Phoenix

We put the SQL back in NoSQL

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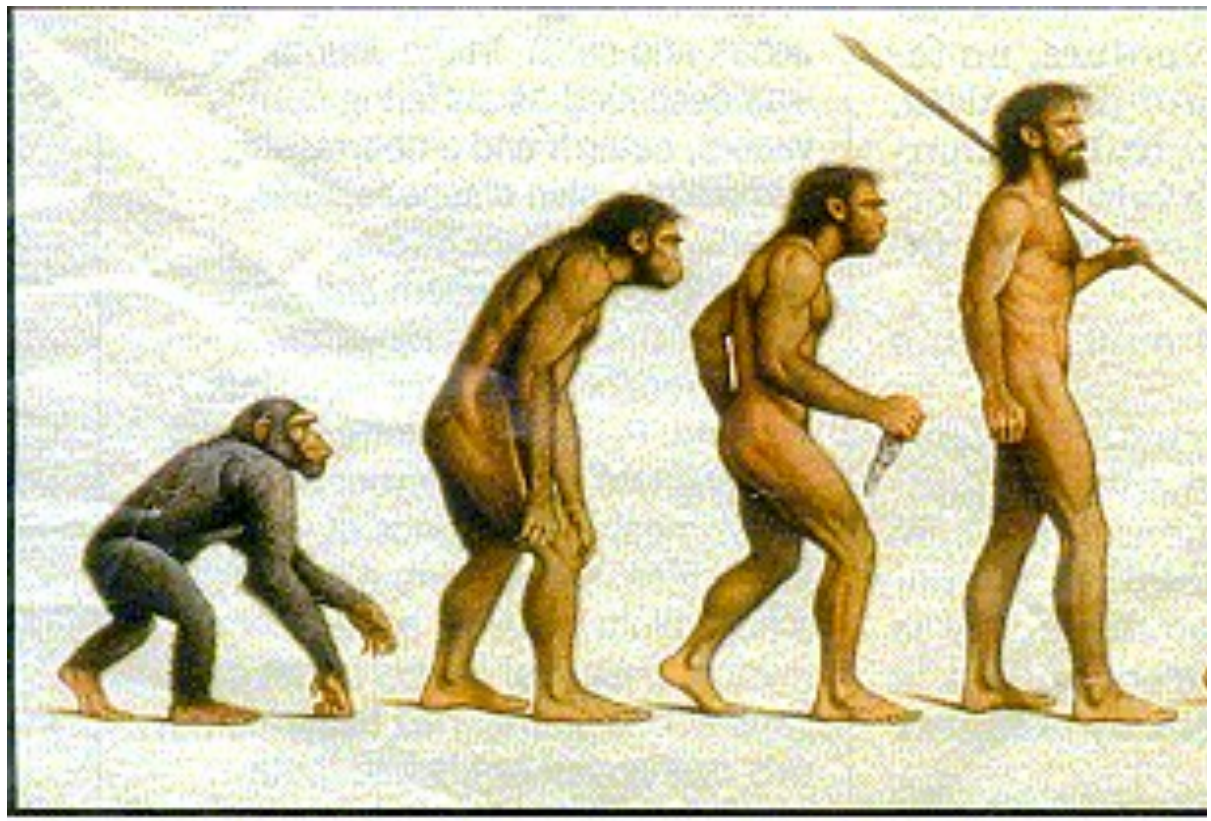
In the dawn of time…

Relational Databases were invented

But we all know the problems folks ran into

And then there was HBase



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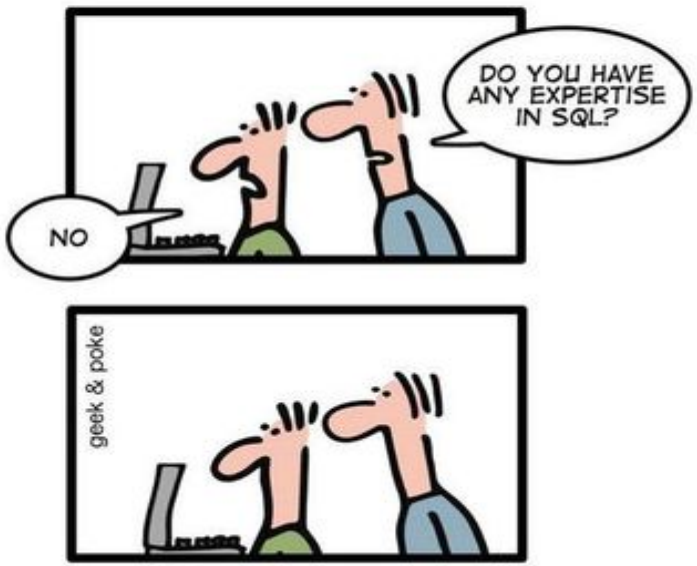

