IBM Software Group

z/OS Application Transformation in SOA environment

Service Oriented Architecture

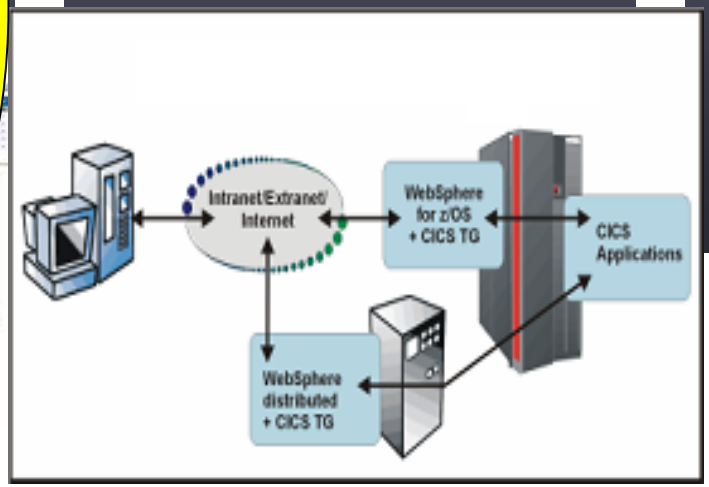
An IBM Exploration of Technology

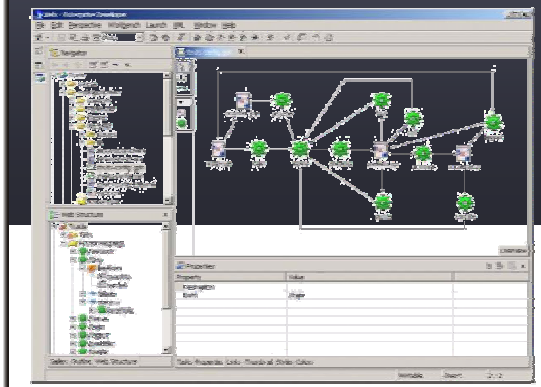
Three styles of application transformation

Transform Application Connectivity

Improve business processes and develop customer, partner and supplier relationships using Web services and Java connectors

