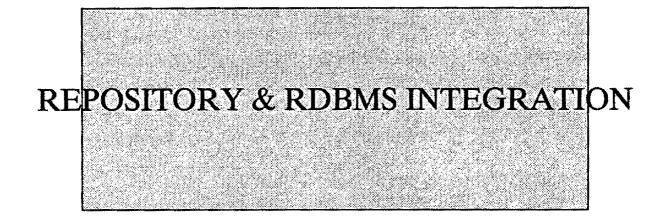# DEC's REPOSITORY & RDBMS: HOW WELL INTEGRATED?

REPOSITORY '90, BOSTON
David McGoveran
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# ABSTRACT

Digital Equipment Corporation (DEC) has recently announced a new version of their relational database, Rdb/VMS and of their operating system VMS with distributed transaction management capabilities. While Rdb/VMS has its own system catalog, DEC also promotes and continues to improve the functionality of its repository, CDD/Plus. Developers using database products with stand-alone catalogs need a means of integrating these catalogs with the repository.

This presentation examines the facilities provided by DEC's Rdb/VMS and CDD/Plus products and the means for integrating them. Some example sites integrating the two are discussed.

# REPOSITORY & RDBMS INTEGRATION

# THE OBJECTIVES I

- DDL SUPPORT

  - SQL CREATE

  - SQL DROP

  - IMPORT/EXPORT

- TML SUPPORT

  - Transaction semantics

  - Rollback

  - Commit

  - Restore

  - Backup

  - Rollforward

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# THE OBJECTIVES II

- **DCL SUPPORT**

  - **SQL GRANT**

  - **SQL REVOKE**

  - **O/S PROTECTIONS**

  - **Groups**

  - **Application Specific**

- **Storage Allocation**

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# THE OBJECTIVES III

- **INTEGRATION and CONFLICT RESOLUTION**

  - Manual

  - Automatic

  - Directionality

  - Conflict Avoidance

  - Optimistic or Pessimistic Concurrency

  - Multi-version Support

  - Deadlock Detection/Avoidance/Resolution

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# DEC'S REPOSITORY I

- GENERAL CHARACTERISTICS

  - Distributed

  - One Logical View

  - Late Life Cycle Support

  - Early Life Cycle Support Coming

- RECORD SUPPORT

  - Field Specification

  - Alignment

  - Structures

  - Audit and Comments

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# DEC'S REPOSITORY II

- **FIELD ATTRIBUTES**

  - Arrays: Row or Column Major

  - History of Comments

  - Attribute Inheritance

  - Computed Values

  - Data Type (including pointers, binary, and segmented strings)

  - Fillers

  - Justification

  - Names and Headers

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# DEC'S REPOSITORY III

- ● VALUE EXPRESSIONS

  - ■ Field or Record

  - ■ Literals

  - ■ Statistical

  - ■ Arithmetic

  - ■ Concatenated

  - ■ First-from

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# DEC'S REPOSITORY IV

- **CONDITIONAL EXPRESSIONS**

  - Relational and Logical Operators

  - Ranges

  - Pattern matching

  - Missing information

- **RECORD SELECTION EXPRESSIONS**

  - Restrictions

  - Combined record streams

  - Eliminate duplicates

  - Sorting

# DEC'S REPOSITORY V

- **EDIT STRINGS**

  - Dates

  - Decimal

  - Floating and Exponent

  - Logical

  - Debit/Credit

  - Separators

  - Case

  - Repeat Characters

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# ADMINISTRATION AND MAINTENANCE I

- COMMON DICTIONARY OPERATOR
  (DEFINE/CHANGE/DELETE)

  - Field

  - Record

  - Generic

  - Protection

  - Clear Messages

  - Copy


- COMMON DATA DICTIONARY DATA DEFINITION
  LANGUAGE

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# ADMINISTRATION AND MAINTENANCE II

- UTILIES (DMU and CDDV)

  - BACKUP

  - COPY

  - CREATE

  - DELETE

  - EXTRACT

  - RESTORE

# CDD/Plus FACILITIES

- **ANALYIS and OTHER ISSUES**

  - **What-If Analysis**

  - **Tagging for Recompile**

  - **Notification**

  - **Embedded SQL Support**

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# DEC'S RELATIONAL DATABASE I

## Rdb/VMS DATA DEFINITION LANGUAGE

- CREATE/DROP COLLATING SEQUENCE

- CREATE/DROP DOMAIN

- CREATE/DROP INDEX

- CREATE/DROP SCHEMA

- CREATE STORAGE AREA

- CREATE/DROP STORAGE MAP

- CREATE/DROP TABLE

- CREATE/DROP TRIGGER

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# DEC'S RELATIONAL DATABASE II

## Rdb/VMS DATA DEFINITION LANGUAGE (CONT'D)

- CREATE/DROP VIEW

- ALTER DOMAIN

- ALTER INDEX

- ALTER SCHEMA

- ALTER STORAGE MAP

- ALTER TABLE

- Rdb SYSTEM CATALOG

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# CDD/Plus and Rdb/VMS INTEGRATION I

## SOL FACILITIES

- INTEGRATE

- IMPORT/EXPORT

- INCLUDE

- DICTIONARY IS REQUIRED

- SHOW DICTIONARY

## CDD/Plus FACILITIES

- CHANGE

- SHOW MESSAGES

- SHOW UNUSED

- SHOW USES

- SHOW USED_BY

- SHOW WHAT_IF

- SHOW FIELD/RECORD

# TWO CASE STUDIES

## EXAMPLE I

- DEERE AND CO.

    - The Application

    - How Integrated

    - Strength and Weaknesses

## EXAMPLE II

- EASTMAN KODAK (AQUIDNECK DATA CORP.)

    - The Application

    - How Integrated

    - Strength and Weaknesses

# BIOGRAPHY

- David McGoveran, Principal, Database Associates International

David McGoveran co-founded and is a principal of Database Associates, along with Colin White, Richard Finkelstein, and Paul Winsberg. He is President of Alternative Technologies, a Santa Cruz, California firm which has specialized in complex relational database applications for over ten years and which is an affiliate of Database Associates.

Mr. McGoveran designed and developed the first commercial CIM system using a relational database. He has authored numerous technical articles and has lectured around the world. Author of the forthcoming Guide to Sybase SQL Server with Chris Date, he serves as an associate editor of InfoDB magazine. Mr. McGoveran is listed in Who's Who in the World and Who's Who in the Computer Industry.

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