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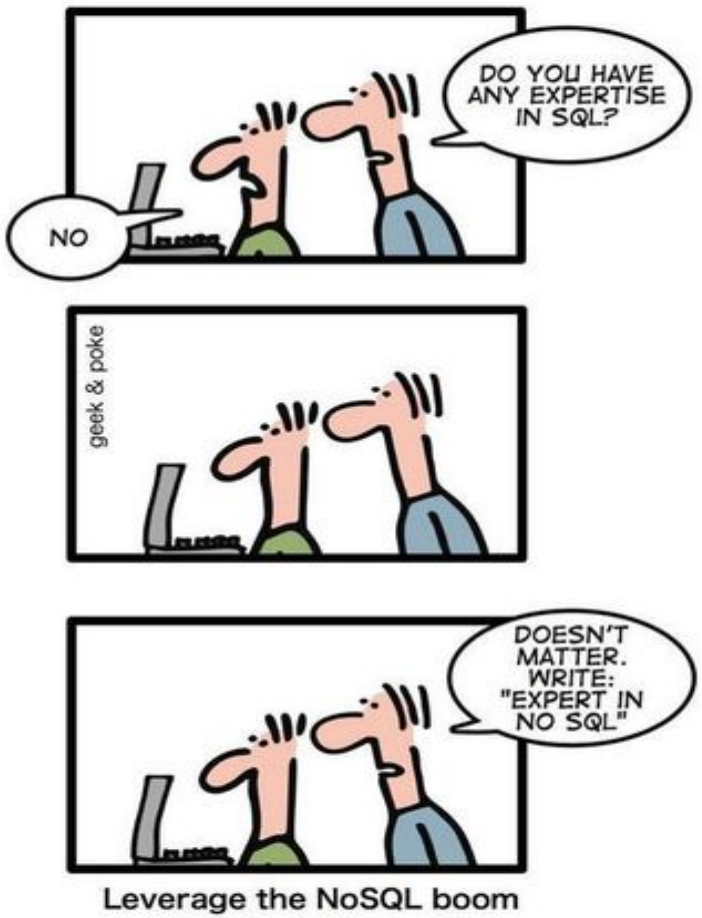
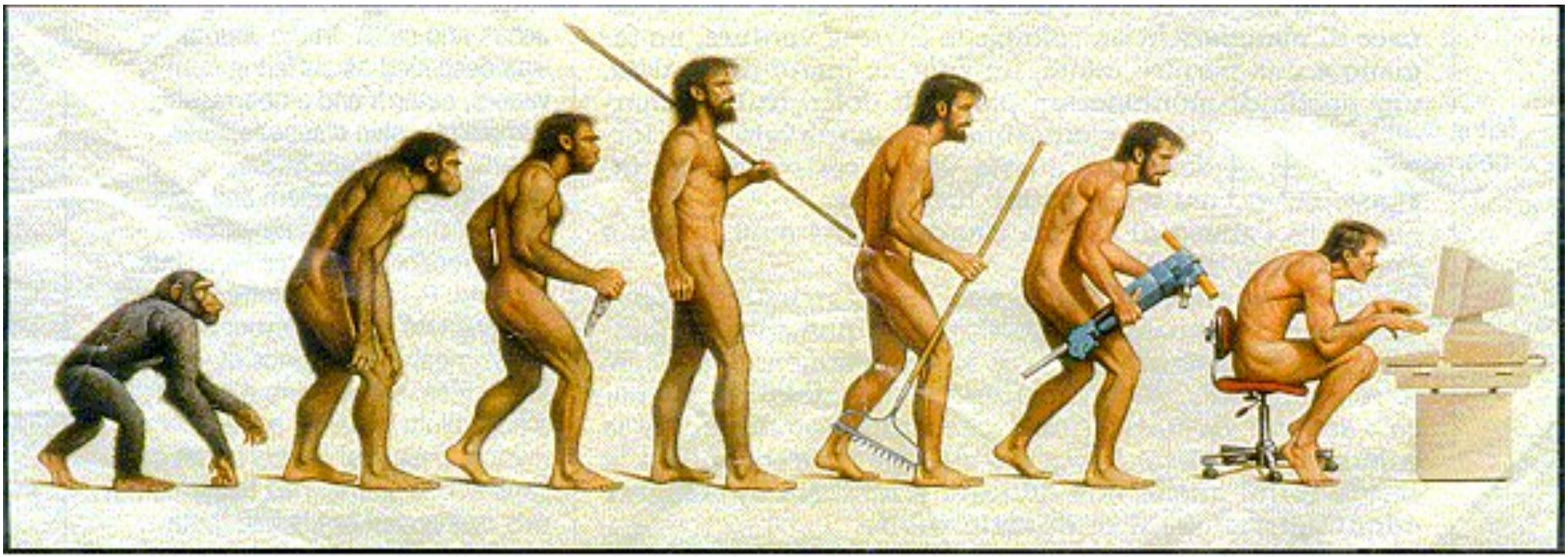


