

		Comparison Type		Reference ID	References
1 MongoDB		Intro	Non-relational as-a-Service Document		
		Pros	High availability with replica sets. Offers flexible schema structuring data into JSON which has a more natural data format and richer data structure.		1 <a href="http://docs.mongodb.org/manual/core/replication-introduction/">http://docs.mongodb.org/manual/core/replication-introduction/</a>
		Flexibility			2 Transitioning from Relational Databases to MongoDB - Data Models
		Cons	The default setup was vulnerable to client crashes limitations of MongoDB when used on 32-bit systems. In some cases, this is due to the inherent memory limitaion Lack of traditional RDBMS features:		3 <a href="http://blog.mongodb.org/post/137788967/32-bit-limitations">http://blog.mongodb.org/post/137788967/32-bit-limitations</a> 3
2 CouchDB		Pros			
		Cons	Lack of sophisticated declarative query language Lack of native query processing constructs Transaction management providing ACID safety guarantees Couch maintains a different document for every update you make. This is done to save all revisions of a document. Although this is a positive feature, this fills up your hard disk fast. You can run asynchronous compaction to delete all old revisions, but this generally takes hours and is system intensive		"Enabling JSON Document Stores in Relational Systems" by Craig Chasseur. University Of Wisconsin chasseur@cs.wisc.edu. Yinan Li. University Of Wisconsin. 4 4
3 MySQL		Intro	BigTables General purpose MySQL ecosystem Key value direct access Relational		
		Pros	MySQL has the biggest market share of any open source database. Full-text indexing and searching MySQL does not currently comply with the full SQL standard for some of the implemented functionality, including foreign key references when using some storage engines other than the default of InnoDB		
		Cons	Triggers are limited to one per action / timing. Is strongly limited by hard disk performance. (This is a common drawback for transactional relational database)		5 <a href="http://dev.mysql.com/doc/refman/5.6/en/innodb-foreign-key-constraints.html">http://dev.mysql.com/doc/refman/5.6/en/innodb-foreign-key-constraints.html</a>
4 MariaDB		Intro	A community-developed fork of the MySQL relational database management system intended to remain free under the GNU GPL.		
		Pros	Supports Ruby Can Develop in Both Iphone and Android (Objective C and Java, plus others) Community Development Open Source, Non-Propreity		6 <a href="https://ahsannabi.wordpress.com/swot-analysts-mariadb-or-mongodb/">https://ahsannabi.wordpress.com/swot-analysts-mariadb-or-mongodb/</a>
5 Google App Engine	Big Tables	Cons	Cannot develop in wide range of evo languages like Actionsript, Delphi, PowerShell and JavaScript Does not support OS X platform for Iphone and Amazon Cloud MapReduce, which MongoDB does		
		Pros	It provides more infrastructure to make it easy to write scalable applications, but can only run a limited range of applications designed for that infrastructure. All billed High-Replication Datastore App Engine applications have a 99.95% uptime SLA(Service-level agreement)		7 <a href="https://cloud.google.com/appengine/docs/python/?csw=1#Quotas_and_Limits">https://cloud.google.com/appengine/docs/python/?csw=1#Quotas_and_Limits</a> All billed High-Replication Datastore App Engine applications have a 99.95% uptime 8 SLA "Google App Engine Blog: Happy Birthday High Replication Datastore: 1 year, 100,000 apps, 0% downtime". Googleappengine.blogspot.com. 2012-01-05. Retrieved 2012-09-02-14.
		Cons	Users may upload arbitrary Python modules, but only if they are pure-Python; C and Pyrex modules are not supported.		
			Datastore cannot use inequality filters on more than one entity property per query Developers have read-only access to the filesystem on App Engine. Applications can use only virtual filesystems, like gae-filestore. A process started on the server to answer a request can't last more than 60 seconds (with the 1.4.0 release, this restriction does not apply to background jobs anymore).		"Google App Engine Datastore Gotchas « aleatory". Aleatory.clientsideweb.net. 2009-11-28. Retrieved 2012-02-14. "gae-filestore - Simple Virtual File System on Google App Engine DataStore - Google Project Hosting". Code.google.com. Retrieved 2012-02-14.
