

IBM Application Development Tools for OS/390

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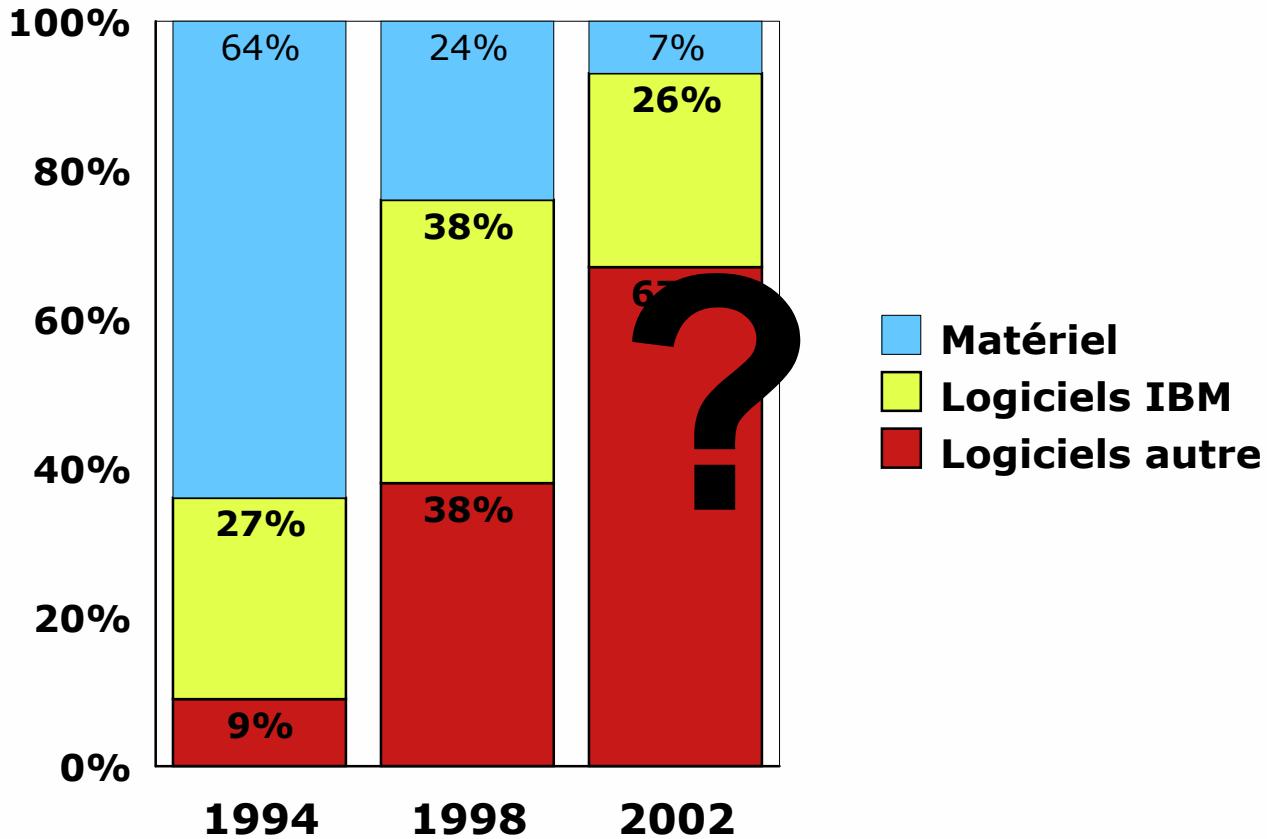
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PreSale Technical support

PreSale Technical support



Evolution de la répartition des coûts de la plateforme S/390

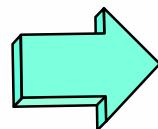


IBM Software Group
1994 & 1998 : données réelles



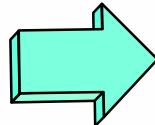
IBM AD Tools : Les Réponses

Escalade des coûts des logiciels S/390 à chaque augmentation de la capacité machine



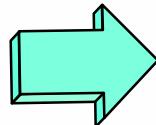
Assurance et prédictabilité des coûts et des "terms and conditions"

Une multitude de produits, chacun supportant son propre environnement



Support de tous les environnements avec un seul produit

Manque de ressources et de formations



Facile d'emploi, Utilisation des standards, Documentation incluse

Développement d'applications

Découverte

Comprehension, Connaissance, Analyse d'impact

Capitaliser sur l'existant pour développer rapidement les services e-business

Développement

Développement et Maintenance rapides des applications traditionnelles

Intégration de l'existant dans l'e-business (construction/isolation de composants)

