

## Distinguished Speaker Seminar

# A Survey of Cloud Database Systems

 **24 Nov 2022 (Thu)**  
 **16:00 – 17:00**  
 **Rm 2303 (lift 17, 18)**

### Prof. C. Mohan

Distinguished Visiting Professor  
(Tsinghua University, China)  
Visiting Researcher (Google, USA)  
Member, Board of Governors  
(Digital University Kerala, India)  
Advisor (Tamil Nadu e-Governance Agency &  
Kerala Blockchain Academy, India)  
Retired IBM Fellow (IBM Research, USA)  
Former Shaw Visiting Professor  
(National University of Singapore)



### Abstract

In this talk, I will first introduce traditional (non-cloud) parallel and distributed database systems. Concepts like SQL and NoSQL systems, data replication, distributed and parallel query processing, and data recovery after different types of failures will be covered. Then, I will discuss how the emergence of the (public) cloud has introduced new requirements on parallel and distributed database systems, and how such requirements have necessitated fundamental changes to the architectures of such systems. I will illustrate the related developments by discussing some of the details of systems like Alibaba POLARDB, Microsoft Azure SQL DB, Microsoft Socrates, Azure Synapse POLARIS, Google Spanner, Google F1, CockroachDB, Amazon Aurora, Snowflake and Google AlloyDB.

### About the speaker

Dr. C. Mohan is currently a Distinguished Visiting Professor at Tsinghua University in China, a Visiting Researcher at Google, a Member of the inaugural Board of Governors of Digital University Kerala, and an Advisor of the Kerala Blockchain Academy (KBA) and the Tamil Nadu e-Governance Agency (TNeGA) in India. He retired in June 2020 from being an IBM Fellow at the IBM Almaden Research Center in Silicon Valley. He was an IBM researcher for 38.5 years in the database, blockchain, AI and related areas, impacting numerous IBM and non-IBM products, the research and academic communities, and standards, especially with his invention of the well-known ARIES family of database locking and recovery algorithms, and the Presumed Abort distributed commit protocol. This IBM (1997-2020), ACM (2002-) and IEEE (2002-) Fellow has also served as the IBM India Chief Scientist (2006-2009). In addition to receiving the ACM SIGMOD Edgar F. Codd Innovations Award (1996), the VLDB 10 Year Best Paper Award (1999) and numerous IBM awards, Mohan was elected to the United States and Indian National Academies of Engineering (2009), and named an IBM Master Inventor (1997). This Distinguished Alumnus of IIT Madras (1977) received his PhD at the University of Texas at Austin (1981). He is an inventor of 50 patents. During the last many years, he focused on Blockchain, AI, Big Data and Cloud technologies (<https://bit.ly/sigBcP>, <https://bit.ly/CMoTalks>). Since 2017, he has been an evangelist of permissioned blockchains and the myth buster of permissionless blockchains. During 1H2021, Mohan was the Shaw Visiting Professor at the National University of Singapore (NUS) where he taught a seminar course on distributed data and computing. In 2019, he became an Honorary Advisor to TNeGA for its blockchain and other projects. In 2020, he joined the Advisory Board of KBA. Since 2016, Mohan has been a Distinguished Visiting Professor of China's prestigious Tsinghua University. In 2021, he was inducted as a member of the inaugural Board of Governors of the new Indian university Digital University Kerala (DUK). Mohan has served on the advisory board of IEEE Spectrum, and on numerous conference and journal boards. In 2022, he became a consultant at Google with the title of Visiting Researcher. He has also been a Consultant to the Microsoft Data Team. Mohan is a frequent speaker in North America, Europe and Asia. He has given talks in 43 countries. He is highly active on social media and has a huge network of followers. More information can be found in the Wikipedia page at <https://bit.ly/CMwIkP> and his homepage at <https://bit.ly/CMoDUK>