Data warehouse schema design

Dimensional modeling the Kimball group way

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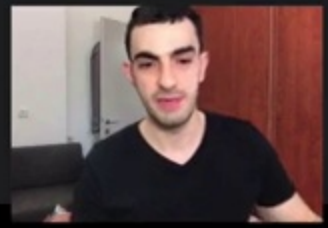
Data usage rate

OLTP:
One thing at a time
Optimized for inserts and updates

OLAP:
Aggregations and questioning of many things at a time
Optimized for heavy reads



What is a dimension?

By what we measure things?
The who, what, when, where etc. of things.

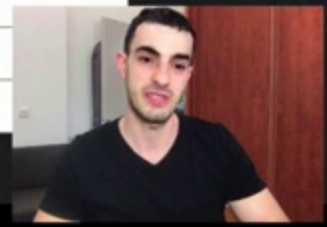
Examples: dates, products, countries

Dimension tables:

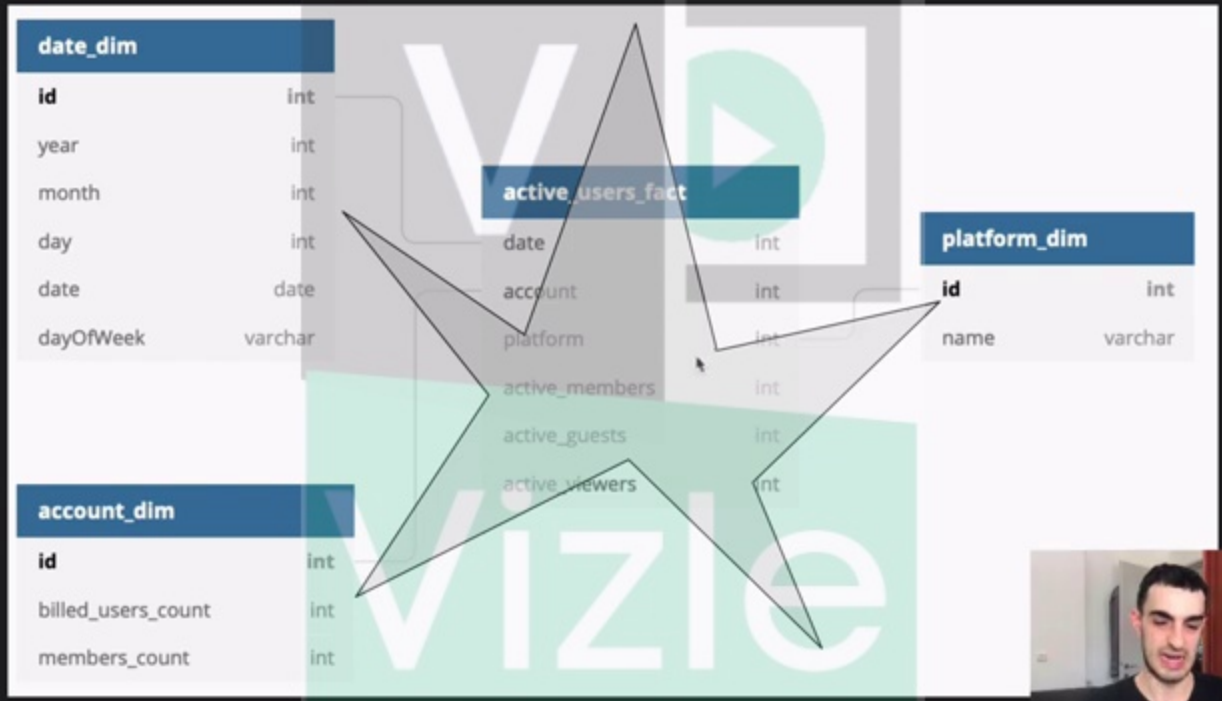
Customer dimension
customer_key (PK)
name
country
city
age

Date dimension
date_key (PK)
date
year
month
day

Location dimension
location_key (PK)
country
state
city
street



Star schema


date_dim
id int
year int
month int
day int
date date
dayOfWeek varchar
active_users_fact
date int
account int
platform int
active_members int
active_guests int
active_viewers int
platform_dim
id int
name varchar
account_dim
id int
billed_users_count int
members_count int

Surrogate key

The dimensions PK should be in control of the OLAP system.

Don’t use a PK from an operational system:

- DImensions might change over time, to track changes the same one represented in the operational system might have multiple rows.
- Dimensions may come from multiple sources, synchronizing the PK system is an unnecessary headache.
- Decouple the OLTP system from the OLAP system.

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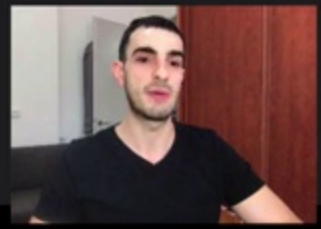

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