



Cascade



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Editorial

NoSQL Databases

A NoSQL database provides a mechanism for storage and retrieval of data that is modeled in means other than the tabular relations used in relational databases. Motivations for this approach include: simplicity of design, simpler "horizontal" scaling to clusters of machines, which is a problem for relational databases, and finer control over availability. The data structures used by NoSQL databases (e.g. key-value, graph, or document) differ slightly from those used by default in relational databases, making some operations faster in NoSQL and others faster in relational databases. The particular suitability of a given NoSQL database depends on the problem it must solve. Sometimes the data structures used by NoSQL databases are also viewed as "more flexible" than relational database tables.

NoSQL databases are increasingly used in big data and real-time web applications. NoSQL systems are also sometimes called "Not only SQL" to emphasize that they may support SQL-like query languages.

Many NoSQL stores compromise consistency (in the sense of the CAP theorem) in favor of availability, partition tolerance, and speed. Barriers to the greater adoption of NoSQL stores include the use of low-level query languages, lack of standardized interfaces, and huge previous investments in existing relational databases. Most NoSQL stores lack true ACID transactions, although a few recent systems, such as FairCom c-treeACE, Google Spanner (though technically a NewSQL database), FoundationDB, Symas LMDB and OrientDB have made them central to their designs. Instead they offer a concept of "eventual consistency" in which database changes are propagated to all nodes "eventually" (typically within milliseconds) so queries for data might not return updated data immediately.

Not all NoSQL systems live up to the promised "eventual consistency" and partition tolerance, but in experiments with network partitioning often exhibited lost writes and other forms of data loss. Fortunately, some NoSQL systems provide concepts such as Write-ahead logging to avoid data loss. Current relational databases also "do not allow referential integrity constraints to span databases" as well.

Events conducted at IE Building, Bharath Heavy Electricals Ltd.(BHEL)

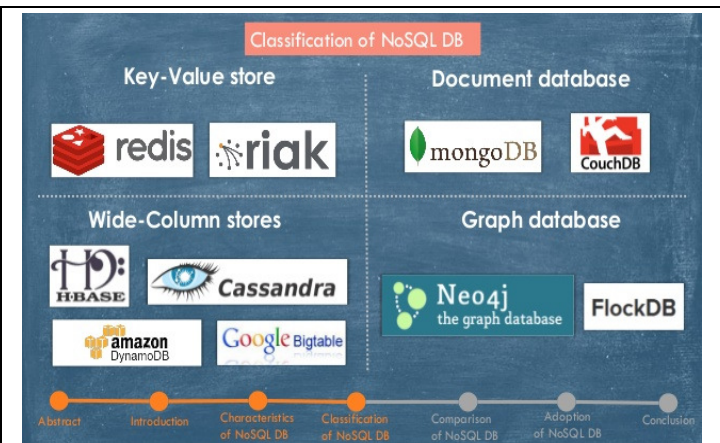
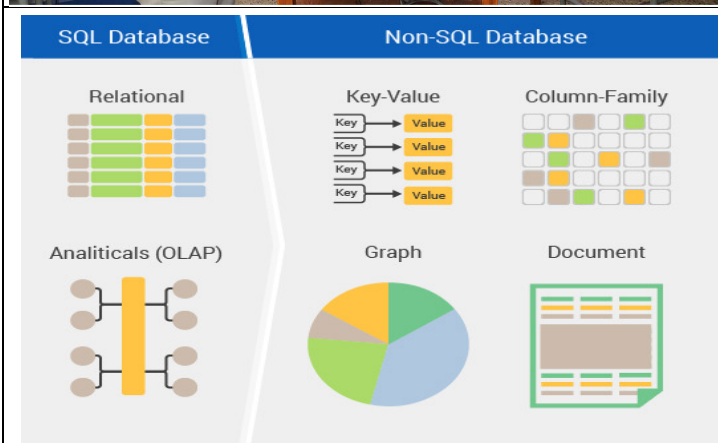


Mr. A. Anand, Sr. Engineer, Informatics Centre, BHEL, Tiruchirappalli delivered a special lecture on 'Big Data – Setting up a Hadoop Cluster' on 28th October 2014. He introduced the concepts of Bigdata and the challenges such as capture, creation, storage, search, sharing, transfer, analysis and visualization. He said that a two Node pilot Hadoop Cluster Suite has been configured on Redhat Linux Platform in our Coal Research Centre by Informatics Centre for supporting the data storage, data analysis and machine learning activities with the data collected from Power plants. He also explained about the layers of the Hadoop Cluster.

