

Tutorial: Application Servers and Associated Technologies

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Abstract

Application Servers (ASs), which have become very popular in the last few years, provide the platforms for the execution of transactional, server-side applications in the online world. ASs are the modern cousins of traditional transaction processing monitors (TPMs) like CICS. In this tutorial, I will provide an introduction to different ASs and their technologies. ASs play a central role in enabling electronic commerce in the web context. They are built on the basis of more standardized protocols and APIs than were the traditional TPMs. The emergence of Java, XML and OMG standards has played a significant role in this regard. Consequently, I will also briefly introduce the related XML, Java and OMG technologies like SOAP, J2EE and CORBA. One of the most important features of ASs is their ability to integrate the modern application environments with legacy data sources like IMS, CICS, VSAM, etc. They provide a number of connectors for this purpose, typically using asynchronous transactional messaging technologies like MQSeries and JMS. Traditional TPM-style requirements for industrial strength features like scalability, availability, reliability and high performance are equally important for ASs also. Security and authentication issues are additional important requirements in the web context. ASs support DBMSs not only as storage engines for user data but also as repositories for tracking their own state. Recently, the ECPerf benchmark has been developed via the Java Community Process to evaluate in a standardized way the cost performance of J2EE-compliant ASs. Several caching technologies have been developed to improve performance of ASs.

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Speaker

Dr. C. Mohan was named an IBM Fellow in 1997 for being recognized worldwide as a leading innovator in transaction management. He is the primary inventor of the ARIES family of recovery and locking methods, and the industry-standard Presumed Abort distributed commit protocol. He received the 1996 ACM SIGMOD Innovations Award in recognition of his innovative contributions to the development and use of database systems. At the 1999 International Conference on Very Large Data Bases, he was honored with the 10 Year Best Paper Award for the widespread commercial and research impact of his work on ARIES. Mohan, who is an inventor on 33 patents, works very closely with numerous IBM product groups and his research results are implemented in numerous IBM and non-IBM prototypes and products like DB2, MQSeries, Lotus Domino/Notes, S/390 Parallel Sysplex and Microsoft SQLServer. Mohan is a member of IBM's Application Integration Middleware Architecture Board. Currently, he is working on DB2 data caching in the context of IBM's WebSphere Application Server and on next generation messaging technologies.

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