cube + Metabase

Replacing Looker with Cube and Metabase

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Community Code of Conduct

We want to foster an open and welcoming environment where everyone feels they belong in the Cube community.

The full text of our Code of Conduct is available at github.com/cube-js/cube.js/blob/master/CODE_OF_CONDUCT.md

Any instances of inappropriate/unacceptable behavior can be reported to conduct@cube.dev

Quick notes

- If you have any questions during the workshop, please type them in the “Q&A” section (on Zoom & YouTube)
- Recording of the workshop will be posted on the Cube’s YouTube channel
- All attendees will receive a post-event survey and we’d appreciate your feedback to help us with future events

What we will discuss today

- A quick discussion on Looker
- Meet Cube & Metabase
- Use cases
    a. Data isolation
    b. Data filtering
    c. Caching
- Q&A

Oct 13, 2022 **Headless BI with streaming data**

Oct 12, 2022 **Cube Community Call in October 2022**

Oct 6, 2022 **Building a fast & open-source data stack with ClickHouse and Cube**

Oct 4, 2022

Replacing Looker with Cube and Apache Superset

Shreesham Mukherjee
Developer Relations Engineer at Preset

Oct 4, 2022 **Cube at Current 2022**

Looker

Looker, the good & *not so good* parts

- Founded in 2012, acquired by Google in 2019
- Popularized self-served BI over CDW
- Popularized LookML for data modeling

- Closed-source and gated
- Proprietary and imposing a vendor lock-in
- Opposite of “low in coupling and high in cohesion”

🌚 Why seek an alternative

- Low entry barrier (open-source, self-serve, freemium)
- Separation of concerns and less vendor lock-in
- Interoperability with other tools in the data stack
- Great communities and support

Meet Cube and Metabase

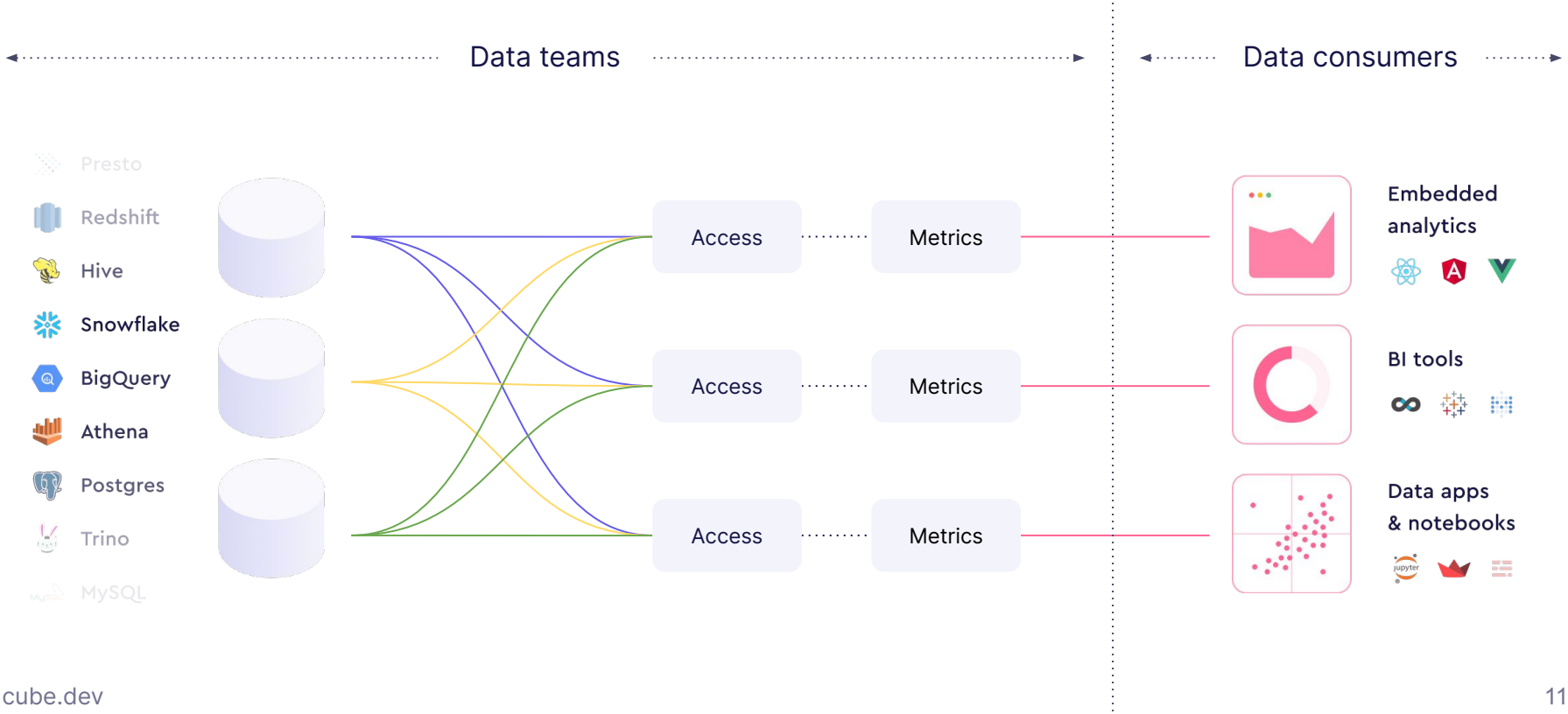
Cube — Headless Business Intelligence

Cube helps to...

