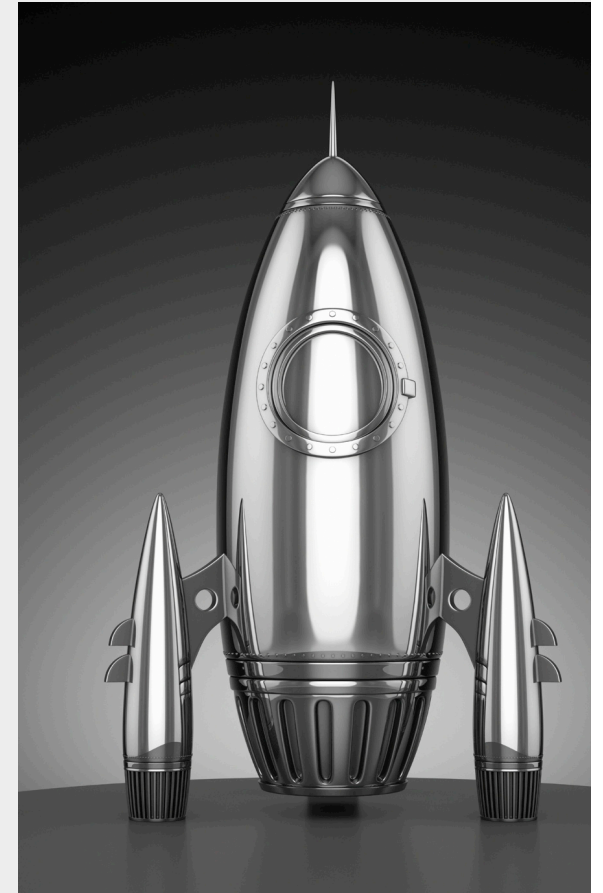# FIVE YEARS OF NOSQL CONSIDERED

How did we get here? Where are we going?

"HISTORY DOESN'T REPEAT ITSELF, BUT IT DOES RHYME."

— MARK TWAIN

TOPICS

THE SOFTWARE

THE COMPANIES

THE INDUSTRY

THE OPEN SOURCE COMMUNITY

THE FORCES THAT SHAPED NOSQL

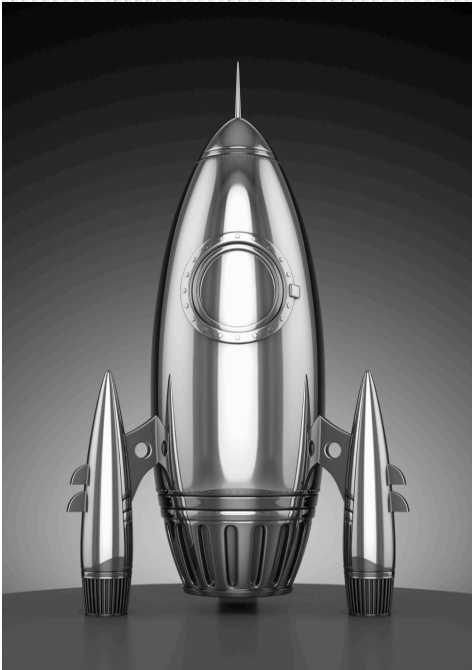THE FORCES THE WILL SHAPE IT

A BRIEF DIGRESSION TO MYSQL

SOME EXTRAPOLATIONS

CONCLUSION

Disclaimer:

Akamai. Basho. Orchestrate.

NOSQL TIMELINE

NOSQL PROJECTS TODAY

KE
DEX
AWN TO SCALE
INFINIGRAPH
COUCHBASE
MEMCACHE
BERKLEY DB
GENIEDB
REDIS
SWIFT
MONGODB
CASSANDRA
RIAK
VOLDEMORT
TOKYO CABINET
HBASE
NEO4J
TEMPODB
ELASTIC SEARCH
COUCHDB
HIBARI
ORIENTDB
NOSQL DB
DYNAMO
BIG COUCH
MARKLOGIC SERVER
SIMPLEDB
FLOCKDB
MNES