Développement des applications e-business

Tests et Déploiement

Debug des applications

Analyse des problèmes de code et de données

Tests de charge

Analyse de consommation

Outils CICS

Analyse des interdépendances

Analyse des consommations

Optimisation des transferts

CICS Interdependency Analyser

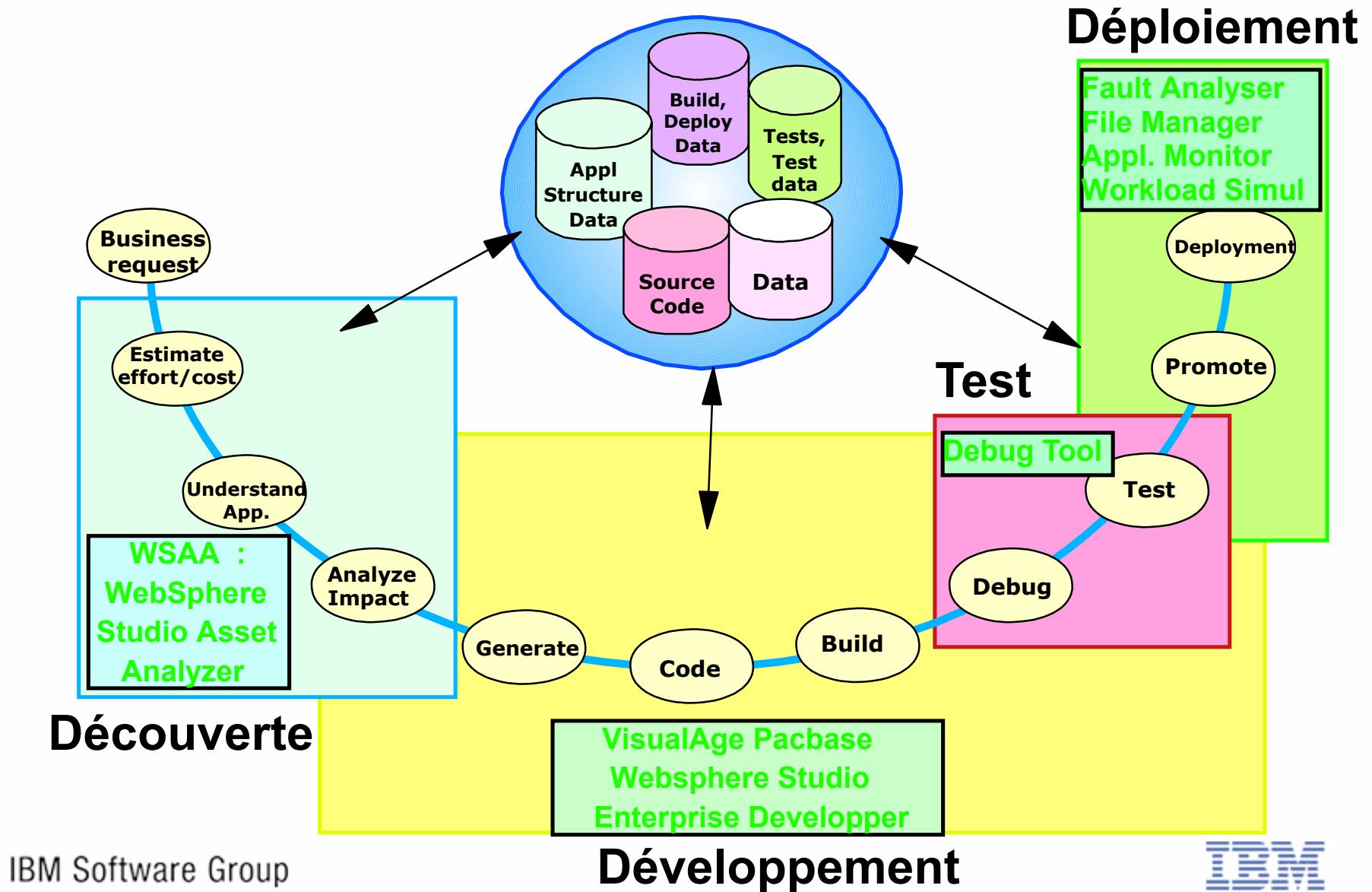
CICS Performance Analyser

CICS OTTO

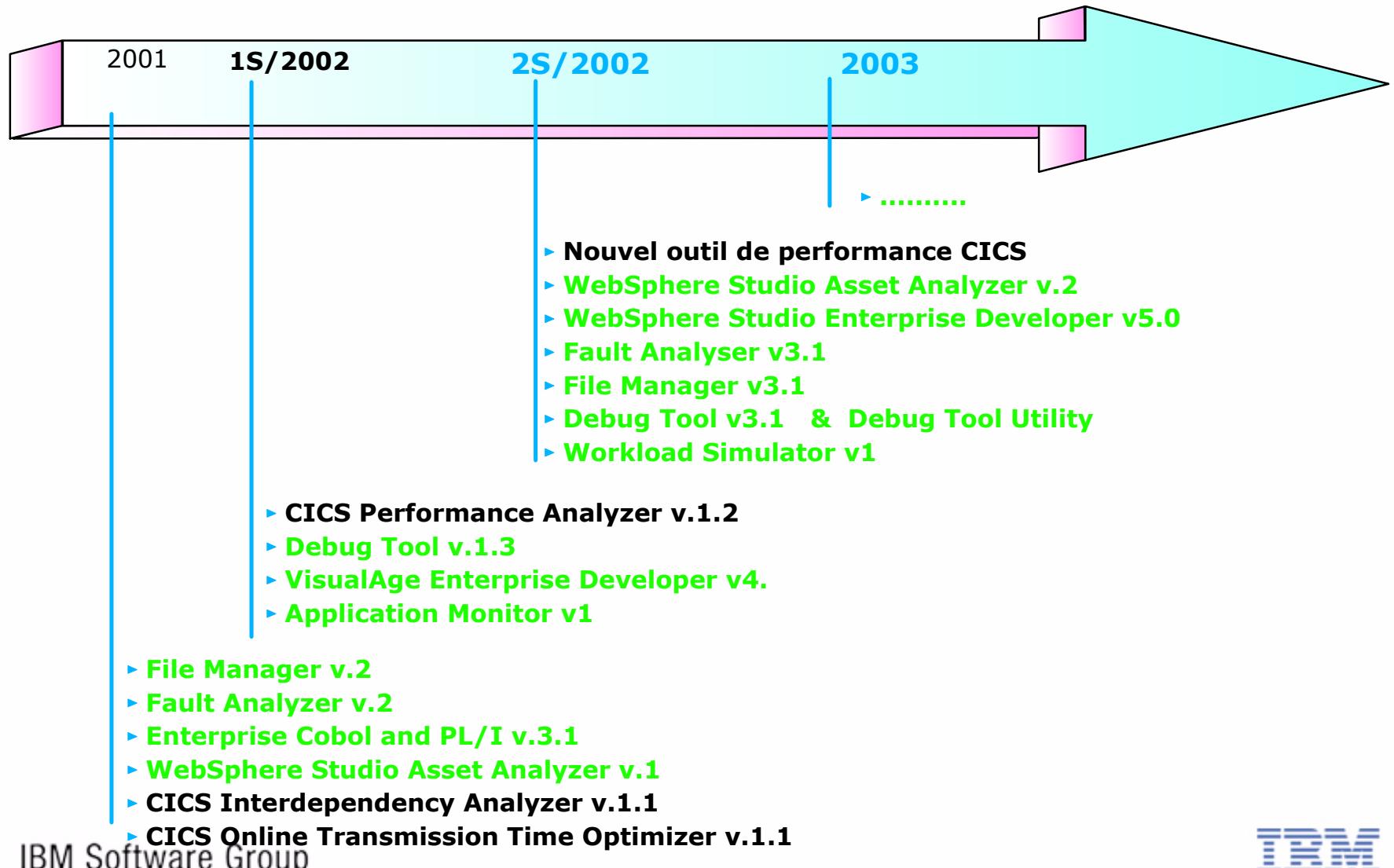
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Cycle de vie d'une application

