IBM Software Group

CICS Interdependency Analyzer V1.3

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@business on demand.

What is CICS Interdependency Analyzer ?

CICS IA is a productivity tool, which automates discovery of resource interdependencies within CICS applications. This gives customers a complete picture of how their CICS systems really work (e.g. which program uses which resources) Excellent tool for staff who have taken on a new application without any real documentation as to 'what is what'.

**Why CICS customers might not have this information easily available:**

- Many CICS systems and applications evolved over many years (as many as 30!)
- Many changes to the applications went undocumented
- Some documentation is missing
- Source code is missing
- Runtime implementation might be different from what is documented
- The customer has been through a merger/acquisition
- The customer is in the outsourcing business

What does CICS IA do:

- For applications that exploit CICS Transaction Server, as well as CICS calls to DB2, WebSphere MQ and IMS, it provides facilities for
  - Gathering information on resource relationships online. E.g.:
    - what programs are used by a transaction
    - what Files get read or updated by a transaction
  - Running queries against collected data
- How does it work?
  - The data is collected by CICS region and offloaded into a DB2 data base
  - The data from multiple regions is available from a single point of control
  - A query interface is provided for analysis by resource type

CICS IA - Overview
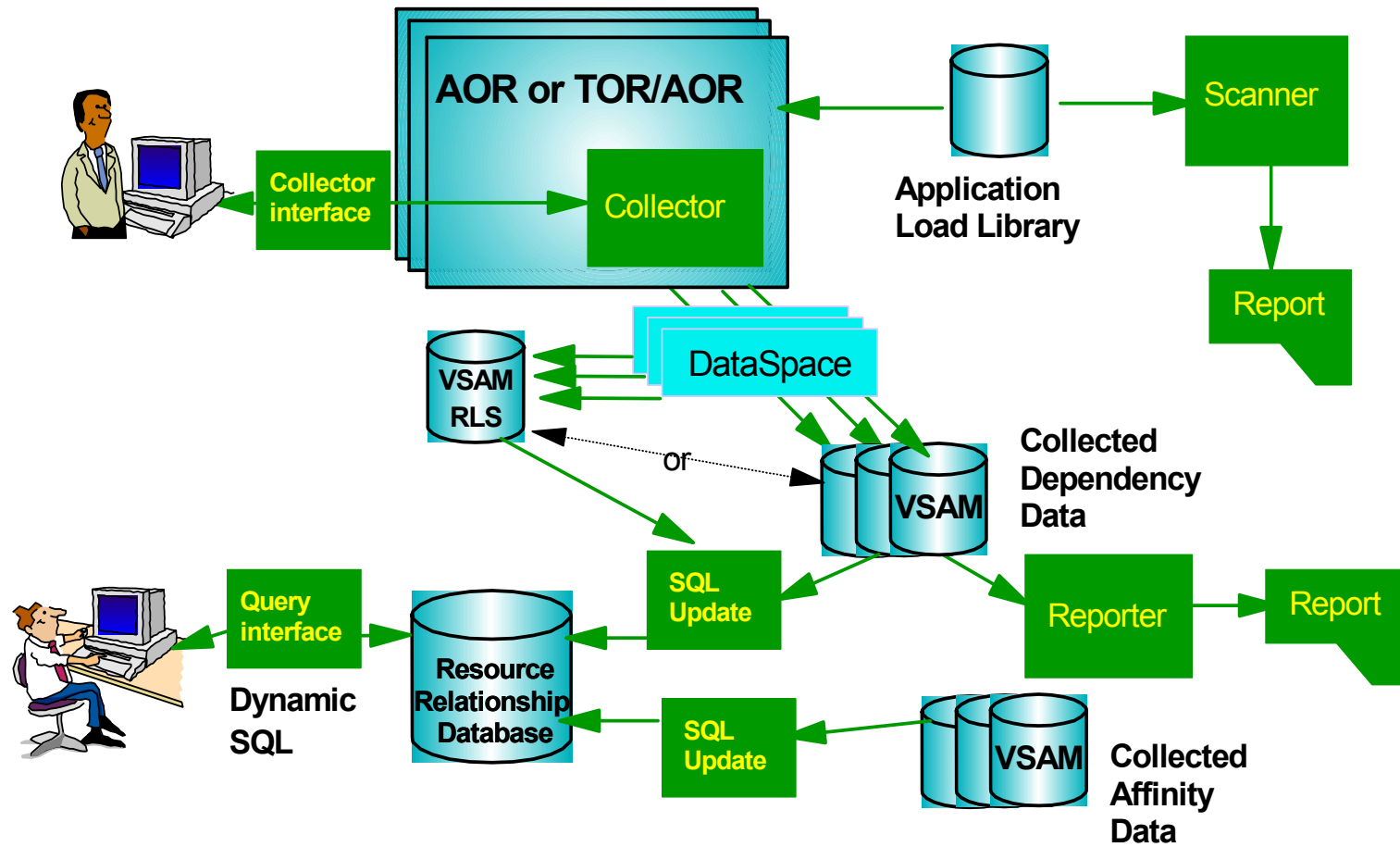
What can the data in DB2 be used for?