NOSQL TAXONOMY

DOCUMENT

MongoDB

Riak

Couchbase

Voldemort

COLUMN

Cassandra

HBase

GEO

GeoCouch

GeoMongoDB

GRAPH

Neo4J

Titan for HBase

SEARCH

ElasticSearch

Riak Search

OBJECT

Swift

Riak CS

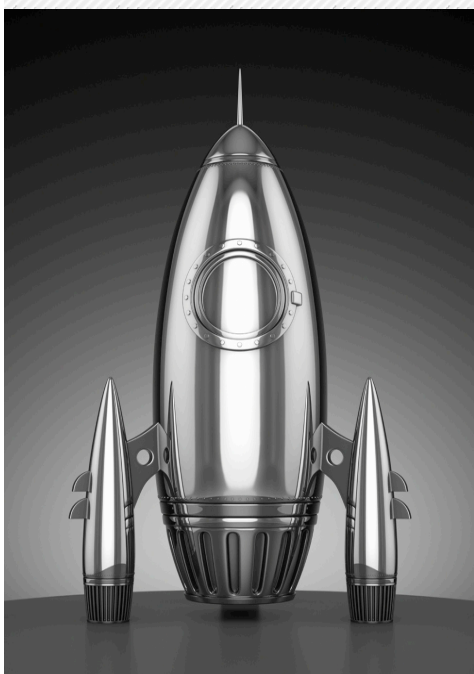# NOSQL PROJECTS WITH BACKING

COUCHBASE

MONGODB

CASSANDRA

RIAK

HBASE

NEO4J

ELASTIC SEARCH

COUCHDB
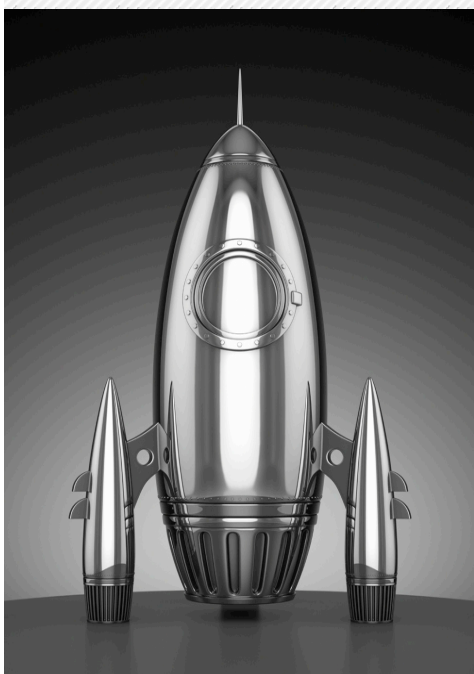
NOSQL COMPANIES

MONGODB

CASSANDRA

RIAK

COUCH*

NEO4J

ELASTICSEARCH
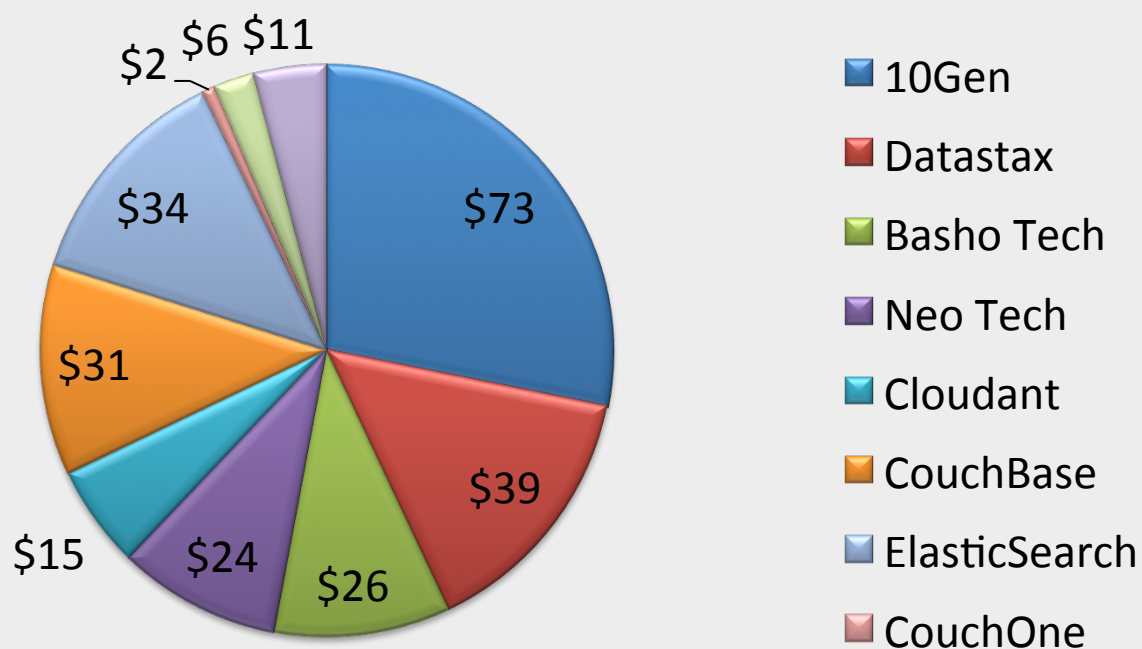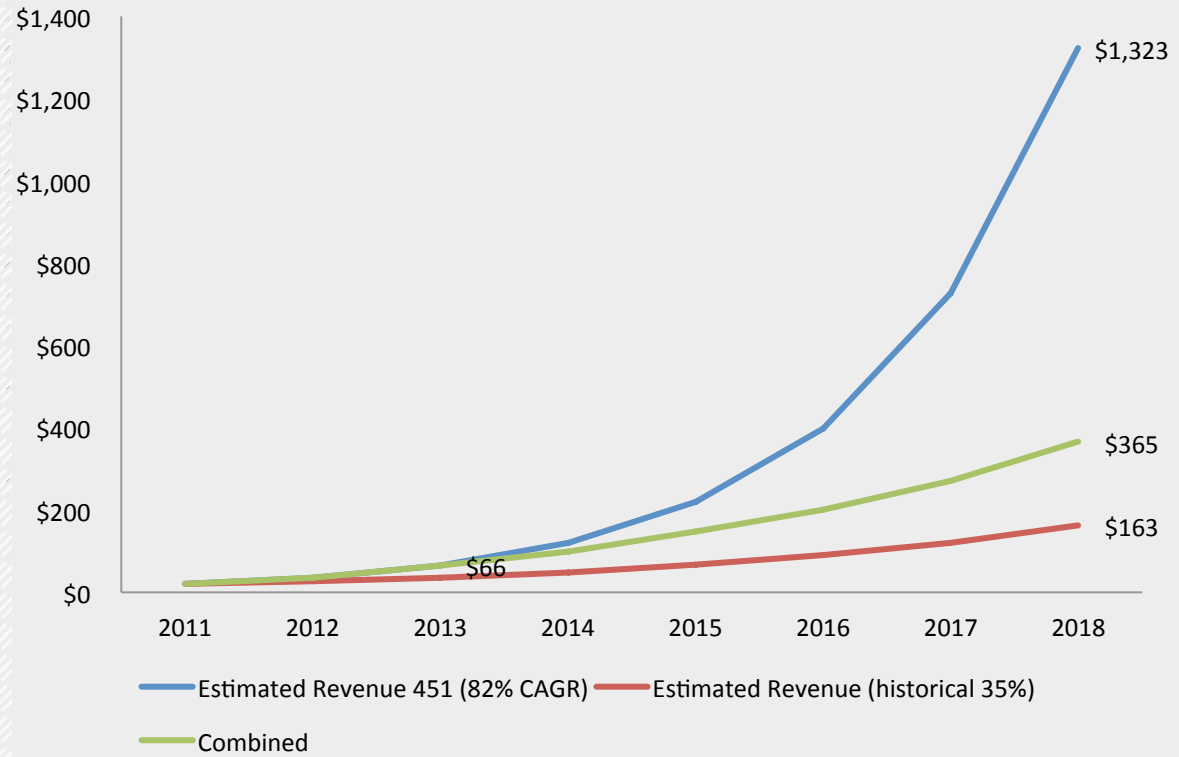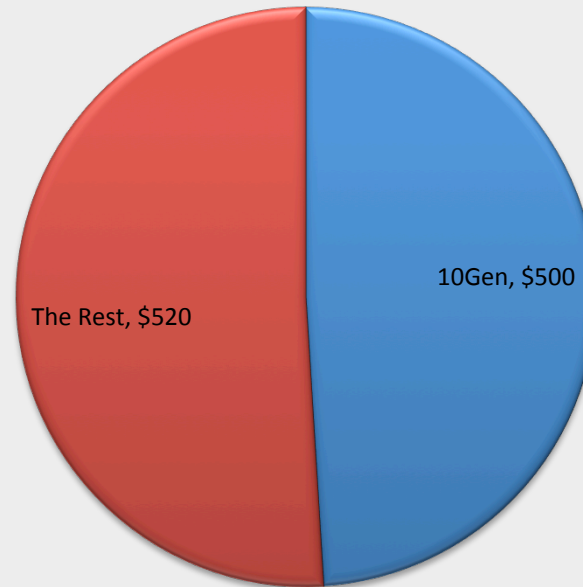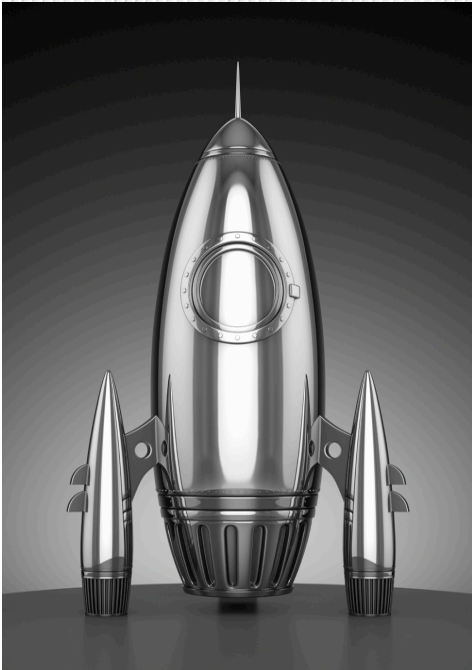
NOSQL **INVESTMENTS**

Investment in Millions

Pie chart segments:
- 10Gen — $73
- Datastax — $39
- Basho Tech — $26
- Neo Tech — $24
- Cloudant — $15
- CouchBase — $31
- ElasticSearch — $34
- CouchOne — $2
- $6
- $11

Total Investment = $261M Source: Crunchbase

NOSQL REVENUES

Legend:
- Estimated Revenue 451 (82% CAGR)
- Estimated Revenue (historical 35%)
- Combined

Data labels: $1,400, $1,200, $1,000, $800, $600, $400, $200, $0 (y-axis); 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018 (x-axis); $1,323, $365, $163, $66

Revenue in millions. Mix of software, hardware, PS.
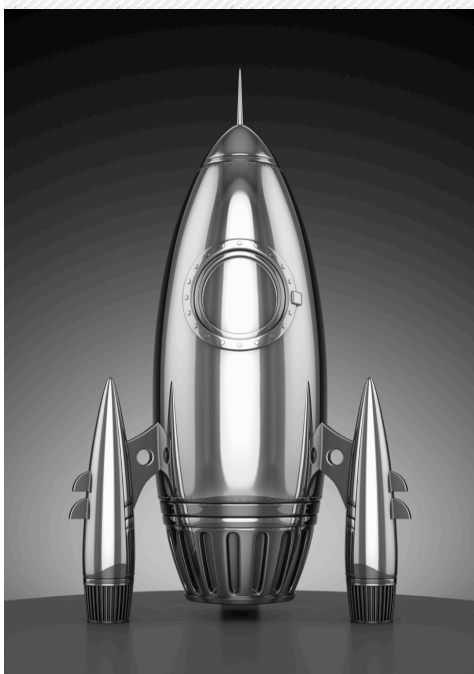
NOSQL VALUATIONS

10Gen, $500
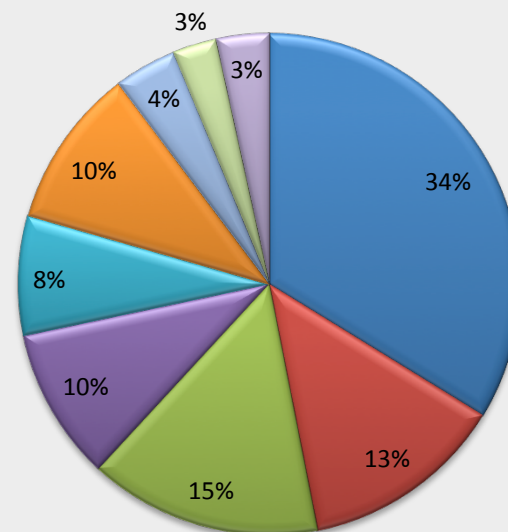
The Rest, $520
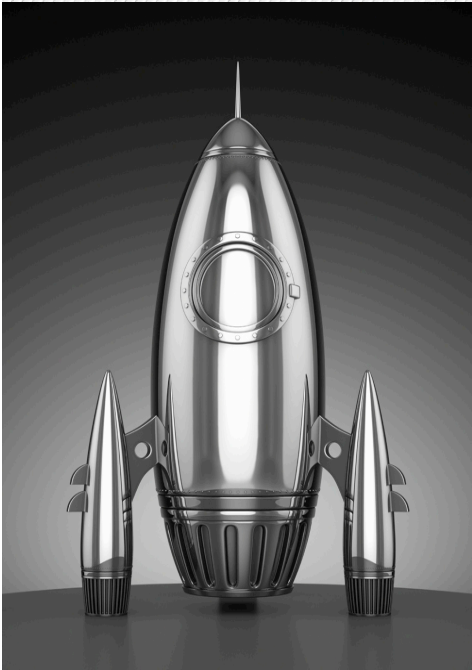
Valuation in Millions
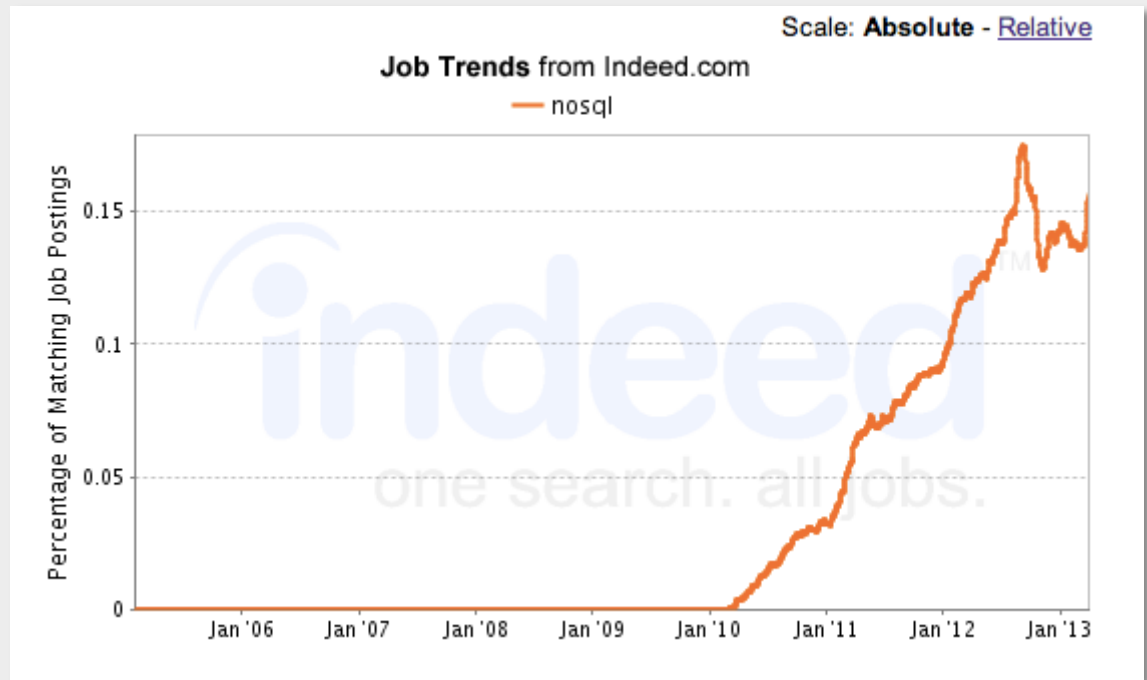Source: Crunchbase, TechCrunch, VentureBeat

