

CA 2E Best Practice Assessments

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Agenda

- > What are we talking about?
- > Objectives
- > Tools
- > Results
- > Recommendations

What are we talking about?

- > CA 2E (Synon) development shops run their business on large, enterprise models built over many years
- > However...
 - It is difficult to assess the overall quality of the model
 - Redundancies with objects / code are often present
 - System documentation can be outdated
- > Result – Analysis and Development are more difficult than optimal – costing time and money

Who can benefit?

> CA 2E shops with any of the following

- Active development and significant ongoing investment
 - More productive 2E analysts / programmers
 - External analysts without 2E skills
- Exploring modernization/migration
- Implementing SOA
- Evaluating a 2E upgrade
- Problems with audit or model corruption

The core problem for many shops

- > System analysis gets more inefficient over time unless steps are taken
 - Per Intel Study - 30% of a developers time can be spent finding the right objects to work with – with obvious motivation for redundancy
 - Redundant files, functions, and commented code take time to analyze
 - Documentation out of date, adding task to document for every project

Model / System Analysis

Oh...
and where does
EDI fit in?

How can I see the
program calling
chain?

Where is the ERD?

What other
subsystems are
affected by this
change?

Has this code already
been written?

What are the
(business)
requirements?

Where are the specs?

What external data
was used?

How do we get this
requirement coded faster?



The Software Maintenance Problem

- > Software change is difficult, risky, and necessary
- > Difficult from understandability
 - Current state difficult to ascertain
- > Risky from unpredictability
 - Correctness is fragile
 - Small alterations can cause large results
- > Necessary for organizational success
 - Environment, culture, regulation, mergers/acquisitions
 - Technology moves fast

Objectives of 2E Model Assessment

- > Enable reduced application production operating costs
 - Identify unused or obsolete database and program objects
 - Identify duplicate logical files
 - Identify issues with complex joins and programs
- > Enable reduced application development/maintenance costs
 - Document current application design
 - Document potential application problems
 - Document 2E Model clean up opportunities
- > Enable conformance to audit requirements

Tools Employed

- > Databorough X-Analysis
 - Use included in service
- > Hawkbridge Model Analysis
 - Use included in service
- > CA 2E Model Analysis
- > IBM i tooling

Deliverables

> Overall Findings Report

> System Documentation

- ER Diagrams, Structure Charts, X-Refs
- Available in documents, interactive Eclipse static data (runtime charge), or with dynamically Databorough X-Analysis

> Summary and Detail Object Reports

- Audit and usage reports
- Model corruption reports

Example Object Analysis observations

- > XLIB on ProdSystem1 has objects that don't exist on ProdSystem2. In addition these objects appear to be duplicates of existing objects.
- > All physical files are used once a week in a replication job making the analysis of these objects manual.
- > Several database objects are obviously in use with no program object usage. This would indicate that not all program libraries were included in the analysis.
- > 15% of database objects are identified as eligible for clean up and archival.
- > 30% of program objects are identified as eligible for clean up and archival.