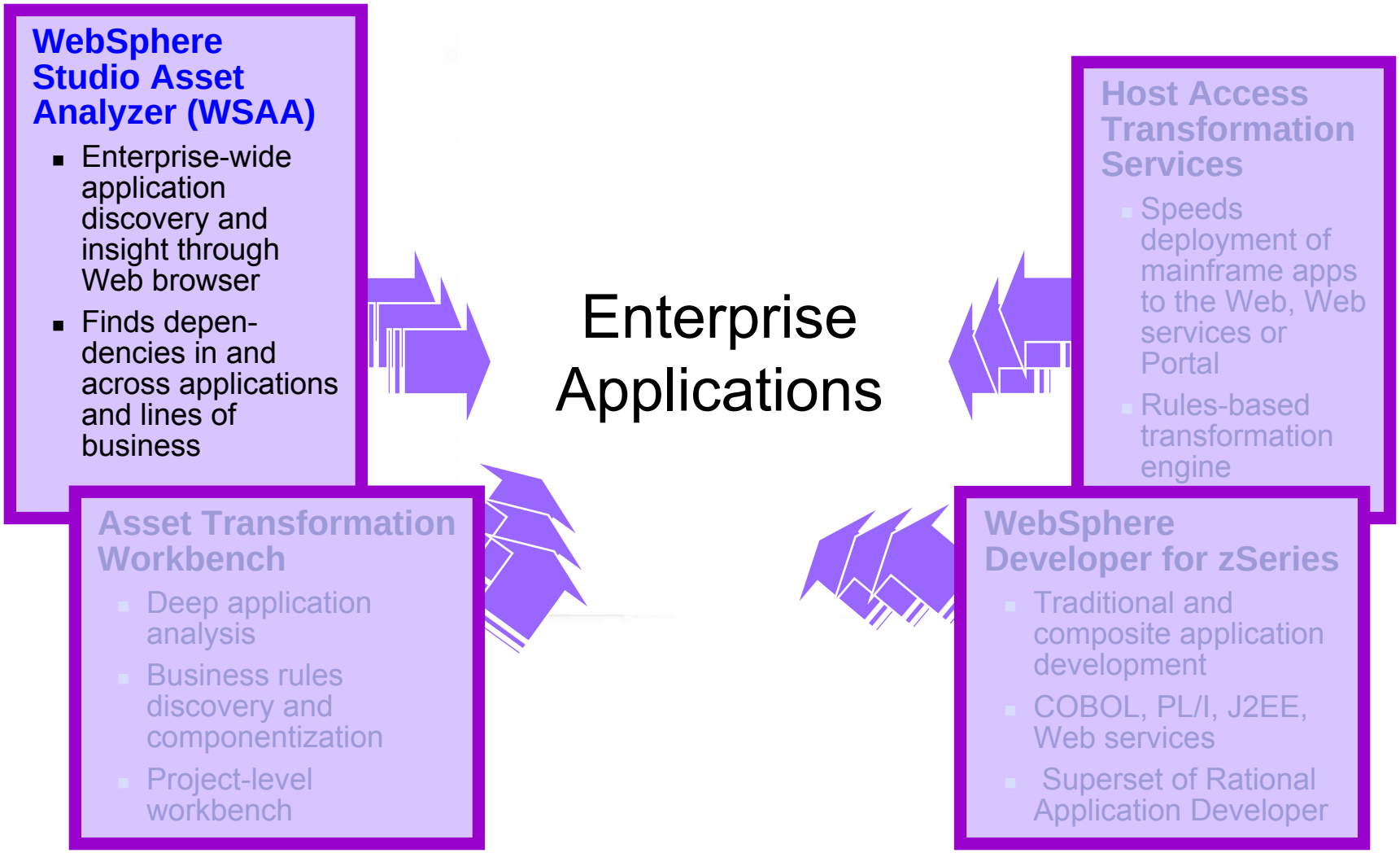
Update and extend mission-critical applications as services, leveraging their core value in new ways