NOSQL EMPLOYMENT

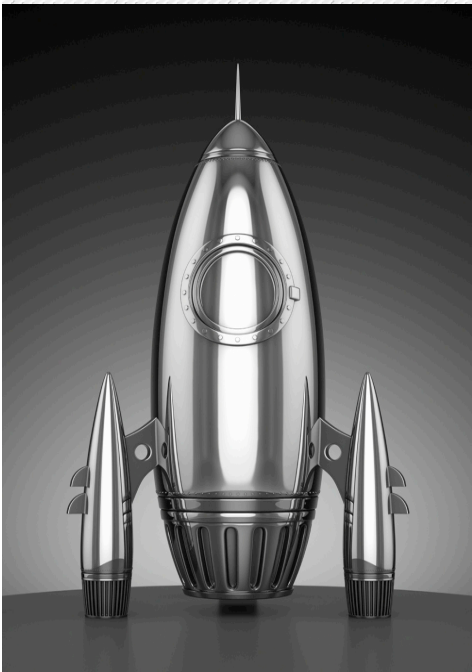## Employees

- 10Gen
- Datastax
- Basho Tech
- Neo Tech
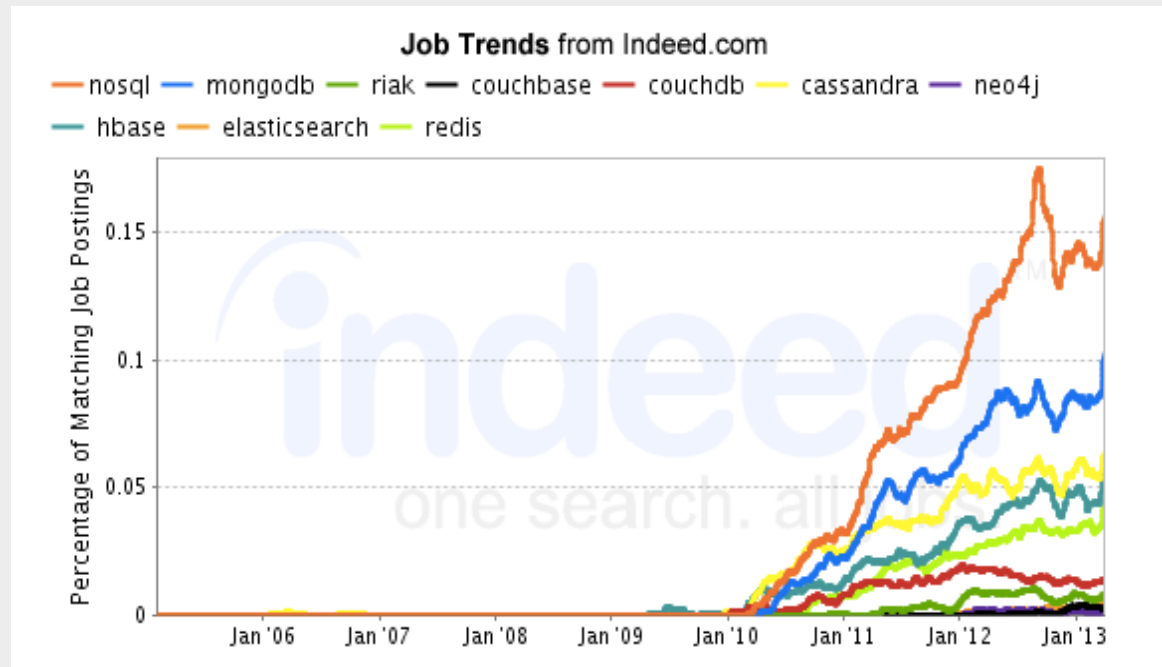- Cloudant
- CouchBase
- ElasticSearch
- MongHQ
- Acunu

Pie chart values: 34%, 13%, 15%, 10%, 8%, 10%, 4%, 3%, 3%

Total Employees: 623   Source: LinkedIn.com

NOSQL JOB GROWTH

Scale: **Absolute** - Relative

Job Trends from Indeed.com

— nosql

Percentage of Matching Job Postings

0.15

0.1

0.05

0

Jan '06   Jan '07   Jan '08   Jan '09   Jan '10   Jan '11   Jan '12   Jan '13
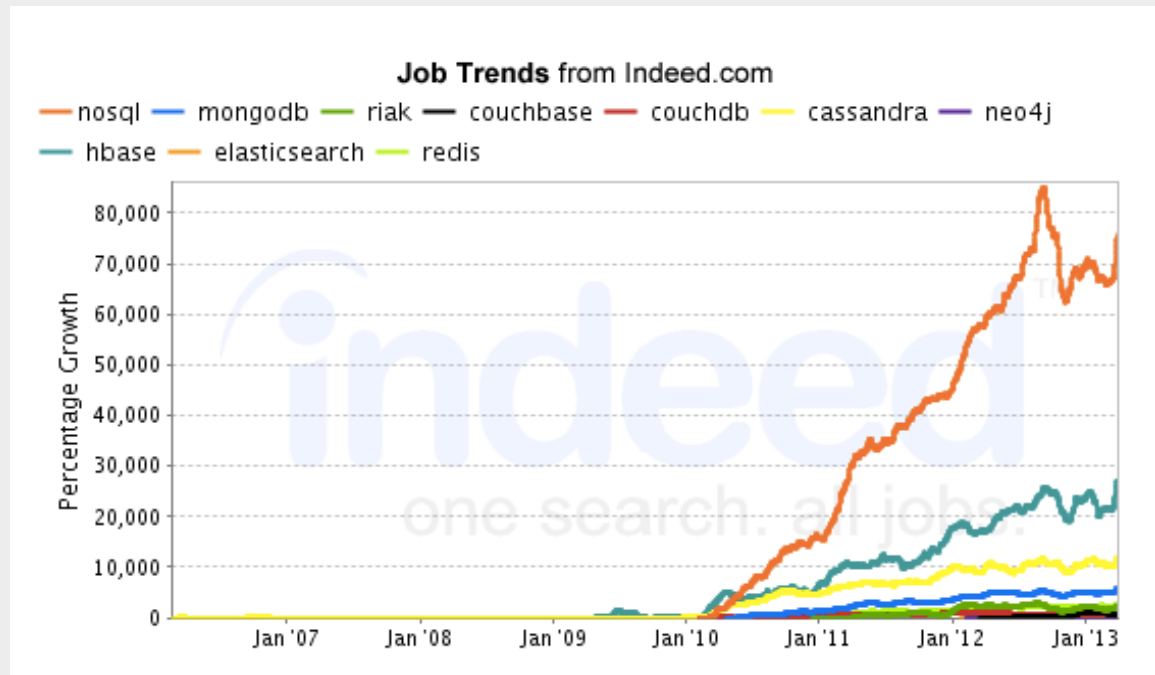
NOSQL JOB GROWTH BY PROJECT

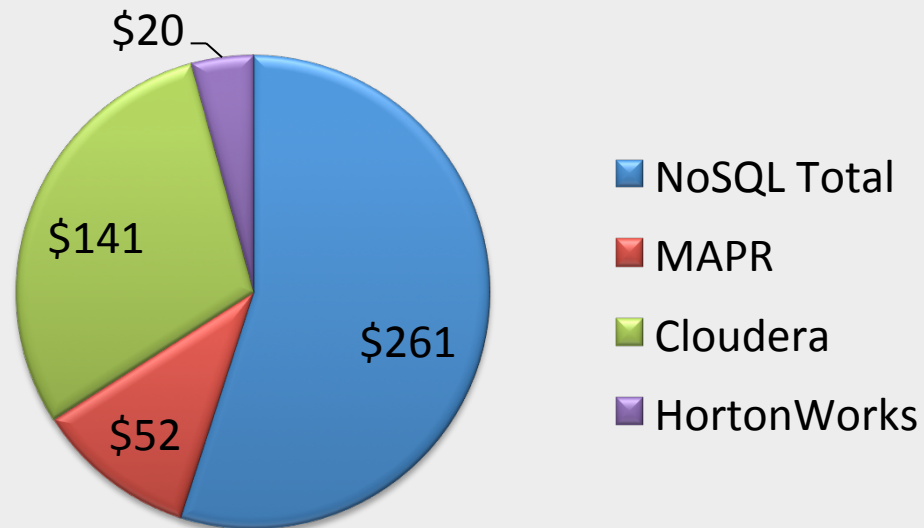# NOSQL JOB GROWTH BY PROJECT (RELATIVE)
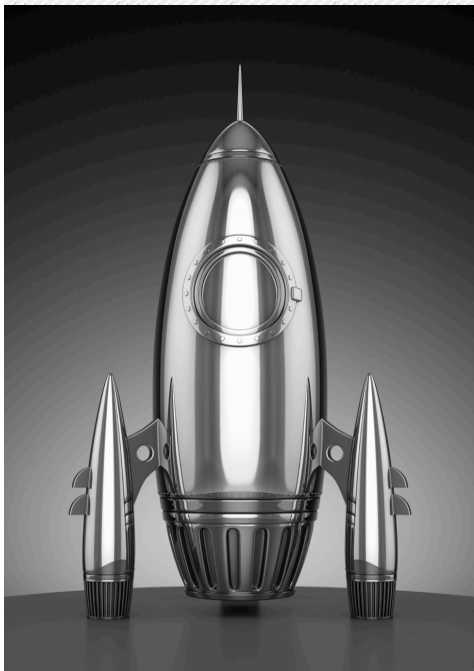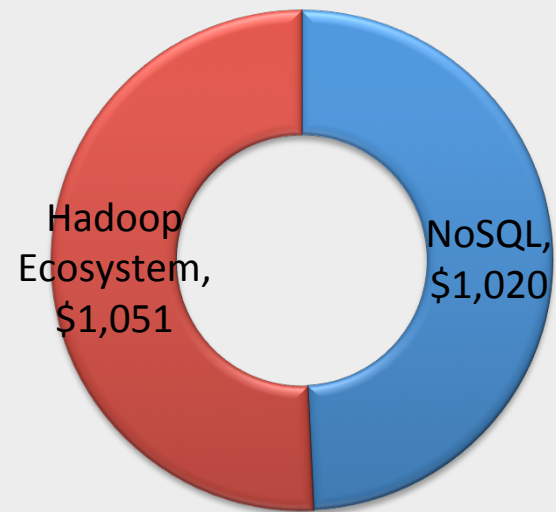