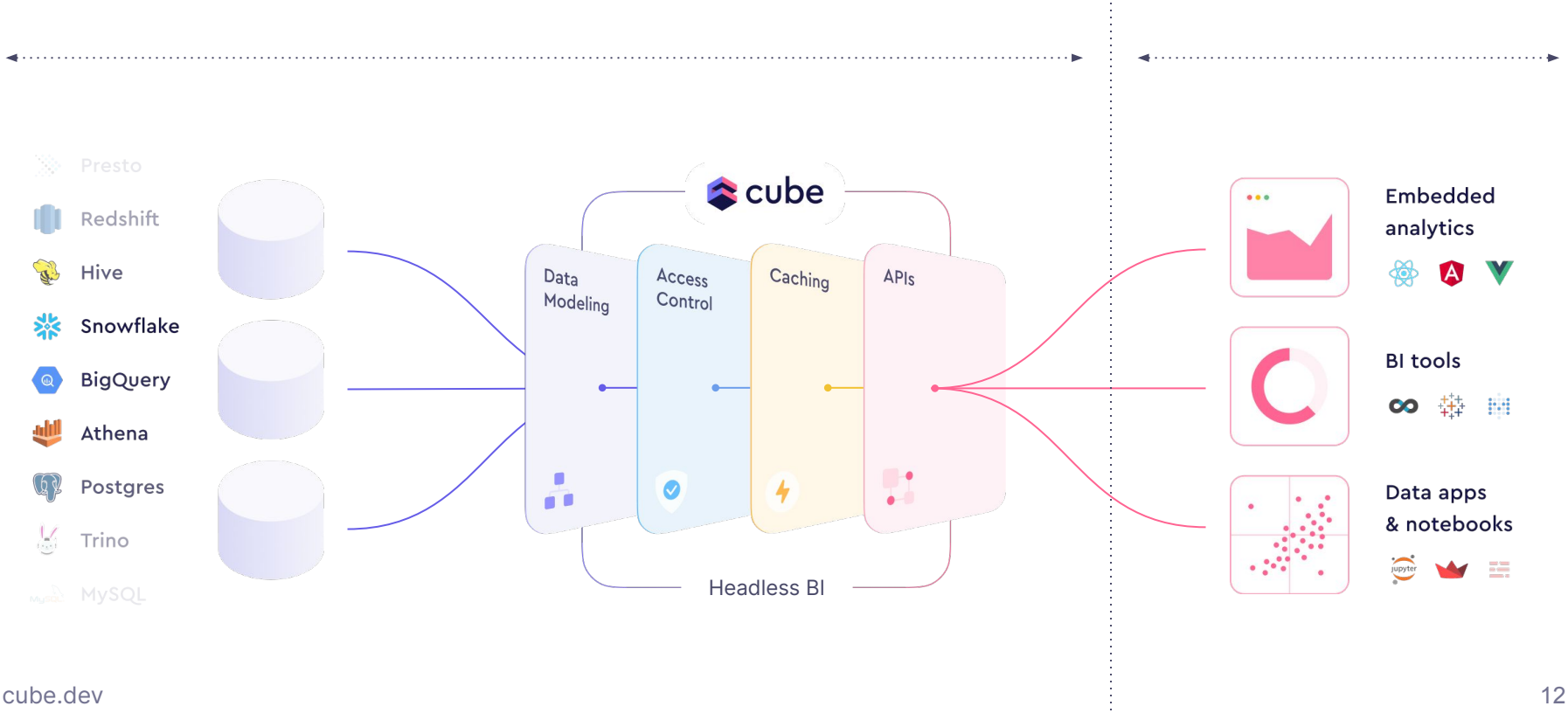
- consume data from modern data stores,
- organise it into consistent definitions, and
- deliver it to every application.

Cube's mission is making data consistent and accessible.