1. Horizontally scalable
2. Maintains data locality
3. Runs on commodity hardware

But somewhere, something terrible went wrong



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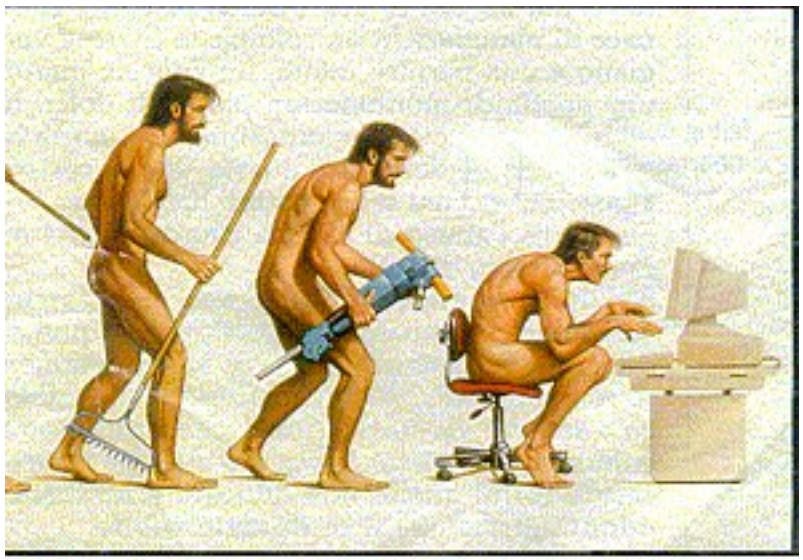

1. It takes too much expertise to write an application
2. It takes too much code to do anything
3. Your application is tied too closely with your data model