Job Trends from Indeed.com

A look outside the category
PUTTING NOSQL IN CONTEXT

NOSQL INVESTMENTS (W/HADOOP CO'S)

Pie chart legend:
- NoSQL Total
- MAPR
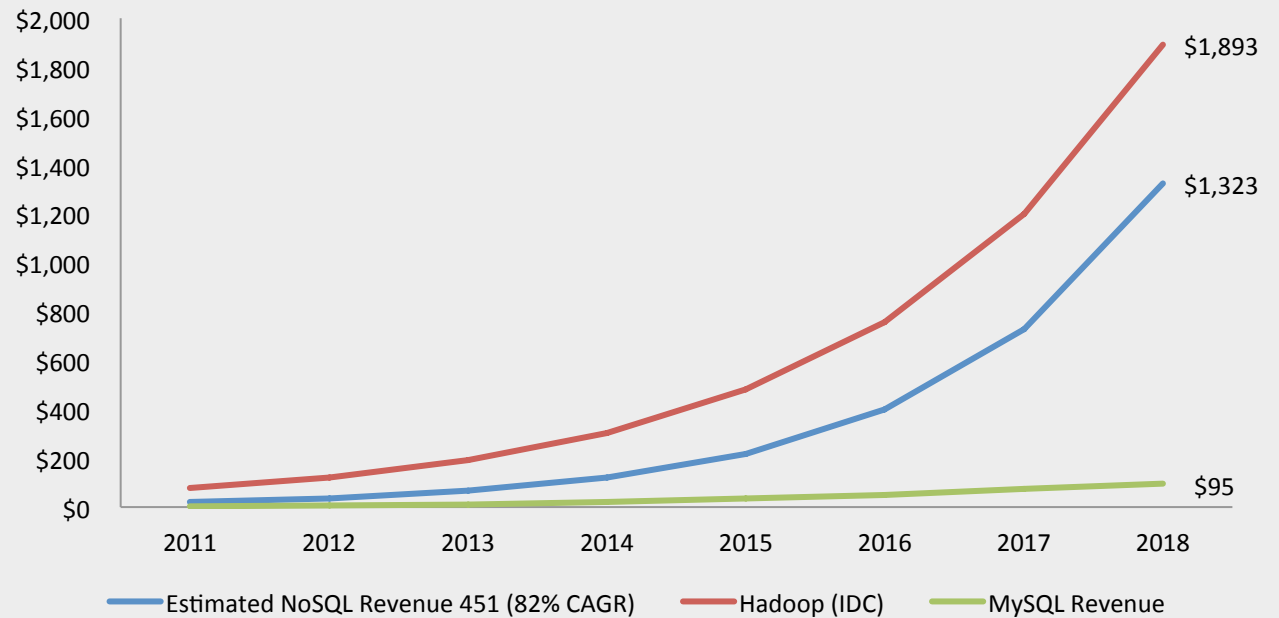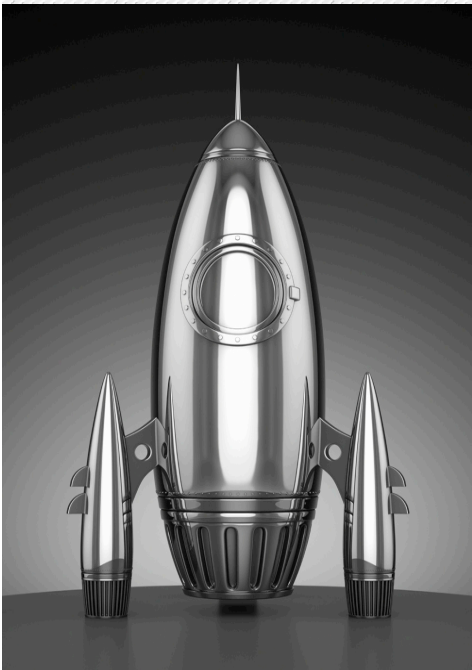- Cloudera
- HortonWorks

Chart values: $261, $52, $141, $20

Total Investment = $466M

NOSQL **VALUATIONS** COMPARED TO HADOOP
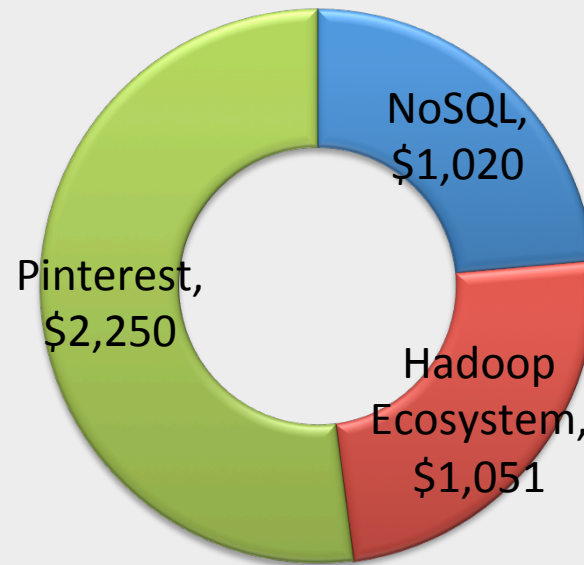
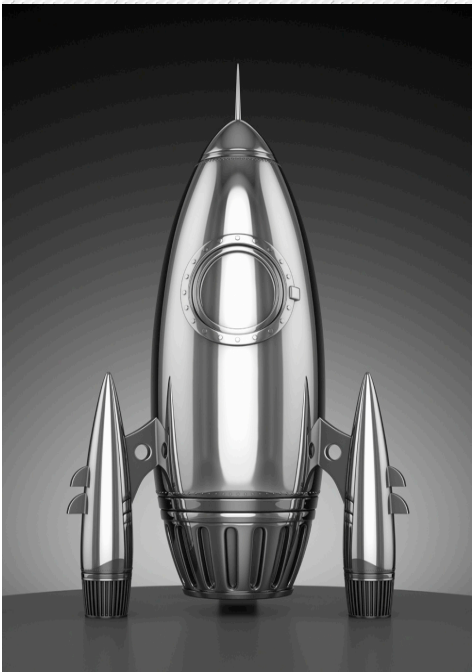Hadoop Ecosystem, $1,051

NoSQL, $1,020
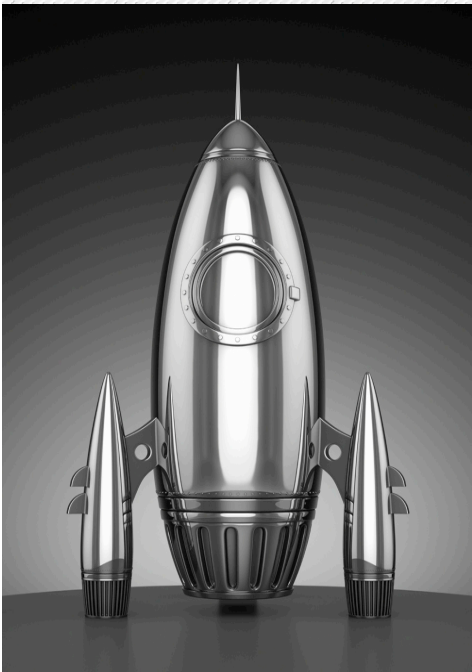
Valuation in Millions

NOSQL REVENUE (W/ REALITY CHECK)

Revenue in millions. Mix of software, hardware, PS.
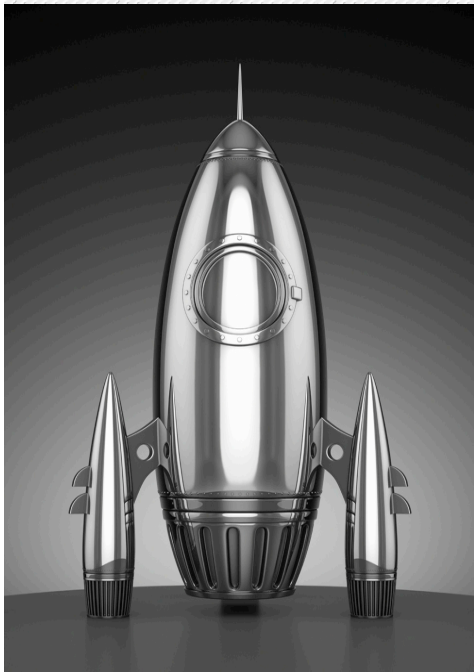
NOSQL VALUATIONS (W/ REALITY CHECK)