Data teams have a many-to-many problem



Cube solves for consistency and accessibility



Consistency

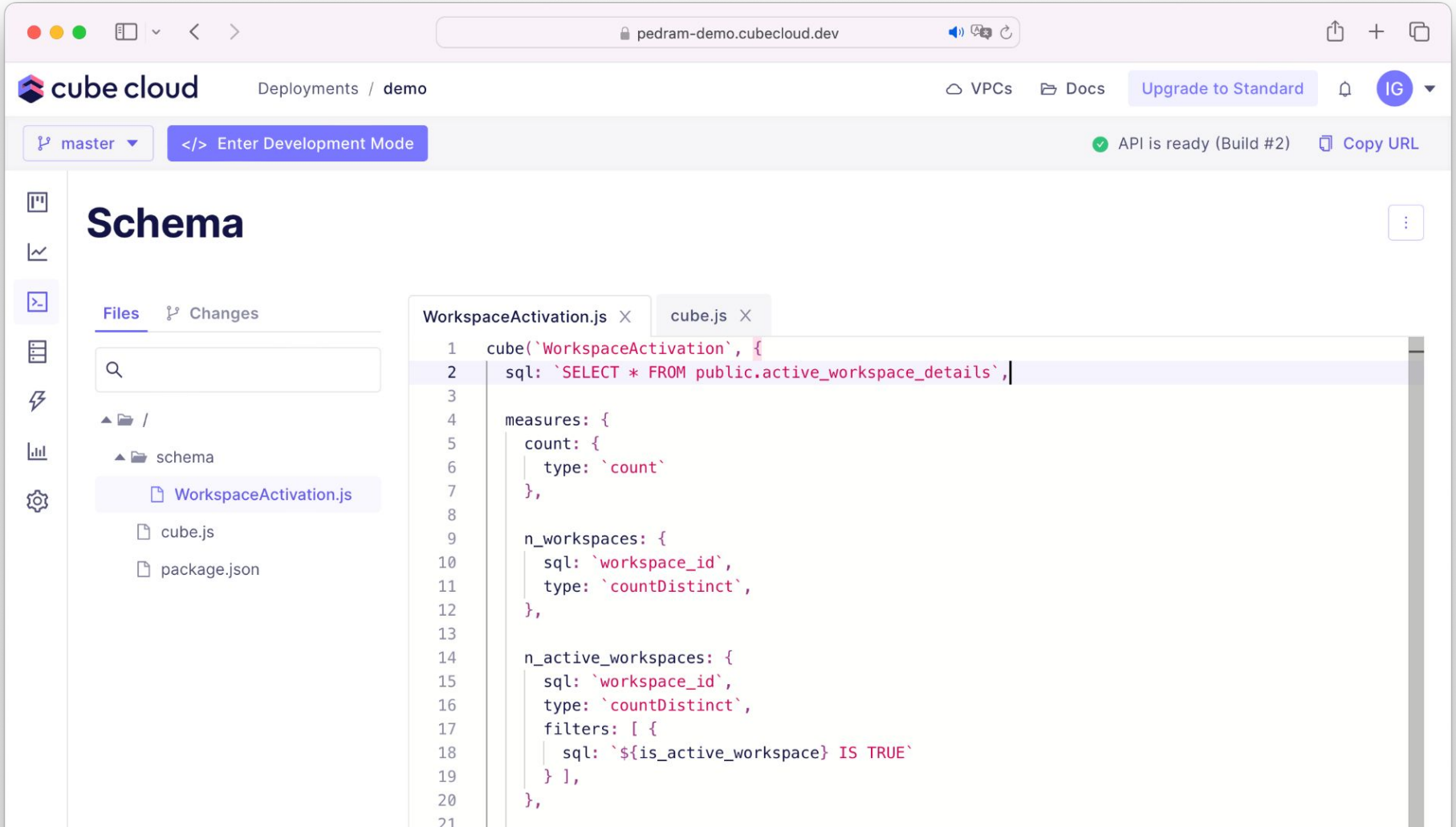
Cube provides a centralized place for...

- **metrics definitions** (so they're reused by all data apps)
- **access control rules** (so they apply to all data apps)
- **query cache** (so it's consistent across all data apps)

Consistency — Data modeling

Metrics are defined in a declarative, LookML-like model.
Measures, dimensions, etc. are reused by all data apps.

✅ No duplicated effort.
✅ No inconsistency.


pedram-demo.cubecloud.dev
cube cloud
Deployments / demo
VPCs
Docs
Upgrade to Standard
IG
master
</> Enter Development Mode
API is ready (Build #2)
Copy URL
Schema
Files
Changes
/
schema
WorkspaceActivation.js
cube.js
package.json
WorkspaceActivation.js
cube.js
1 cube(`WorkspaceActivation`, {
2 sql: `SELECT * FROM public.active_workspace_details`,
3
4 measures: {
5 count: {
6 type: `count`
7 },
8
9 n_workspaces: {
10 sql: `workspace_id`,
11 type: `countDistinct`,
12 },
13
14 n_active_workspaces: {
15 sql: `workspace_id`,
16 type: `countDistinct`,
17 filters: [{
18 sql: `${is_active_workspace} IS TRUE`
19 }],
20 },
21

Accessibility

Cube provides a set of APIs:

- **SQL API**
  - Implements PostgreSQL wire protocol
  - Works with all tools that connect to Postgres
- **REST API** and **GraphQL API**

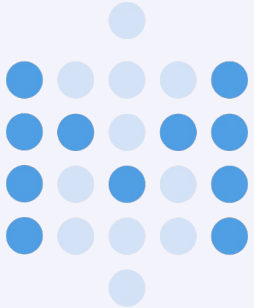
Regardless of the API flavor, queries yield same results.