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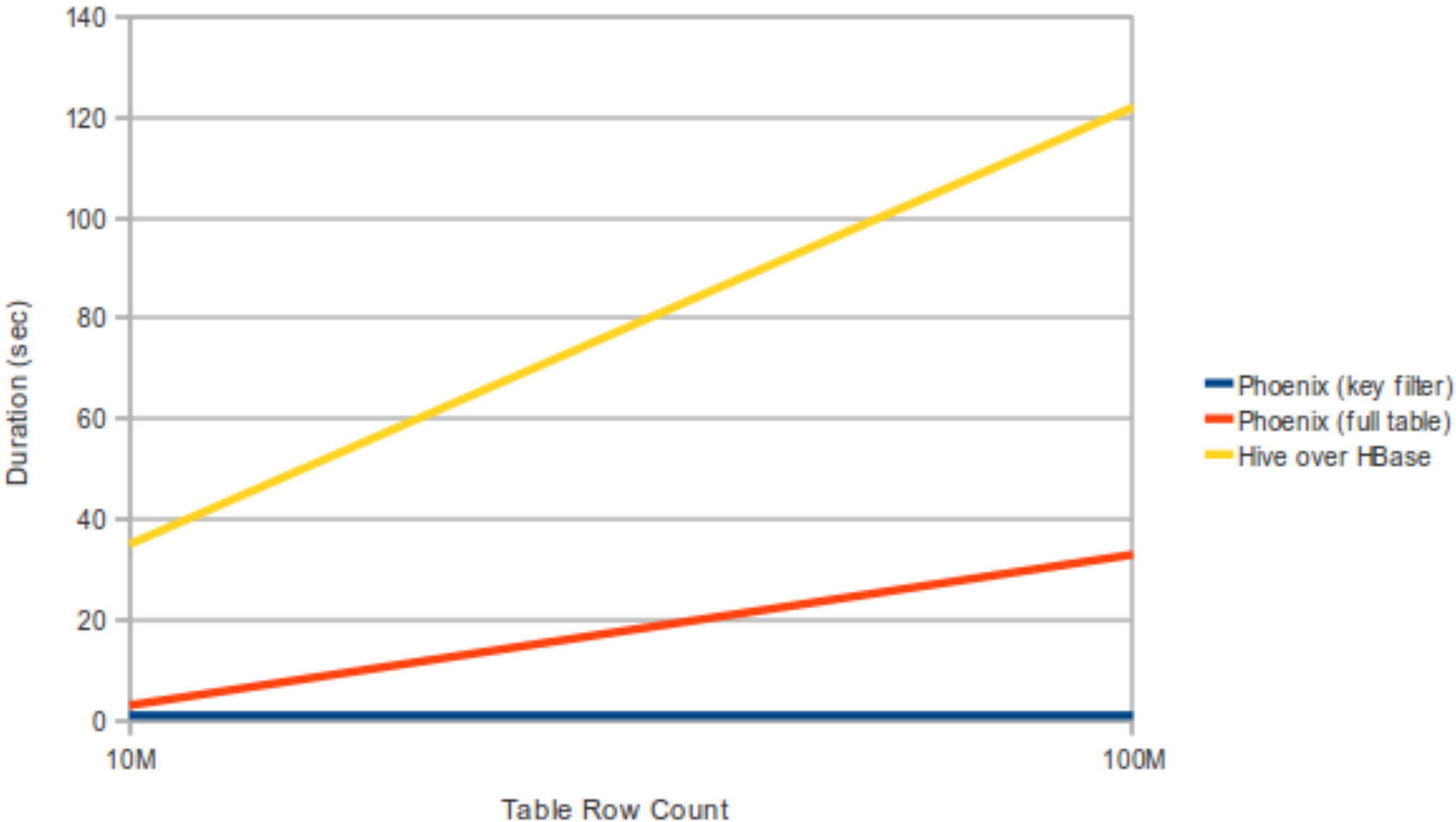
so you don't have to!

Phoenix Performance



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- Leverage existing tooling
  - SQL client/terminal
  - OLAP engine

Query Processing

Over metrics data for clusters of servers with a schema like this:

Server Metrics	
HOST	VARCHAR
DATE	DATE
RESPONSE_TIME	INTEGER
GC_TIME	INTEGER
CPU_TIME	INTEGER
IO_TIME	INTEGER
…	

Row Key

Query Processing

With data that looks like this:

SERVER METRICS			
HOST	DATE	RESPONSE_TIME	GC_TIME
ny1-s1	Jun 5 10:10:10.234	1234	
ny1-s1	Jun 5 11:18:28.456	4560	
…			
sf1-s1	Jun 5 10:10:10.234	2345	
sf1-s1	Jun 6 12:46:19.123	1003	
sf7-s20	Jun 4 08:23:23.456	5002	
…			

Scenario 1
Chart Response Time Per Cluster

```
SELECT host, trunc(date,'HOUR'),
    min(response_time), max(response_time)
FROM server_metrics
WHERE date > CURRENT_DATE() – 1
AND substr(host, 1, 3) IN ('sf1', 'sf3, 'sf7')
GROUP BY substr(host, 1, 3), trunc(date,'HOUR')
```

Phoenix Roadmap

- Secondary Indexing
- Hash Joins
- Apache Drill integration
- Count distinct and percentile
- Derived tables
    - SELECT * FROM (SELECT * FROM t)
- Cost-based query optimizer
- OLAP extensions
    - WINDOW, PARTITION OVER, RANK
- Monitoring and management
- Transactions

Thank you!
Questions/comments?