▸ Captures resource relationships such as

- what programs have potential affinities due to the CICS API commands within them

- which resources (Programs, Files, TSQs TDQs etc) are required by a transaction

- what resources are no longer used

- which transactions have affinities to other transactions and the type and lifetimes of these affinities

- the sequencing of transactions within an application

- which transactions have affinities to particular CICS regions

- Includes CICS, DB2, WebSphere MQ and IMS DB resources

▸ Relationship data loaded onto a DB2 data base

- Query interface and sample queries provided for comprehensive analysis

Why do you need CICS Interdependency Analyzer?

Maintaining, extending and enhancing your CICS applications more efficiently

Does any of this apply to you?

- CICS systems and applications evolved over many years (as many as 30!)
- Many changes to the applications went undocumented
- Some documentation went missing
- Source code is missing
- Even if the source code and documentation are available, the runtime application behavior differs from the original design (e.g. changed by use of exits)
- You have been through a merger/acquisition, so the information about inherited CICS systems is not available, or, if some available, time spent on the discovery process is critical to avoid business disruption
- You are providing outsourcing services, and need a complete picture of CICS resource relationships in your customer systems
- You are implementing workload balancing and need to identify affinities

CICS IA helps to:
- **Use CICS resources more efficiently**
- **Balance application workload for continuous availability**
- **Improve the speed and reduce cost of application maintenance**
- **Reduce time of problem resolution**
- **Improve CICS systems and application design**
- **Minimize the impact of routine application maintenance for the end user**

How do customers use CICS IA

- Large retail company
  - Complex business applications handling POS terminals, high number of regions
  - DB2 skills
  - Need to allow any transaction to run in any CICS region to improve availability
    - all of the transactions must be examined to eliminate restrictions or affinities that may exist today
  - Time pressure
  - Solution – CICS IA
    - Automates collection of the data they need
    - Loads data in a DB2 database for ease of processing
    - Helps create CSD definitions when applications are moved to a different region
    - Post-change 'health check'
    - Also, help speed problem determination
      - E.g. Easily determining the logical flow of programs within a transaction
- Large bank
  - Need to consolidate data centres following mergers/acquisitions
  - Hundreds of CICS regions, transactions not following naming conventions
  - Solution – CICS IA
    - Used to define applications to clarify the picture of transaction and resource flow
- Large outsourcing company
  - Incorporate the workloads of their customers into their data centers
  - These workloads are often not documented well and need 'cleaning up' following acquisitions/mergers and other changes
  - CICS IA is used to understand the workloads and identify potentially dead code
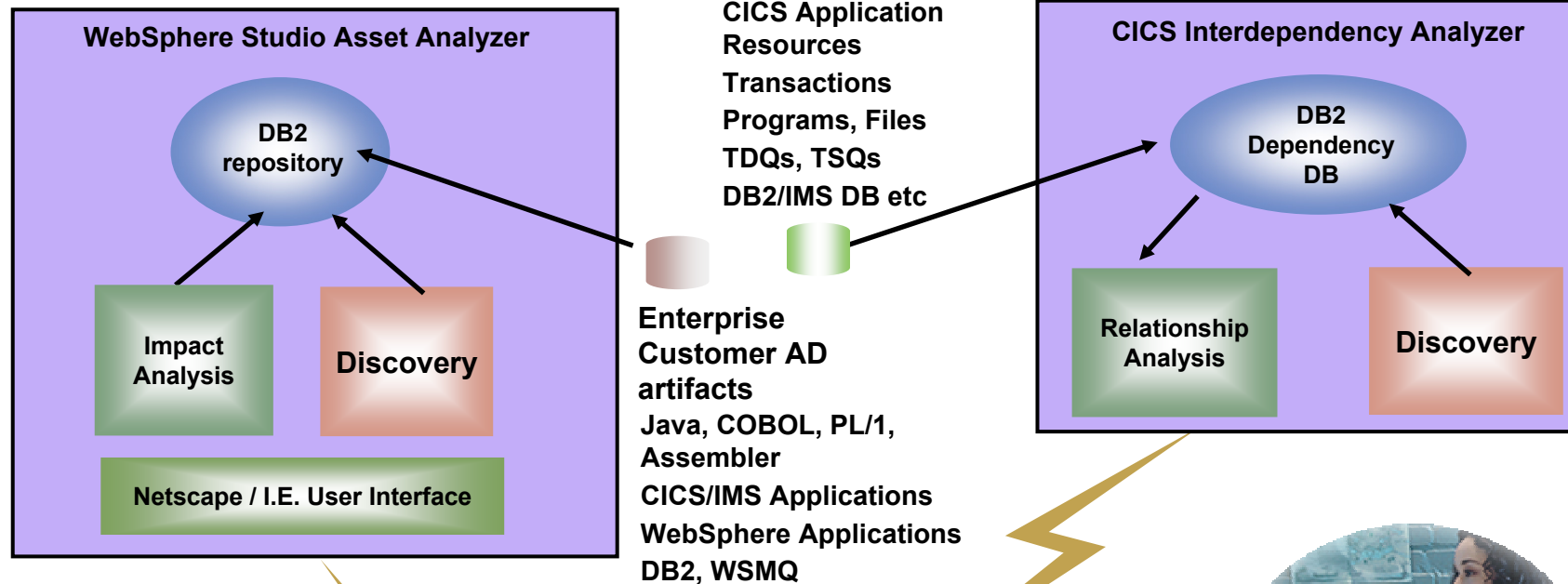
New release: CICS Interdependency Analyzer for z/OS V1.3

