TEXT AND GRAPHICS IN RELATIONAL DATABASES

DBEXPO '90
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THE ISSUES

NON-STANDARD DATA TYPES: THE ISSUES

A REVOLUTION?

"The database community is in the midst of a conceptual revolution that will eventually supplant the relational paradigm."

"Virtually all proposals from the database community for the management of non-textual information use object-oriented techniques."

- William Grosky and Rajiv Mehrotra,
IEEE Computer, December 1989

NON-STANDARD DATA TYPES: THE ISSUES

<u>PHYSICAL ISSUES</u>

- STORAGE

  - OPERATING SYSTEM FILES?

  - BLOBs?

  - STRUCTURED?

- EFFICIENT ACCESS METHODS AND INDEXING (DEFINITION: ACCESS METHODS ARE A SET OF PROCEDURE CALLS THAT RETRIEVE AND UPDATE RECORDS.)

  - B-TREE

  - R-TREE

  - EXTENDIBLE HASHING

NON-STANDARD DATA TYPES: THE ISSUES

TRANSACTION MANAGEMENT AND RECOVERY

- WHAT KIND OF INTERFACE?

- VERSION CONTROL

- LENGTH OF TRANSACTION

- EXTERNALLY VS. INTERNALLY STORED DATA TYPES

- CRASH RECOVERY

NON-STANDARD DATA TYPES: THE ISSUES

CONCURRENCY

- LOCK MANAGEMENT

- LOCK GRANULARITY

- INTEGRATION

- SPECIAL DATA SHARING CONCERNS

SECURITY

- FIELD CONTENT LEVEL?

- VIEWS

NON-STANDARD DATA TYPES: THE ISSUES

QUERY OPTIMIZATION AND PROCESSING I

THE GOAL: EFFICIENT QUERY PROCESSING BY CONTENT - THE RETRIEVAL OF NON-STANDARD DATA TYPES VIA OTHER NON-STANDARD DATA TYPES.

- PROCESSING

  - TEXT

  - IMAGE

NON-STANDARD DATA TYPES: THE ISSUES

QUERY OPTIMIZATION AND PROCESSING II

- STANDARD AND NON-STANDARD OPERATORS

    - RELATIONAL

    - AGGREGATE

    - OPERATOR PRECEDENCE

- OPTIMIZATION

    - SELECTIVITY

    - JOIN ALGORITHM

- COLLATING SEQUENCES

NON-STANDARD DATA TYPES: THE ISSUES

INTEGRITY ISSUES

- ATOMIC VALUES

- DOMAIN INTEGRITY

- ENTITY INTEGRITY

- REFERENTIAL INTEGRITY

- NORMALIZATION

NON-STANDARD DATA TYPES: THE ISSUES

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