IBM Software Group

CICS VSAM Transparency V1.1

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e business software

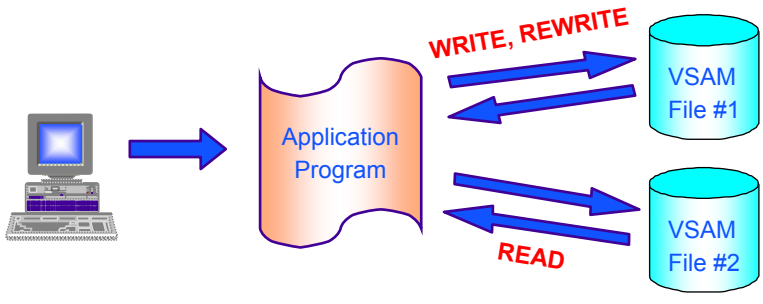
AGENDA

- What is CICS VT?
- Product highlights
- Components
- Migration process summary
- Setting expectations

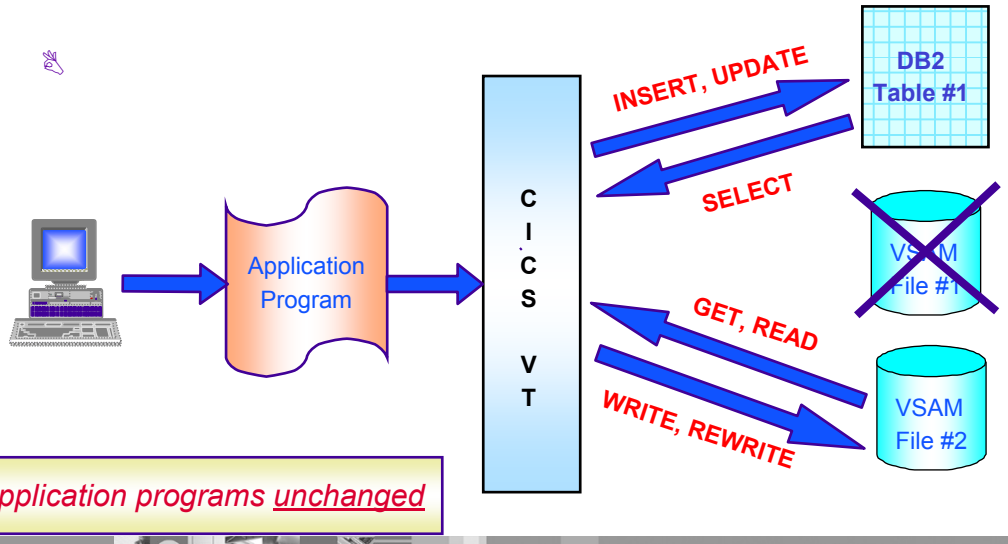
WHAT EXACTLY IS CICS VT?

- Tool to migrate VSAM files to DB2 without changing application programs
  - Single copy of the data
  - Single version of the truth
- Legacy programs access DB2 data using driver modules CICS VT generates for each migrated data set
- Migrated data can be accessed by SQL in new programs
- Existing programs can be enhanced using SQL
- Lowest risk migration strategy

WHAT EXACTLY IS CICS VT *(continued)*?



WHAT EXACTLY IS CICS VT *(continued)*?



Application programs unchanged

CICS VT HIGHLIGHTS

- Completely separate from application program
- Transparent access to data in DB2
- 100% static SQL
- Migrate on a file by file basis
- Single copy of data
- Data can be re-engineered
  - Same data returned to VSAM programs
  - Enhanced data available using SQL