Single integrated delivery vehicle across application transformation styles

Application transformation tools for System z

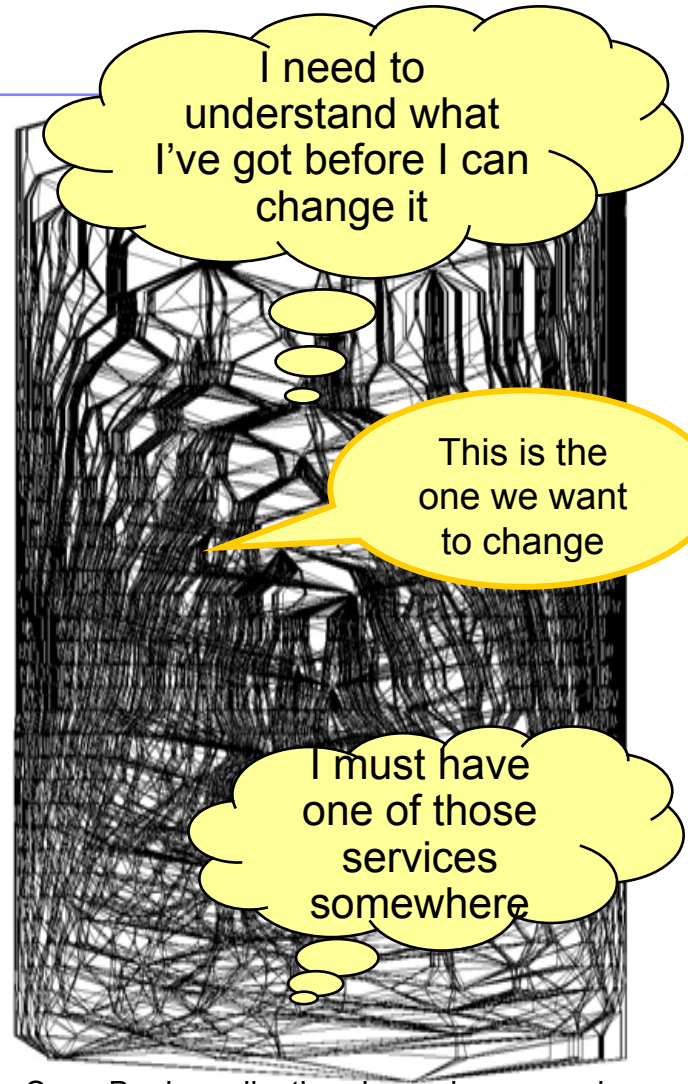


Introduction to WebSphere Studio Asset Analyzer

- Challenges
- What is WSAA
- Why WSAA
- WSAA Demo (use cases)

