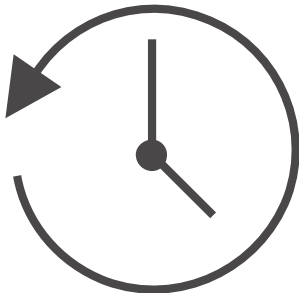
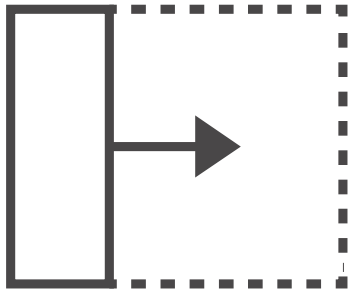
mongoDB introduction

THE BEST DATABASE FOR MODERN APPS

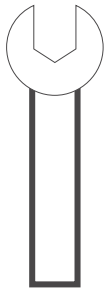
AGILE	SCALABLE





mongoDB

MongoDB

GENERAL PURPOSE	DOCUMENT DATABASE	OPEN-SOURCE
		

FORTUNE 500 & GLOBAL 500

10 of the Top Financial Services Institutions

10 of the Top Electronics Companies

10 of the Top Media and Entertainment Companies

10 of the Top Retailers

10 of the Top Telcos

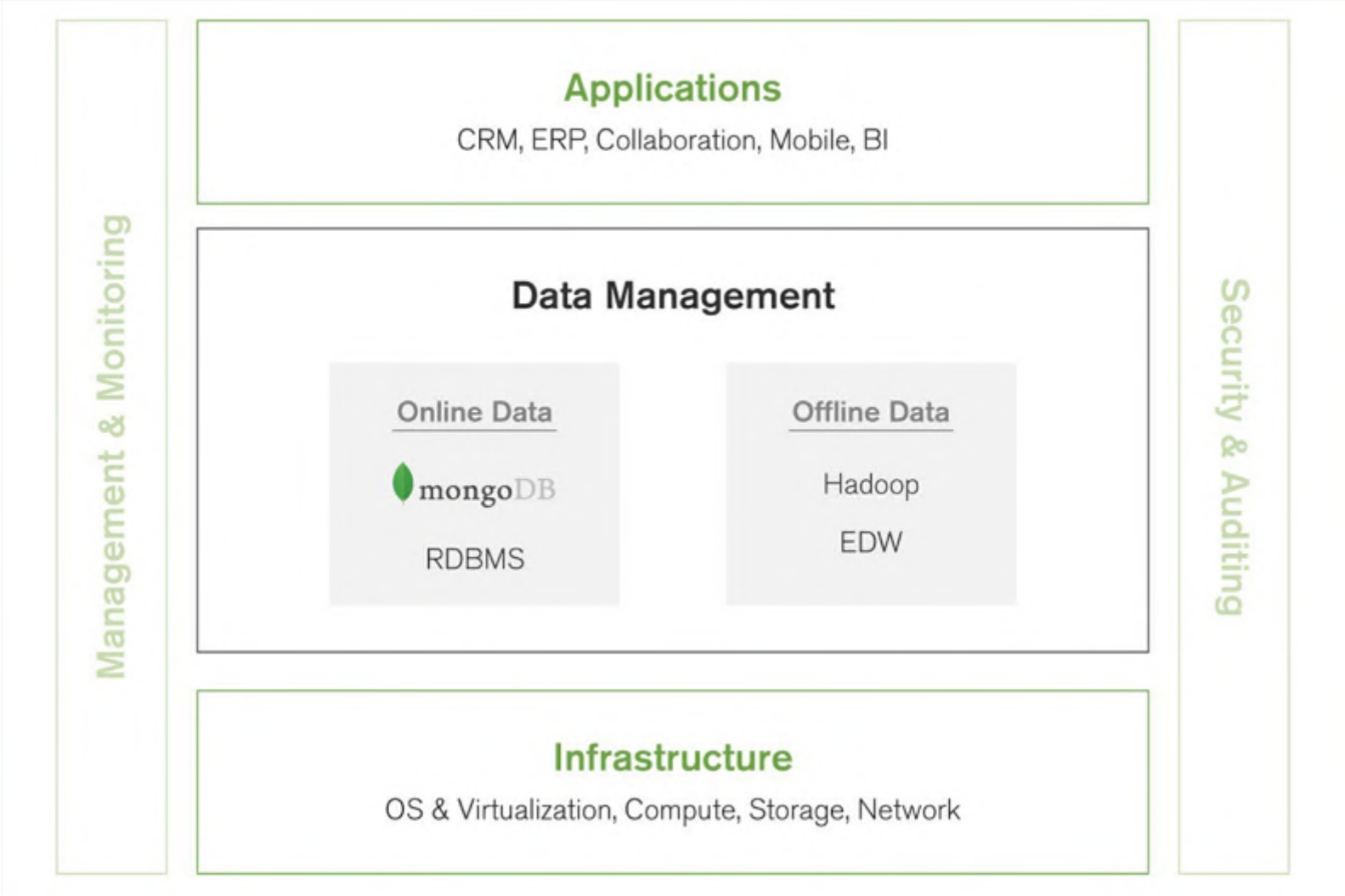
8 of the Top Technology Companies

6 of the Top Healthcare Companies

THE LARGEST ECOSYSTEM

8,000,000+ MongoDB Downloads
200,000+ Online Education Registrants
35,000+ MongoDB User Group Members
35,000+ MongoDB Management Service (MMS) Users
600+ Technology and Services Partners
1,000+ Customers Across All Industries

MongoDB and Enterprise IT Stack



MongoDB and Enterprise IT Strategy

	LEGACY	STRATEGIC
APPS	On-Premise	SaaS, Mobile, Social
DATABASE	Oracle	MongoDB
OFFLINE DATA	Teradata	Hadoop
COMPUTE	Scale-Up Server	Commodity HW / Cloud
STORAGE	SAN	Local Storage / Cloud
NETWORK	Routers and Switches	Software-Defined Networks

JSON Document Model
with Dynamic Schemas

MONGODB FEATURES

Auto-Sharding for
Horizontal Scalability

Text Search

Aggregation Framework
and MapReduce

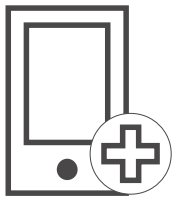
Full, Flexible Index Support
and Rich Queries

Built-In Replication
for High Availability

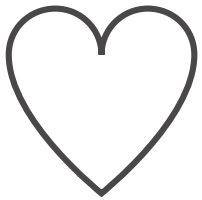
Advanced Security

mongoDB

MONGODB BUSINESS VALUE



Enabling New Apps



Better Customer Experience

Faster Time to Market

Lower TCO

MongoDB Use Cases

Single View	Internet of Things	Mobile	Real-Time Analytics
MetLife	ENERNOC	FOURSQUARE	McAfee An Intel Company
CERN	BOSCH	O2	City of Chicago
stripe	Silver Spring Networks	ADP	salesforce
Telefónica	Tech Mahindra	Parse	CRITTERCISM

Catalog	Personalization	Content Management
CARFAX Vehicle History Reports	ticketmaster	VIACOM
Under Armour	intuit	Forbes
orange	Expedia	ebay
OTTO	eHarmony	The National Archives

What We Sell

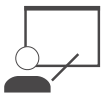
MongoDB Enterprise Advanced
Management platform, advanced security, proactive support, and more

MongoDB Management Service (MMS)
Automated deployment, upgrades, backup and monitoring in the cloud

Production Support
Support for production deployments

Development Support
Support, on-demand training and health check for teams in development

Consulting
Packaged service offerings for critical points in the project lifecycle



