Elasticsearch SQL Webinar

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Agenda

1. What is Elasticsearch SQL?
2. Text operators and relevancy
3. Aggregations
4. Geographic queries

What is Elasticsearch SQL

SQL Interface to Elasticsearch

- SQL interpreter for Elasticsearch queries
- Based on Elasticsearch API's & ANSI SQL
- Lightweight and scalable

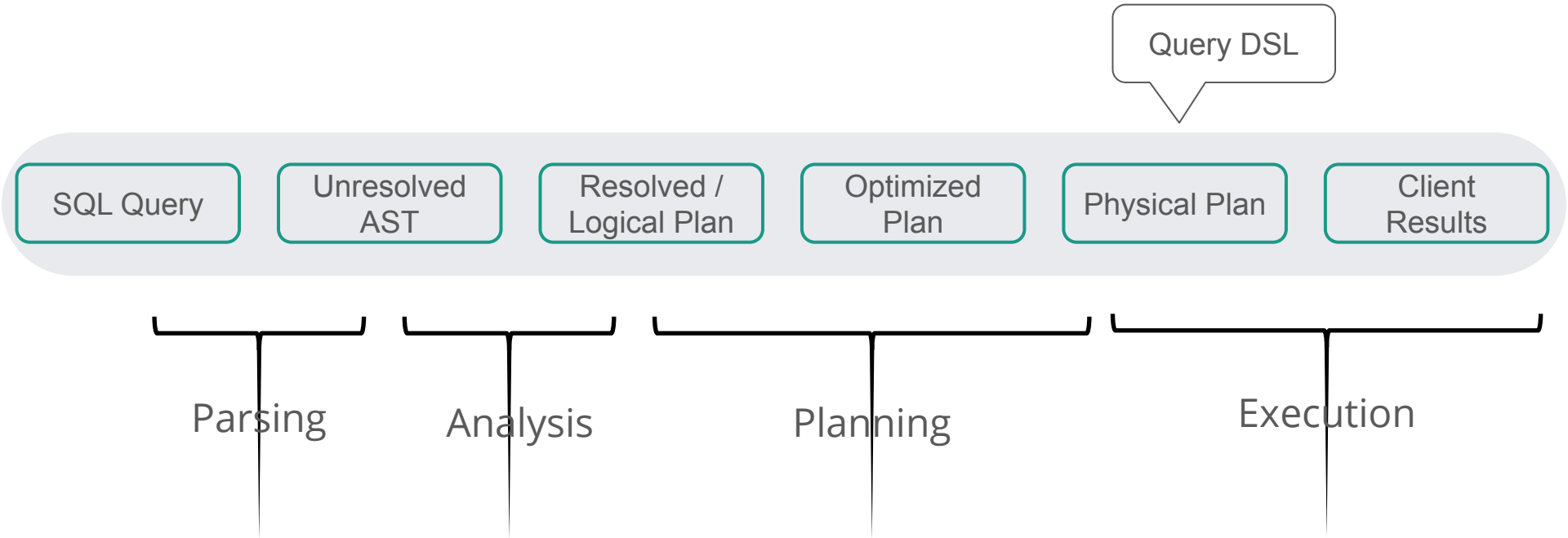
Elasticsearch SQL <> RDBMS

Terminological Differences

Relational Databases (RDBMS)	Elasticsearch SQL
Column	Field
Row	Document
Table	Index
View	Alias
Schema	- (Security can enforce “schema”)
Database / Catalog	-
Instance / Cluster	Cluster / Clusters (Federated via CCS)

Elasticsearch SQL Execution

SQL Interpreter Internals



Demo

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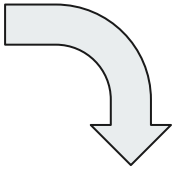
Text Operators and Relevancy

Fulltext Search with Elasticsearch SQL

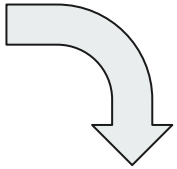
- Within the WHERE clause there are two predicates made for full text:
  - MATCH (field(s) to match, matching text, optional parameters)
  - QUERY (query_string, optional parameters)
- The SCORE() function is used to project the result of the scoring. Can be used in the scope of SELECT, ORDER BY clauses

```
"match" : {
  "full_name" : {
    "query" : "arthur gimpel",
    "operator" : "AND“
  }
}
```



```
SELECT
…
WHERE MATCH('full_name', 'arthur gimpel',
‘operator=and’);
```

```
"multi_match" : {
   "query" : "Lee",
   "fields" : [
     "first_name",
     "last_name^2.0"]
  }
```



```
SELECT
…
WHERE MATCH(‘first_name, last_name^2.0’ , ‘Lee’)
```

Demo

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Functions and Aggregations

Types of Functions in Elasticsearch SQL

Aggregate Functions	Scalar Functions
Metric Aggregations: COUNT, SUM, MAX, AVG…	**Math:** ABS, SQRT, LOG, COS, SIN, ACOS, ASIN….
GROUPING (except GROUP BY): HISTOGRAM	**String:** RIGHT,LEFT,SUBSTRING,LENGTH, UCASE…
	Conversion: CAST,CONVERT
	Date: DAY, MONTH, YEAR, NOW, MONTH_NAME…
	Conditional: IIF, ISNULL, CASE, NULLIF, GREATEST…
	Geo: ST_AsWKT, ST_WKTToSQL, ST_X, ST_Y, ST_Z, ST_Distance…