CICS VT COMPONENTS

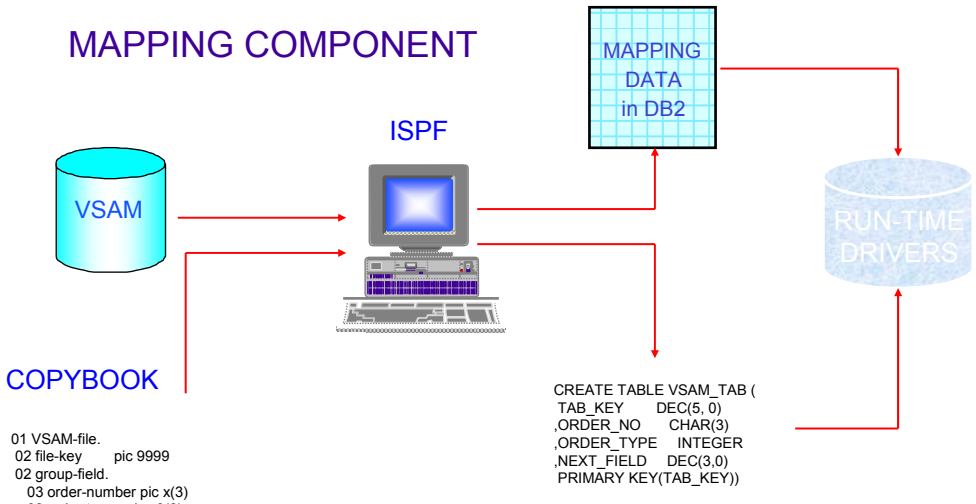
- Mapping component
  - Establishes relationship between VSAM record layout and DB2 row
- Data migration component
  - Utilities to migrate data to DB2 and re-engineer if required
- Run time component
  - Intercepts application calls to VSAM data sets migrated to DB2

MAPPING COMPONENT

" The relationship between the record in VSAM and the row in DB2"

- One time activity for each data set and alternate index
- Manual and automated mapping methods
- Automated method should handle at least 70% of all data sets
- Run-time driver module generation
- Performed by DB2 DBA and application programmer
- Includes design of DB2 objects

MAPPING COMPONENT



Usually one to one, can be one to many

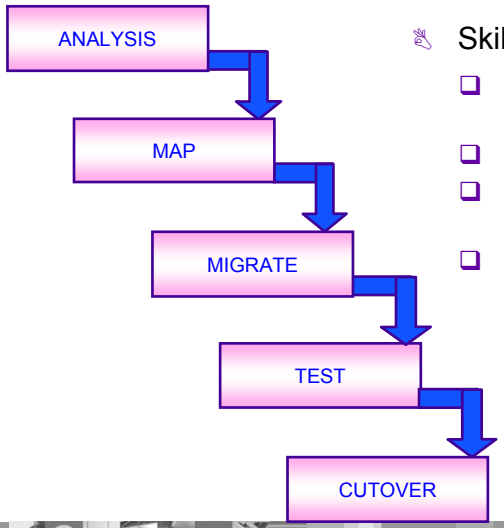
DATA MIGRATION COMPONENT

- Three steps in data migration process
  - Unload existing data from VSAM data set
  - Convert data to DB2 format
  - Load DB2 data (using DB2 LOAD utility)
- CICS VT utilities provided for 1 and 2
- Optionally identifies invalid numeric fields that are mapped to numeric column types (which would cause data conversion errors)

RUN-TIME COMPONENT

- Application programs continue to issue calls to VSAM files
  - CICS VT intercepts call
    - Using a global user exit (GLUE) in CICS
    - Using an MVS sub-system for batch programs
  - Translates call to equivalent SQL call and processes in DB2
  - After call has been processed by CICS VT
    - Data and RESP codes return to CICS program
    - Data and return and reason codes passed back to batch program

MIGRATION PROCESS SUMMARY



- Skills required
  - Application programmer and DBA for migration and testing
  - Users for testing
  - CICS support for defining driver modules
  - Assembler skills needed if exits are required

SETTING EXPECTATIONS

- Scepticism
  - Transparency tools get bad press
  - Performance usually deteriorates
  - Application maintenance becomes more complex
  - “Black box” solutions unpopular with systems staff
- Performance
  - VSAM is a file system, DB2 is a DBMS
  - DBMS functionality comes at a price
- What are the REAL benefits?

REAL BENEFITS

- Data is in DB2
  - Improved access - Java, www etc
  - Wealth of query tools
  - Potentially 24 x 7
  - Availability of skills
  - Integration with other other DB2 data
  - Data integrity
  - Single copy of the truth
- So why use CICS VT ?

WHY USE CICS VT ?

- Lowest risk migration methodology
  - One file at a time
  - No application program changes
  - Extensive re-engineering capabilities
  - Complete set of migration tools
  - Automated mapping facility
- Usable DB2 design is essential
  - Justifies effort to convert
  - Justifies increased CPU

HOW DOES IT PERFORM ?