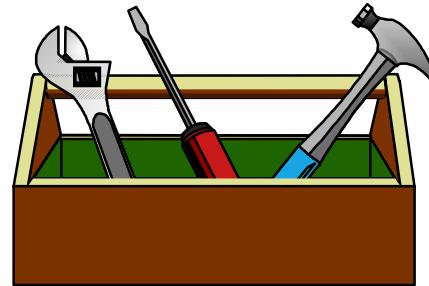


Des outils qui évoluent

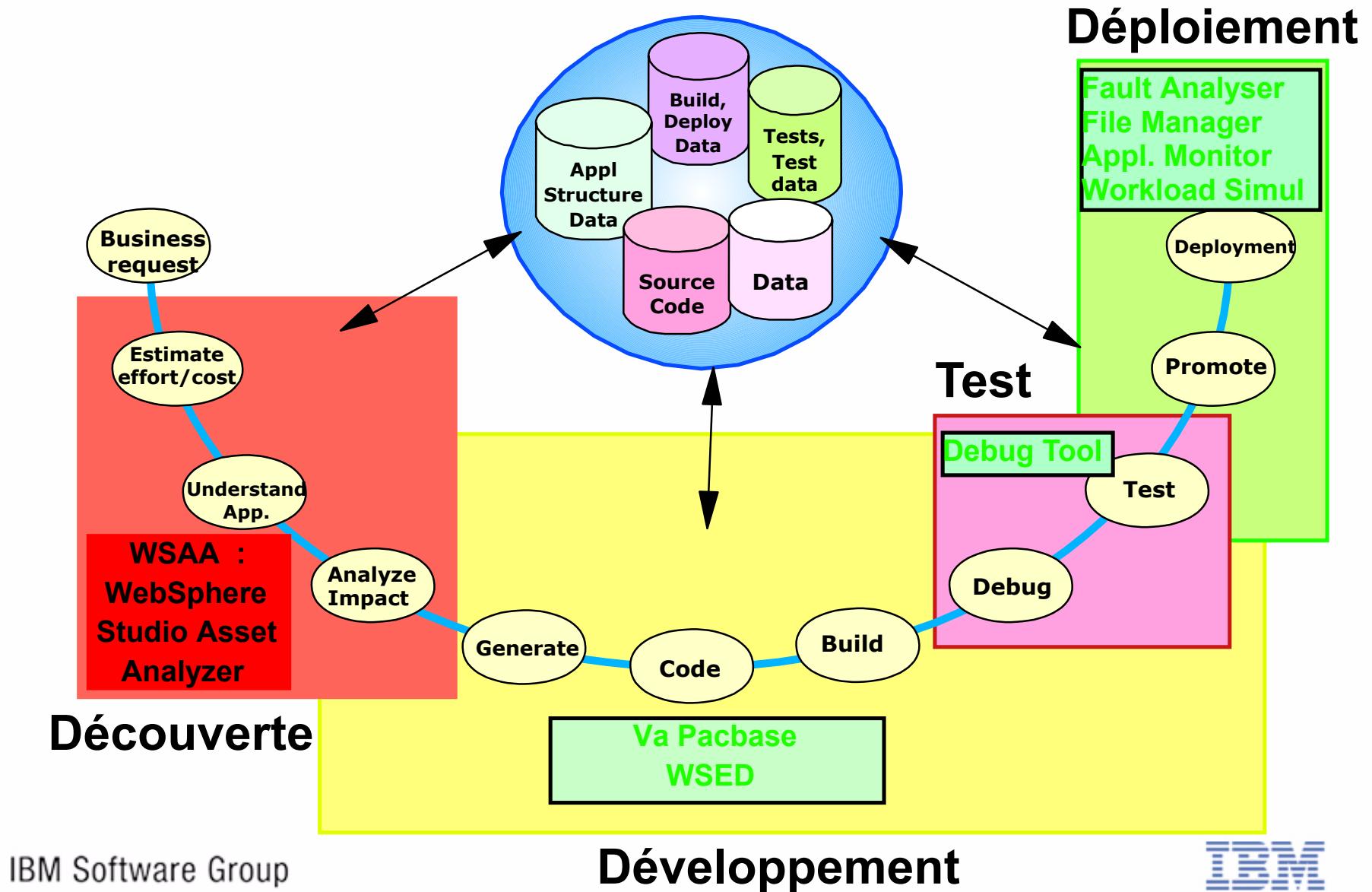


IBM

Présentation Rapide de ces Outils



Cycle de vie d'une application

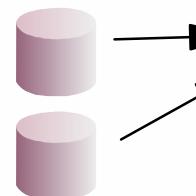


WSAA : zOS et Informatique Distribuée

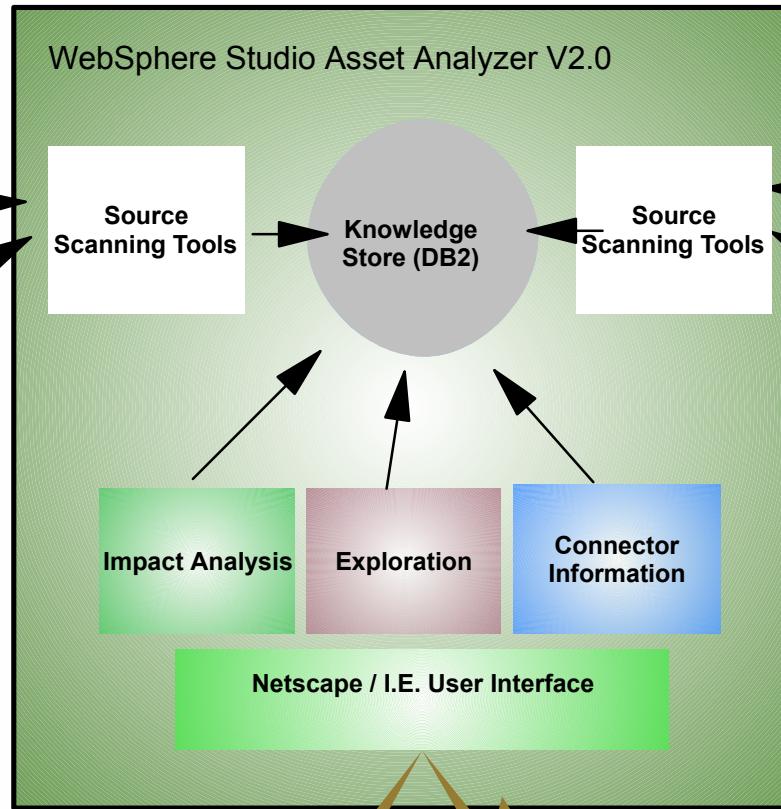
■

Serena
Changeman
SCLM
PDS
Other SCMs

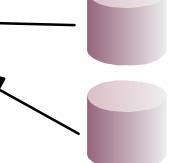
Enterprise
Customer AD
artifacts



COBOL
PL/1
Assembler
IMS/DC
CICS
Batch



Enterprise
Customer AD
artifacts



Rational
Clearcase
File Server
WebDAV
server

Java
C++
WebSphere
applications



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

IBM Software Group

IBM

WSAA : Les Artifacts zOS

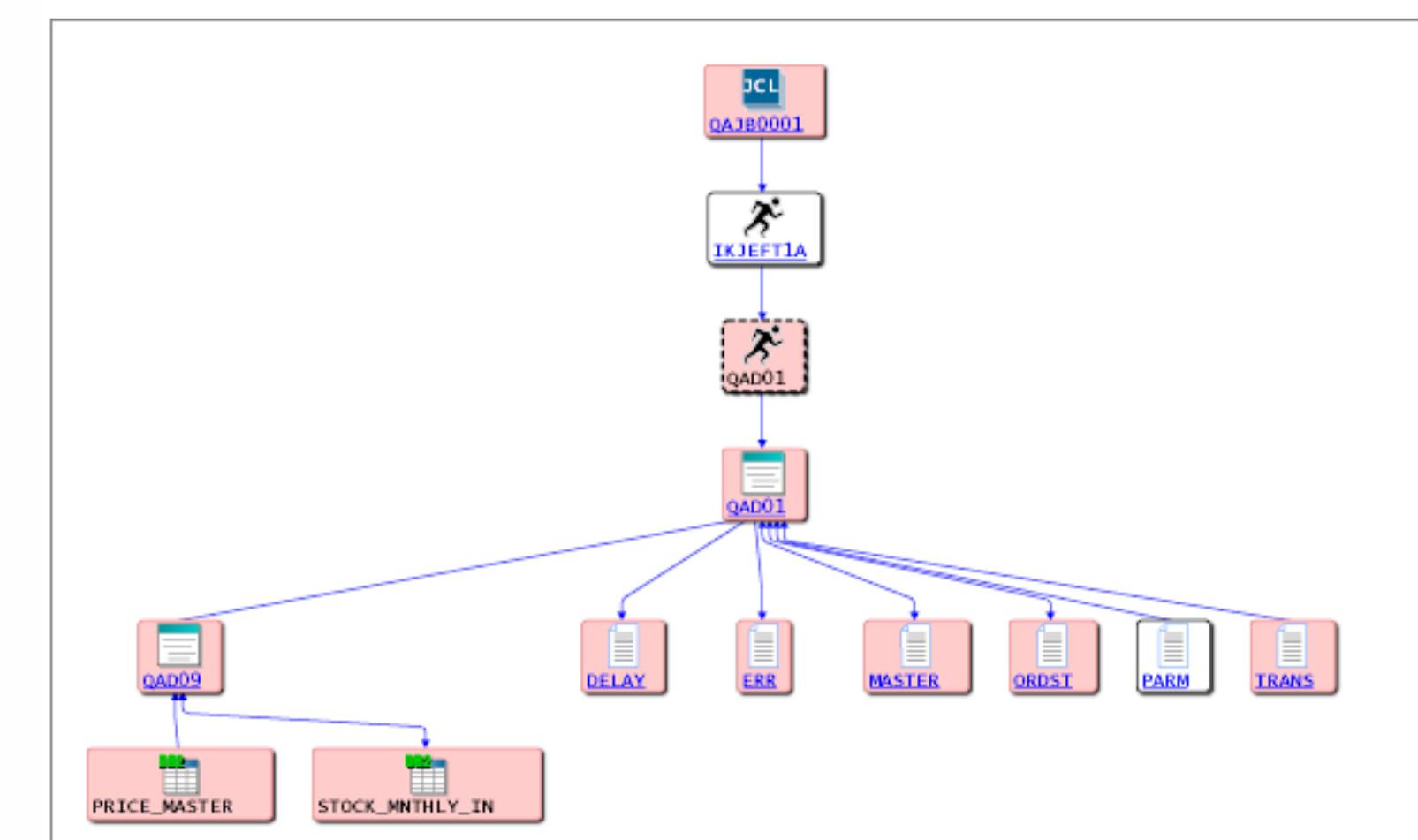
The screenshot shows the 'Explore z/OS assets' page of the WSAA. At the top, there's a navigation bar with links for Home, Explore, Connect, Inventory, Database status, and Help. Below the navigation bar, a secondary menu bar has 'z/OS assets' and 'Distributed assets' selected. The main content area is titled 'Explore z/OS assets' and contains a search bar with a placeholder 