6 Google Cloud Datastore	Big Tables		Does not support sticky sessions (a.k.a. session affinity), only replicated sessions are supported including limitation of the amount of data being serialized and time for session serialization.		

7 Sqrri Enterprise	Pros	Scalable datastore	<p>Google Cloud Datastore is a fully managed, schemaless database for storing non-relational data. Cloud Datastore automatically scales with your users and supports ACID transactions, high availability of reads and writes, strong consistency for reads and ancestor queries, and eventual consistency for all other queries.</p> <p>Each Cloud Datastore instance is fully managed by Google so there is no planned downtime, replication across multiple datacenters, automatic scaling as your traffic increases, and monitoring by Google Engineers.</p> <p>Cloud Datastore is accessible via HTTP using a JSON or Protocol Buffers API, running on top of the Google APIs infrastructure. Cloud Datastore offers Protocol Buffer client libraries for Java and Python as well as support for the Google APIs client libraries. In addition, Cloud Datastore offers a web-based interface for managing your Cloud Datastore instances, and a development server to support local development.</p>	20 <a href="https://cloud.google.com/datastore/docs">https://cloud.google.com/datastore/docs</a>
		Fully Managed		
		Flexibility		
	Pros			
8 Affinity	Cons	Ease-of -use	Operational data store for large amounts of structured and unstructured data	13
			It is the only NoSQL solution that scales elastically to tens of petabytes of data and has fine-grained security controls.	13
			Enables development of real-time applications on top of Big Data	13
			Sqrri uses HDFS for storage; Accumulo for security/speed of access; Thrift API for interactivity; and works with map/reduce, visualizations, third party software, and existing schema explored databases.	13
	Cons	Search and Query	Sqrri Enterprise excels in use cases such as advanced data breach detection, fraud/waste/abuse analysis, and intelligence processing/exploitation/dissemination	14
			Sqrri simplifies the use of Accumulo with installation tools, data loading tools, and world-class support from the creators of Accumulo.	15
9 AllegroGraph	Pros	Security	Sqrri improves this API by adding richer search and query capabilities, including full-text keyword search, document search (i.e., JSON document support), a SQL-like queries, and graph search.	15
			Sqrri extends this cell-level security capability with a labeling engine that automates application of the security labels, a policy engine that supports Role-Based and Attribute-Based Access Controls, encryption-at-rest and encryption-in-motion, and auditing capabilities	15
			Flexible Communication Channels:Representing any communication channel with a PIN.accessing channels via one simple uniform syntax	16 <a href="http://affinityng.cfapps.io/doc/strengths.html">http://affinityng.cfapps.io/doc/strengths.html</a>
			Mobile Ad-Hoc Networks:Use of mDNS, its support for FSMs	
10 Antibase HDB	Pros		Extendable Service Libraries:Be it for platform-dependent considerations, performance, portability or any other reason, the kernel's service infrastructure and compact service interface make it easy to integrate lower-level programming languages	17 <a href="http://franz.com/agraph/allegrograph/">http://franz.com/agraph/allegrograph/</a>
			Easy Data Transformations	
			Everything in AffinitING is stored as a PIN, meaning that everything can be queried, correlated, joined	
			In Affinity, each instance of an entity (aka PIN or object or instance) is free to contain any attribute at any time.	
11 ALTIBASE XDB	Pros		Completely multi-processing based (SMP) – Automatic Resource Management for all processors and disks, and optimized memory use.	18 <a href="http://altibase.com/in-memory-database-hybrid-products/xdatabase#sthash.Y9Ok0f8u.dpuf">http://altibase.com/in-memory-database-hybrid-products/xdatabase#sthash.Y9Ok0f8u.dpuf</a>
			Efficient memory utilization in combination with disk-based storage	
			Supports SPARQL, RDFS++, and Prolog reasoning from numerous client applications.	