Training
Certification and training in development and ops – online & in-person

For More Information

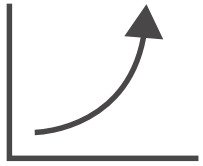
Resource	Location
MongoDB Downloads	mongodb.com/download
Free Online Training	education.mongodb.com
Webinars and Events	mongodb.com/events
White Papers	mongodb.com/white-papers
Case Studies	mongodb.com/customers
Presentations	mongodb.com/presentations
Documentation	docs.mongodb.org
Additional Info	info@mongodb.com


mongoDB

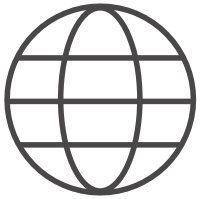
APPENDIX

MongoDB Overview

400+ employees



1,000+ customers



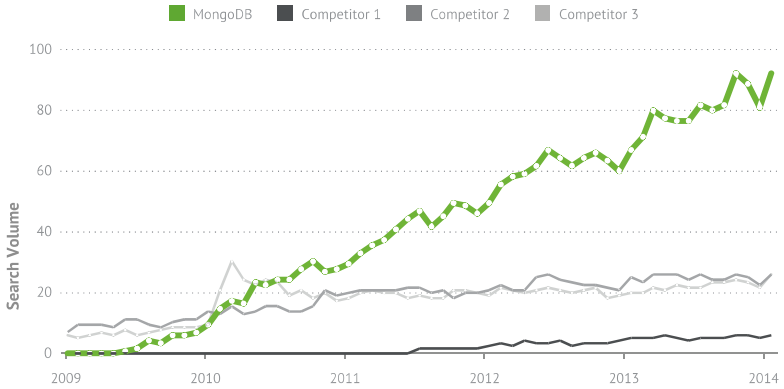
13 offices around the world

Over **$231 million** in funding

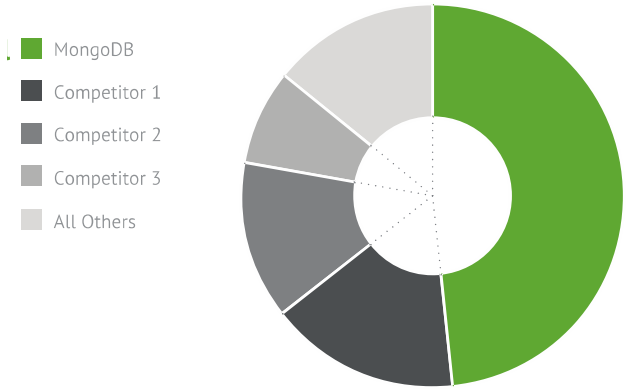
Leading Organizations Rely on MongoDB

Leading NoSQL Database

Google

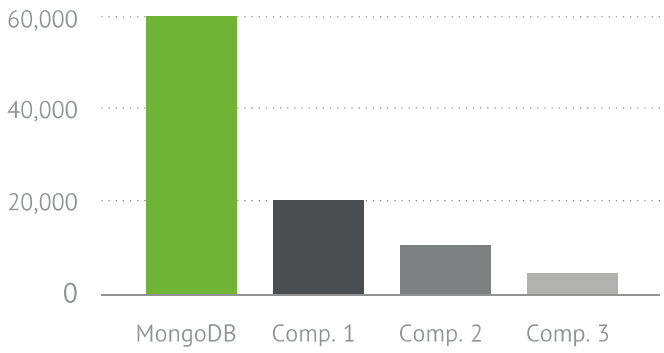


LinkedIn



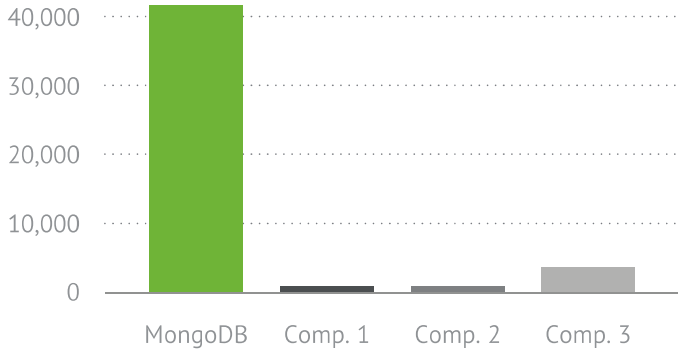
Twitter

Followers



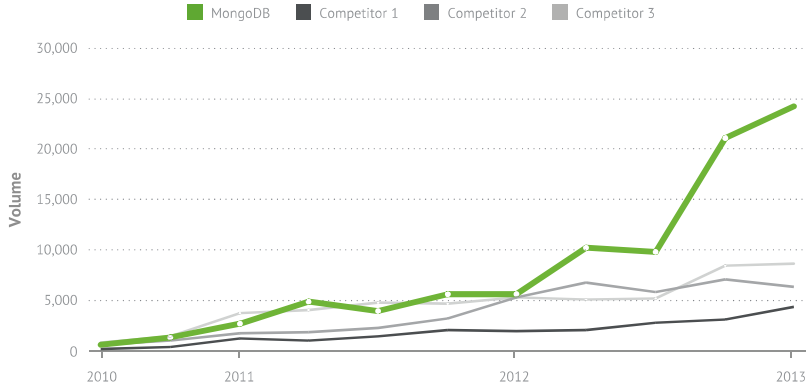
Facebook

Likes



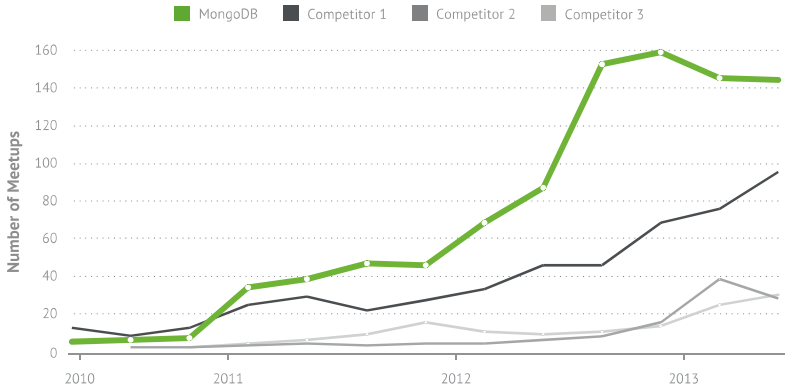
Leading NoSQL Database

Media Coverage



Brandwatch
Social Media Monitoring

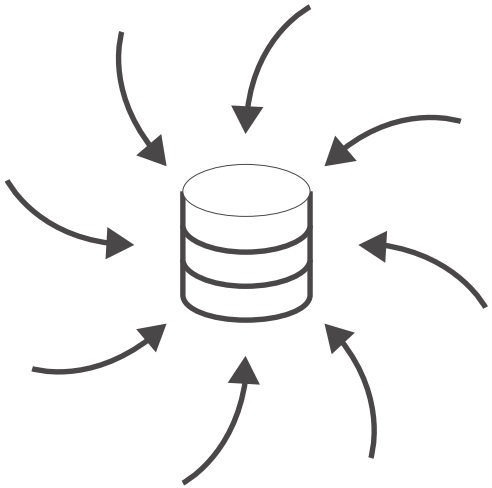
Meetups



Meetup