'Search:' and a 'Go' button. There's also an 'Advanced search' link and a checkbox for 'Type mixed case'. Below the search area is a table listing various asset types and their totals.

| Inventory | Total | Run time | Total | Program | Total | Data | Total |
|-------------|---------------------|--------------------|--------------------|----------------------------|----------------------|------------------------|----------------------|
| Application | 5 | Batch job | 52 | Analysis concatenation set | 5 | Data element | 7873 |
| Library | 21 | CICS group | 2 | BMS map definition | 1 | Data set | 310 |
| Member | 425 | CICS online region | 1 | BMS map set definition | 1 | Data store | 80 |
| Project | 32 | CICS transaction | 4 | Entry point | 85 | DD name | 1418 |
| Site | 1 | IMS subsystem | 3 | Literal | 2165 | I/O record description | 159 |
| | | IMS transaction | 23 | Program | 59 | SQL column reference | 38 |
| | | Run unit | 58 | | | SQL table reference | 6 |

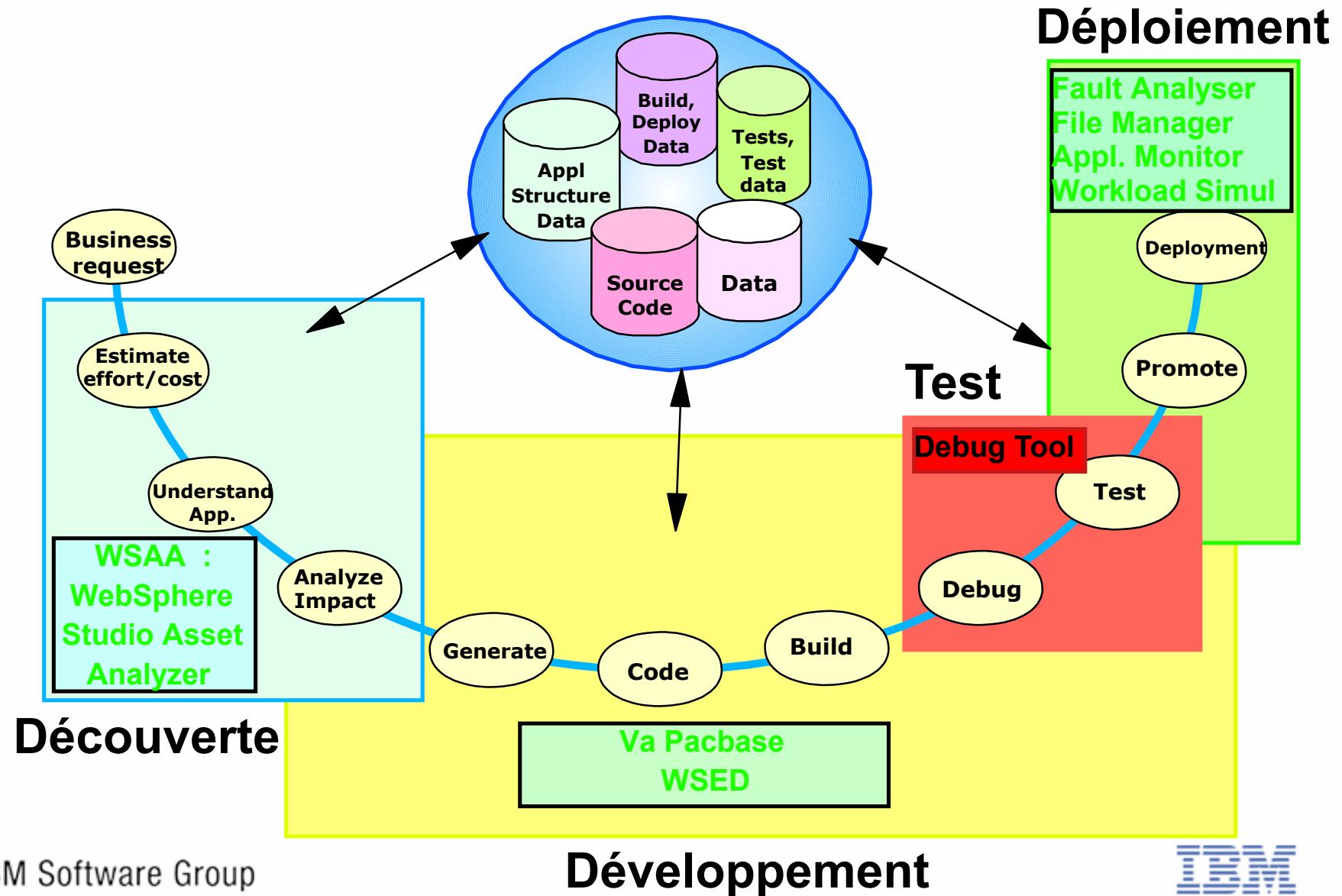
WSAA : Visualisation Artifacts zOS

Graph actions

[Zoom in](#) [Zoom out](#) [Zoom all](#)