			Full and Fast Recoverability	
12 ALTIBASE XDB	Pros		Advanced Text Indexing	18
			Dynamic and Automatic Indexing	
			Column-based compression of indices	
			In-Memory database with hybrid architecture	
13 ALTIBASE XDB	Pros		Provide real time ACID properties and full standard SQL whereas NoSQL does not support those features.	18
14 ALTIBASE XDB	Cons	General weakness for NoSQL	NoSQL is not a relational database and does not support standard API.	18
			NoSQL is not designed to store structured data and is prone to data	18
			NoSQL is not suitable for complicated operations such as UPDATE.	18
			It is difficult to prevent data duplication with NoSQL.	18
15 ALTIBASE XDB	Cons	General weakness for NoSQL	It is complicated to back up and recover data with NoSQL	18
			NoSQL is not suitable for ad-hoc query and analysis.	18
			NoSQL has low product maturity and is not stable and reliable.	18
			It is difficult to install and maintain NoSQL.	18
16 ALTIBASE XDB	Cons	General weakness for NoSQL	There is inadequate support for NoSQL users.	18
			There are few experts available specialized in NoSQL.	18
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				18

12	ActiveSpaces	In-memory	Intro		For Java/.Net/C, distributed, hybrid, event enabled, NewSQL Main memory databases are faster than disk-optimized databases since the internal optimization algorithms are simpler and execute fewer CPU instructions. Accessing data in memory eliminates seek time when querying the data, which provides faster and more predictable performance than disk.	18
			Pros	General Pros for In memory database		
13	Oracle Database	Hadoop	Pros		Available on multiple platforms such as Windows, all flavors of Unix from vendors such as IBM, Sun, Digital, HP, Sequent, etc. and VAX-VMS, as well as MVS. The multi-platform nature of Oracle makes it a true enterprise solution. Dynamically re-create a read-consistent image for a reader of any requested data that has been changed but not yet committed. In other words, the reader will see the data as it was before the writer began changing it (until the writer commits) Oracle has major advantages in terms of locking and concurrency.	19 <a href="http://searchoracle.techtarget.com/tip/Oracle-vs-SQL-Server-Why-Oracle-wins">http://searchoracle.techtarget.com/tip/Oracle-vs-SQL-Server-Why-Oracle-wins</a>
14	Microsoft SQL Server	Hadoop	Pros		SQL Server is SAP-certified to run some of the most demanding workloads. Get more predictable performance of virtualized SQL Server instances with IO governance in Resource Governor. Gain greater uptime, faster failover, improved manageability, and better use of hardware resources through AlwaysOn, a unified solution for high availability, transparent data encryption, robust auditing, extensible key management and encrypted backups. It is even easier to manage permissions for data access to support separation of duties across various users. With SQL Server 2014, new in-memory capabilities for transaction processing and enhancements for data warehousing complement our existing technologies for data warehousing and analytics.	<a href="http://www.microsoft.com/en-us/server-cloud/products/sql-server/default.aspx?WT.srch=1&amp;WT.mc_id=Unassigned_GOO_USEvergreenSearch_22">http://www.microsoft.com/en-us/server-cloud/products/sql-server/default.aspx?WT.srch=1&amp;WT.mc_id=Unassigned_GOO_USEvergreenSearch_22</a> Unassigned&CR_CC=Unassigned
				Availability & disaster recovery		
				Security		
				In-memory performance		
			Cons		No multi-version consistency model, which means that "writers block readers and readers block writers" to ensure data integrity. SQL Server's locking scheme is much simpler (less mature) and will result in a lot of delays/waits in a heavy OLTP environment.	19
15	ArangoDB	Graph	Pros	Reduce duplication	Have a consistent HTTP API for different services or applications and don't duplicate logic between them. Reduce the number of requests between database and backend Abstractions over implementation details Execute data intensive operation API for your mobile or single page web applications	21 <a href="https://www.arangodb.com/foxx">https://www.arangodb.com/foxx</a>
16	PostgreSQL	Based on the object relational DBMS Postgres	Pros	Flexibility	New JSONB data type for PostgreSQL supports fast lookups and simple expression search queries using Generalized Inverted Indexes (GIN). Allowing user to have relational and non-relational data stores at the same time Logical decoding supplies a new API which allows reading, filtering, and manipulating the replication system. The new API is the base for new replication tools, such as bi-directional replication, which supports the creation of multi-master PostgreSQL clusters. Other improvements to the replications also include replication slots and time delayed replicas.	