Relational Database Challenges

Relational Database Challenges



Data Types

Unstructured data

Semi-structured data

Polymorphic data

Agile Development

Iterative

Short development cycles

New workloads

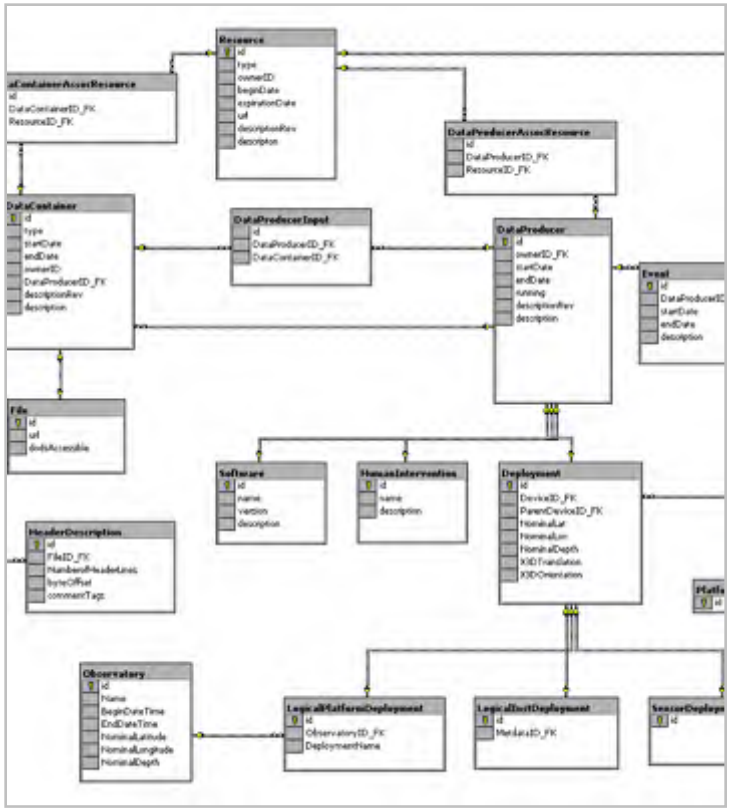
Volume of Data

Petabytes of data

MongoDB Solution

Agility

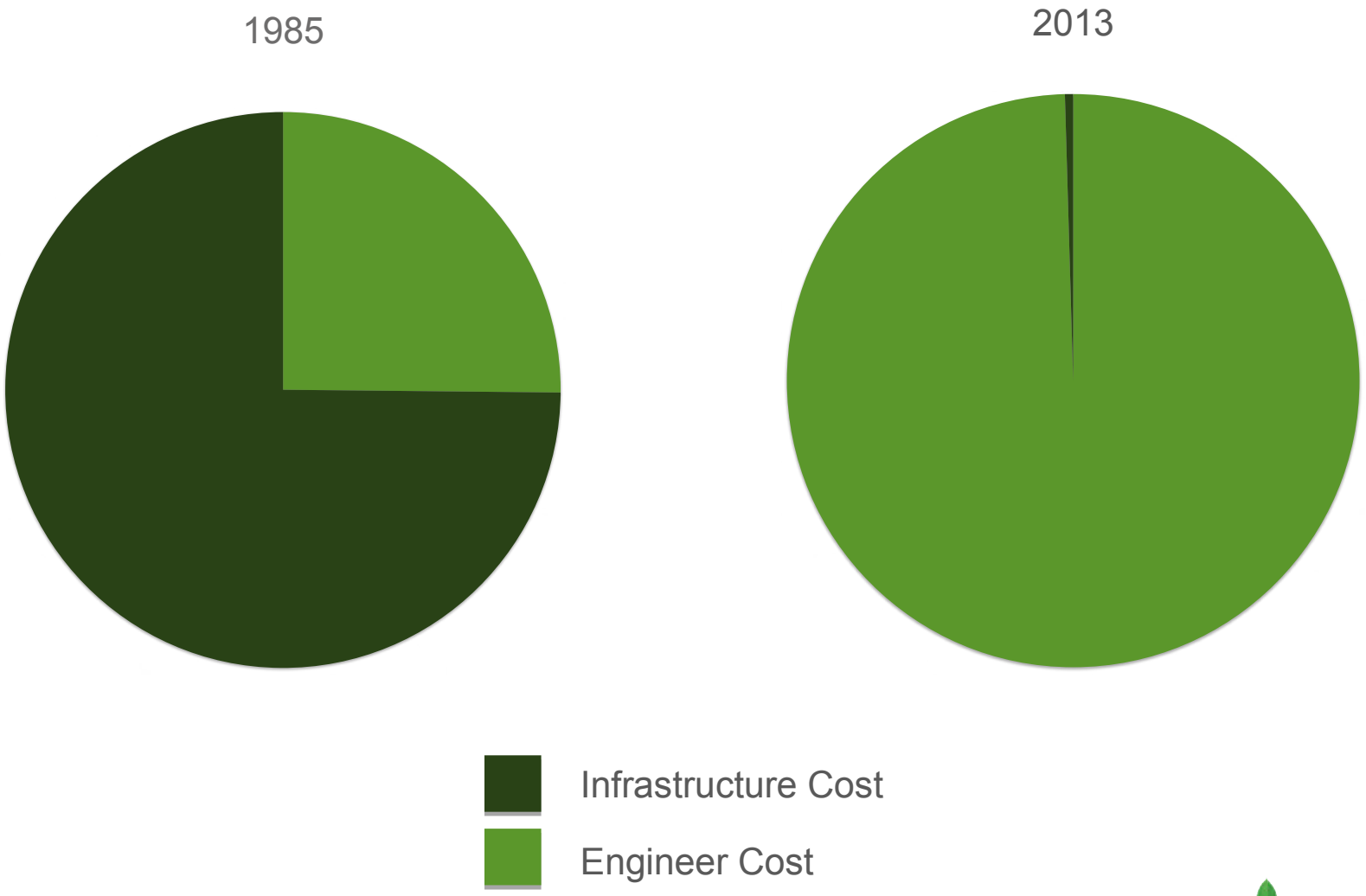
RDBMS



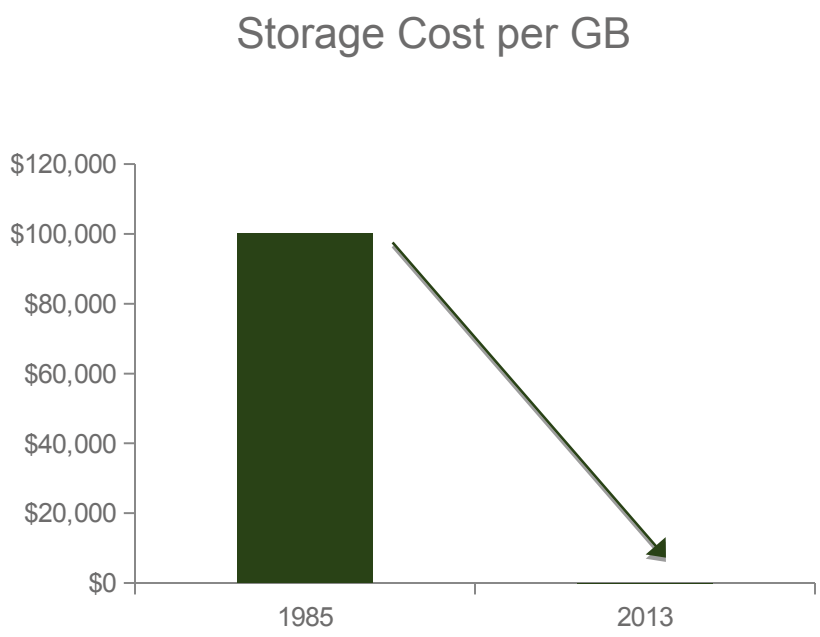
MongoDB

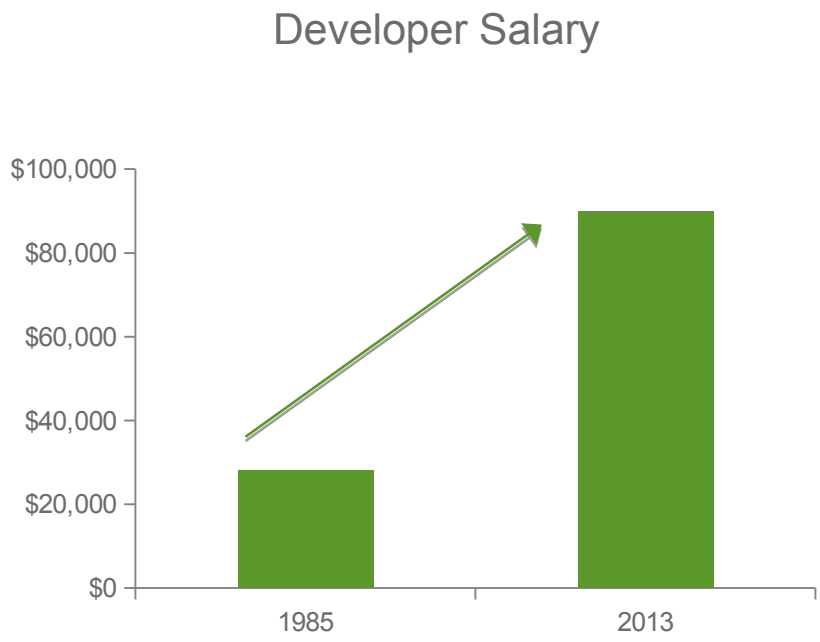
```
{
    _id : ObjectId("4c4ba5e5e8aabf3"),
    employee_name: "Dunham, Justin",
    department : "Marketing",
    title : "Product Manager, Web",
    report_up: "Neray, Graham",
    pay_band: "C",
    benefits : [
            {  type :  "Health",
               plan : "PPO Plus" },
            {  type :   "Dental",
               plan : "Standard" }
                  ]
}
```

Optimize for Engineer Productivity

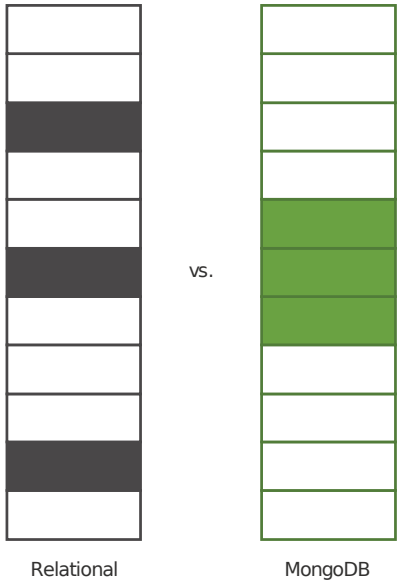


Storage Cost Down, Dev Cost Up

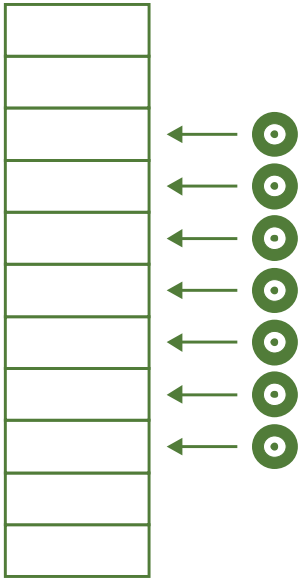




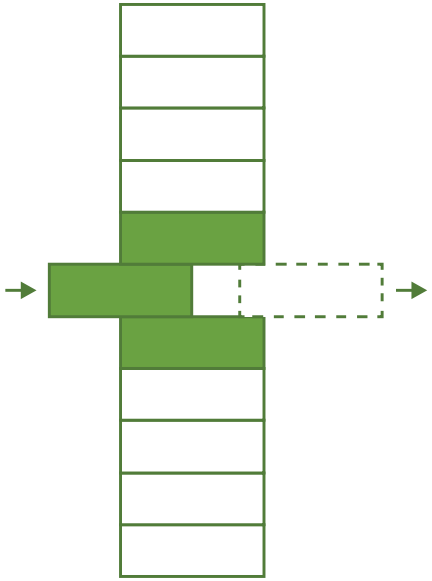
Performance



Better Data Locality



In-Memory Caching



In-Place Updates

Scalability

Auto-Sharding

Increase capacity as you go.