Cycle de vie d'une application



IBM Debug Tool

- Un outil
 - Cobol,C,C++,PL/I,HP Java
 - CICS,TSO,JES,MQ,IMS,
 - DB2, USS, WebSphere
 - Debug au niveau source,
 - Points d'arrêt conditionnel
 - Suivi du contenu, modification
 - Ajout de code conditionné
-
- Visualisation des données de la ligne en cours
 - Possibilité de "Playback"
 - Dynamic Debug : Test (none, sym,separate)

Debug Tool zOS

Session A - [43 x 80]

Fichier Edition Vue Communication Actions Fenêtre Aide

COBOL LOCATION: COBCALC :> 50.1

Command ==> MONITOR --+---1---+---2---+---3---+---4---+---5---+---6 LINE: 1 OF 2

***** TOP OF MONITOR *****

0001 1 BUFFER-PTR ■■■
0002 2 INPUT-1 ■■■'LOAN■■■

***** BOTTOM OF MONITOR *****

Scroll ==> PAGE

SOURCE: COBCALC --1---+---2---+---3---+---4---+---5---+ LINE: 41 OF 69

41 *
42 ACCEPT-INPUT.
43 MOVE BUFFER-ARRAY (BUFFER-PTR) TO INPUT-1.
44 ADD 1 TO BUFFER-PTR GIVING BUFFER-PTR.
45 * Allow input data to be in UPPER or lower case
46 EVALUATE FUNCTION UPPER-CASE(INPUT-1)
47 WHEN "END"
48 MOVE "END" TO INPUT-1
49 WHEN "LOAN"
50 PERFORM CALCULATE-LOAN
51 WHEN "PVALUE"
52 PERFORM CALCULATE-VALUE

LOG 0---+---1---+---2---+---3---+---4---+---5---+---6 LINE: 34 OF 43

0034 NOOPTIMIZE
0035 NORENT
0036 NOSSRANGE
0037 TEST(ALL,SYM)
0038 TRUNC(STD)
0039 ZWB
0040 PGMNAME(COMPAT)
0041 NODATEPROC
0042 The subblocks in this program are nested as follows:
0043 1 COBCALC

***** BOTTOM OF LOG *****

PF 1:? 2:STEP 3:QUIT 4:LIST 5:FIND 6:AT/CLEAR
PF 7:UP 8:DOWN 9:GO 10:ZOOM 11:ZOOM LOG 12:RETRIEVE

MB a

Connexion au serveur (ou hôte) à distance 9.100.192.1 Outils complémentaires pour OS/390

33/038

VisualAge interface

IBM Distributed Debugger

File View Selected Debug Source Breakpoints Locals Window Help



LABPROG:216017992@tlba07me.torolab.ibm.com/9.21.21.7

Stacks Breakpoints Modules

Breakpoints

Storage Change Breakpoints

Address: my-ten Bytes: 4

Line Breakpoints

- Source: TSTPINE.LISTING.PDS(LABPROG) Line: 245
- Source: TSTPINE.LISTING.PDS(LABPROG) Line: 247
- Source: TSTPINE.LISTING.PDS(LABPROG) Line: 261
- Source: TSTPINE.LISTING.PDS(LABPROG) Line: 263

Monitors Locals Storage Registers Mapping

Locals

- DFHDUMMY = +00000
- DFHEIV0 = '□□□□□.y.□□□□□'
- DFHEIBLK
 - EIBTIME = +0095514
 - EIBDATE = +0100094
 - EIBTRNID = 'LAB'
 - EIBTASKN = +0000043
 - EIBTRMID = '0004'
 - DFHEIGDI = +00000
 - EIBCPOSN = +00003
 - EIBCALEN = +00000
 - EIBAID = ''
 - EIBFN = '□□'
 - EIBRCODE = '□□□□□□'
 - EIBDS = '□□□□□□□'
 - EIBREQID = '□□□□□□□'
 - EIBRSRCE = ''

Thread 1: TSTPINE.LISTING.PDS(LABPROG)

02 EIBRLDBK PIC X(1).
01 DFHCOMMAREA PICTURE X(1).
PROCEDURE DIVISION USING DFHEIBLK DFHCOMMAREA.
PERFORM START-UP.
CALL "LABSUB1"
USING FLT-RECORD, FLT-SWITCH.
PERFORM PROCESS-DATA THRU GET-DATA
UNTIL FLT-EOF.
PERFORM WRITE-SUMMARY.
STOP RUN.
START-UP.

* Some initial setup *

MOVE 1 TO MY-DIV.
241 → MOVE 2 TO MY-DIV.
242 MOVE 3 TO MY-DIV.
243 MOVE 4 TO MY-DIV.
244 MOVE 5 TO MY-DIV.
245 MOVE 6 TO MY-DIV.
246 MOVE 7 TO MY-DIV.
247 MOVE 8 TO MY-DIV.
248 MOVE 9 TO MY-DIV.

* An incrementing variable to monitor *

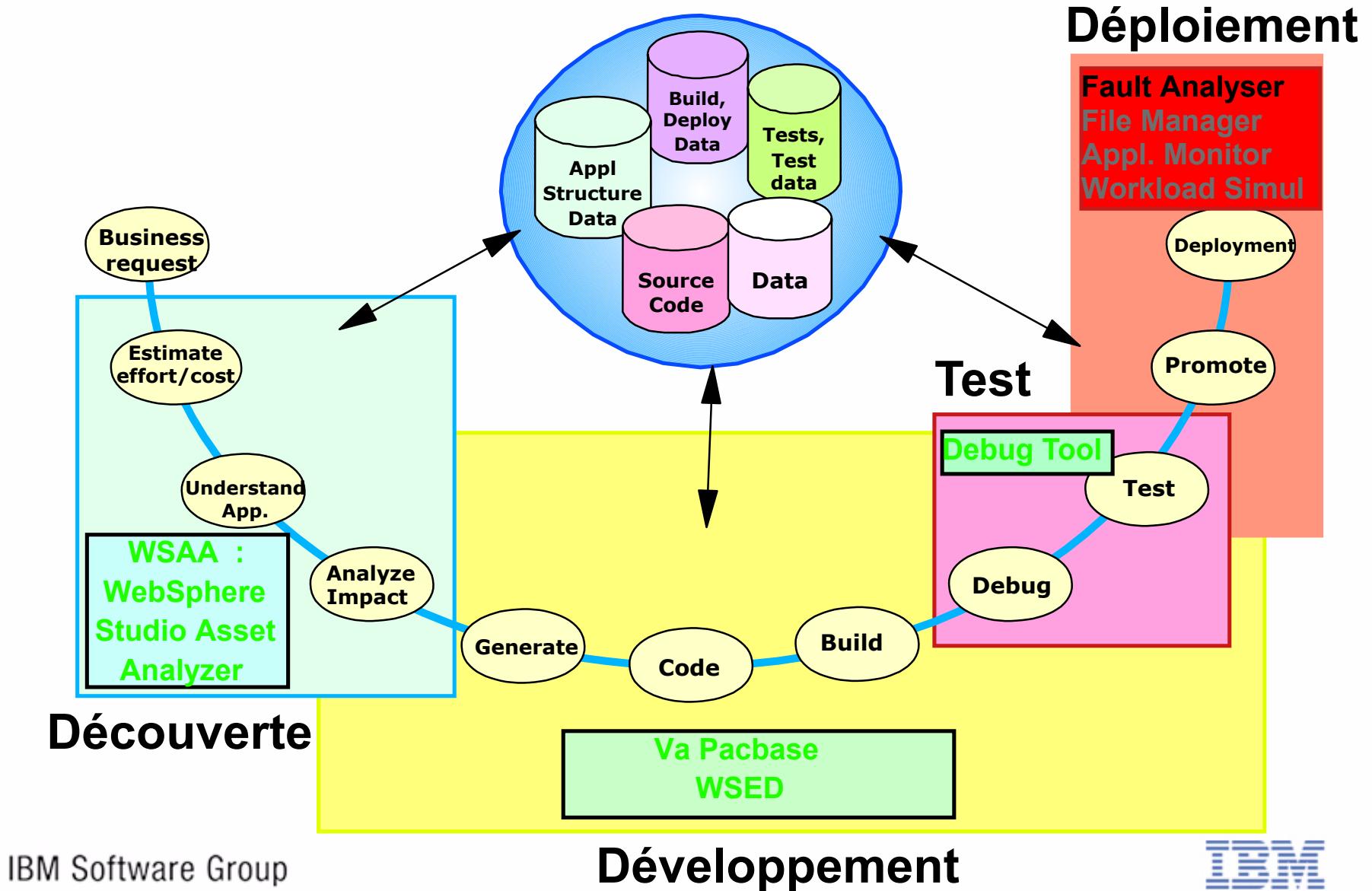
PERFORM WITH TEST AFTER
VARYING NDX FROM 1 BY 1 UNTIL NDX = 10
MOVE 0 TO MY-RES
END-PERFORM.