17	DB2 System			Replication system		
18	Cassandra	Wide-column store based on ideas of BigTable and DynamoDB	Pros	Wide column Stores Availability Simplicity Scalability	Wide column stores, also called extensible record stores, store data in records with an ability to hold very large numbers of dynamic columns. Since the column names as well as the record keys are not fixed, and since a record can have billions of columns, wide column stores can be seen as two-dimensional key-value stores. No single point of failure ensures 100% availability. Operational simplicity for lowest total cost of ownership. Best-in-class scalability of NoSQL platforms. no JOINS, no aggregate functions	23 <a href="http://db-engines.com/en/article/Wide+Column+Stores">http://db-engines.com/en/article/Wide+Column+Stores</a> 24 <a href="http://db-engines.com/en/system/Cassandra">http://db-engines.com/en/system/Cassandra</a>
			Cons		Transactions are atomic, consistent, isolated, and durable (ACID) even after system crashes and power failures. no setup or administration needed.	
19	SQLite		Pros	Atomic Zero-configuration	Unix (Linux, Mac OS-X, Android, iOS) and Windows (Win32, WinCE, WinRT) are supported out of the box. Easy to port to other systems. Comes with a standalone command-line interface (CLI) client that can be used to administer SQLite databases.	25 <a href="http://sqlite.org/features.html">http://sqlite.org/features.html</a>
				Cross-platform		
			Cons		Has limited ALTER TABLE support, as it can't modify or delete columns. Partial support for triggers, and it can't write to views (however it supports INSTEAD OF triggers that provide this functionality)	"SQL Features That SQLite Does Not Implement". SQLite. January 1, 2009. Retrieved 26 October 14, 2009.

			Client/Server Applications	Weak performance when many client programs accessing a common database over a network. Should avoid using SQLite when same database will be accessed simultaneously from many computers over a network filesystem.	
			Concurrency	SQLite supports an unlimited number of simultaneous readers, but it will only allow one writer at any instant in time.	
			Large datasets	An SQLite database is limited in size to 140 terabytes (247 bytes, 128 tibibytes). And even if it could handle larger databases, SQLite stores the entire database in a single disk file and many filesystems limit the maximum size of files to something less than this.	
20 Accumulo		Pros	Wide column Stores		23
21 Hbase	Wide-column store based on Apache Hadoop and on concepts of BigTable	Pros	Wide column Stores		23
			Consistency	Because it can utilize the storage, memory, and CPU resources of any number of servers, as well as has scale-out features like automatic sharding, HBase can scale limitlessly as load and performance demands increase simply by adding server nodes. HBase was designed from the ground up to provide optimal performance when consistency is critical.	<a href="http://www.infoworld.com/article/2848722/nosql/mongodb-cassandra-hbase-three-nosql-databases-to-watch.html">http://www.infoworld.com/article/2848722/nosql/mongodb-cassandra-hbase-three-nosql-databases-to-watch.html</a>
22 Redis	Key-value Stores				
		Pros	Speed	Redis holds its database entirely in memory, using the disk only for persistence. Quickly update complex data structures like sorted sets or individual hash elements, and logs updates to disk sequentially for robust, low-overhead persistence (as long as you don't need to restart often). Many key-value data stores have a limited set of datatypes, but Redis is comparatively rich, allowing for lists and sets of strings to be stored, as well as sorted sets and hashes. Redis can replicate data to any number of slaves. Server can manipulate data directly	
		Cons		Used as a very fast cache for use cases where responsiveness is crucial The size of the Redis datastore is limited to the size of the available memory requires consideration of data size to configure well SENTINEL, the automated failover which promotes a slave to master, is perpetually on the redis unstable branch Master-slave architecture means if the master wipes out, and SENTINEL doesn't work, the system is sad	
23 SAP Sybase ASE					
24 Lucene/Solr	A widely used enterprise search engine based on Apache Lucene				