NoSQL, $1,020

Hadoop Ecosystem, $1,051

Pinterest, $2,250

Valuation in Millions

Looking backward in order to
LOOK FORWARD

THE USER SHAPED TODAY'S NOSQL

Flexibility of

Schema-less

Elastic workloads

OSS –

Cost and Vendor Lock-in

Latency

Source: every single Survey of NoSQL in past three years

THE **USER** SHAPED TODAY'S NOSQL

Flexibility of
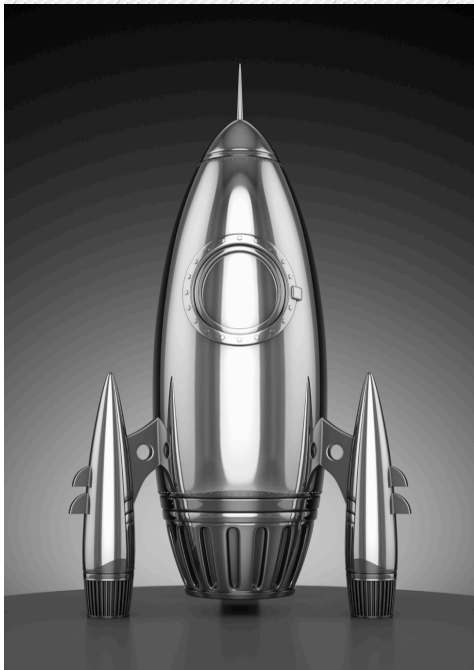
Schema-less

Elastic workloads

OSS –

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THE **USER** SHAPED TODAY'S NOSQL

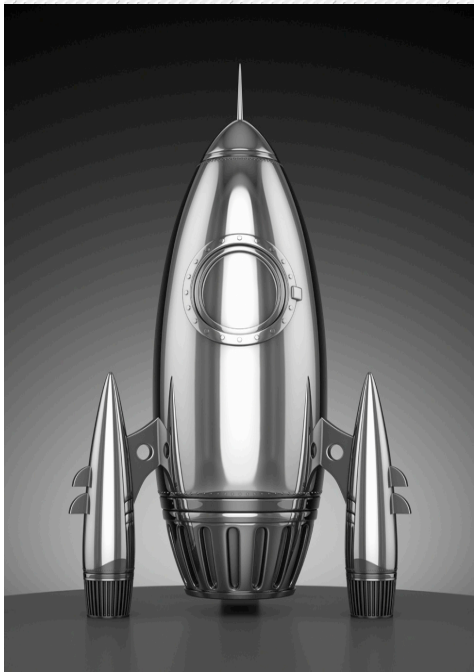Flexibility of

Schema-less

Elastic workloads

OSS –

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THE **USER** SHAPED TODAY'S NOSQL

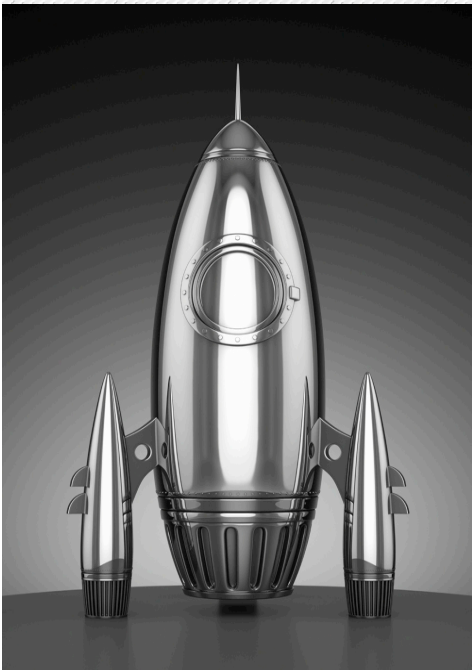Flexibility of
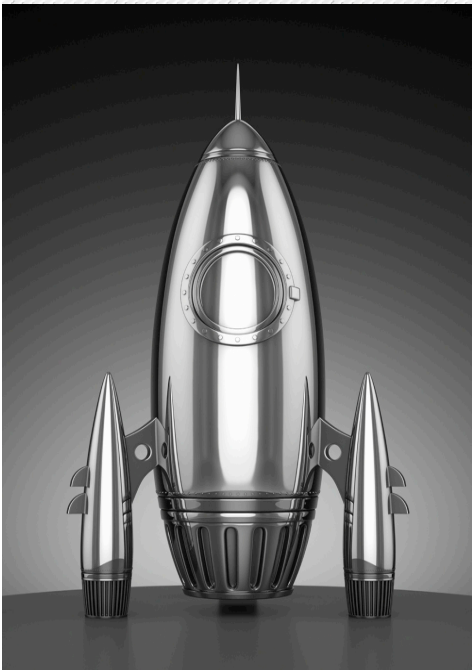
Schema-less

Elastic workloads

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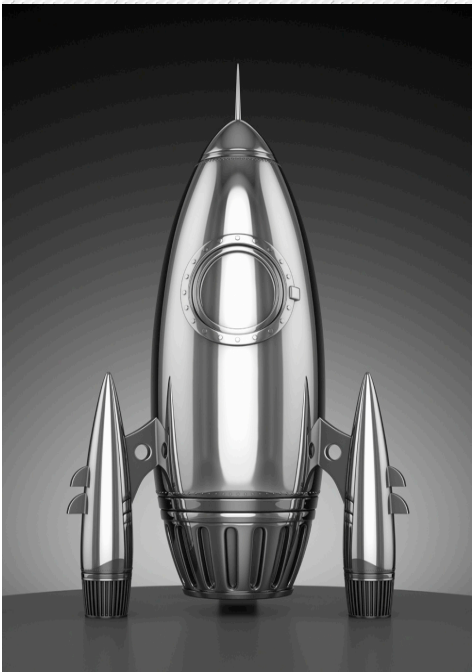
NOSQL OVERVIEWS

Good sources:

- NoSQL Distilled – Pramod Sadalage
  http://www.youtube.com/watch?v=l68zxgZS_wc –

- NoSQL Adoption Survey – James Phillips
  http://blog.couchbase.com/nosql-adoption-survey-surprises

- The NoSQL Movement – Michael Loukides
  http://strata.oreilly.com/2012/02/nosql-non-relational-database.html

- All 451 Group NoSQL Surveys – Matt Aslett

OSS, CLOUD, POLYGLOT, ORACLE, MASTERY
WIDER FORCES
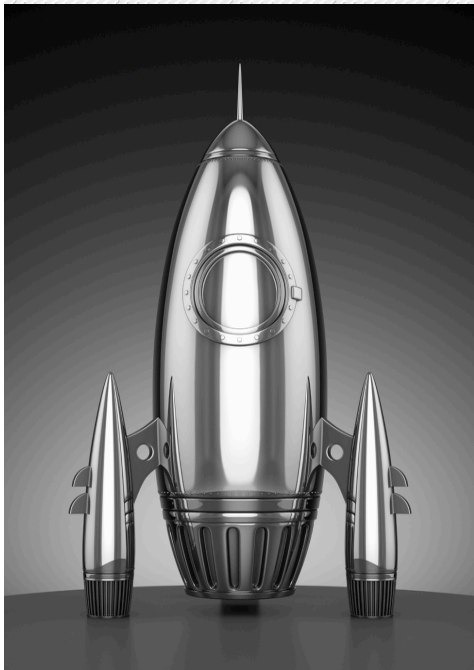
WIDER FORCES THAT SHAPED NOSQL

OSS as a Movement

Cloud

Polyglot World

Oracle Acquires MySQL

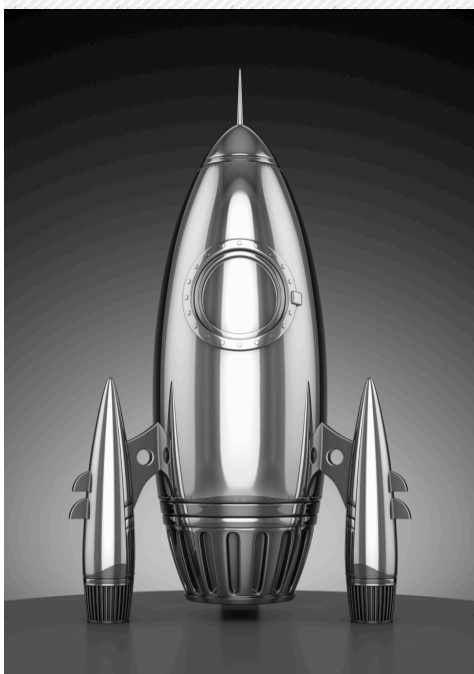# WIDER FORCES THAT SHAPED NOSQL

OSS as a Movement

Cloud

Polyglot World

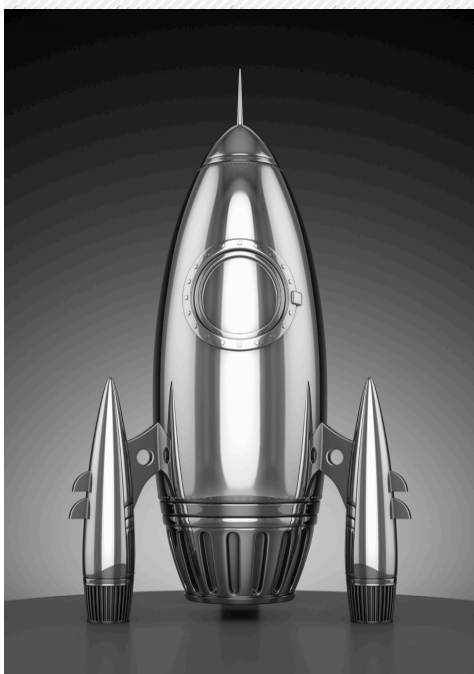Oracle Acquires MySQL

Source: Blackduck Open Source Surveys

OSS IN 2008

- Biggest driver was "mobile"