- CICS IA V1.3 GA 24 September 2004
  - ▶ Both affinity and interdependency data in DB2 tables - a single point of control for reporting on, managing and housekeeping of the collected resource relationship data
    - Affinity data captured by the Transaction Affinities utility (part of CICS TS) can be loaded into DB2 tables for analysis
  - ▶ Online query interface for affinities and interdependencies
    - A powerful query facility not previously available for viewing affinities.
  - ▶ Collector enhancements to improve data capture
    - Length of resource names increased to 200 bytes, to allow for long ENQ/DEQ names
    - TCB data collected to assist in assessing threadsafe aspects of CICS-DB2 programs
    - Main, auxiliary, and Coupling Facility temporary storage queues are differentiated
    - Additional support for SYSID – rolled into CICS IA 1.3
      - Gives more accurate depiction of applications where remote SYSID is not specified in the program itself
  - ▶ Sample SQL queries to enable resource comparisons on DB2 data
    - comparison of applications across regions
    - comparison of all interdependencies across regions
  - ▶ Sample SQL queries to allow housekeeping functions on the DB2 data
  - ▶ Significant Scanner enhancements
    - Now reports on both, affinities and interdependencies
    - Provides an option to load Scanner data in a DB2 table
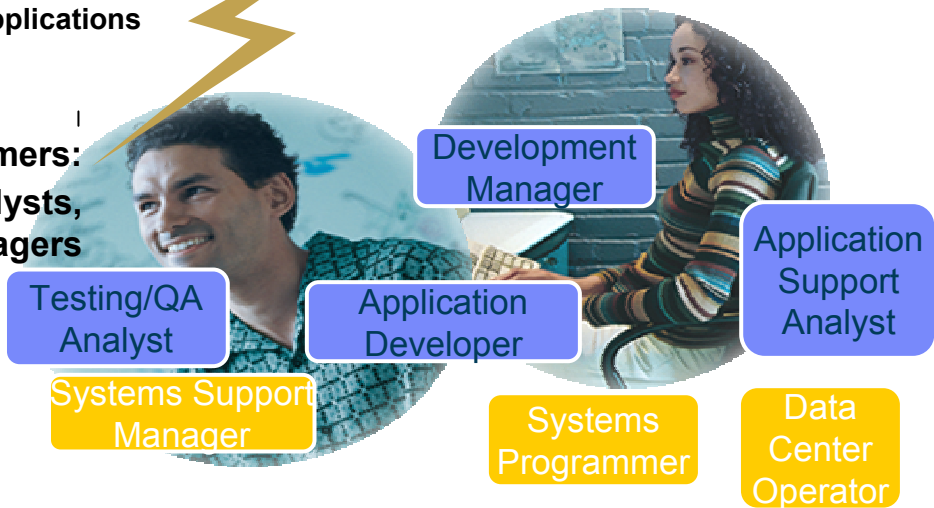 - ▶ New procedures, including sample data, for the installation process

