

An In-depth Look at Modern Database Systems

C. Mohan
IBM Almaden Research Center,
San Jose, USA.
cmohan@us.ibm.com

ABSTRACT

This tutorial is targeted at a broad set of database systems and applications people. It is intended to let the attendees better appreciate what is really behind the covers of many of the modern database systems (e.g., NoSQL and NewSQL systems) going beyond the hype associated with these open source, commercial and research systems. The capabilities and limitations of such systems will be addressed. Modern extensions to decades old relational DBMSs will also be described. Some application case studies will also be presented.

1. OVERVIEW

The tutorial will contain the following basic divisions:

1. Broad survey of modern database systems (MDS)
2. Drivers behind emergence of MDS, Benchmarks / performance studies
3. Classes of MDS
 - Evolution of classical DBMSs (DB2, SQL Server, Oracle, Informix, PostgreSQL)
 - Brand new systems (NewSQL, NoSQL)
 - Hybrid systems (Hadoop + SQL)
4. Overviews of specific systems
 - DB2 BLU, IDAA, MS Hekaton, Oracle Exadata, Informix Warehouse Accelerator, Postgres plus Advanced Server
 - SAP Hana, Google F1, NuoDB, VoltDB, HyPer, Calvin
 - MongoDB, DB2/Informix NoSQL, Oracle NoSQL, Aerospike, Neo4j, Facebook Tao
5. Deployments or Use Case Scenarios: Facebook (later LinkedIn, Twitter)

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, to republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

The 19th International Conference on Management of Data (COMAD), 19th-21st Dec, 2013 at Ahmedabad, India.

Copyright ©2013 Computer Society of India (CSI).

2. BIOGRAPHY

C. Mohan: Dr. C. Mohan has been an IBM researcher for 31 years in the information management area, impacting numerous IBM and non-IBM products, the research community and standards, especially with his invention of the ARIES family of locking and recovery algorithms, and the Presumed Abort commit protocol. This IBM, ACM and IEEE Fellow has also served as the IBM India Chief Scientist. In addition to receiving the ACM SIGMOD Innovation Award, the VLDB 10 Year Best Paper Award and numerous IBM awards, he has been elected to the US and Indian National Academies of Engineering, and has been named an IBM Master Inventor. This distinguished alumnus of IIT Madras received his PhD at the University of Texas at Austin. He is an inventor of 40 patents. He serves on the advisory board of IEEE Spectrum and on the IBM Software Group Architecture Boards Council. More information on his work is at <http://bit.ly/CMohan>.