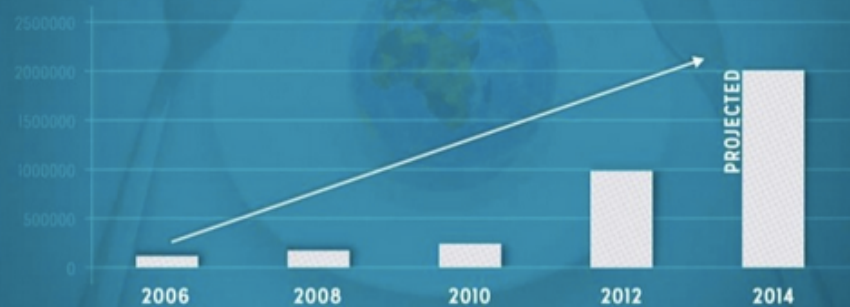- 74% of projects were hosted on Sourceforge

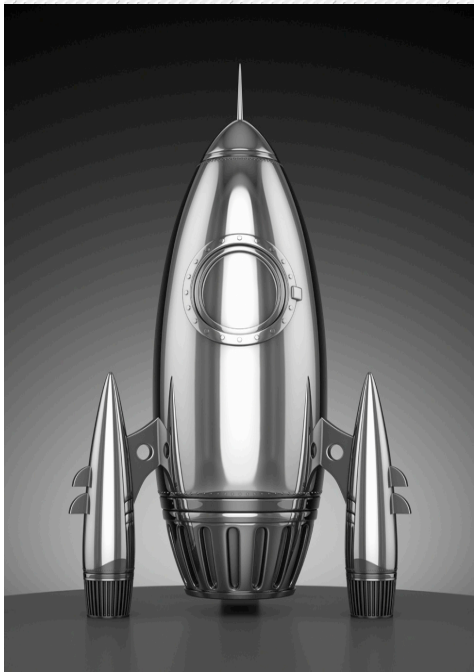| Platform	Total Project Releases	Project Releases in 2008
Palm	1,850	113
iPhone	391	266
Windows Mobile	359	174
Symbian	322	64
Android	246	191
Rim/Blackberry	237	96
Maemo	56	17
LiMo	28	6

OSS IN 2013

- Biggest driver is "big data"

- 500% growth.

- Github won.

OPEN SOURCE IS EATING THE SOFTWARE WORLD

OVER 1 MILLION UNIQUE OPEN SOURCE PROJECTS TODAY

SOURCE: BLACK DUCK

WIDER **FORCES** THAT SHAPED NOSQL

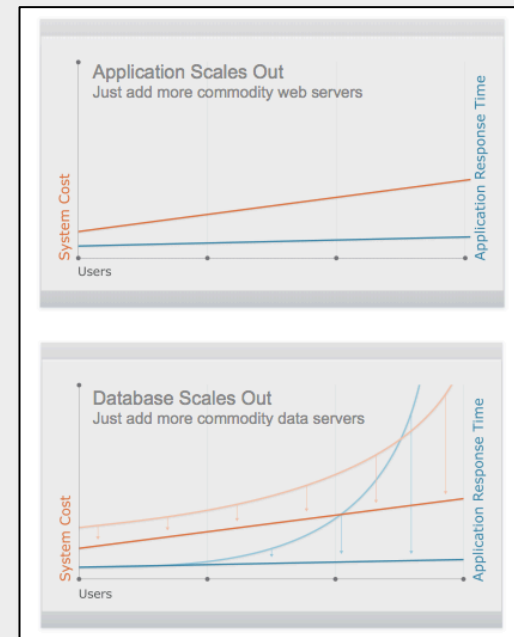
OSS as a Movement

Cloud

Polyglot World
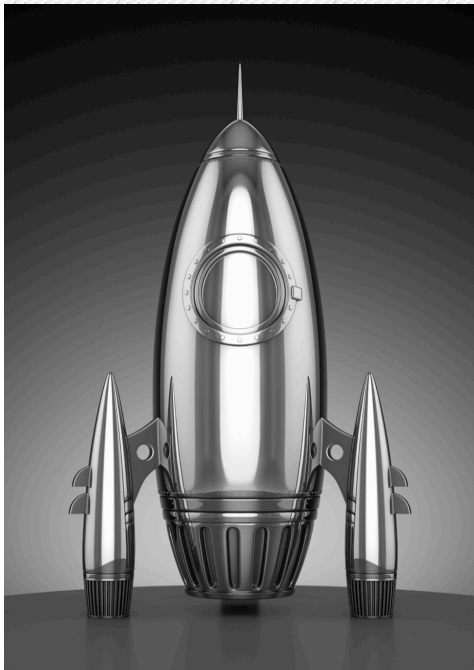
Oracle Acquires MySQL

NOSQL AND THE CLOUD

Databases needed that could match the "scale out" properties of other tiers.

Still some impedance mismatch – VM vs. disk

Source: James Phillips, Couchbase - http://www.infoq.com/presentations/NoSQL-Survey-Comparison

WIDER FORCES THAT SHAPED NOSQL

OSS as a Movement

Cloud

Polyglot World

Oracle Acquires MySQL

Source: http://johnpwood.net/tag/polyglot-persistence/ and also Cloudant blogs

NOSQL AND POLYGLOT PERSISTENCE

KLOUT DATA ARCHITECTURE
THE BEST TOOL FOR THE JOB
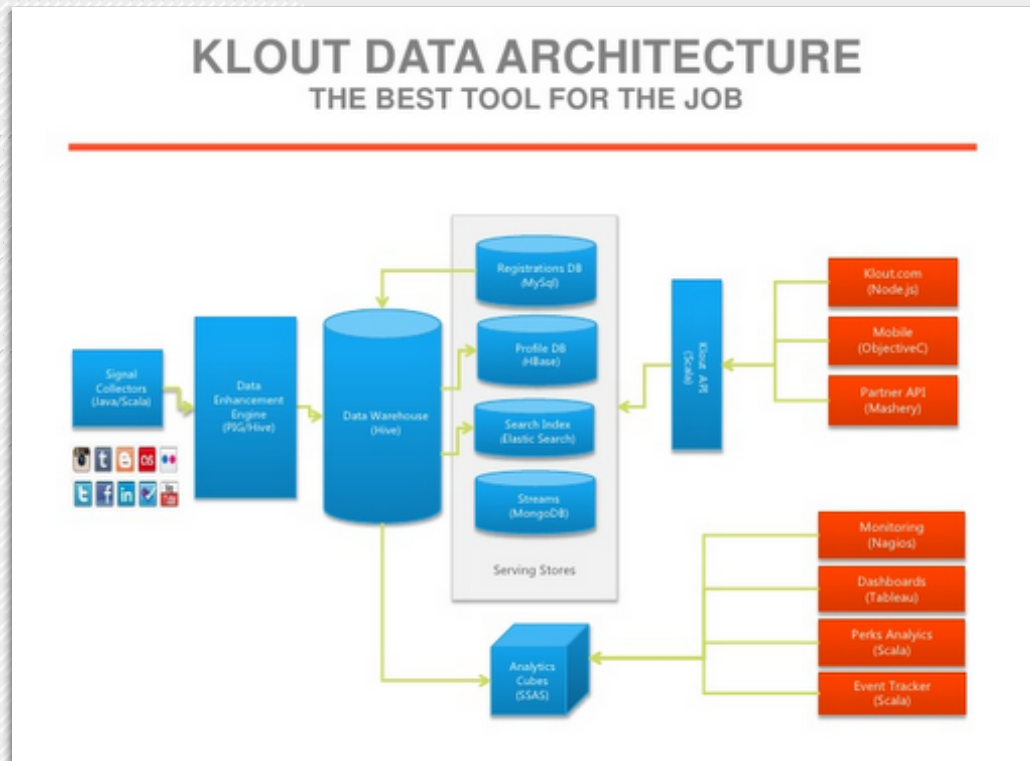
1. Hbase
2. MySQL
3. ElasticSearch
4. MongoDB

WIDER **FORCES** THAT SHAPED NOSQL
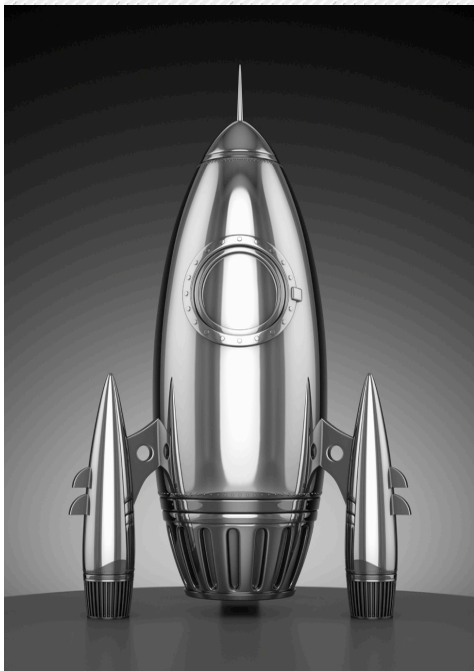
OSS as a Movement   Cloud