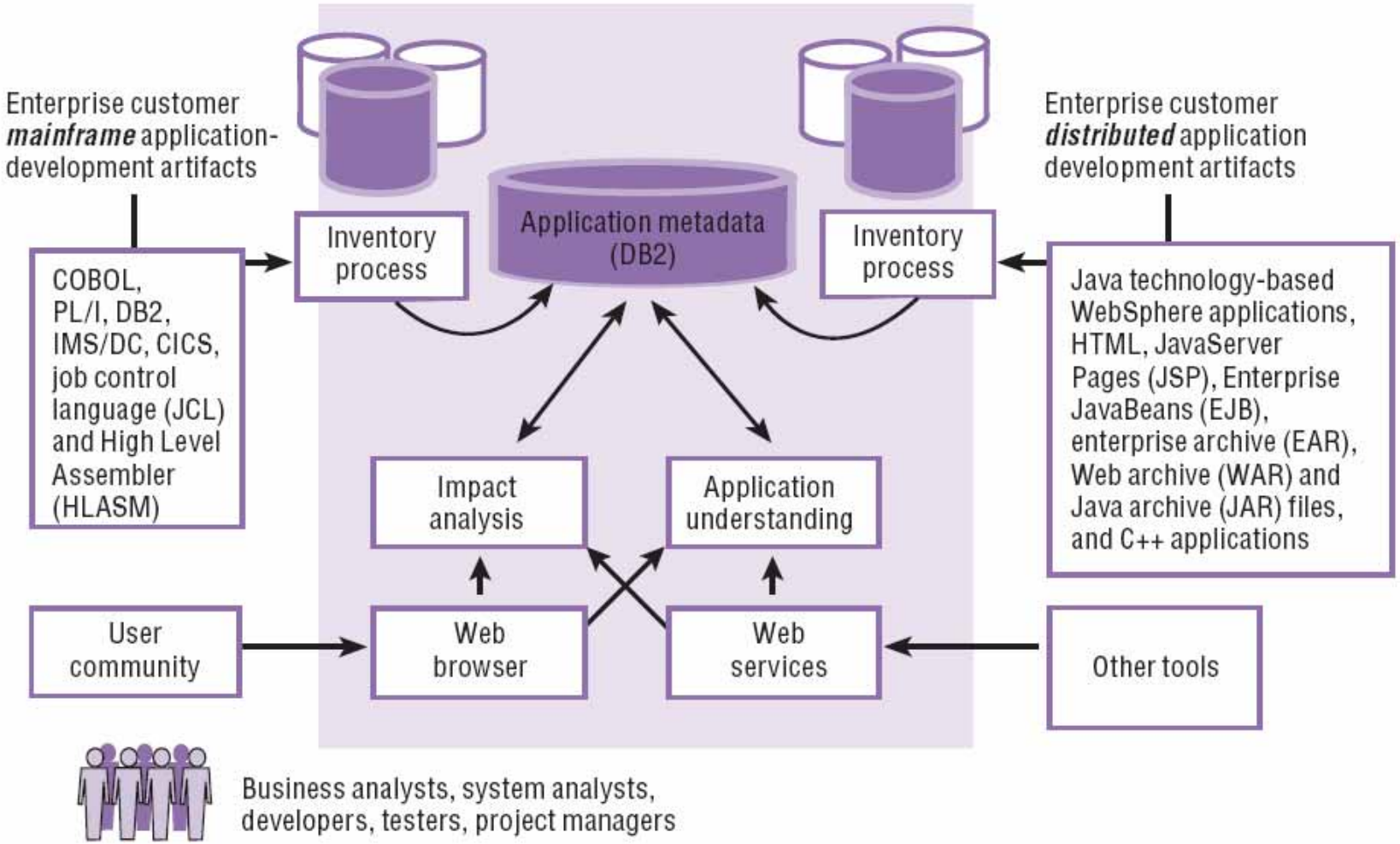
Challenge: Application complexity

- It's hard to find the "needles in the haystack"…
  - … the pieces affected by a proposed change
  - … the service "jewels" to move to SOA
- But you need this information in order to …
  - scope the effort and cost of a change
    - and then actually make the change
  - Re-architect your applications to remain competitive
- Complexity increases the cost, risk, and fear of making application changes
- Composite applications add new dimensions of complexity and risk



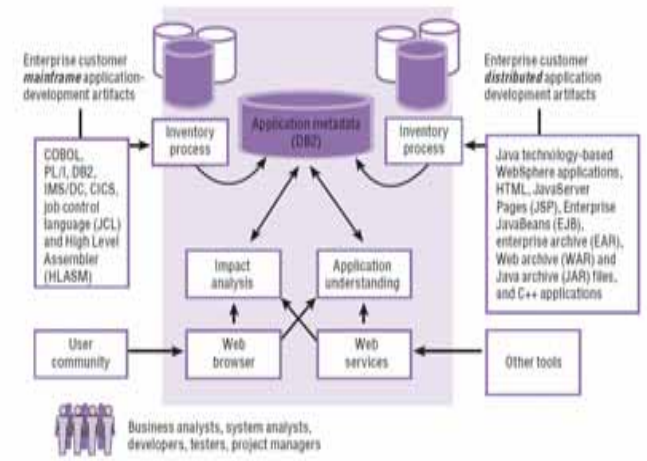
SomeBank application dependency graph
217 applications, 1,700 unique application-application pairs

WebSphere Studio Asset Analyzer V4.2.1



WSAA – Designed for the enterprise

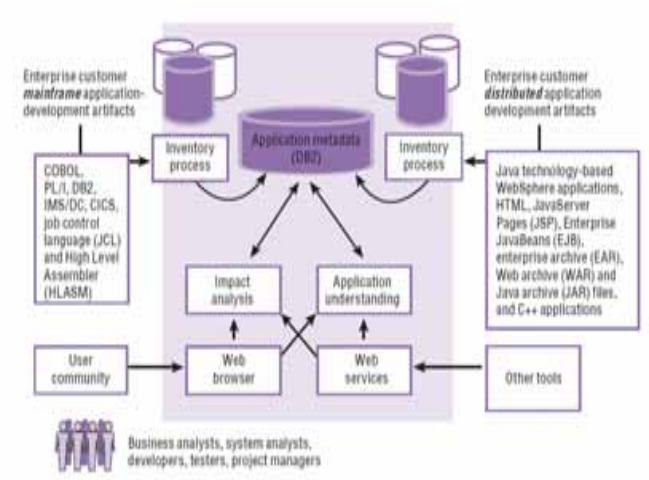
- Industrial strength scalability
  - One company's metadata: 200K programs, 140K batch jobs, 126K DB2 columns, 2.4M program literals, 81M data elements
- Web browser client delivers …
  - Simple user interface
  - Low admin & incremental user cost
- Open architecture enables customization & integration
  - Data in DB2; documented data model
    - Add your own tables to customize
  - Web services interface for tool integration
  - Custom queries - interactive or batch
- Language coverage
  - Strong COBOL & PL/I support
  - Building out Composite Application support (Java ←→ Mainframe)



- Integration with other tools – today and in the future
  - WebSphere Developer for zSeries
  - Asset Transformation Workbench
  - Flashline Registry™
  - CICS Interdependency Analyzer
  - Tivoli Application Dependency Discovery Manager / CCMDB
  - Others
- Built on the WebSphere Application Server & DB2

