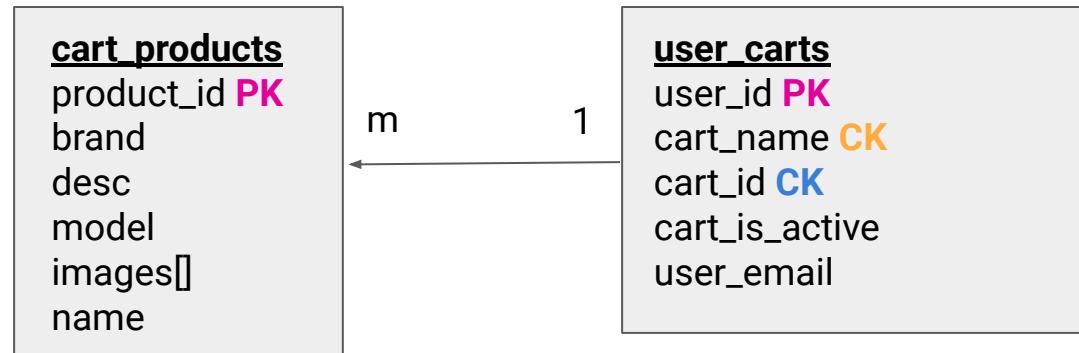
Bot attacks will add many, many products in a matter of seconds!





Partition Key **PK**
Clustering Key **CK**

Data Model - Logical



Partition Key **PK**
Clustering Key **CK**



Data Model - Physical

User Carts



- Cart metadata.
- Cart vs. Wish List.
- Enforcing our TTL.

```
CREATE TABLE user_carts (
    user_id uuid,
    cart_name text,
    cart_id uuid,
    cart_is_active boolean,
    user_email text static,
    PRIMARY KEY (user_id, cart_name,
    cart_id)
) WITH default_time_to_live =
5184000;
```



Cart Products



- Solving the cart query.
- Clustering on timestamp.
- Enforcing our TTL.

```
CREATE TABLE cart_products (
    cart_id uuid,
    product_timestamp timestamp,
    product_id text,
    product_description text,
    product_name text,
    quantity int,
    PRIMARY KEY (cart_id,
    product_timestamp, product_id)
) WITH CLUSTERING ORDER BY
(product_timestamp DESC, product_id ASC)
AND default_time_to_live = 5184000;
```



Data Model – Cart Products



Jump to README step #3

Astra DB

<https://github.com/datastaxdevs/workshop-ecommerce-app#3-create-your-schema>



Data Model - Build in Astra DB



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User Cart Data



<http://localhost:8080/swagger-ui/index.html?configUrl=/v3/api-docs/swagger-config#/>

GET

/api/v1/usercart/carts/{userid} Retrieve metadata for user carts by a userid

GET

/api/v1/usercart/activecart/{userid} Retrieve metadata for user carts by a userid



Service Endpoint - User Cart Data



User Cart example:

Astra DB

```
> SELECT * FROM user_carts ;  
  
    user_id          |  cart_name          |  cart_id  
user_email      |  cart_is_active  
  
-----+-----+-----+-----+  
-----+-----+-----+-----+  
5929e846-53e8-473e-8525-80b666c46a83 |  cart from Thu Jan 20 12:44:32 CST 2022 |  c9d30561-8974-447e-a9c7-755261ea8290 |  
no email specified |          True
```



Service Endpoint - User Cart



Cart Product

Astra DB

<http://localhost:8080/swagger-ui/index.html?configUrl=/v3/api-docs/swagger-config#/>

PUT	<code>/api/v1/carts/{cartid}/products/{productid}</code>	Add a product to a cart
GET	<code>/api/v1/carts/{cartid}/</code>	Retrieve all products in a carts by a cartid
DELETE	<code>/api/v1/carts/{cartid}/products/{productid}</code>	Remove a product from a cart



Service Endpoint - Cart Product



Cart Product



<http://localhost:8080/swagger-ui/index.html?configUrl=/v3/api-docs/swagger-config#/>