Debugger ready/Daemon listening to port 10000

Outils complémentaires pour OS/390

Cycle de vie d'une application



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Before: SYSUDUMP

PSW: 078D1000 84FA4970 Instruction length: 02 Interrupt code: 000D
Failing instruction text: 00181610 0A0D58D0 D00498EC

Registers 0-7

GR: 84000000 84000FC7 000256E8 00000000 000256E8 00000010 000254D0 000260CF
AR: 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

Registers 8-15

GR: 04F88065 04F87066 000254D0 04FA48A0 00015920 00027340 84F87544 00000000
AR: 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

Home ASID: 002A Primary ASID: 002A Secondary ASID: 002A

PKM: 00C0 AX: 0000 EAX: 0000

FA sur zOS : analyse interactive d'un abend 0C7

Session A - [43 x 80]

Eichier Edition Vue Communication Actions Fenêtre Aide

File View Services Help

Synopsis Line 1 Col 1 80
Command ==> Scroll ==> CSR
JOBNAME: GERVETA SYSTEM ABEND: 0C7 MVE6 2002/10/10 08:40:48

A system abend 0C7 occurred in module ACSHOW program ACSHOW at offset X'3B6'.
A program interruption code 0007 (Data Exception) is associated with this abend and indicates that:
A decimal digit or sign was invalid.
The cause of the failure was program ACSHOW. The COBOL source code that immediately preceded the failure was:

Source List
Line £ Stmt £
000017 n/a ADD 3 TO ACCUM-A

The COBOL source code for data fields involved in the failure:

Source List
Line £ Stmt £
000007 n/a 04 ACCUM-A PIC S9(4).

Data field values at time of abend:
ACCUM-A = *** Cause of error ***
*** Bottom of data.

F1=Help F3=Exit F5=RptFind F6=Actions F7=Up F8=Down
F10=Left F11=Right

MA a 04/015

Connexion au serveur (ou hôte) à distance 9.100.192.105 établie. Port 23. Outils complémentaires pour OS/390

FA sur zOS : analyse interactive d'un abend 0C7

Session A - [43 x 80]

Fichier Edition Vue Communication Actions Fenêtre Aide

File View Services Help

Program ACSHOW Compiler Listing Line 1 Col 1 80
Command ==> Scroll ==> CSR
JOBNAME: GERVETA SYSTEM ABEND: 0C7 MVE6 2002/10/10 08:40:48

The listing or side file used for the following was found in GERVET.VACOB.LISTINGS(ACSHOW).

Source List

| Line # | Stmt # | |
|--------|--------|--|
| 000001 | n/a | ID DIVISION. |
| 000002 | n/a | PROGRAM-ID. ACSHOW. |
| 000003 | n/a | ENVIRONMENT DIVISION. |
| 000004 | n/a | DATA DIVISION. |
| 000005 | n/a | WORKING-STORAGE SECTION. |
| 000006 | n/a | 01 ACCUMS. |
| 000007 | n/a | 04 ACCUM-A PIC S9(4). |
| 000008 | n/a | 04 ACCUM-B PIC S9(4). |
| 000009 | n/a | 01 FILLER PIC X(20) VALUE 'ABCD12345PGM ACSHOW'. |
| 000010 | n/a | 01 FILLER. |
| 000011 | n/a | 04 BOMBE PIC X(4) VALUE '0000'. |
| 000012 | n/a | 04 BOMB REDEFINES BOMBE PIC 9(4). |
| 000013 | n/a | PROCEDURE DIVISION. |
| 000014 | n/a | DEBUT. |
| 000015 | n/a | DISPLAY 'DEBUT PROGRAMME ACSHOW'. |
| 000016 | n/a | ADD 1 TO BOMB |
| 000017 | n/a | ADD 3 TO ACCUM-A |
| 000018 | n/a | ADD 4 TO ACCUM-B |
| 000019 | n/a | ADD ACCUM-A TO ACCUM-B. |
| 000020 | n/a | FIN. |
| 000021 | n/a | DISPLAY 'FIN PROGRAMME ACSHOW'. |
| 000022 | n/a | GOBACK. |