Commodity and cloud architectures

Improved operational simplicity and cost visibility

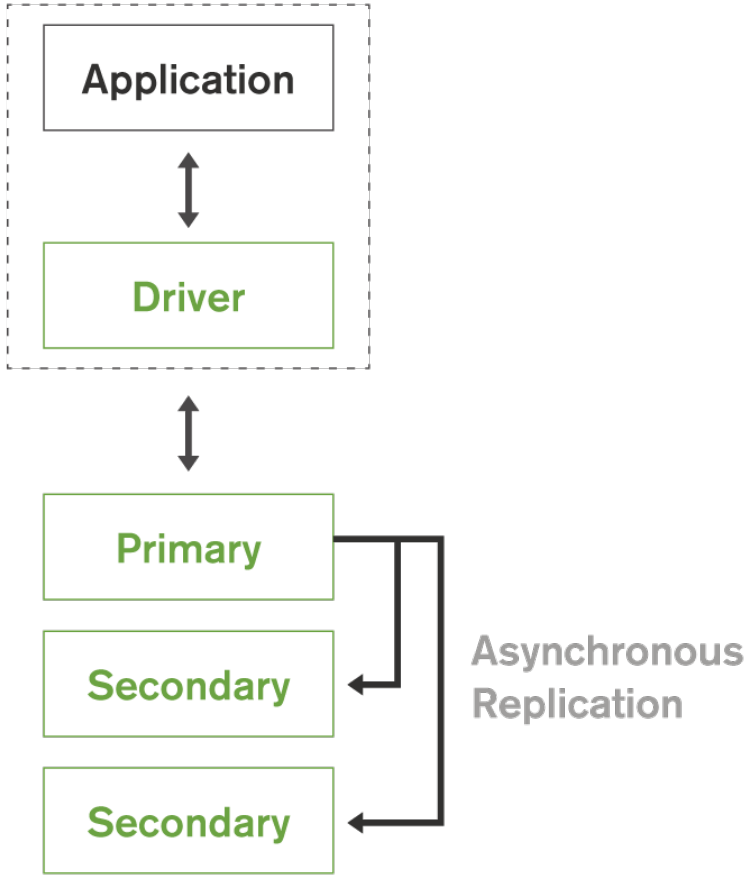
High Availability

Automated replication and failover

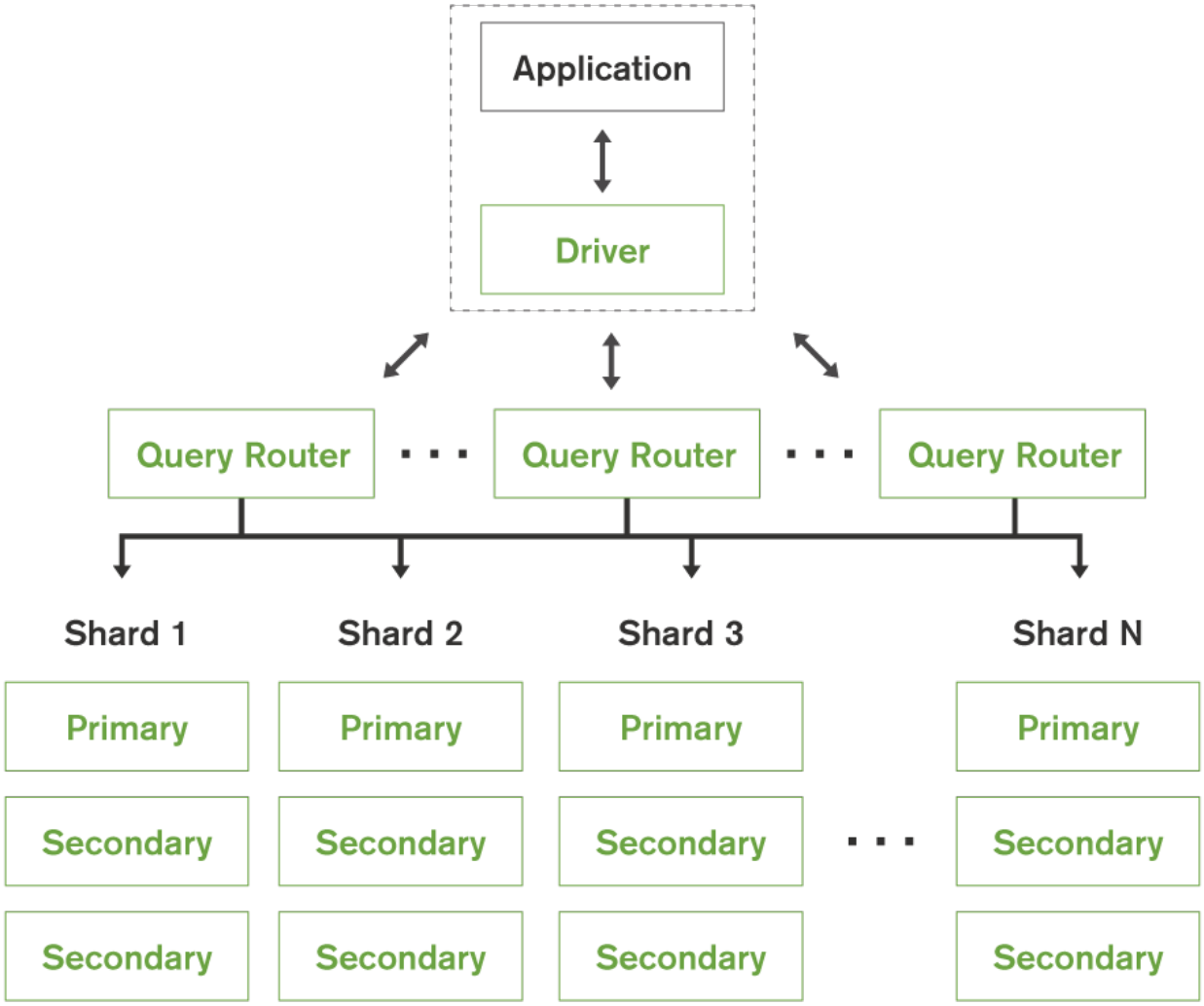
Multi-data center support

Improved operational simplicity (e.g., HW swaps)