Accessibility — SQL API

```
SELECT
  DATE_TRUNC('WEEK', reporting_day) AS reporting_week,
  activation_rate
FROM WorkspaceActivation
ORDER BY 1 DESC;
```

✅ Works great with Metabase and other data tools.

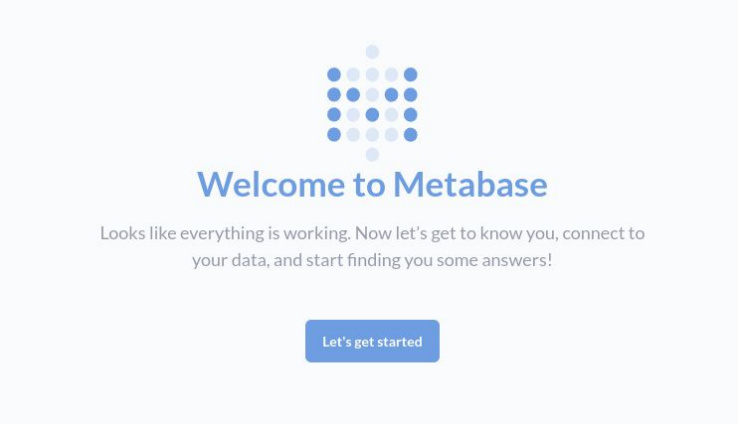
Metabase



“Simplest and fastest way to get BI and Analytics to anyone in your company”

Fastest

“wget https://downloads.metabase.com/latest/metabase.jar && java -jar metabase.jar” and wait 60 seconds

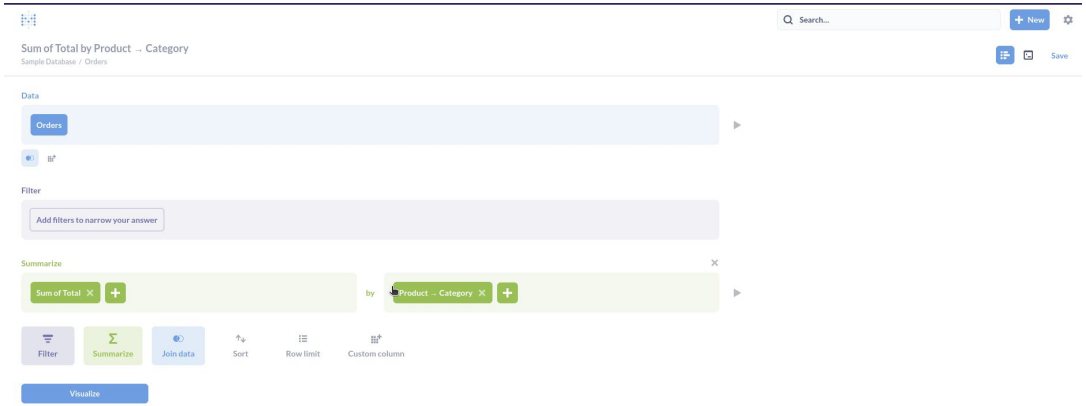


Don’t have infrastructure? Come to our Cloud!
metabase.com

- SOC2 type 2
- Custom domains!
- Region pinning (coming soon!)

