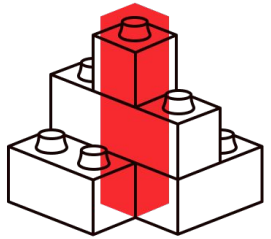


**FIREBOLT**



# Assembling a query engine from spare parts

Mosha Pasumansky and Benjamin Wagner  
VLDB 2022 CDMS Workshop







Postgres



Postgres



libpg\_query



Postgres



ZetaSQL



libpg\_query



Postgres



ZetaSQL



libpg\_query



Calcite

Parser

Planner

Single-Node Runtime

Distributed Execution



Postgres



ZetaSQL



libpg\_query



Calcite



DuckDB



Parser

Planner

Single-Node Runtime

Distributed Execution



Postgres



ZetaSQL



libpg\_query



Calcite



DuckDB



Hyrise



Postgres



Calcite



Hyrise



Inspired by



Postgres



Calcite



Hyrise

Code based on



Inspired by



Postgres



Calcite

Code based on



Hyrise

Vectorized  
vs  
Codegen



Inspired by



Postgres



Calcite

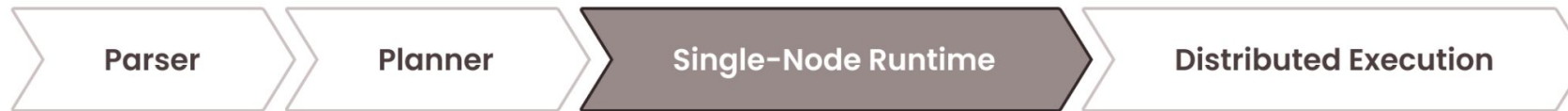
Code based on



Hyrise



ClickHouse



Inspired by



Postgres



Calcite

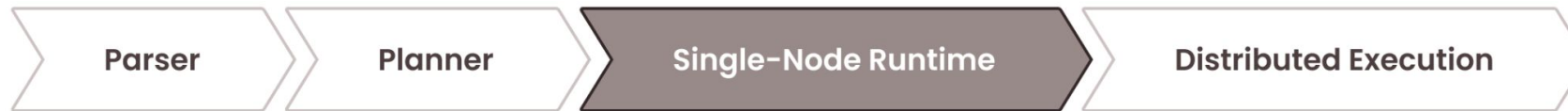
Code based on



Hyrise



ClickHouse



Inspired by



Postgres



Calcite

Code based on



Hyrise



Substrait



ClickHouse



Inspired by



Postgres



Calcite

Code based on



Hyrise



ClickHouse





Inspired by



Postgres



Calcite



Hyrise



ClickHouse

Code based on



Inspired by



Postgres



Calcite

Code based on



Hyrise



ClickHouse



Firebolt



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Postgres



Calcite



Hyrise



ClickHouse



Firebolt

Code based on

Tested by



Inspired by



Postgres



Calcite



Hyrise



ClickHouse



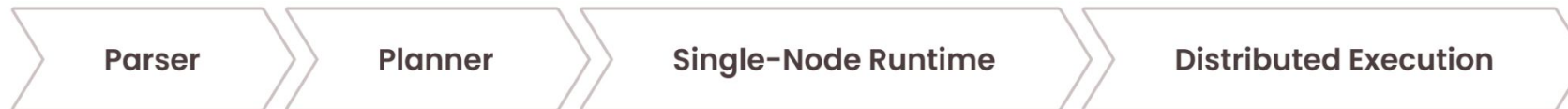
Firebolt

Code based on

Tested by



2k+



Inspired by



Postgres



Calcite



Hyrise



ClickHouse



Firebolt

Code based on

Tested by



2k+



12k+



Inspired by



Postgres



Calcite



Hyrise



ClickHouse



Firebolt

Code based on

Tested by



2k+



12k+



60k+



Inspired by



Postgres



Calcite



Hyrise



ClickHouse



Firebolt

Code based on

Tested by



2k+



12k+



60k+



7M+

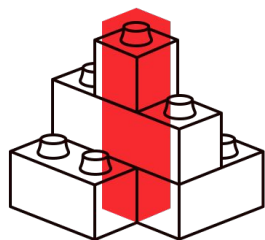


## Lessons learned





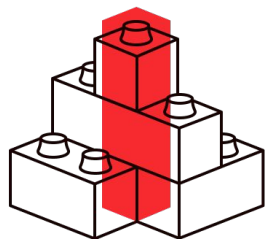
# Lessons learned



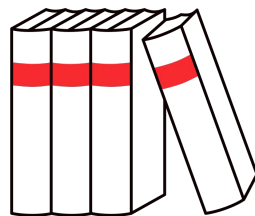
**Solid  
Foundation**



## Lessons learned



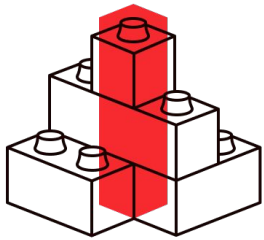
**Solid  
Foundation**



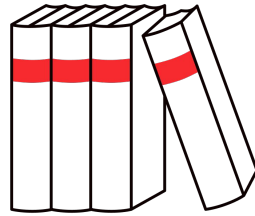
**Language**



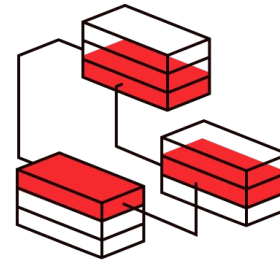
# Lessons learned



**Solid  
Foundation**

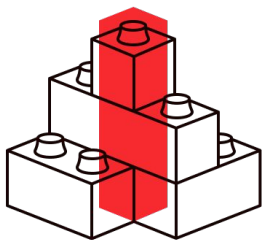


**Language**

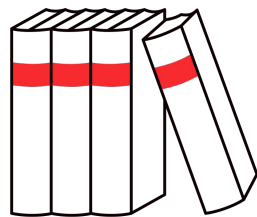


**Connecting  
Systems**

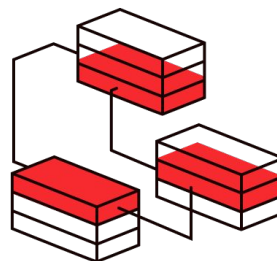
# Lessons learned



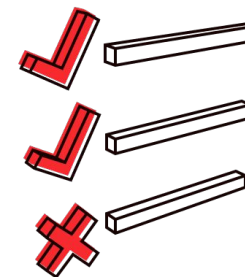
**Solid  
Foundation**



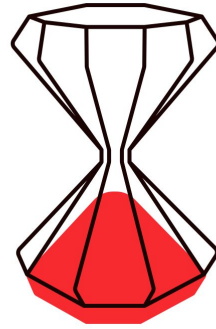
**Language**



**Connecting  
Systems**



**Testing**



Thank you for your time

**FIREBOLT**



# Text styles

Title slide Font

**Poppins**

Slide title (upper)

Medium / 24pt

Slide Subtitle (upper)

Medium / 18pt

Main Font

**Inter**

Chapter Title

Could be Medium or **Bold** / 32pt

Paragraph XL

Could be Medium or **Bold** / 25pt

Division Title

Could be Medium or **Bold** / 18pt

Body Paragraph

Usually Normal, could be **Bold** / 14pt

Small Details Paragraph

Always Normal / 12pt