Data durability and consistency



MongoDB Architecture



Drivers & Ecosystem

Support for the most popular languages and frameworks


Java


Ruby


Python


Perl

MEAN Stack

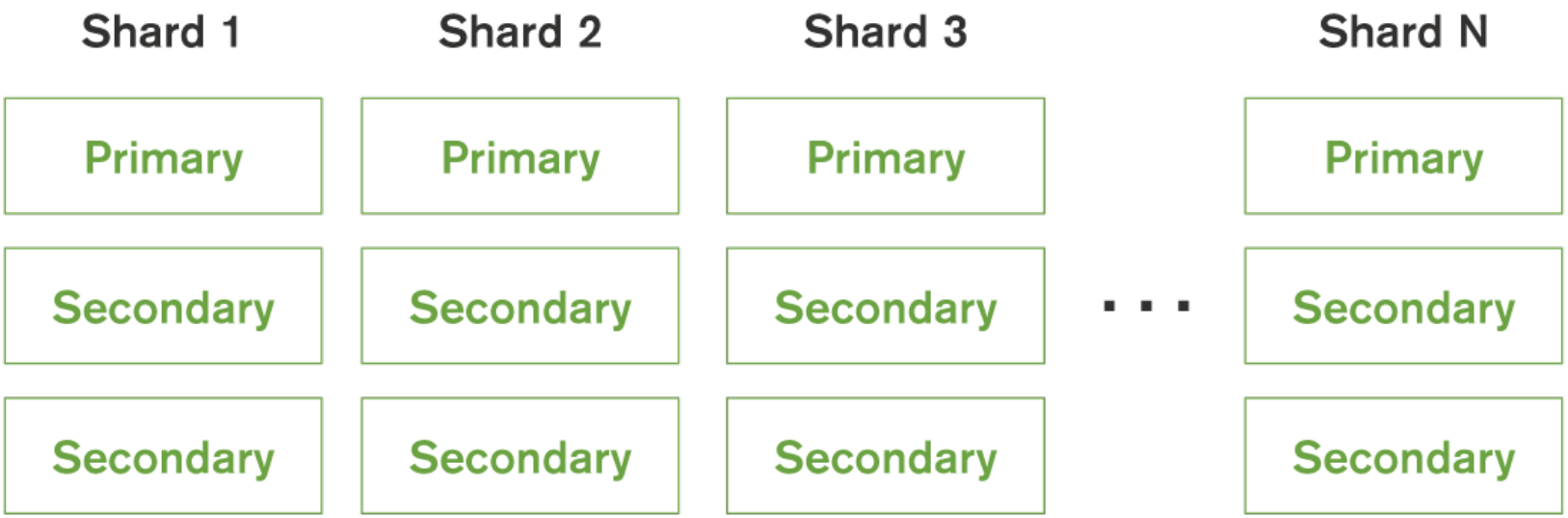
Morphia

express

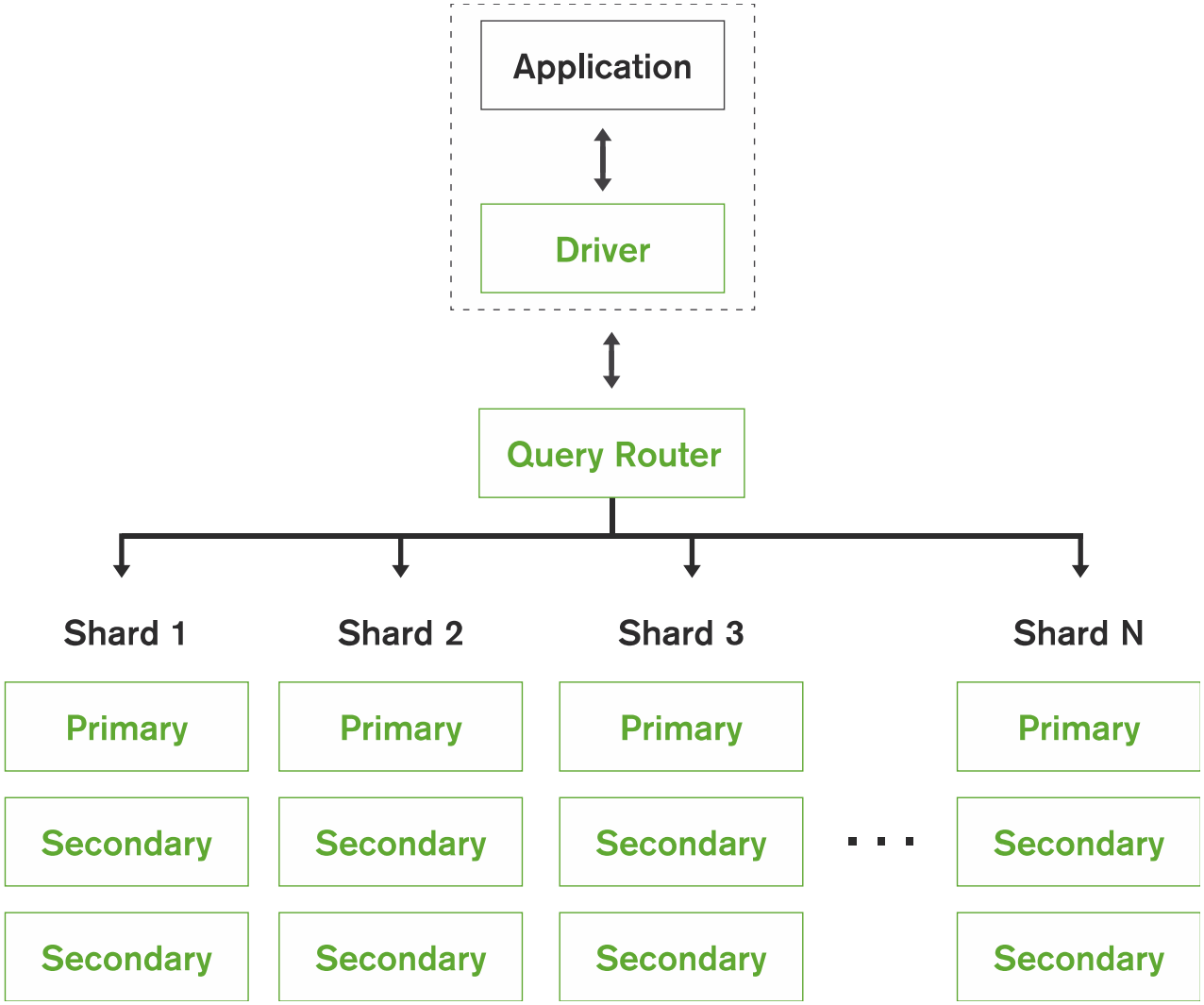
MongoDB Partners (600+)