A special lecture was delivered by Mr. Ramesh Kumar Sr. Manager (Networking), Informatics Centre, BHEL, Tiruchirappalli on 'NoSQL Database' on 11th November 2014. The speaker introduced the basic concept of NoSQL Database including the data structure used. He highlighted on the approaches to classify NoSQL databases into various categories. He also touched upon a few examples of each categories.



On 9th December 2014, Mr. V. Elamaran, Engineer, Informatics Centre, BHEL, Tiruchirappalli gave a special lecture on 'Bare Metal Switching'. In his lecture, the speaker gave an overall view about topic including the benefits and obstacles of the technology. He also touched upon the Open Network Install Environment (ONIE), Dynamic, Minimal & Efficient deployment with ONIE and Open Network Linux (ONL). He also explained the reason for not using the existing OS distribution in Bare Metal Switching.



Events conducted at Jamal Mohamed College (JMC)

T-Hunt: Intra-collegiate Symposium

An Intra-Departmental Talent Hunt Programme was conducted for the students of B.Sc.(CS), BCA and B.Sc.(IT) in the Department of Computer Science. A written prelims was conducted on 10th October 2014. The test comprised of 30 questions from general topics in computer science and information technology. Based on the performance in the prelims, 15 students were selected for the finals held on 15th October 2014. Finals comprised of three events – Debugging, Paper Presentation and Just-a-Minute. Prizes and certificates were given to the top three performers.



A one-day workshop on Personality Development was conducted on 11th December 2014 for the final year PG students of Computer Applications, Computer Science and Information Technology. Mr. S.A.W. Buhari, Placement Officer, Jamal Institute of Management, Jamal Mohamed College, Tiruchirappalli and Mr. Prakash, Soft Skill Trainer, Chennai were the resource persons.

SWAP-2K14 : Intercollegiate Technical Symposium

Jamal Mohamed College in association with the Tiruchirappalli Chapter of Computer Society of India organized an Inter-Collegiate Technical Symposium, SWAP-2K14, on 16th & 17th December 2014. Mr. Sultan Raja, an illustrious alumnus, Technologist, Hewlett Packard, Bangalore, inaugurated the program. Dr. S. Mohamed Salique, Principal, presided over the function. Dr. A.K. Khaja Nazeemudeen, Secretary & Correspondent, felicitated. Dr. G. Ravi, Head of the department, welcomed the gathering and Dr. D.I. George Amalarethnam, Director-MCA Programme proposed a vote of thanks.

The events like Animation, Code Conversion, Debugging, Extempore, IT Marketing, Stress Management, Quiz, Word Hunt, Web Designing, Treasure Hunt, Googler, and Multimedia were conducted on these two days. As many as 200 students from various Arts, Science & Engineering Colleges and Universities in and around Tamil Nadu participated in the symposium. The overall championship award was bagged by students of Cauvery College for Women, Tiruchirappalli and Ms. B. Thivya Priyaa from Bishop Heber College, Tiruchirappalli won the Miss SWAP-2K14 award.

The valedictory function was held on 17th December 2014 at 5.00 p.m. Dr. A.K. Khaja Nazeemudeen, Secretary & Correspondent of the college, delivered the valedictory address and distributed the prizes and certificates to the winners.

Mr. Sultan Raja delivering the inaugural address



Students of Cauvery College receiving the Overall Championship



Management Committee Meetings

Management Committee meetings were held on 05-11-2014, 17-11-2014 and 05-12-2014. Most of the EC members attended the meeting, actively took part in the deliberations and many resolutions pertaining to the excellent conduct of various activities in the chapter were made.

Members Attended CSI AGM-2014

The following 7 members of the CSI Tiruchirappalli Chapter attended the National Convention and AGM held at JNTU, Hyderabad from 12-14 December 2014:

1. Sri G.S. Raghunathan (Chairman – Tiruchirappalli Chapter), AGM, Informatics Centre, BHEL, Tiruchirappalli
2. Dr. S. Ravimaran (Vice Chairman – Tiruchirappalli Chapter), Head, Department of Computer Science & Engg., MAM College of Engineering, Tiruchirappalli
3. Dr. T. Abdul Razak (Secretary - Tiruchirappalli Chapter), Associate Professor of Computer Science, Jamal Mohamed College, Tiruchirappalli
4. Dr. Gopinath Ganapathy (Past Chairman - Tiruchirappalli Chapter), Director, BUTP, Tiruchirappalli
5. Dr. E. Kirubakaran, AGM, BHEL, Tiruchirappalli
6. Mr. D. Senthil Kumar, Manager, ITS & S. Fossil Boilers, BHEL, Tiruchirappalli
7. Ms. P. Saranya, Sr. Engineer, BHEL, Tiruchirappalli

CSI Awards - 2014

The Tiruchirappalli Chapter of CSI bagged the following awards for the year 2013-2014. The awards were presented at the CSI Annual National Convention held at JNTU, Hyderabad during December 2014.