Why WSAA

- Gain intellectual control of your applications
  - discovery
  - relationships / dependencies
  - application and program structure
- Increase project velocity
- Improve quality of application changes
- Enable developers & teams to work “above their experience level”
- Document your applications from the code itself
  - consistently current application insight
- Improve change management / governance / compliance processes



- Gain transparency into outsourced development
- Find assets required for test cases
- Customize WSAA to your organizational processes and IT environment

WSAA Use case – Exploring batch job

- Starting with known batch job name (QAJB0001)
- View JOB details
  - What can we learn?
  - View job diagram

- Locate DD for VSAM "STOCK MASTER"
- Find out details about data set and it's usage
  - What other jobs use the dataset
  - Is it used by CICS?
    - Which transactions / programs
    - What record layout is used from CICS?
      - What would be the impact of changing the record layout?

WSAA Use case – Field expansion impact

- Analyze impact of change for data element
  - Data element MASTER-STK-PART-NO
  - In program QAD01
- View components affected
  - Direct vs. indirect impact
  - Applications affected?
  - Jobs, Transactions
  - Data elements, Data stores, Data sets?

WSAA Use case – Harvesting for SOA candidates

- Locate low fruit service candidates
  - Minimum or no rework needed
- Can be done by exploring meta data via SQL
  - WSAA GUI Custom Queries
  - SPUFI or batch
- One such case could be
  - “Popular” CICS programs that are called by many others
  - Do not perform terminal operations

Case study

- Assuming a monolithic COBOL/CICS/green screens application system that needs to be transformed and assuming 5 phases of transformation:

1. **Keep CICS green screens (BMS),** but moving the presentation screen to the Web.
2. **Split the program** in two pieces:
   → Client (no logic) that shows the BMS map and Server (with all Business Logic)
3. **Eliminate the COBOL Client and the BMS,** create and deploy a Web Service with the COBOL/CICS Server
4. **Create a Web Interface** with Java Server Faces (JSF) and Java Server Pages (JSP) to invoke the Web Service created above
5. **Create new Web Services** that aggregates other COBOL/CICS components (terminal applications and programs)

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Scenario #1 – Find the components that uses the DB2 customer table named **EOTCUST** and move the existing CICS transaction that uses green screen (BMS) to the web.

Task: Find components and transform a green screen to a web page from existing COBOL/CICS/BMS
Solution: Use **WSAA** to find the components,
Use HATS to create/deploy the Web Page

- Which COBOL/CICS Programs access the DB2 table **EOTCUST** ?
- What is the BMS map being used?
- What is the CICS transaction Name that invokes this program ?