Hardware

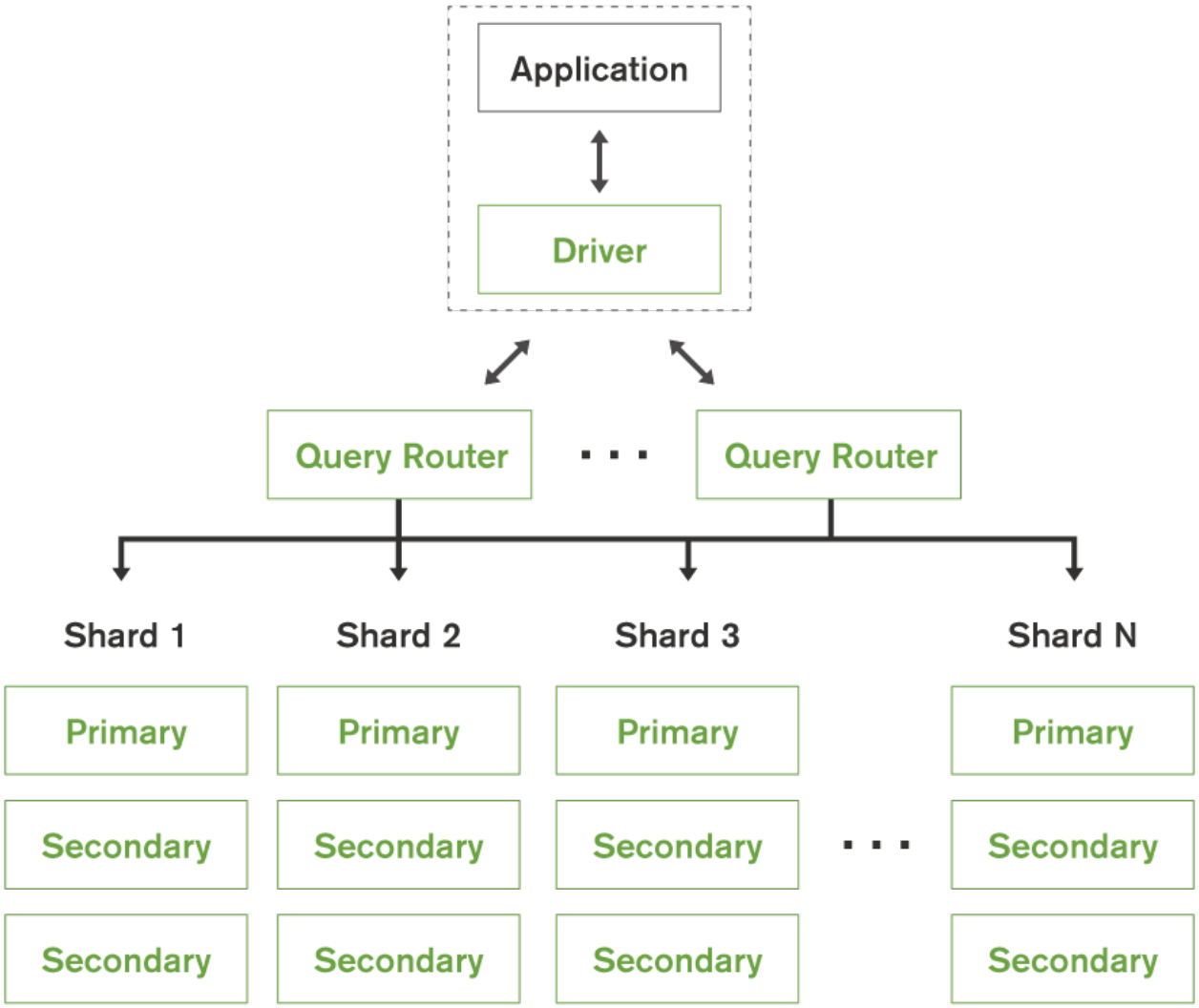
Sharding and Replication



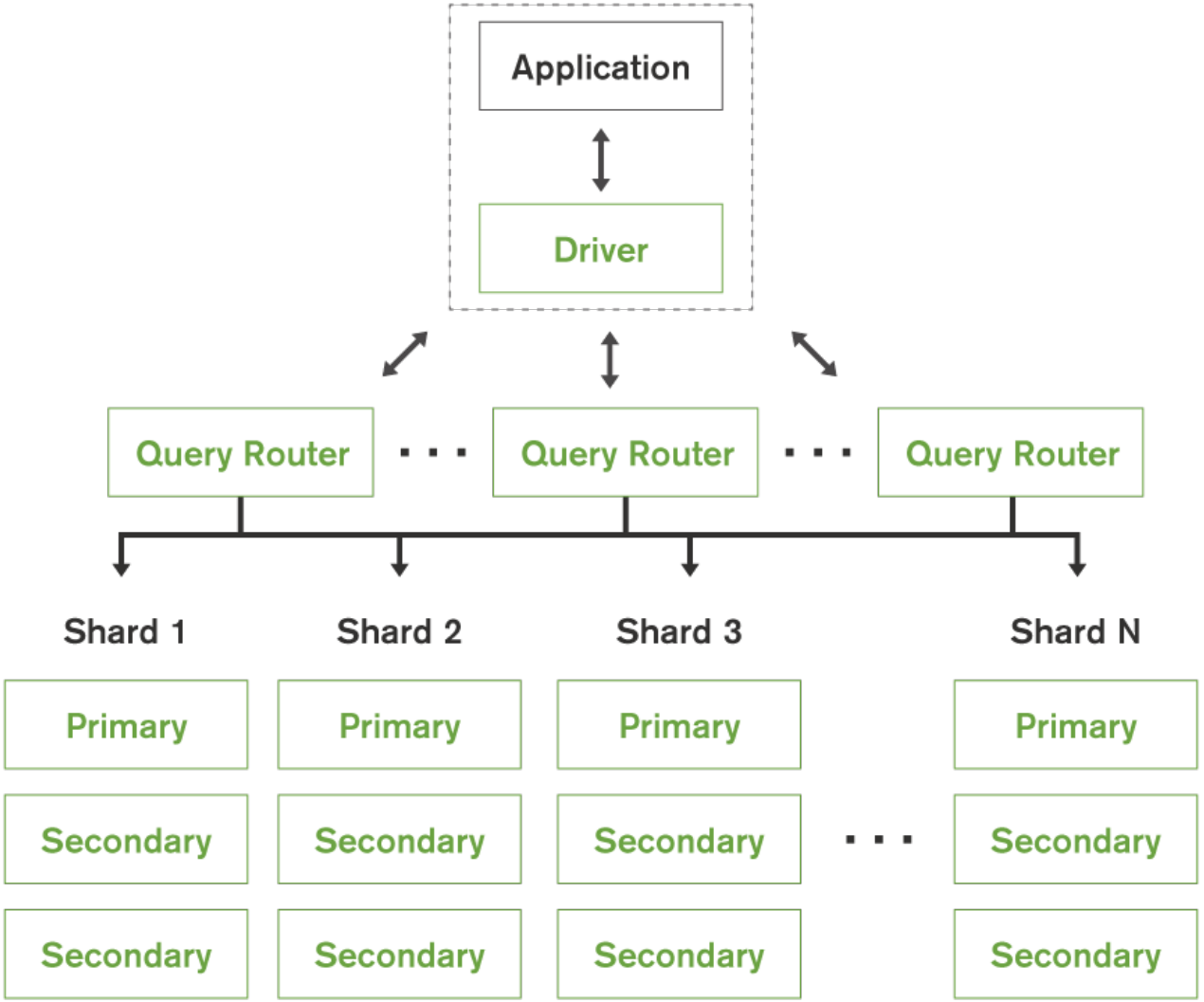
MongoDB Architecture



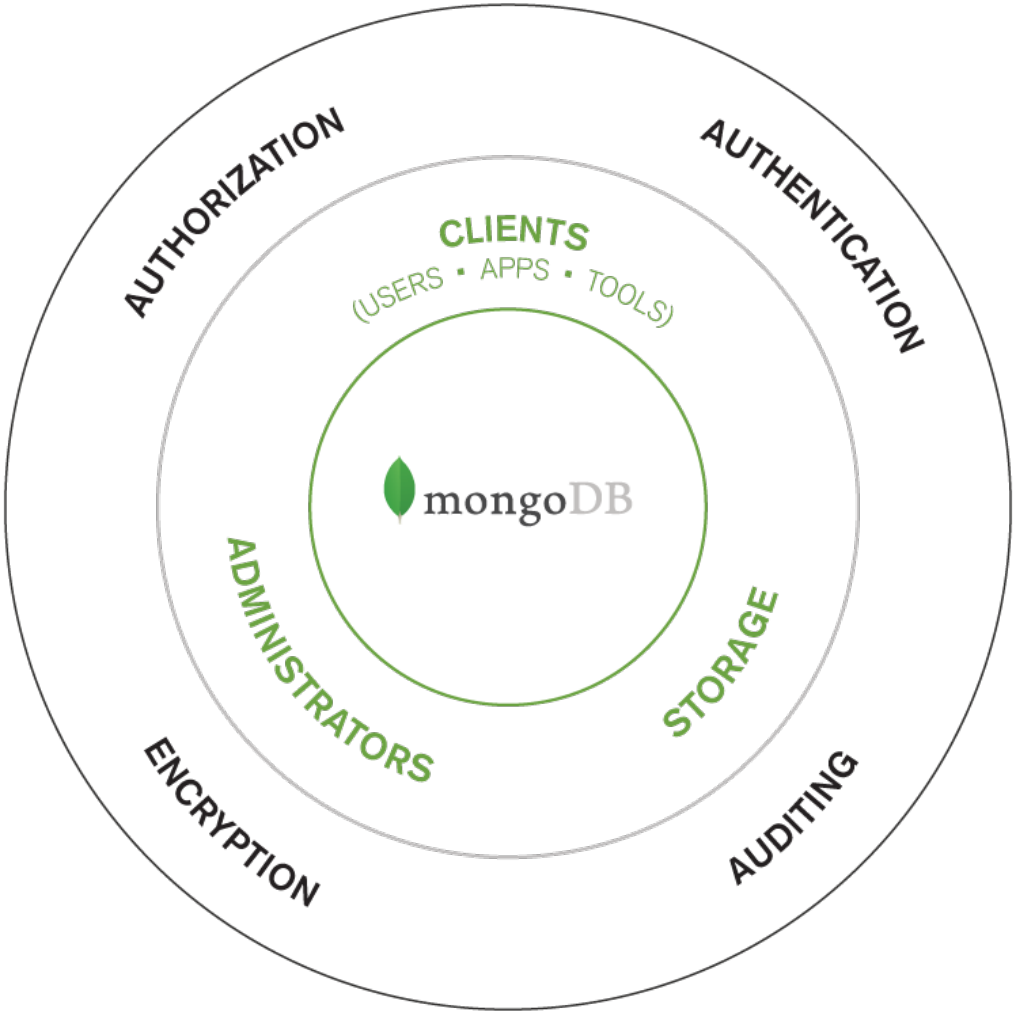
MongoDB Architecture



MongoDB Architecture



Defense in Depth Security Architecture



Enterprise-Grade Security

BUSINESS NEEDS	SECURITY FEATURES
Authentication	In Database, LDAP*, Kerberos*, x.509 Certificates
Authorization	Built-in Roles, User-Defined Roles, Field-Level Redaction
Auditing	Admin Operations*, Queries (via Partner Solutions)
Encryption	Network: SSL (with FIPS 140-2)*, Disk: Partner Solutions