PUT

/api/v1/carts/{cartid}/products/{productid} / Add a product to a cart

```
{  
    "quantity": 1,  
    "product_description": "DataStax Vintage 2015 MVP Hoodie - Large",  
    "product_name": "DataStax Vintage 2015 MVP Hoodie"  
}
```



Service Endpoint - Cart Product



Cart Product example:

Astra DB

```
> SELECT * FROM cart_products ;
```

cart_id	product_name	product_timestamp	quantity	product_id	product_description
c9d30561-8974-447e-a9c7-755261ea8290	- Large	2022-01-20 19:10:53.855000+0000	1	DSH915L	DataStax Vintage 2015 MVP Hoodie
c9d30561-8974-447e-a9c7-755261ea8290	Large	2022-01-20 19:08:08.914000+0000	3	DSS821L	DataStax Gray Track Jacket -
c9d30561-8974-447e-a9c7-755261ea8290	T-Shirt - Large	2022-01-20 19:05:13.772000+0000	1	APC30L	Apache Cassandra 3.0 Contributor T-Shirt



Service Endpoint - Cart Product



Astra DB



Jump to README step #6

[https://github.com/datastaxdevs/workshop-ecommerce-app
#6-setup-your-application](https://github.com/datastaxdevs/workshop-ecommerce-app/blob/main/README.md#6-setup-your-application)

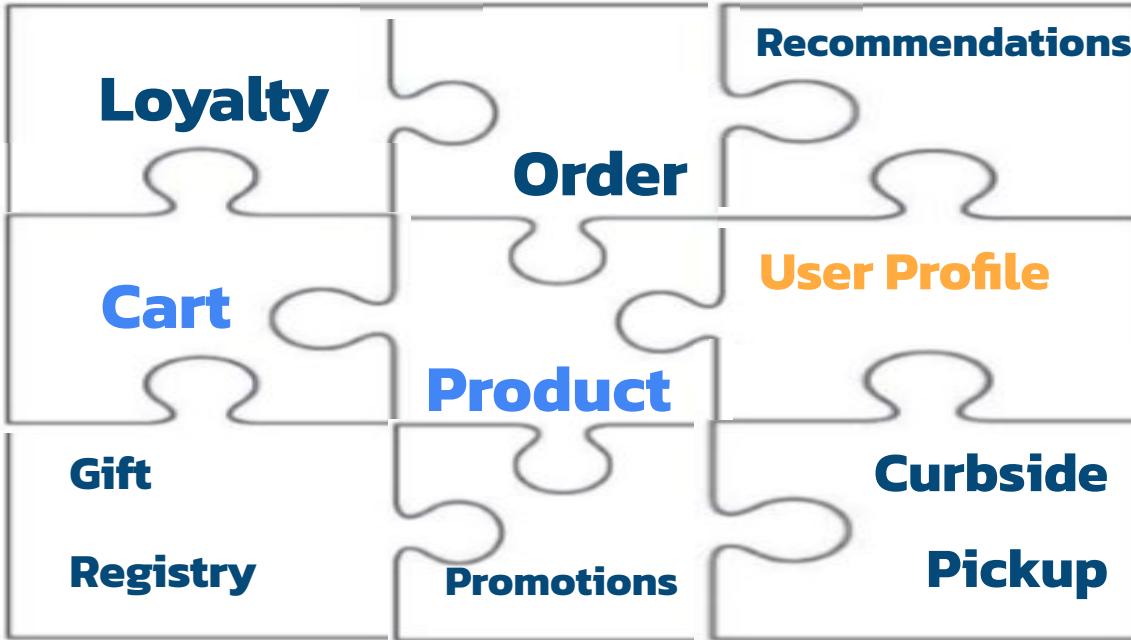


Application



E-commerce Subsystems

Astra DB



Future Sessions – Stay Tuned!

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WEEK 1

January 5th - January 11th



WEEK 3

January 19th-January 25th



WEEK 2

January 12th - January 18th

WEEK 4

January 26th-February 1st

Recordings available and still eligible
to earn badge(s)!!