		Pros	General features for Search Engines	Support for complex search expressions Full text search Stemming (reducing inflected words to their stem) Ranking and grouping of search results Geospatial search Distributed search for high scalability	27 <a href="http://db-engines.com/en/article/Search+Engines">http://db-engines.com/en/article/Search+Engines</a>
25 Splunk	Search Engine				
		Pros	General features for Search Engines		27
26 MarkLogic	Search Engine				
		Pros	General features for Search Engines		27
27 Teradata	DBMS mainly used for data warehousing				
		Pros	Architecture	Teradata uses a massively parallel processing architecture with virtualized CPU, memory and storage that work together as a unit. With the Teradata Data Warehouse Appliance 2750 that uses the Teradata Intelligent Memory and the latest Teradata Database. Row-oriented and offer structures to enhance this orientation for analytics. Also provides columnar option, allowing queries to operate against row- and column-oriented data. Teradata Columnar offers true hybrid row and columnar capabilities that drastically improve query performance and deliver maximum data compression.	28 <a href="http://www.teradatamagazine.com/v14n01/Viewpoints/Face-Off/">http://www.teradatamagazine.com/v14n01/Viewpoints/Face-Off/</a>
			Performance	The Teradata Database is used on all Teradata platforms, so continuity, upgrade and expansion are available. The database fully supports business growth and data warehouse maturation by delivering efficient, predictable performance along with storage increases for system expansion or replacement. A Teradata implementation may consist of various servers, both product family and age. Teradata has its BYNET V5 communications stacked to run on top of the 40 gigabytes per second InfiniBand.	
			Database Management		
			Continuity, Upgrade and Expansion		

28 Apache Hive 29 IBM Informix	Data warehouse software for querying and managing large distributed datasets, built on Hadoop	Bi-directional Hadoop solution	<p>Teradata offers a bi-directional Apache™ Hadoop® solution called SQL-H™ that allows developers to write standard SQL queries with extensions for Hadoop. It runs on all Teradata platforms. Besides providing access to Hadoop data, it can be a good strategy for storing multi-structured data.</p>
		Pros	<p>Hybrid database system that is capable of supporting relational and non-relational data</p> <p>Informix 12.1 is the only database that allows different hardware and operating systems from cluster to cluster in a distributed environment.</p> <p>Power OLTP and OLAP workloads and successfully meet service-level agreements (SLAs) for each</p> <p>Sets of options for keeping data available at all times, including zero downtime for maintenance</p> <p>Solves the big data challenge of sensor data with unmatched performance and scalability for managing time series data</p> <p>Unleashes new capabilities, giving you a way to combine unstructured and structured data in a smart way, bringing NoSQL to your SQL database.</p>
		Real-time Analytics	LiveJournal
		Fast, Always-on Transactions	Wikipedia
		Sensor data management	Flickr
		NoSQL capability	Bebo
			Twitter
			Typepad
			Yellowbot
			Youtube
			WordPress.com
			Craigslist
30 Memcached Cloud	In-memory key-value	Users	Mixi
		Pros	<p>Free &amp; open source</p> <p>Its API is available for most popular languages.</p> <p>Memcached's internal memory management is more efficient because Memcached will consume comparatively less memory resources for metadata. Which are the only data type that are supported by Memcached, are ideal for storing data that's only being read because strings require no further processing.</p> <p>Due in part to its design and in part to its simpler capabilities, Memcached is much easier to scale.</p>
		Caching small and static data	Doesn't do anything besides be an in-memory key/value store
		Horizontal scaling	Caches sharded by client do not scale across AWS zones
		Cons	<p>Adding a member to the pool requires reconfiguring and rebooting the client</p> <p>Unbalanced memcached clusters require a full system restart</p>

29 <http://www.bigdatalittlegeek.com/blog/2014/3/25/memcached-vs-redis>