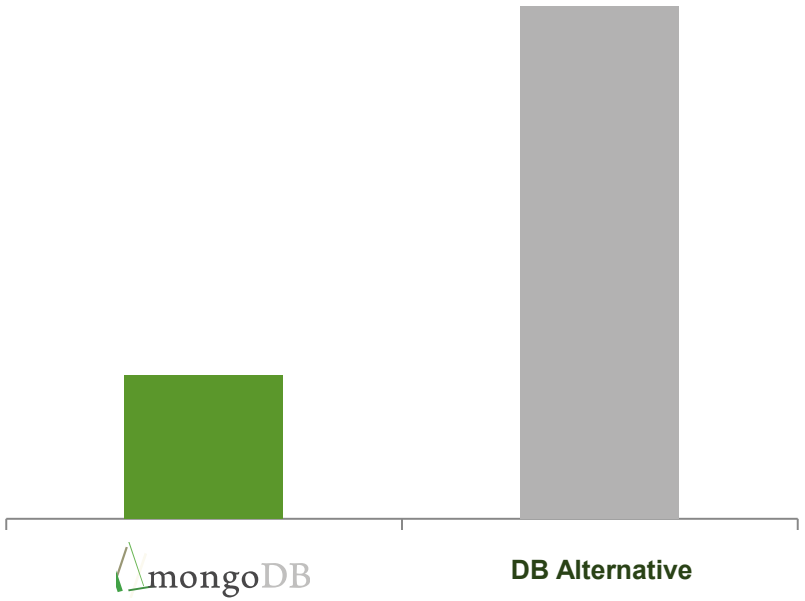
*Included with MongoDB Enterprise

Lower Total Cost of Ownership

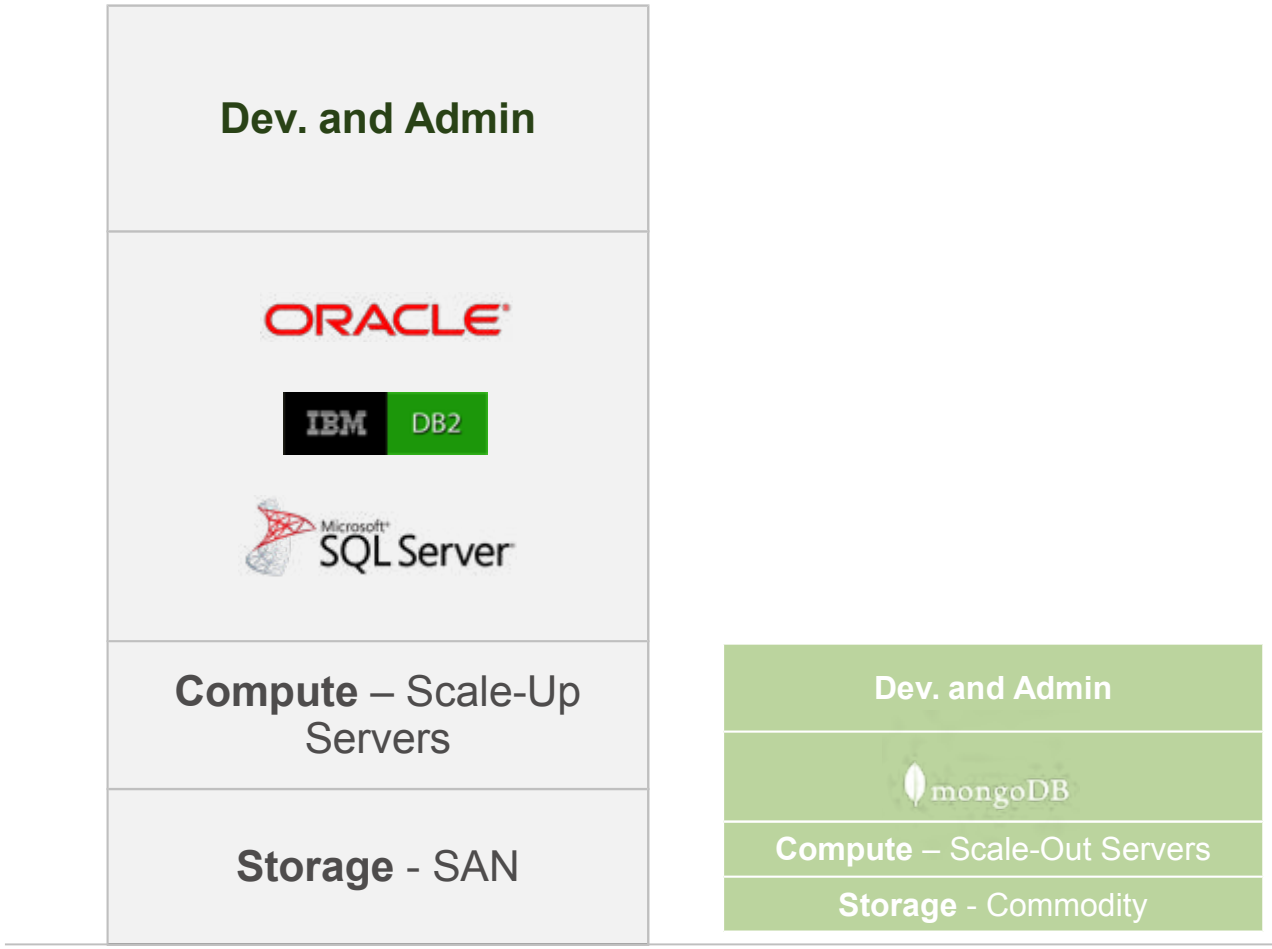
Developer/Ops Savings
Ease of Use
Agile development
Less maintenance

Hardware Savings
Commodity servers
Internal storage (no SAN)
Scale out, not up

Software/Support Savings
No upfront license
Cost visibility for usage growth



70%+ Cost Takeout



MongoDB Products and Services

Enterprise Decision Checklist

DO YOU NEED:	YES	NO
Advanced security?	✝	
Disaster Recovery?	✝	
Monitoring for system performance and availability?	✝	
Automated lifecycle management?	✝	
Guaranteed response time?	✝	
Platform certification	✝	

MongoDB Enterprise

	ADVANCED
MongoDB Management Service On-Prem	✓
Advanced Security	✓
On-Demand Training	✓
SLA	1 hour
License	Commercial
Price	$10,000 / Server / Yr.

MongoDB Management Service

Cloud-based suite of services for managing MongoDB deployments

Monitoring, with charts, dashboards and alerts on 100+ metrics

Backup and restore, with point-in-time recovery, support for sharded clusters

MMS On-Prem included w/MongoDB Enterprise

Production Support

"With [MongoDB's] first class support, we don't spend time worrying about the database, we spend more time writing code for our application."

– Reverb Technologies

From the team that builds MongoDB

Engaged

Consultative

Authoritative

Comprehensive

2-Hour SLA

$450 / Server / Month or
$5,000 / Server / Year

Development Support

From development, to test/QA, to implementation

Unlimited Servers	Advanced Capabilities in MongoDB Enterprise
Professional	Health Check for Production Readiness
Support	$30,000 (per project) – 6-Month Term
On-Demand	
Training	

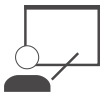
Consulting

Expert guidance from MongoDB

Schema Design	Health Check	Product Launch Services	Performance Evaluations & Tuning
Build a solid foundation for your MongoDB project with help on designing document schemas and indexes	Assess overall status and health of your existing MongoDB deployment	Get expert MongoDB guidance on all aspects of a project in the weeks before launch	Understand how your MongoDB application is performing and get recommendations for how to improve performance

Technical Account Manager

Benefit from having a dedicated MongoDB consultant available to you on a regular, ongoing basis



Training

ONLINE CLASSES	Free 7-week courses for developers and database admins Weekly lectures, homework and final exam On-demand classes included with MongoDB Enterprise
IN-PERSON TRAINING	Hands-on learning experience with in-person classes Curriculum available for developers and database admins Classes available across NA, EMEA and APAC
PRIVATE TRAINING	Tailored training programs delivered on-site to suit your needs Available for developers and administrators
CERTIFICATION	Gain recognition for your expertise in designing, building and deploying MongoDB Get certified as a MongoDB developer or MongoDB DBA

Customers

Case Study

Uses MongoDB to power enterprise social networking platform

Problem	Why MongoDB	Results
Complex SQL queries, highly normalized schema not aligned with new data types	Dynamic schemas using JSON	Flexibility to roll out new social features quickly
Poor performance	Ability to handle complex data while maintaining high performance	Sped up reads from 30 seconds to tens of milliseconds
Lack of horizontal scalability	Social network analytics with lightweight MapReduce	Dramatically increased write performance

craigslist

Case Study

Stores billions of posts in myriad formats with MongoDB

Problem	Why MongoDB	Results
1.5M posts per day, different structures Inflexible MySQL, lengthy delays for making changes Data piling up in production database Poor performance	Flexible document-based model Horizontal scalability built in Easy to use Interface in familiar language	Initial deployment held over 5B documents and 10TB of data Automated failover provides high availability Schema changes are quick and easy

Case Study

Uses MongoDB as central data repository for content mgt, supply chain mgt and logging

Problem	Why MongoDB	Results
Difficult to maintain rigid Oracle data structure Supply chain data stored in Excel Slow dev cycle stymied new merchandising opportunities	Simple development model Dynamic schema to update fields easily GridFS to store product images directly in DB	New features get into production more quickly Streamline business processes, web merchandising and SC operations Fast order processing and partner onboarding

Case Study

Uses MongoDB as go-to database for all new projects

Problem	Why MongoDB	Results
RDBMS had poor performance and could not scale Too much operational overhead Needed more developer control	Ease of use and integration with systems Small operational footprint Document model supports continuous development Flexible licensing model	Time from release to production reduced to <30 minutes Easy to add new features Developers can focus on apps instead of ops

Forbes.com

Case Study

Powers content-serving web platform on MongoDB to deliver dynamic data to users

Problem	Why MongoDB	Results
Static web content	Support for agile development	Ability to serve dynamic content
Siloed data stores, disparate technologies	Easy to use and maintain	Decreased TCO
Unable to aggregate and integrate data for dynamic content	Low subscription and HW costs	Replaced multiple technologies with single MongoDB database

FOURSQUARE

Case Study

Stores user and location-based data in MongoDB for social networking mobile app

Problem	Why MongoDB	Results
Relational architecture could not scale	Auto-sharding to scale high-traffic and fast-growing application	Focus engineering on building mobile app vs. back-end
Check-in data growth hit single-node capacity ceiling	Geo-indexing for easy querying of location-based data	Scale efficiently with limited resources
Significant work to build custom sharding layer	Simple data model	Increased developer productivity