Quiz Time – Menti! (#menti)





Go to www.menti.com and use the code 3491 9972

Leaderboard

4821 p	spanda
4820 p	Agent X9
4775 p	fastest
4711 p	Sam
4468 p	CCedrickThePresenter
4371 p	shubham
3895 p	aaa
3877 p	vignesh
3861 p	adry
3812 p	Millie
	Puggie

2.11.07 / 2.26.05



Play with us with Menti.com (new TAB)

SWAG WINNERS



Congratulations to 1st, 2nd and 3rd place on the Menti quiz!

To claim your prize, please send an email to:

gary.harvey@datastax.com

**** Include a screenshot of your Menti screen**



Swag Winners!

Homework



[Complete hands-on]

Add your own product to the website.

- Entries in product, category, price tables.
- Add image to /ui/public/images dir.

Submit a screenshot of YOUR product displayed **in the shopping cart**.



ASTRA DB'S BUILD-A-THON

MAKING SIDE-HUSTLES A REALITY

21 February - 28 May 2022



ASTRA DB'S BUILD-A-THON

MAKING SIDE-HUSTLES A REALITY

21 February - 28 May 2022



JOIN OUR ASTRA DB BUILD-A-THON HACK!

📍 3 months, 3 rounds of challenges. 📍
Join 1 month, 2 months or all 3

Each month, we'll reveal a fresh new set of challenges you can partake in.

All you have to do is have Astra DB as your backend.

USD\$41,000 worth of prizes



REGISTER - buildathonhack.com



DataStax Developers

workshop-chat

<https://www.youtube.com/watch?v=MuwT5xxFVVI> - Subscribe to mailing list: [http...](http://)

Rechercher

PRESENTER — 1
David Jones-Gilardi

HELPER — 7
012345
AaronP
B1nary
Chelsea Navo
Jeremy Hanna
John Sanda
Patrick_McFadin

EN LIGNE — 560
-samu-
6304-42JB
Aahlya
Abdurahim
abhi3pathi
Abhiis.s
Abhineet
Abirsh

Événements
moderator-only
. WELCOME
start-here
code-of-conduct
introductions
upcoming-events
useful-resources
memes
your-ideas
@the-stage

WORKSHOPS
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workshop-feedback
workshop-materials
upcoming-workshops

ASTRA DB
getting-started
astra-apis
astra-development
sample-applications

APACHE CASSANDRA
Cedrick Lun...

RIGGITYREKT Hier à 21:14
I have a 5 node datacenter, 4 nodes are on dse version 5.1.20, one is on dse5.0.15. I am doing some mixed version testing for a class and the one node that is 5.0.15 is coming up as an analytics workload. I dont have /etc/default/dse, instead I am using /etc/init.d/dse-cassandra.
how do I make that node start in cassandra workload, not in analytics?

RIGGITYREKT Hier à 23:39
Okay I found out my issue, when i started DSE 5.0.15 it had endpointsnitch set to DseSimpleSnitch, the rest of my cluster is using PropertyFileSnitch, when i change it to PropertyFileSnitch, it still uses the simple snitch config. looking at the docs i see there is a way to go to GossipingPropertyFileSnitch, but i need the property file one. I can wipe this dbs, do anything with this node to get this done. how do i fix this?
@here

Erick Ramirez Aujourd'hui à 02:19
mixed versions isn't supported and you're guaranteed to run into weird issues that will cause further problems down the track

Cedrick Lunen Aujourd'hui à 09:01
When you start a node you have parameters -k for analytics, -g for graph and -s for search. To remove analytics check and remove -k

Envoyer un message dans #workshop-chat

!discord

dtsx.io/discord



DataStax Developers Discord (18k+)



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496 views • Streamed 2 weeks ago

Build your own TikTok clone!
1.9K views • Streamed 3 weeks ago

Build your own TikTok Clone!
4K views • Streamed 3 weeks ago

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113 views • 4 weeks ago

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39 views • 4 weeks ago



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42 views • 4 weeks ago

Cassandra Day India: CL Room (Workshops)
2.4K views • Streamed 4 weeks ago

Cassandra Day India: RF Room (Talks)
1.3K views • Streamed 1 month ago

Thank You!