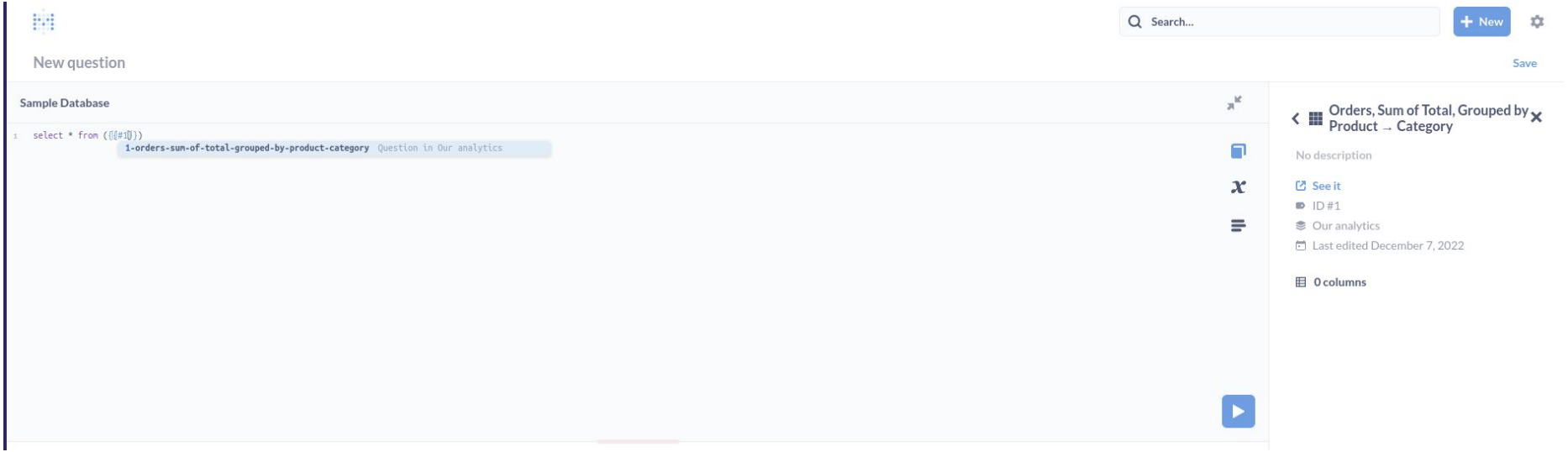
Simplest

You don’t need to know SQL



Simplest

If you know SQL, you can also reuse the GUI questions and build on top of those



Simplest

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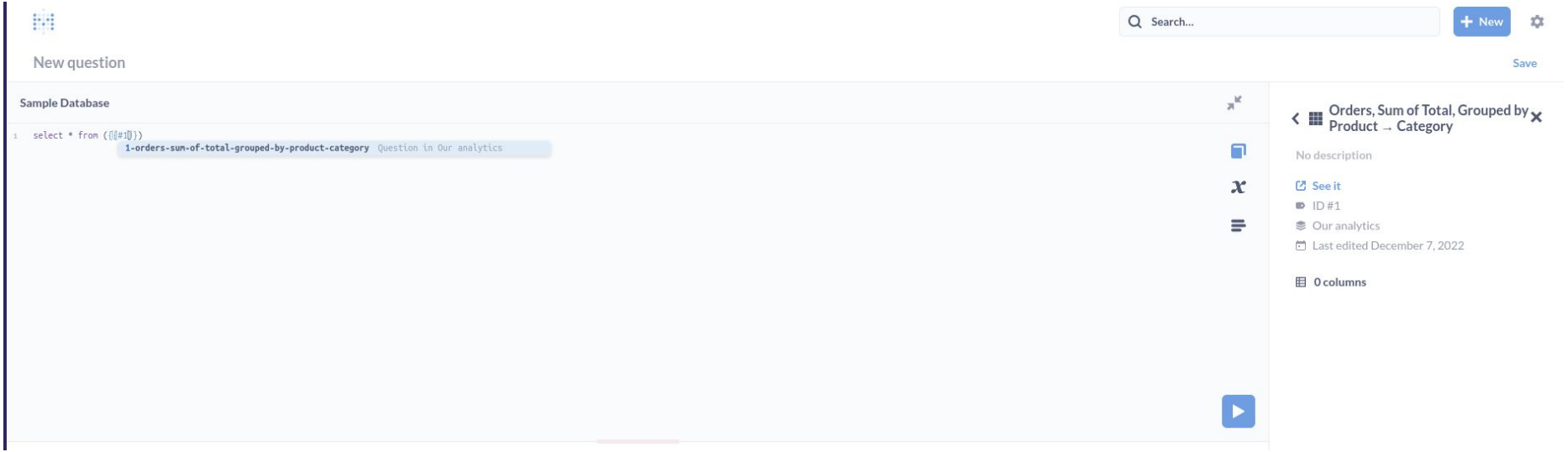
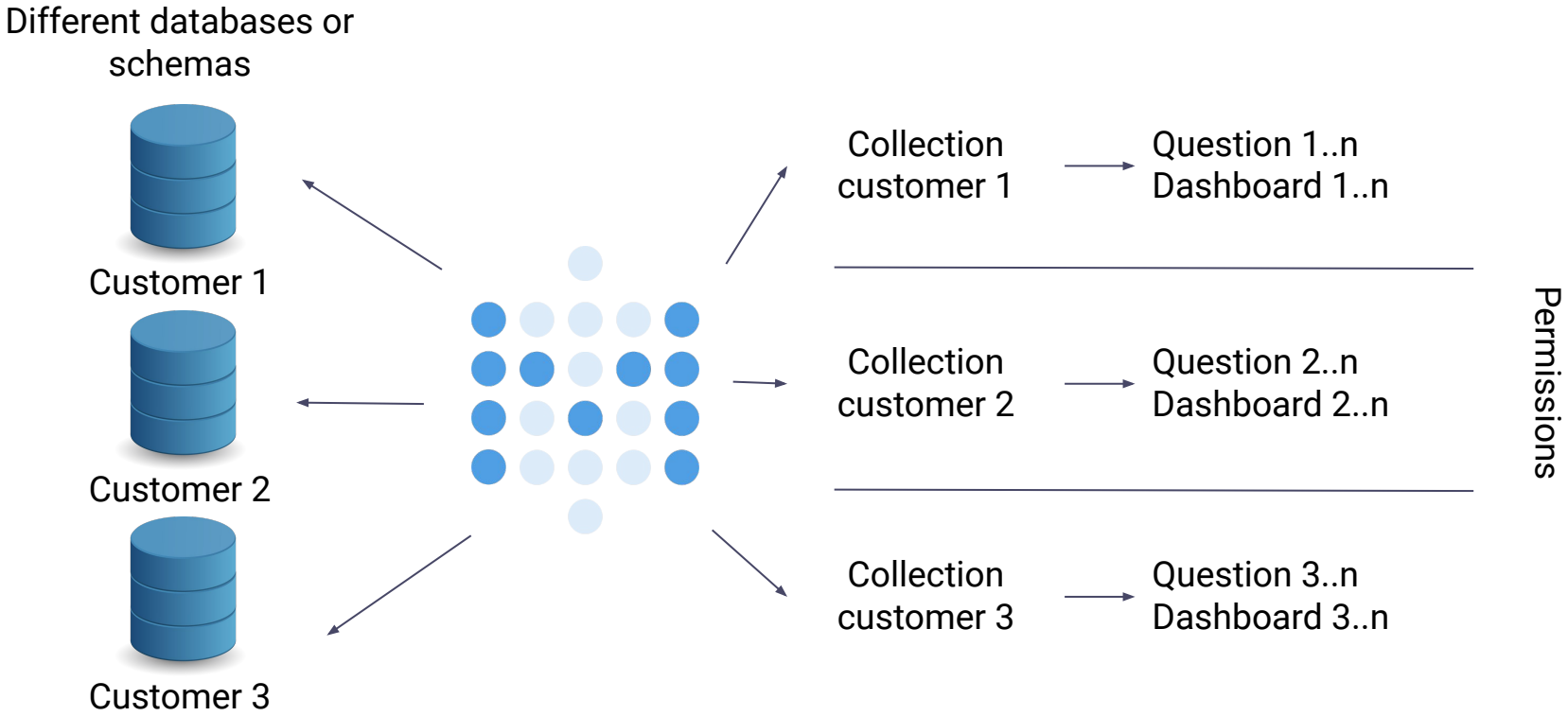