Polyglot World

Oracle Acquires MySQL

Source: http://johnpwood.net/tag/polyglot-persistence/ and also Cloudant blogs
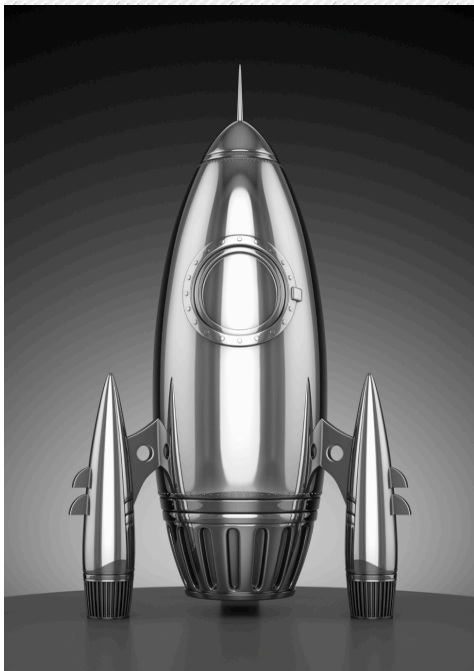
ORACLE ACQUIRES MYSQL
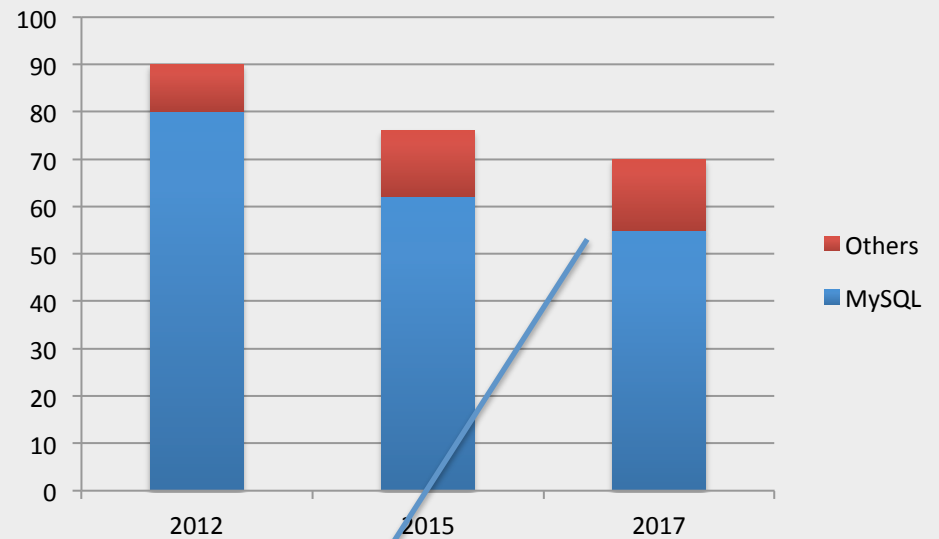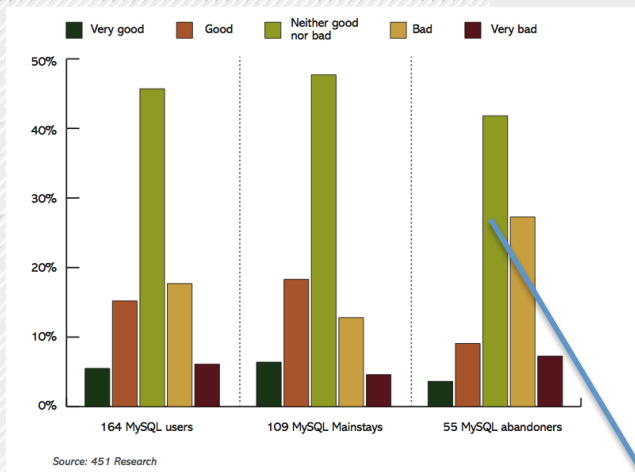
Growing dissatisfaction leads to look at alternatives

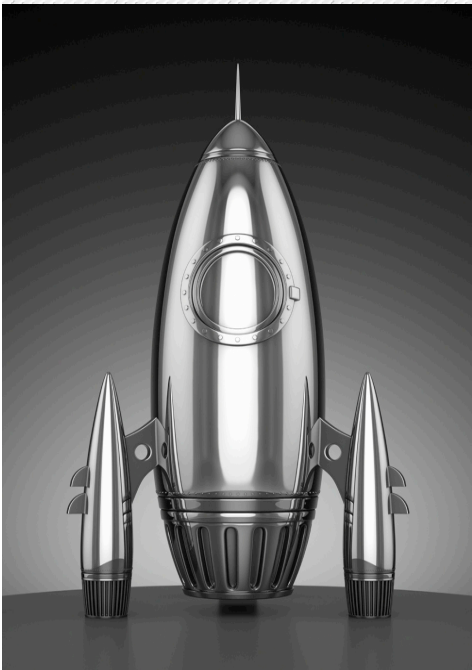Source: 451 Research Group, MySQL vs. NoSQL vs. NewSQL, Matt Aslett, 2013

SERVICES, APIS, MASTERY, OPEN DATA, CONSOLIDATION
INTO THE FUTURE

NOSQL TIMELINE – THE RISE OF SERVICES

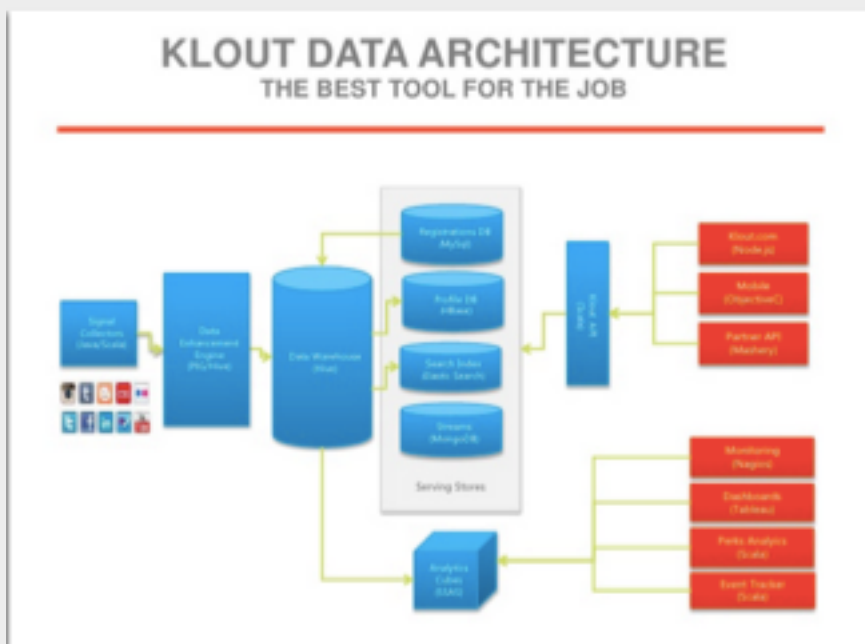# NOSQL SERVICES – MARKET FORCES

Metered pricing vs. Licenses
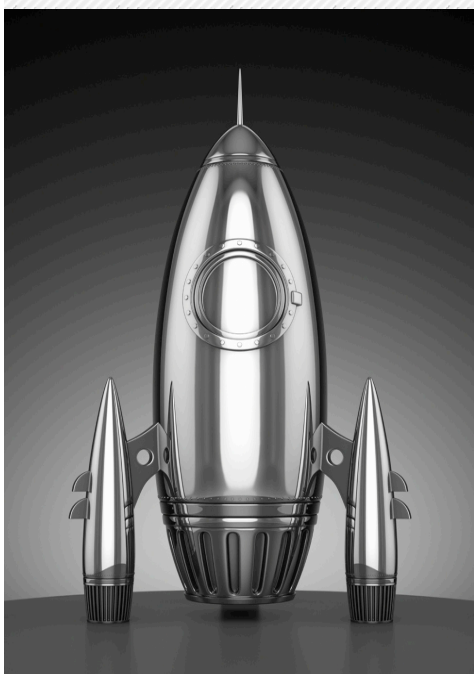
Following the rest of the stack toward services

Greater elasticity

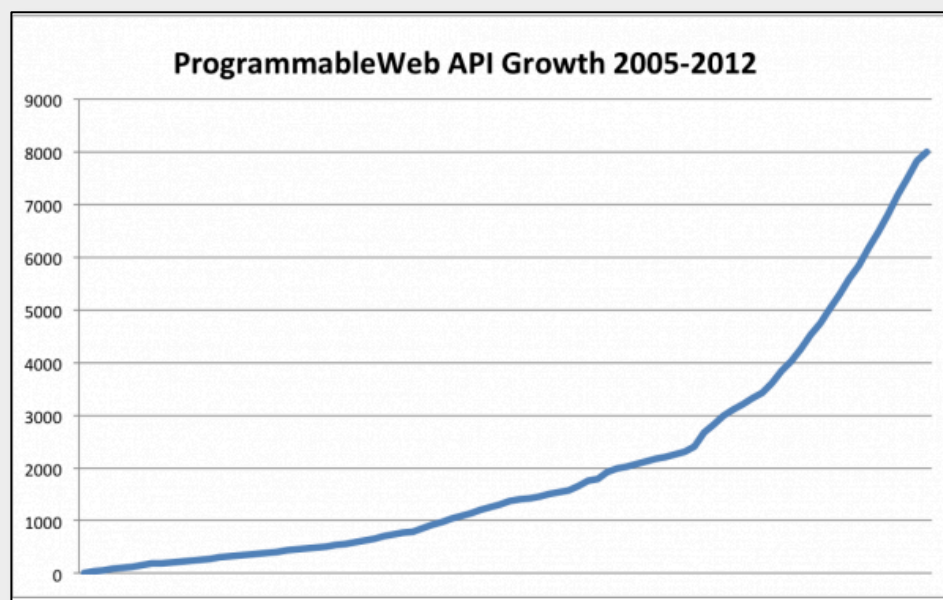Reducing operational complexity

POLYGLOT COMPLEXITY

NOSQL TIMELINE – THE RISE OF APIS
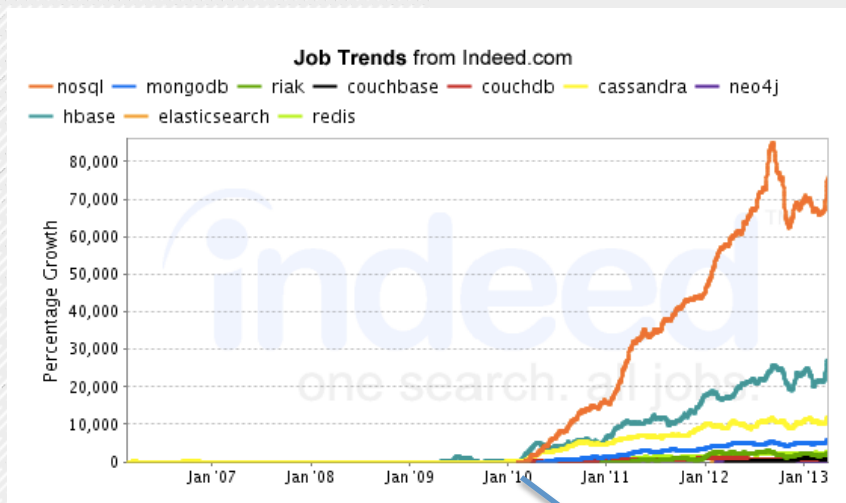

TOP 10 Categories:

- Enterprise (51)
- Financial (43)
- Science (38)
- Payment (37)
- Messaging (35)
- Government (34)
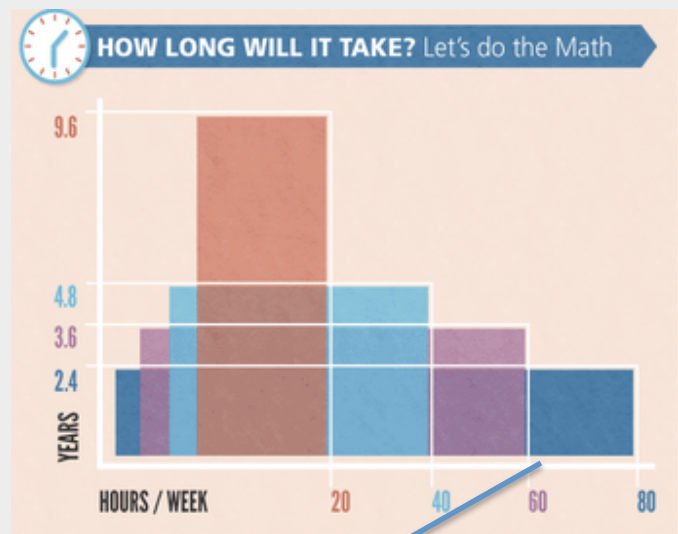- Mapping (34)
- Social (33)
- Telephony (30)
- Shopping (28)

ProgrammableWeb API Growth 2005-2012

In just 3 months in 2012, 1,000 new APIs added

Source: http://blog.programmableweb.com/2012/11/26/8000-apis-rise-of-the-enterprise/

NOSQL MASTERY – ENDURING LEGACY

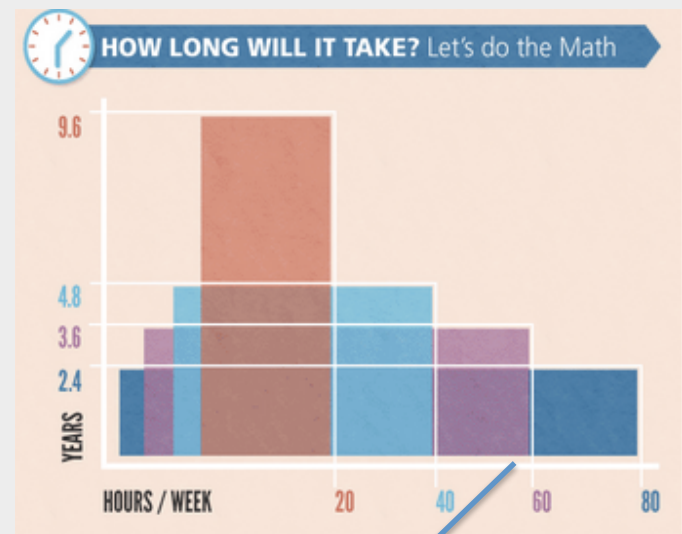# NOSQL **MASTERY** – **ENDURING LEGACY**
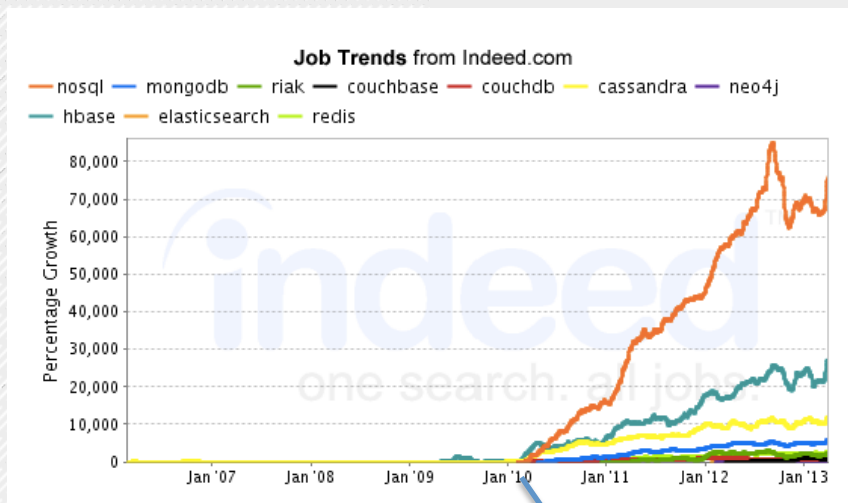

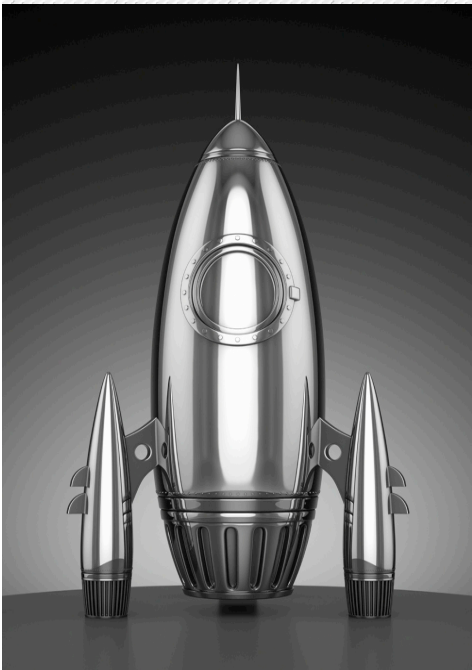Source: Indeed.com

Source: National Geographic

Mastery proliferating

NOSQL MASTERY – ENDURING LEGACY

- Events like RICON
- @Aphyr's recent blogs with Peter Bailis
- dozens of engineers at Netflix, Facebook, etc.

NOSQL & THE CLOUD – THE FORKING PATH

Build clouds with:
Cassandra
Hbase
Riak
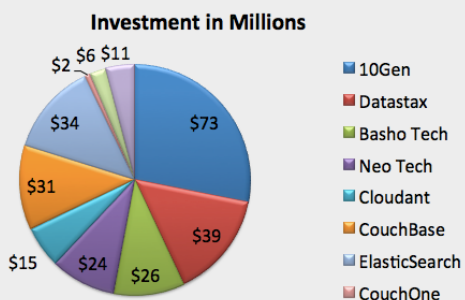Swift

Run on top of clouds:
MySQL*
MongoDB
Couchbase

- Multi-tenant, elastic, scale-out
- Accommodating databases – bare metal provisioning
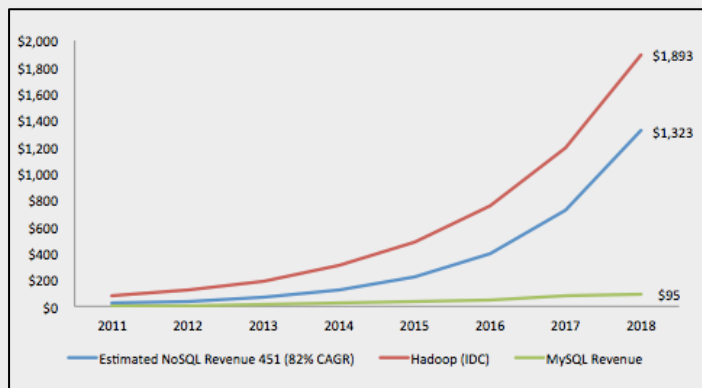
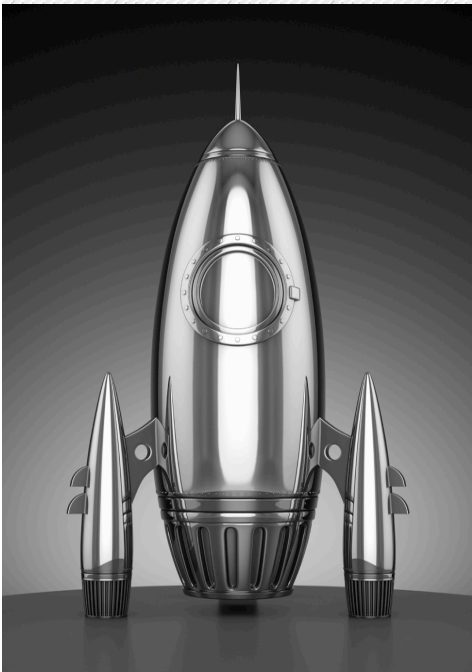# NOSQL CONSOLIDATION?

The Dream   VS.   The Reality

NOSQL **CONCLUSIONS**

Things happen slower than we think of expect

The market wants metered services and APIs

Consolidation unlikely, at least in the way we might think.

The lasting impact: mastery and community

ENJOY THE NOSQL ROADSHOW

Antony Falco
@antonyfalco
Orchestrate.io