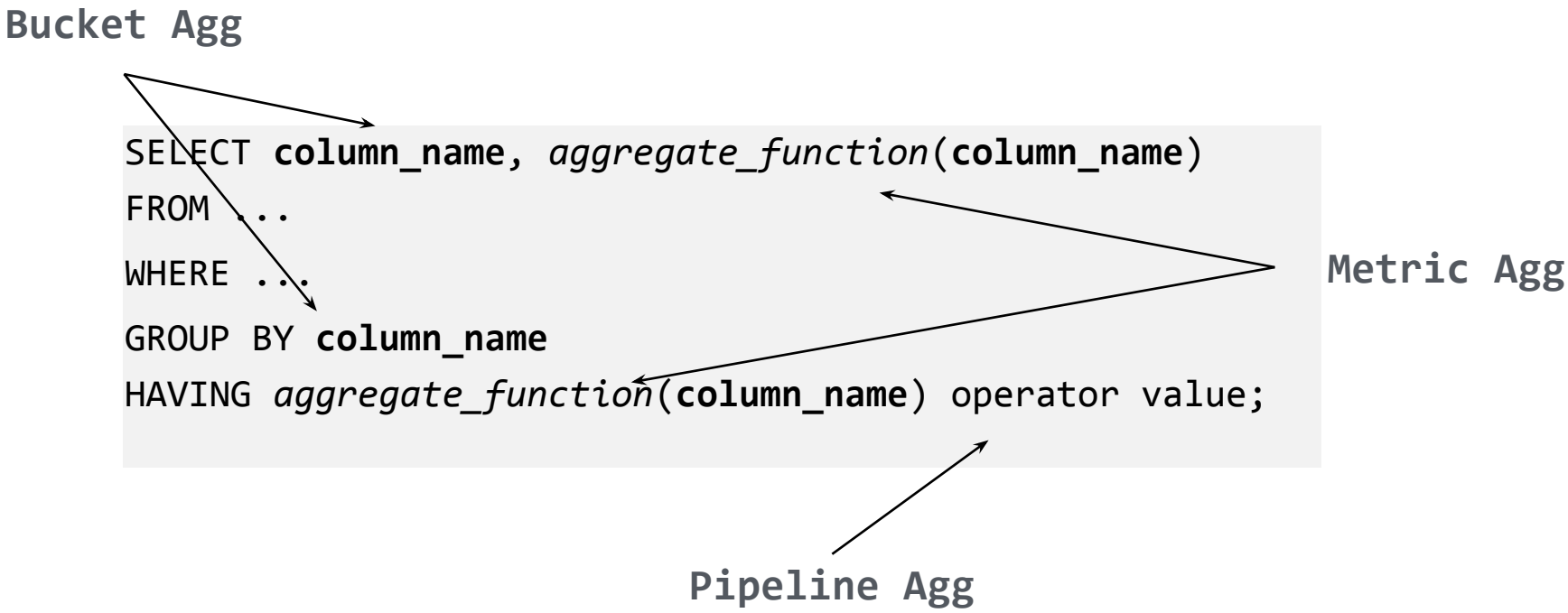
Functions and Aggregations

Group By & Having

```
SELECT column_name, aggregate_function(column_name)
FROM ...
WHERE ...
GROUP BY column_name
HAVING aggregate_function(column_name) operator value;
```

Functions and Aggregations

Group By & Having



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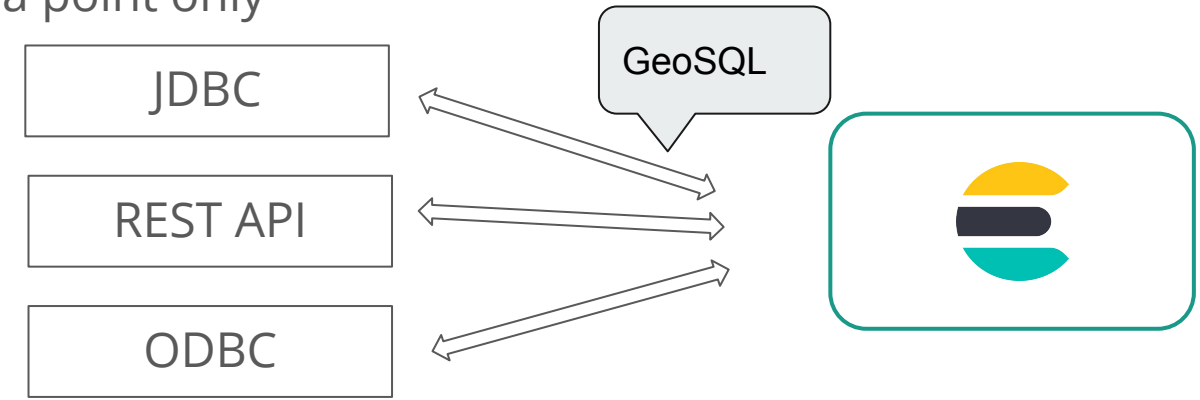
Geographic Queries

Standard GeoSQL Implementation on top of Elasticsearch

- Implements OpenGIS Simple Features Implementation Specification for SQL
- Currently supports ST_AsWKT, ST_WKTToSQL, ST_GeometryType, ST_X, ST_Y, ST_Z, ST_Distance
- Internally the Elasticsearch types supported are geo_point and geo_shape containing a point only



Demo

Q & A

Thank you