Also...

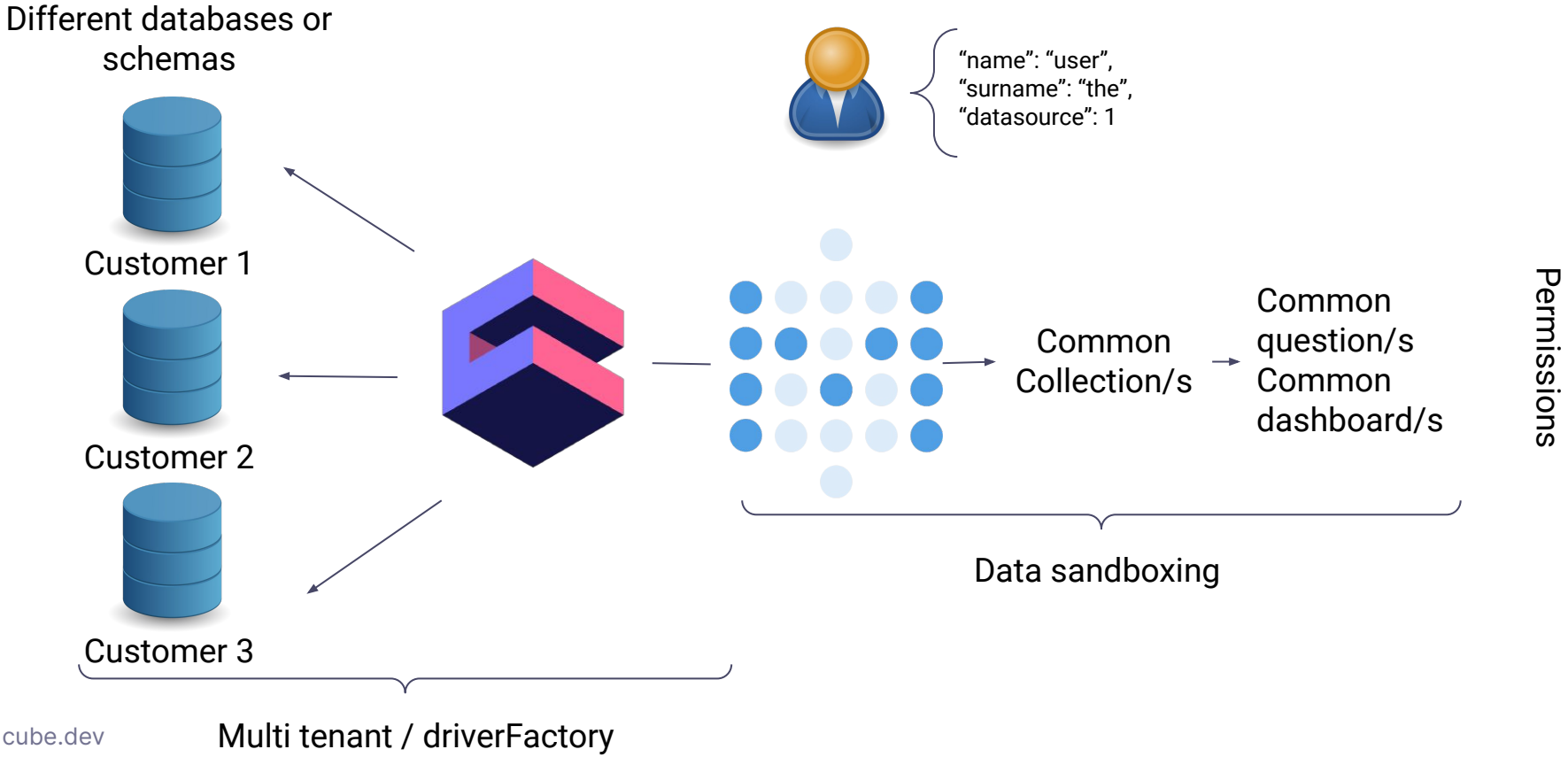
- Everything is a REST API
- Super efficient resource wise
- Embed charts and dashboards either static or embed the entire product
- Subscriptions and Alerts
- Tailored permissions (even row-level and column-level on data)
- White labelling
- SSO (SAML, JWT, Google oAuth2, LDAP)
- If you purchase a license, tweak Metabase as you wish!
- Outstanding support