GILT

Case Study

MongoDB enables Gilt to roll out new revenue-generating features faster and cheaper

Problem	Why MongoDB	Results
Monolithic Postgres architecture expensive to scale Limited ability to add new features for different business silos Spiky server loads	Dynamic schema makes it easy to build new features Alignment with SOA Cost-effective, horizontal scaling Easy to use and maintain	Developers can launch new services faster, e.g., customized upsell emails Stable, sub-ms performance on commodity hardware Reduced complexity yields lower overhead

theguardian

Case Study

Serves targeted content to users using MongoDB-powered identity system

Problem	Why MongoDB	Results
20M+ unique visitors per month Rigid relational schema unable to evolve with changing data types and new features Slow development cycles	Easy-to-manage dynamic data model enables limitless growth, interactive content Support for ad hoc queries Highly extensible	Rapid rollout of new features Customized, social conversations throughout site Tracks user data to increase engagement, revenue

Case Study

Relies on a MongoDB-powered, real-time analytics product for SMBs

Problem	Why MongoDB	Results
More than 500,000 websites 10 years of complex data Relational database took several days to process data	Ability to handle complex data while maintaining high performance Took 1 week for devs to ramp up on MongoDB Strong community	Shorter feature development cycles (e.g., 1 week) 2.5x faster than MySQL High-performance real-time analytics to over 500,000 SMBs

MetLife®

Case Study

Insurance leader generates coveted 360-degree view of customers in 90 days – “The Wall”

Problem	Why MongoDB	Results
No single view of customer 145 yrs of policy data, 70+ systems, 15+ apps 2 years, $25M trying to aggregate in RDBMS – failed	Agility – prototype in 5 days; production in 90 days Dynamic schema & rich querying – combine disparate data into one data store Hot tech to attract top talent	Increased call center productivity Better customer experience, reduced churn, more upsell opps Dozens more projects in the works to leverage this data platform

Case Study

Runs unified data store serving hundreds of diverse web properties on MongoDB

Problem	Why MongoDB	Results
Hundreds of diverse web properties built on Java-based CMS	Flexible schema	Developers can focus on end-user features instead of back-end storage
Rich documents forced into ill-suited model	Rich querying and support for secondary index support	Simplified day-to-day operations
Adding new data types, tables to RDBMS killed read performance	Easy to manage replication and scaling	Simple to add new brands, content types, etc. to platform

Case Study

MongoDB powers big data analytics for cloud-based threat intelligence system

Problem	Why MongoDB	Results
Other products couldn't handle both scalability and depth of functionality needs, e.g., Hbase/Hadoop could not execute complex queries Lucene could not scale easily	Scales with auto-sharding Flexibility to add new analytics continuously Language & driver diversity Geospatial indexing for threat hot spots	Scale by orders of magnitude with little effort Lower latency by over 3x Ability to change schema on the fly boosts developer productivity and morale Accelerates time to market

The National Archives

Case Study

Stores one of world's largest record repositories and searchable catalogues in MongoDB

Problem	Why MongoDB	Results
One of world's largest record repositories Move to SOA required new approach to data store RDBMS could not support centralized data mgt and federation of information services	Fast, easy scalability Full query language Complex metadata storage	Will scale to 100s of TB by 2013, PB by 2020 Searchable catalogue of varied data types Decreased SW and support costs

Case Study

Serves variety of content and user services on multiple platforms to 7M web and mobile users

Problem	Why MongoDB	Results
MySQL reached scale ceiling – could not cope with performance and scalability demands	Unrivaled performance	Supports 115,000+ queries per second
Metadata management too challenging with relational model	Simple scalability and high availability	Saved £2M+ over 3 yrs.
Hard to integrate external data sources	Intuitive mapping	“Lead time for new implementations is cut massively”
	Eliminated 6B+ rows of attributes – instead creates single document per user / piece of content	MongoDB is default choice for all new projects

Case Study

Serves variety of content and user services on multiple platforms to 7M web and mobile users

Problem	Why MongoDB	Results
Legacy MySQL hindered development speed, could not scale Needed operational database that could also handle real-time analysis Server sprawl	Flexible data model applicable to wide variety of use cases High availability through replica sets on commodity servers Size and strength of MongoDB community	Improved game performance and end-user experience Server cost reduction Accelerated development and time-to-market

Case Study

Delivers agile automated supply chain service to retailers powered by MongoDB

Problem	Why MongoDB	Results
RDBMS poorly-equipped to handle varying data types (e.g., SKUs, images) Inefficient use of storage in RDBMS (i.e., 90% empty columns) Complex joins degraded performance	Document-oriented model less complex, easier to code Single data store for structured, semi-structured and unstructured data Scalability and availability Analytics with MapReduce	Decreased supplier onboard time by 12x Grew from 400K records to 40Min 12 months Significant cost reductions on schema design time, ongoing developer effort, and storage usage

Case Study

Runs social marketing suite with real-time analytics on MongoDB

Problem	Why MongoDB	Results
RDBMS could not meet speed and scale requirements of measuring massive online activity Inability to provide real-time analytics and aggregations Unpredictable peak loads	Ease of use, developer ramp-up Solution maturity – depth of functionality, failover High-performance with write-heavy system Queuing and logging for easy search at app layer	Decreased app development from months to weeks 30M social events per day stored in MongoDB 6x increase in customers supported over one year

Case Study

Provides low-latency, high-scale translation management platform built on MongoDB

Problem	Why MongoDB	Results
Old MySQL performance degradation and high maintenance Complex to scale MySQL High-speed, asynchronous storage and fast read requirements	Horizontal scale with built-in sharding High availability with replica sets Memory-mapped architecture for ingesting content quickly w/out separate caching layer	Simplified scaling and high-performance architecture Dramatically improved developer productivity Increased uptime

SHOPCADE

Case Study

Social e-commerce application built on MongoDB offers 100M+ products from over 30K brands

Problem	Why MongoDB	Results
MySQL could not accommodate growth	Flexible data model to handle varying product attributes	Boosted developer productivity
Significant optimization required to tune MySQL performance	Scalability for global reach	Scaled from 5M to 100M product with minimal work
Database maintenance inhibited development	Ease of maintenance	Decreased product import time by 90%
	Consistent performance even when adding data and new features	

Case Study

Uses MongoDB to safeguard over 6 billion images served to millions of customers

Problem	Why MongoDB	Results
6B images, 20TB of data Brittle code base on top of Oracle database – hard to scale, add features High SW and HW costs	JSON-based data model Agile, high performance, scalable Alignment with Shutterfly's services-based architecture	80% cost reduction 900% performance improvement Faster time-to-market Dev. cycles in weeks vs. tens of months

Case Study

Uses MongoDB to power real-time ad serving platform

Problem	Why MongoDB	Results
Needed costly SQL architecture to enable real-time bidding Large volumes of data and queries Diverse, evolving schema	Dynamic schema enables continuous algorithm development and customer-specific fields Scalability for massive data volumes and low latency Visual monitoring with MMS	Billions of requests per day with sub-ms latency Inexpensive cost per query TB of data stored, populated on the fly and queried in real-time

TRAACKR

Case Study

Uses MongoDB to underpin social media monitoring and recommendation engine

Problem	Why MongoDB	Results
HBase locked them into rigid data model, stifling ability to create connections between data sets Single points of failure with master/slave topology Up to 1M posts per day	Ease of use and flexibility of data model Powerful indexing and ad hoc querying, plus integrated MapReduce High availability with replica sets	Robust queries and dynamic schema enable higher quality recommendations Bugs fixed in hours instead of days Dramatically improved uptime

Case Study

Built custom ecommerce platform on MongoDB in 8 Months

Problem	Why MongoDB	Results
Dated e-commerce site with limited capabilities Usability issues SQL database did not scale	Multi-data center replication and sharding for DR and scalability Dynamic schema Fast performance (reads and writes)	Developers, users are empowered Fast time to market Database can meet evolving business needs Superior user experience

wordnik

Case Study

Stores 3.5 TB of data in MongoDB to power real-time dictionary

Problem	Why MongoDB	Results
Performance roadblocks with MySQL Massive data ingestion led to database outages Tables locked for tens of seconds during inserts	Easy to store, locate, retrieve data Eliminated Memcached while increasing performance: up to 2M requests per hour, 8,000 words inserted per second Long runway for scale-out	Migrated 5B records in 1 day, zero downtime Reduced code by 75% Sped up document metadata retrieval from 30ms to 0.1ms Significant cost savings, 15% reduction in servers

Zuberance

Case Study

Self-service product built on MongoDB enables real-time analytics for social marketing

Problem	Why MongoDB	Results
Need for real-time aggregation and analytics Tried SQL, then MapReduce – both solutions only handled periodic data, could not scale	Real-time aggregation to adjust campaigns on the fly Scalability for persistence layer Ability to store large amounts Of data reliably	Operational cost savings Simplified scale-out to support 140M impressions Data flexibility to add new features and performance gains without overhead