- Main difference is due to DB2 overhead
  - VSAM is an access method
  - DB2 is a database management system
- Data access CPU costs could increase 3-4 times
- This DOES NOT translate to response time increase - response times should be comparable
- Batch program elapsed time may increase, although DB2 sequential processing is very efficient
- Lab tests measured CICS VT overhead as less than one tenth of total increase

HOW TO MITIGATE PERFORMANCE IMPACT

- CICS VT uses 100% static SQL and every DB2 call uses an index
- Concurrent batch and online programs
- Online backups
- DB2 data can be reorganised non-disruptively to ensure consistent access times
- Re-engineered data provides extra business value

ESTIMATING CONVERSION EFFORT

- It depends on the complexity of the file
  - Files containing single record type can be mapped automatically, and migrated usually within 1 day
  - CICS VT user exits are required to migrate one data set to multiple DB2 tables - 2 to 5 days for this kind of VSAM file
  - Typical split seems 70-30
- Allow time for data cleansing - more likely in applications processing numeric and date fields
- Testing is the most significant element - 0.5 to 1 day per program - user decides which programs

Ebauche de plan de migration - 1

- Initial analysis of files and copybooks to scope project
- Designing DB2 tables
  - Identifying where user exits are required
- Data migration requires combination of skills
  - Using VSAM utilities
  - DB2 DBADM
  - CICS
  - General programming
  - Testing

Ebauche de plan de migration - *2*

- CICS VT exits must be assembler
- Support for production cutover
-
  - DB2 system - bufferpool / EDM pool usage
  - DB2 objects
  - DB2 - CICS interface
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CONCLUSIONS

VSAM based applications

- VSAM is not designed for open data access (i.e. management reporting, analytics)
- VSAM data does not easily integrate with data from DB2 and other systems
- VSAM is not easily accessible from other platforms
- VSAM is not designed to support 24*7 mixed online and batch workloads
- Maintenance and re-organization tools are lacking the richness of DBMS tools

Why migrate data to DB2?

- 24x7 availability – batch and online sharing
- Integration with new applications based on DB2 technology, such as online and e-business systems
- Running ad hoc queries
- Ability to perform data analysis
- Creating visual information, such as executive dashboards
- Exploitation of database maintenance tools

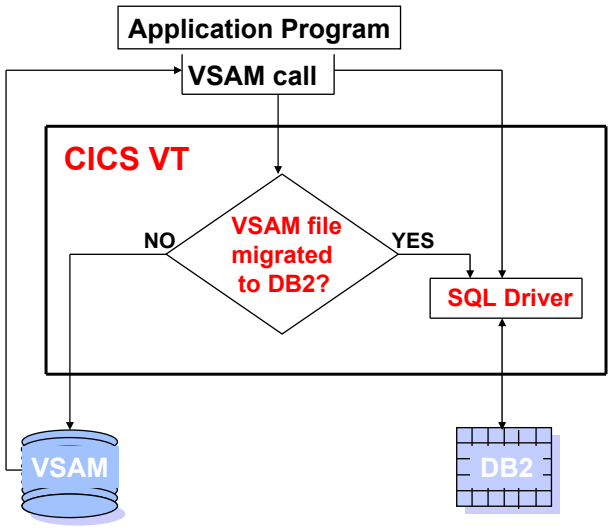
IBM's solution – CICS VSAM Transparency

A tool which allows migration of data from VSAM to DB2 without the need to rewrite CICS/VSAM applications

CICS VT capabilities

- Tool to migrate legacy VSAM files to DB2 without changing application programs
  - Single instance of the data is maintained
- Both CICS and batch programs can access data in DB2 under the control of CICS VT
- Migrated data can be accessed by SQL by new programs
- Existing programs are enhanced using SQL
- Lower risk migration strategy

What is CICS VT?



CICS VT value

For	IT / AD manager
Who needs	To rewrite CICS applications to support his IT organisation's migration strategy of VSAM to DB2
The offering	CICS VSAM Transparency V1.1
Is a	Data migration tool
That	▪Allows data to be migrated from VSAM without application rewrite ▪Is completely separate from the CICS app ▪Offers totally transparent access to the data in DB2 ▪Allows you to migrate VSAM files as required
Unlike	Replication, duplication or propagation solutions
Our offering	Maintains a single instance version of the data

Decision makers

- CICS VT directly benefits the application programmer
- Data management staff will also influence
- Operations staff will appreciate Improved continuity of operations
- Having that data more accessible in DB2 will appeal to knowledge workers

CICS VT Availability and Pricing

CICS VT V1.1 licence:	5697-I76
CICS VT V1.1 S&S:	5697-I77
Announced:	February 17, 2004
GA:	March 26, 2004

Further Info on CICS VT

- CICS VT web page
  - *www.ibm.com/cics/vt*

Publications

www.ibm.com/cics/library

CICS VT data sheet – G244-7285

CICS VT user guide – SC34-6343