Responding to change -
Understanding Applications Speeds Time to Market

WebSphere Studio Asset Analyzer

DB2 repository

Impact Analysis

Discovery

Netscape / I.E. User Interface

CICS Application Resources
Transactions
Programs, Files
TDQs, TSQs
DB2/IMS DB etc

Enterprise Customer AD artifacts
Java, COBOL, PL/1, Assembler
CICS/IMS Applications
WebSphere Applications
DB2, WSMQ

CICS Interdependency Analyzer

DB2 Dependency DB

Relationship Analysis

Discovery

Customers:

business analysts, system analysts, developers, testers, project managers

Development Manager

Application Support Analyst

Testing/QA Analyst

Application Developer

Systems Support Manager

Systems Programmer

Data Center Operator

Benefits:
- **Automated discovery of application code**
- **Automated discovery of runtime relationships in CICS**
- **Higher quality of application change management**

CICS Interdependency Analyzer and WSAA

	CICS IA	WSAA
Primary target customers	CICS Transaction Server customers, who need support for: Merger / Acquisition Outsourcing CICS customers with a Sysplex who need workload management for high availability Target audiences within these accounts: system analysts, system programmers, project managers, IT managers	Legacy Transformation/Application Portfolio Management Enterprise customers with a large portfolio of applications and the requirement to develop new e-business applications including SOAs Target audiences within these accounts: business analysts, system analysts, developers, testers, project managers
Primary use of products by customers	When source code and documentation are not easily available, or for faster time to market, used to identify the runtime resource usage in CICS. Provides accurate and detailed information about the workloads run in a particular region. Resource relationships can also be viewed by application (user-defined). Mainly used for understanding splitting workloads across multiple regions to enable high availability of CICS.	If the source code is available, used to aggregate source code information to provide single point of access to this information to understand application flow, make code changes, understand impact of these code changes on other applications across the enterprise. Particularly used for modernizing legacy applications, in conjunction with Development tools like WSED.
How does the product work	Runs in the CICS production regions in real time, records CICS commands and associated data Source code is not required	Scans in the source code in a repository for an online analysis. For CICS assets is looks at: COBOL (inc copybooks), PL/I, Assembler and JCL source CICS regions and transactions in CSD
Type of information provides	CICS – specific, including CICS calls to related subsystems (DB2, IMS and WebSphere MQ) Includes resources associated with transactions, programs, Basic Mapping Support (BMS) maps, files, temporary storage (TS) queues, transient data (TD) queues, 3270 Bridge facility, Web Services, CorbaServer, and Enterprise JavaBeans(5) (EJBs). It also reports on DB2(R), IMS(TM), and MQ resources which are used by CICS.	Multiplatform (z/OS and distributed) For CICS regions, the following information and associated code is available: - Transactions defined - Name of the initial program associated with each transaction - File resource definitions and their associated MVS data sets
Complementary positioning	Can be positioned complementary to WSAA to gain additional buy-in from the Application Developers, and increase chances of closure. However, system programmers should already be on board.	CICS IA can add value for the tasks analysts and developers using WSAA, as it can provide additional information: - When source code is missing - Real-time control flow, as in CICS control flow can be changed in runtime via exits, so CSD and the source code do not necessarily reflect the reality - To identify 'potentially' dead code for further investigation. CICS IA shows when a resource was last used - To move from Q&A regions to production. CICS IA provides SQL queries to region contents. This will help ensure that everything was moved - To check if application changes did nit create new dependencies in CICS which might affect performance
A CICS IA and WSAA usage scenario: Web-enabling CICS applications	There is a number of ways to drive existing applications from the web e.g. via COMMAREA. Step 1: WSAA can be used to identify, for your selected programs, the COMMAREA for inclusion in the application development tools, which you plan to use for the development of your new application (e.g. WSED). Step 2: as part of planning for the change, you will need to understand the make-up of the current application we are changing: any queues used, types of data accessed, types of business integration this application is involved in. e.g. integration with another piece of business logic via WS MQ. CICS IA provides this information.	