Significant Contribution Awards

1. Dr. S. Ravimaran, Vice Chairman, CSI Tiruchirappalli Chapter and Head, Department of Computer Science & Engg., M.A.M. College of Engineering, Tiruchirappalli
2. Dr. T. Abdul Razak, Secretary, CSI Tiruchirappalli Chapter and Associate Professor, Department of Compute Science, Jamal Mohamed College, Tiruchirappalli

Best Chapter Newsletter Award

Best Accredited Student Branch Awards

1. Jamal Mohamed College, Tiruchirappalli
2. M.A.M. College of Engineering, Tiruchirappalli

Just for Thought



CSI Awards – 2014 (Photo Gallery)

Dr. Ravimaran receiving the Significant Contribution Award



Dr. Abdul Razak receiving the Significant Contribution Award



Chairman and Secretary receiving the Best Chapter Newsletter Award



Dr. Abdul Razak receiving the Best Accredited Student Branch Award for Jamal Mohamed College



Dr. Ravimaran receiving the Best Accredited Student Branch Award for MAM College of Engineering



Our Secretary with the Past President, Dr. S.V. Raghavan and other senior fellow CSI members



Just for Thought

Be prepared for life - to live happily and without regret, knowing that you have done your best.

Advantages of NoSQL Databases

Elastic scaling

For years, database administrators have relied on *scale up* — buying bigger servers as database load increases — rather than *scale out* — distributing the database across multiple hosts as load increases. However, as transaction rates and availability requirements increase, and as databases move into the cloud or onto virtualized environments, the economic advantages of scaling out on commodity hardware become irresistible. RDBMS might not scale out easily on commodity clusters, but the new breed of NoSQL databases are designed to expand transparently to take advantage of new nodes, and they're usually designed with low-cost commodity hardware in mind.

Big data

Just as transaction rates have grown out of recognition over the last decade, the volumes of data that are being stored also have increased massively. O'Reilly has cleverly called this the "industrial revolution of data." RDBMS capacity has been growing to match these increases, but as with transaction rates, the constraints of data volumes that can be practically managed by a single RDBMS are becoming intolerable for some enterprises. Today, the volumes of "big data" that can be handled by NoSQL systems, such as Hadoop, outstrip what can be handled by the biggest RDBMS.

Goodbye DBAs

Despite the many manageability improvements claimed by RDBMS vendors over the years, high-end RDBMS systems can be maintained only with the assistance of expensive, highly trained DBAs. DBAs are intimately involved in the design, installation, and ongoing tuning of high-end RDBMS systems. NoSQL databases are generally designed from the ground up to require less management: automatic repair, data distribution, and simpler data models lead to lower administration and tuning requirements — in theory. In practice, it's likely that rumors of the DBA's death have been slightly exaggerated. Someone will always be accountable for the performance and availability of any mission-critical data store.

Economics

NoSQL databases typically use clusters of cheap commodity servers to manage the exploding data and transaction volumes, while RDBMS tends to rely on expensive proprietary servers and storage systems. The result is that the cost per gigabyte or transaction/second for NoSQL can be many times less than the cost for RDBMS, allowing you to store and process more data at a much lower price point.

Flexible data models

Change management is a big headache for large production RDBMS. Even minor changes to the data model of an RDBMS have to be carefully managed and may necessitate downtime or reduced service levels. NoSQL databases have far more relaxed — or even nonexistent — data model restrictions. NoSQL Key Value stores and document databases allow the application to store virtually any structure it wants in a data element. Even the more rigidly defined BigTable-based NoSQL databases (Cassandra, HBase) typically allow new columns to be created without too much fuss. The result is that application changes and database schema changes do not have to be managed as one complicated change unit. In theory, this will allow applications to iterate faster, though, clearly, there can be undesirable side effects if the application fails to manage data integrity.

Just for Thought

Whenever you are knocked down, bounce back, learn a lesson, forget the beating and move upward. Use setbacks to propel you forward. Salvage something from every setback. When a winner loses, he always comes back to be a better winner.