*** Bottom of data.

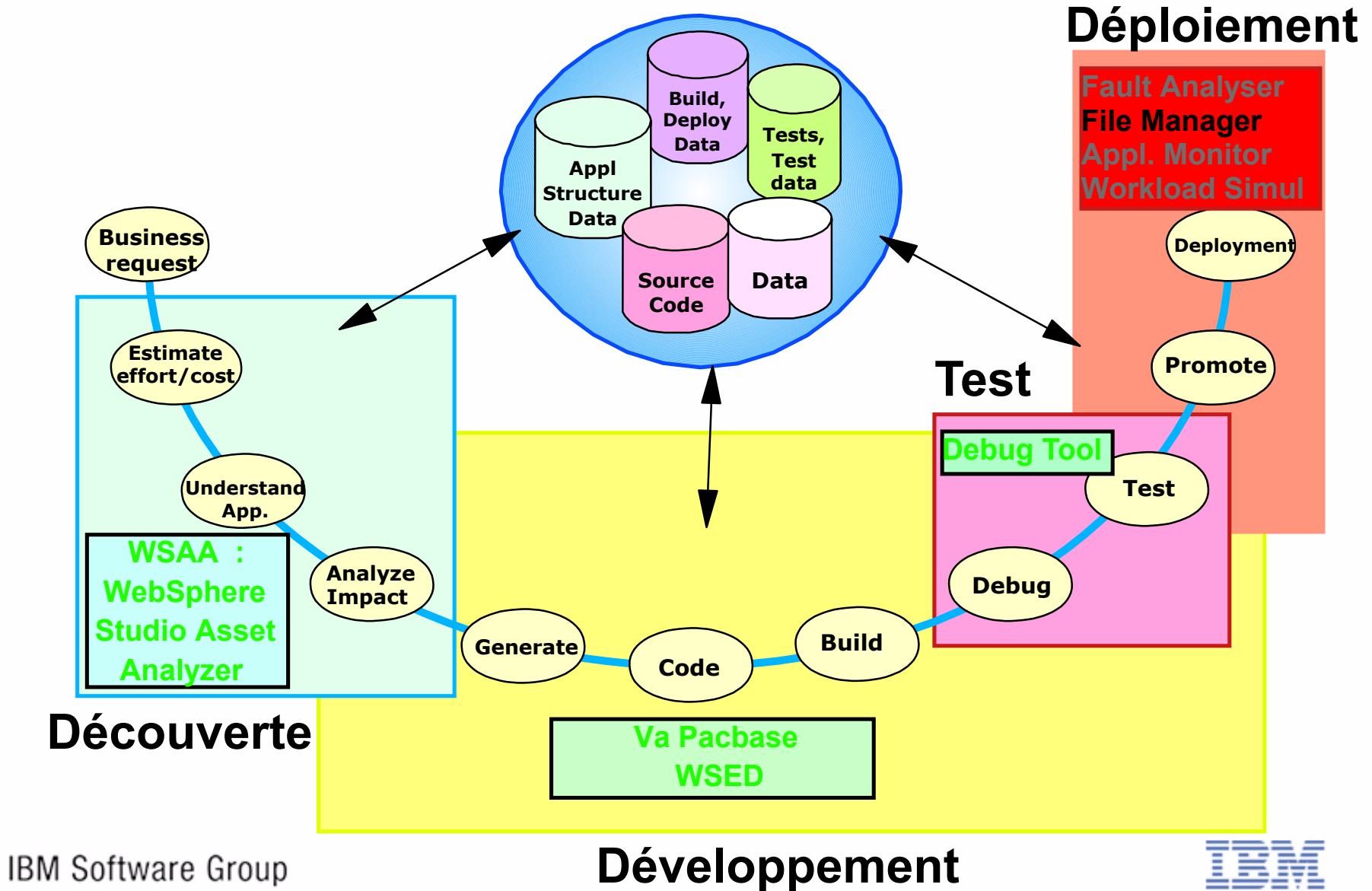
F1=Help F3=Exit F5=RptFind F6=Actions F7=Up F8=Down
F10=Left F11=Right

Connexion au serveur (ou hôte) à distance 9.100.192.105 établie. Port utilisé : 23 Outils complémentaires pour OS/390 04/015

IBM Fault Analyser

- Un outil
 - Cobol,C,C++,PL/I,Assembler
 - CICS,TSO,JES,MQ,
IMS,DB2,USS
 - Pas de surconsommation
 - Pas de modifications
-
- aide à déterminer les causes de l'erreur applicative
 - apporte de l'aide pour résoudre le problème
 - supprime le besoin d'interpréter des dumps système
-
- Capture et analyse les informations relatives à un ABEND
au niveau de l'application et de l'environnement

Cycle de vie d'une application



Edition sans les fonctions avancées

Session A - [43 x 80]

Fichier Edition Vue Communication Actions Fenêtre Aide

Process Options Help

File Manager Browse GERVET.FMN.DATA(FMNCDATA)

Command ==> Record 0 Col 1

Scroll PAGE
Format CHAR

| *** | Top of data *** | | | | | |
|-----|------------------|-------------|-----|---------------|--------------|-----|
| 01 | Grant Sutherland | . | . | . | . | . |
| 01 | Andrew Astle | .M. | . | . | . | . |
| 01 | Graham Purdie | .h. | . | . | . | . |
| 01 | Bill Soper | . | . | . | . | . |
| 01 | Tyrone Dalais | .0. | . | . | . | . |
| 01 | Rod Turner | . | . | . | . | . |
| 01 | Clive Nealon | .u. | . | . | . | . |
| 01 | Jim Alexander | .> | . | . | . | . |
| 01 | Silvano Prez | . | . | . | . | . |
| 01 | Don Pharoah | . | . | . | . | . |
| 01 | John Levlington | . | . | . | . | . |
| 01 | Liz Rushton | . | . | . | . | . |
| 01 | Bob McCormack | . | . | . | . | . |
| 01 | Keith Stewart | . | . | . | . | . |
| 01 | John Nicholls | . | . | . | . | . |
| 01 | Peter Van Dyke | .e. | . | . | . | . |
| 01 | Anna Waghorn | .d. | . | . | . | . |
| 01 | Mike Moriarty | .d. | . | . | . | . |
| 01 | Merrill Bani | .- | . | . | . | . |
| 01 | Angus King | .- | . | . | . | . |
| 02 | Grant Sutherland | Developer | 22 | Montrose St | Thornlie | 614 |
| 02 | Andrew Astle | Developer | 44 | Eagle Rise | Riverton | 613 |
| 02 | Graham Purdie | Developer | 256 | Hay St | Cannington | 602 |
| 02 | Bill Soper | Developer | 84 | Murchison Rd | Dianella | 456 |
| 02 | Tyrone Dalais | Developer | 92 | Smith St | Belmont | 620 |
| 02 | Rod Turner | Manager | 184 | Alexander Dve | Swan View | 613 |
| 02 | Clive Nealon | Manager | 28 | Bern Rd | Middleswan | 600 |
| 02 | Jim Alexander | Manager | 123 | Wellington St | Gilford | 620 |
| 02 | Silvano Prez | Programmer | 48 | Small Lane | Mt Pleasant | 310 |
| 02 | Don Pharoah | Programmer | 661 | Ayton Way | Floreat Park | 260 |
| 02 | John Levlington | Tech Writer | 412 | Ferndale Cres | Cottesloe | 190 |
| 02 | Liz Rushton | Sysprog | 96 | High Rd | Yangebup | 200 |
| 02 | Bob McCormack | Sysprog | 67 | Hampton Close | Parkwood | 450 |

F1=Help F2=Zoom F3=Exit F4=CRetrie F5=RFind F6=RChange
F7=Up F8=Down F9=Swap F10=Left F11=Right F12=Cancel

MA a 04/015

Connexion au serveur (ou hôte) à distance 9.100.192.105 Échelle Partagée : 23

Outils complémentaires pour OS/390

Sélection de présentation et de contenu

Session A - [43 x 80]

Fichier Edition Vue Communication Actions Fenêtre Aide

Process Options Help

File Manager Field Selection/Edit Scroll PAGE

Command ==> _____

1 Specify Record Identification by field.
2 Specify Record Selection by field.

| Cmd | Seq | SHC | Ref | Rdf | Field Name | Type | Start | Length |
|-----|-----|-----|-----|-----|-----------------------|------|-------|--------|
| | | | | | **** Top of data **** | | | |
| | | | | 1 | 1 REC-TYPE01 | AN | 1 | 80 |
| | | | | 2 | 2 REC-TYPE | AN | 1 | 2 |
| | | | 3 | 2 | 2 REC-ID | AN | 1 | 2 |
| | | | 4 | 2 | NAME | AN | 3 | 20 |
| | | | 5 | 2 | EMPLOYEE-NO | BI | 23 | 2 |
| | | | 6 | 2 | AGE | BI | 25 | 2 |
| | | | 7 | 2 | SALARY | PD | 27 | 4 |
| | | | 8 | 2 | MONTH(12) | BI | 31 | 4 |
| | | | 9 | 2 | FILLER | AN | 79 | 2 |
| | | | | | **** End of data **** | | | |