Use case 1 — Data Isolation

Physical data isolation



Cube & Metabase elegant solution



Relevant features

Cube:

- Custom authentication in SQL API
- Query rewrite mechanism
- Driver factory configuration

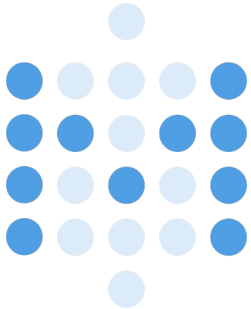
Metabase:

- Data sandboxing
- Permissions

Use case 2 — Data Filtering

Partitioned tables

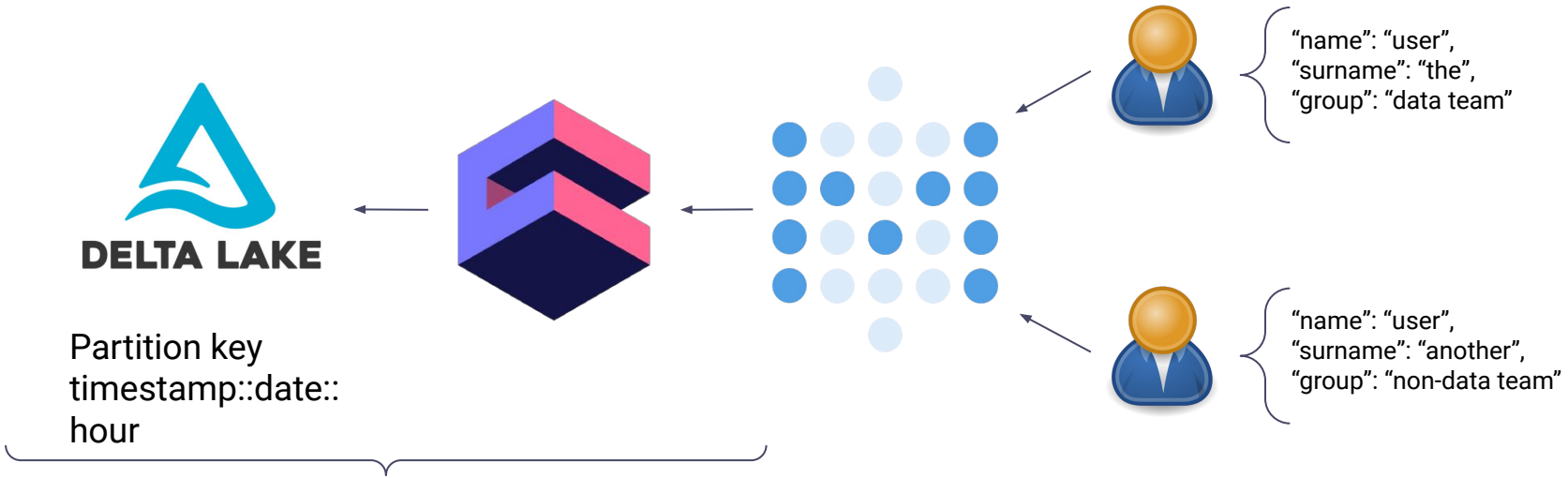
Partition key
timestamp::date::
hour



“name”: “user”,
“surname”: “the”,
“filter”: “now()- 24hs”