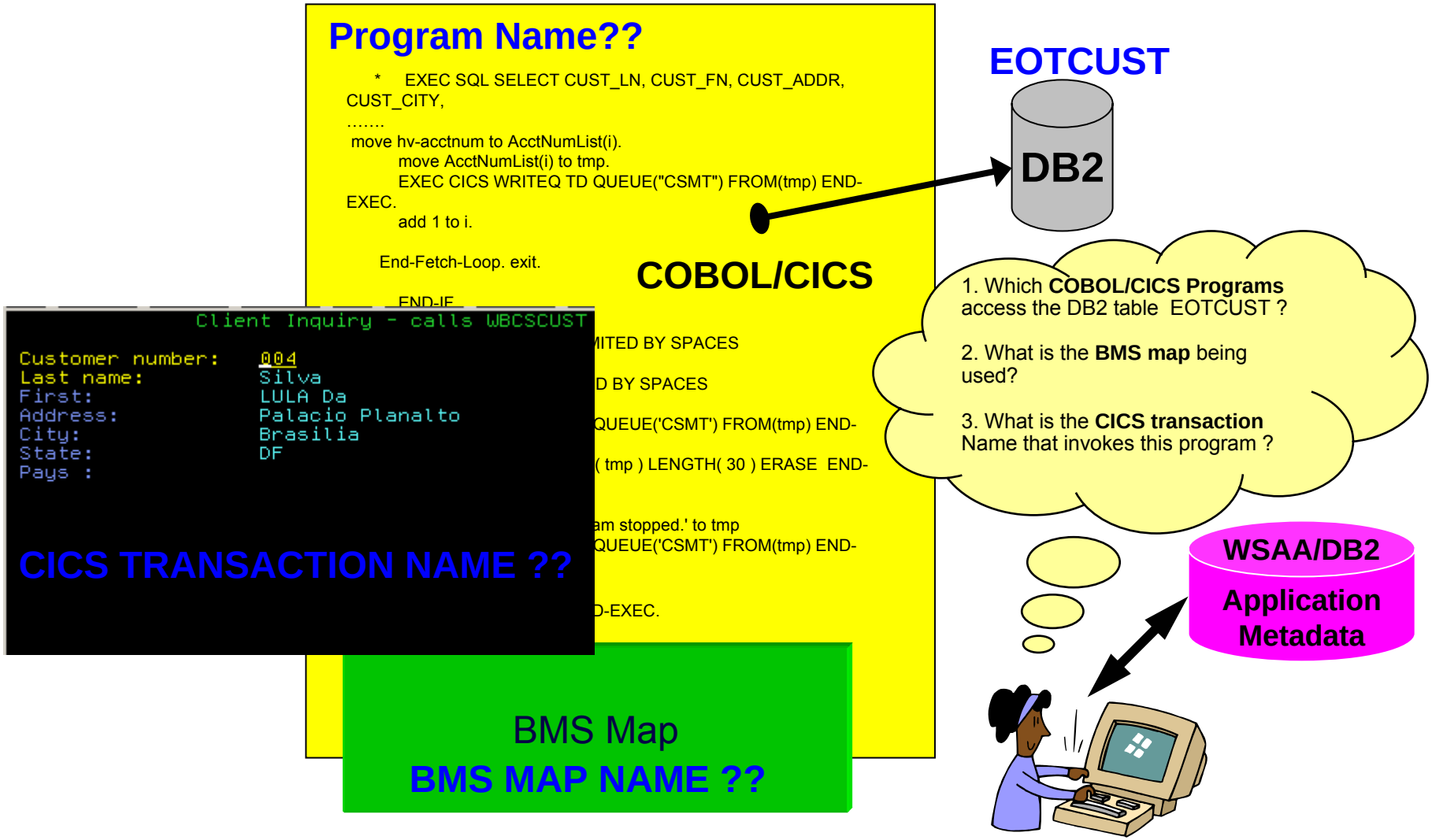
We will use WSAA to locate:

→ Programs that access the DB2 table

→ BMS map

→ CICS transaction

Existing application – One program with green screen



Existing application – One program with green screen

Program CUSTEOT1

```
*     EXEC SQL SELECT CUST_LN, CUST_FN, CUST_ADDR,
CUST_CITY,
.......
 move hv-acctnum to AcctNumList(i).
        move AcctNumList(i) to tmp.
        EXEC CICS WRITEQ TD QUEUE("CSMT") FROM(tmp) END-
EXEC.
        add 1 to i.

     End-Fetch-Loop. exit.

          END-IF
```

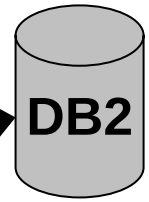
COBOL/CICS

```
Client Inquiry - calls WBCSCUST

Customer number:    004
Last name:          Silva
First:              LULA Da
Address:            Palacio Planalto
City:               Brasilia
State:              DF
Pays :
```

Transaction EOT1

EOTCUST



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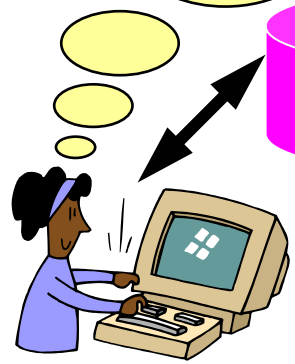
WSAA/DB2

Application Metadata



BMS Map

DETAIL in map set WBCSM1C