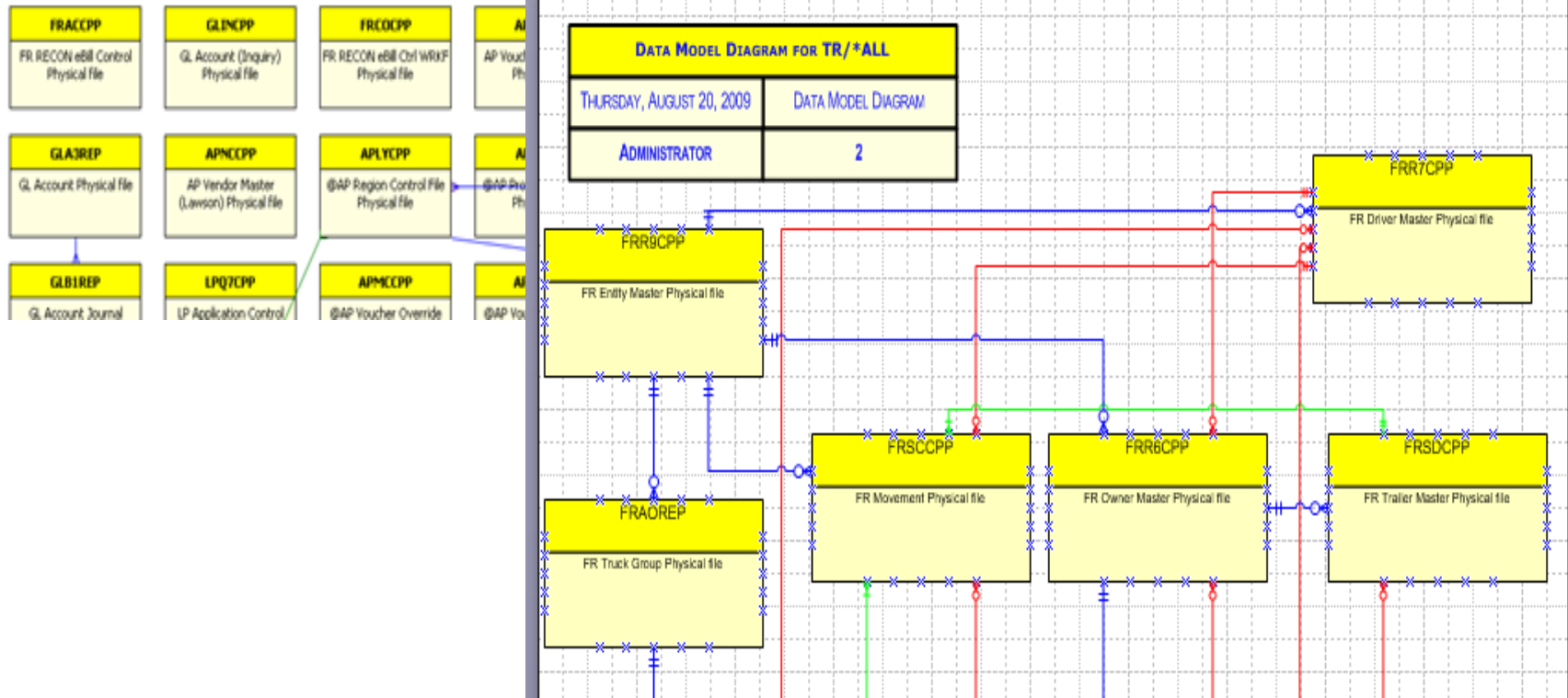
Current Application Design

- > ***n*** application areas were defined by extracting active menus that existed in any Y1 menu or CLP/DSPF menu and creating rules to include all calling programs and associated files.
 - ADC0001LPX - Application Summary.xls
 - ADC0001LPX - Application Menu Summary.xls
- > Entity Relationship and Structure Chart diagrams created for each application area.
 - System Documents

ER Diagrams – Word and Visio

SYSTEM DOCUMENT FOR ADC0001LPX - AP

DATA MODEL DIAGRAM (NORMAL) FOR ACCOUNTS PAYABLE



Structure Charts

OVERVIEW STRUCTURE CHART (NORMAL) FOR ACCOUNTS PAYABLE



Production Object Analysis Summary

Database Objects	Total	Physical	Logical	Other
0-Active	3112	848	2264	
1-Not Used	265	111	153	1
2-Pgm Ref'd - Not Used	308	119	189	
3-Pgm Ref'd - Not Used Recent	37	4	33	
4-Duplicate Logical	6	0	6	
5-Not In Production	108	7	101	
9-Other (Undetermined)	209	166	43	
Total	4045	1255	2789	1

Details: [Object Analysis\Database Object Analysis.xls](#)

Production Object Analysis Summary

Program Objects	Total	*A	*B	*C	*D
Active	4278	914	3108	214	42
Not Used	1540	631	724	106	79
Not Used Recent	279	125	136	11	7
Total	6097	1670	3968	331	128

- *A-Top level program – calls other programs but is not called itself.
 - *B-Program is called by another and also calls other programs.
 - *C-Program at the end of a program tree – does not call other programs.
 - *D-Stand-alone program.
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- Counts do not include associated display/print file objects.

Details: [Object Analysis\Program Object Analysis.xls](#)

Potential Application File Problems

Category	Description	Total
DPLCTLFS	Duplicate Logical files	6
FILEMISMCH	Source member changed after file created	1
INTRNLFILE	Internally described file	9
JOINEDFILE	File is a Joined logical	2
MULTIFORMT	File contains multiple formats	7
MULTIMBRS	Files with multiple members	114
NOFILEOBJ	No file found for existing source member	1
NOFILESRC	No source member for file	92
NOMEMBERS	Files with zero members	5
SELECTOMIT	File has Select/Omit rules	101
UNUSEDLFS	Unused Logical files	411

Potential Application Program Problems

Category	Description	Total
NOPGMOBJ	No program object found for source member	1
NOPGMSRC	No source member for program	62
PGMMISMCH	Source member changed after program created	18

Details: [ADC0001LPX - Problem Analysis Detail.doc](#)

2E Model clean up opportunities

Type	System	Original	Cleanup	Eligible
Access Paths	24	3307	-	91
Arrays	1	189	-	32
Conditions	584	10893	1303	
Files	16	727	-	3
Fields	260	10329	-	272
Functions	49	13462	607	
Messages	96	2339	334	

This ~6% is in addition to the ~30% associated with the production object clean up.

Details: [Object Analysis\H311660DELETEDOBJECTS.pdf](#)

Example Recommendations

- > Review and archive unused database objects/source
- > Review and archive unused program objects/source
- > Use the Hawkbridge tools to automate the 2E Model clean up
- > Given the % of clean up, consider running another pass after that work is complete
- > The next pass should include the missing libraries

Service Summary

- > 2 Weeks of Expert Consulting and use of state of the art automated analysis tooling
- > Detailed Reports
- > Analysis diagrams
- > Recommendations on remediation and go forward steps

Databorough X-Analysis Demo

Eclipse

Questions