- Sandboxing: not a very elegant solution
- Education :)

Cube & Metabase elegant solution



Partition key
timestamp::date::
hour

Query rewriting

If “non-data team” add “WHERE…” in the query

Data sandboxing

Relevant features

Cube:

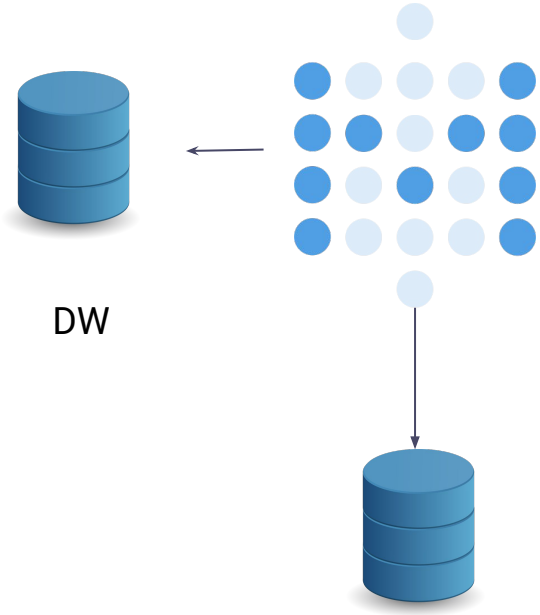
- Query rewrite mechanism
- Access control configuration for cubes and views
- Workshop: Using Views for metrics management

Metabase:

- SAML SSO
- JWT SSO

Use case 3 — Caching

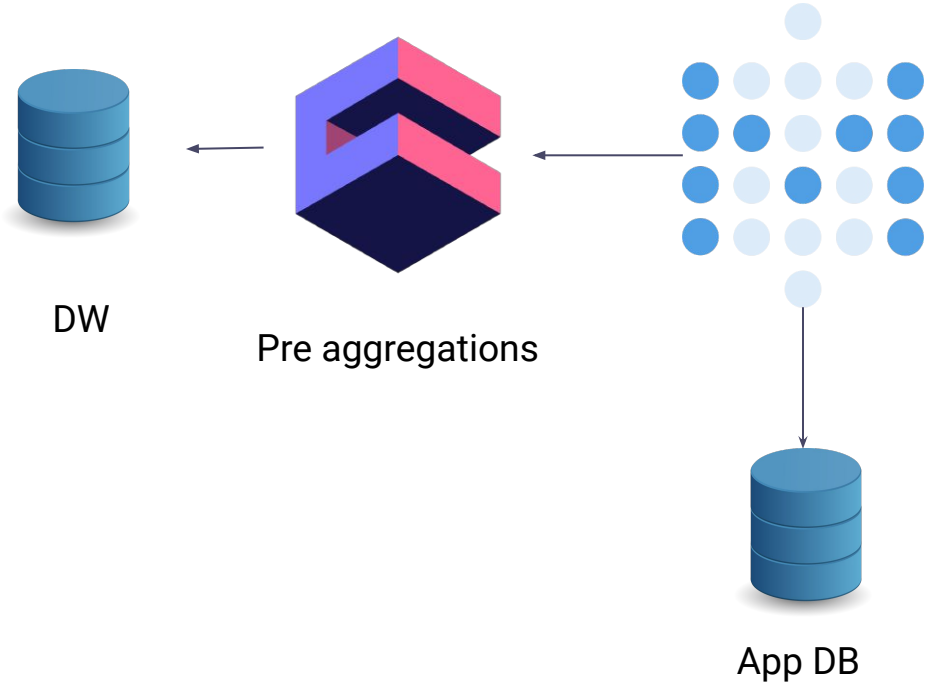
Caching



Select COUNT(*), created_at FROM Orders…

We generate a query hash and match against it for caching.
Metabase uses the App DB as a caching storage.
Any deviation from the original query will make a query to the DW

Cube & Metabase elegant solution



Tiered cache system:

- Metabase dashboard cache
- Metabase global cache
- Cube Store

Relevant features

Cube:

- Caching overview
- Using pre-aggregations
- Workshop: Advanced pre-aggregations in Cube

Metabase:

- Caching

That’s all for today! 🎉

Thanks! Questions?

- Check Cube and Metabase 🙏
- Try Cube Cloud and Metabase Cloud
- Join Cube Slack community and Metabase forum
- Please share your feedback!

- See Docker Compose setup of this workshop at github.com/paoliniluis/metabase-cube