----- Record Identification Criteria -----
£2 = '01'

----- Record Selection Criteria -----
£7 > £6 * £8(1) * 80

F1=Help F2=Split F3=Exit F4=CRetrieve F5=RFind F6=Describe
F7=Up F8=Down F9=Swap F10=RunTemp F11=Headings F12=Cancel

MB a 04/015

Connexion au serveur (ou hôte) à distance 9.100.192.105 Outils complémentaires pour OS/390

Edition avec formattage

Session A - [43 x 80] [] [] []

Fichier Edition Vue Communication Actions Fenêtre Aide

File Manager Browse GERVET.FMN.DATA(FMNCDATA)

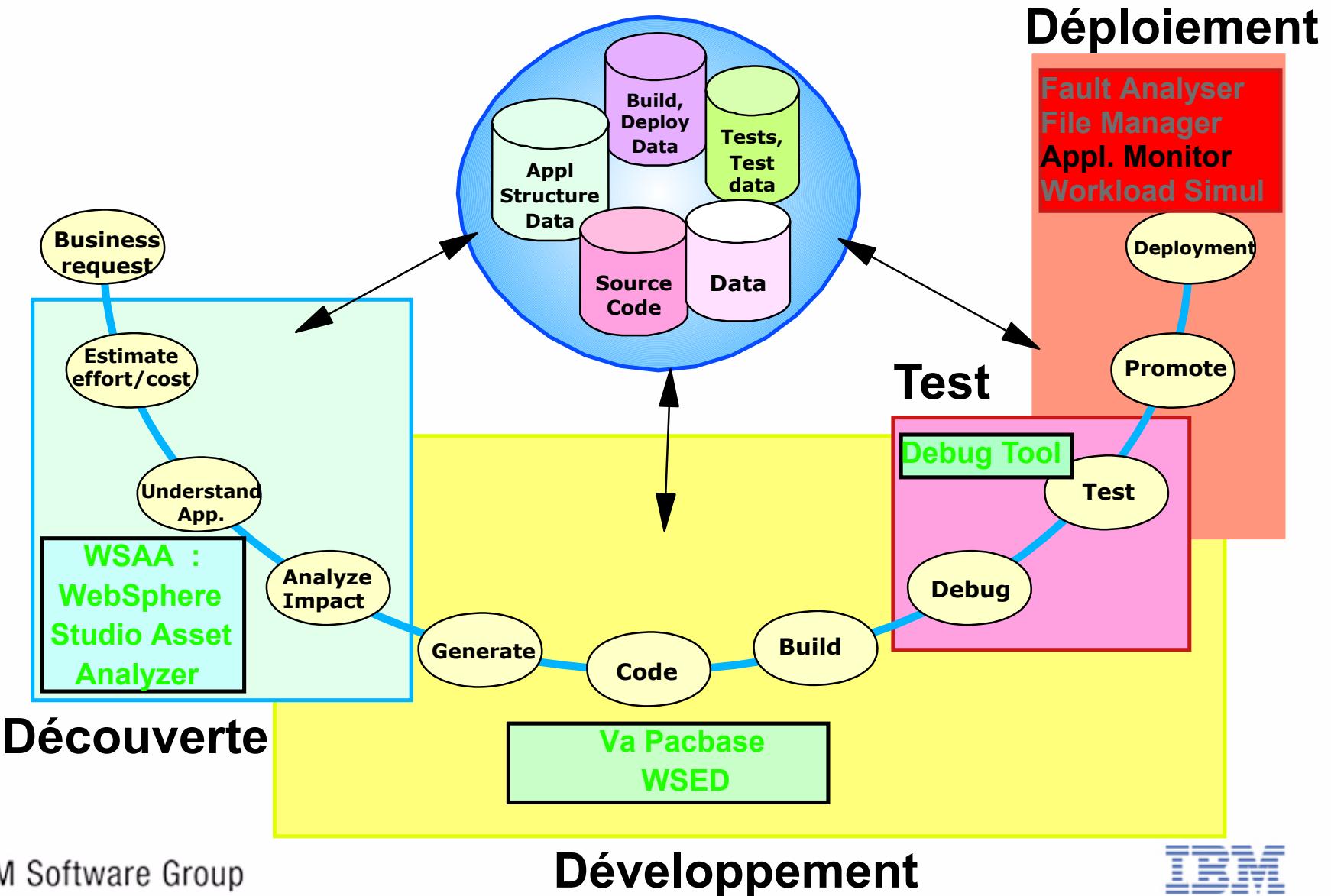
Command ==> te

| REC-TYPE | REC-ID | NAME | EMPLOYEE-NO | AGE | SALARY | Record # | Scroll | PAGE | | | |
|--|--------|---------------------|-------------|---------------------|----------|----------------------------|-----------|------------------------|--|-------|--------|
| | | | | £5 | £6 | £7 | MONTH(1) | £8 | | | |
| £2 | £3 | R £ £4 | | | | | | | | | |
| AN 1:2 | AN 1:2 | AN 3:20 | BI 23:2 | BI 25:2 | PD 27:4 | | BI 31:4 | | | | |
| <> | <> | <----+---1----+---> | <---+--> | <---+--> | <---+--> | <---+--> | <---+---> | | | | |
| **** Top of data **** | | | | | | | | | | | |
| 01 | 01 | Grant Sutherland | 7712 | 96 | 75000 | | | 6 | | | |
| 01 | 01 | Andrew Astle | 6612 | 21 | 75000 | | | 30 | | | |
| 01 | 01 | Graham Purdie | 5512 | 94 | 68000 | | | 7 | | | |
| 01 | 01 | Bill Soper | 4412 | 28 | 68000 | | | 5 | | | |
| 01 | 01 | Tyrone Dalais | 3312 | 21 | 60000 | | | 14 | | | |
| ----- | | | | | | 3 Line(s) not selected | | | | | |
| 01 | 01 | Silvano Prez | 2312 | 50 | 60000 | | | 1 | | | |
| ----- | | | | | | 1 Line(s) not selected | | | | | |
| 01 | 01 | John Levrington | 3412 | 40 | 67000 | | | 14 | | | |
| ----- | | | | | | 1 Line(s) not selected | | | | | |
| 01 | 01 | Bob McCormack | 4512 | 40 | 76000 | | | 10 | | | |
| ----- | | | | | | 2 Line(s) not selected | | | | | |
| 01 | 01 | Peter Van Dyke | 4512 | 30 | 85000 | | | 34 | | | |
| 01 | 01 | Anna Waghorn | 7812 | 33 | 60000 | | | 2 | | | |
| 01 | 01 | Mike Moriarty | 5412 | 46 | 84000 | | | 10 | | | |
| ----- | | | | | | 1 Line(s) not selected | | | | | |
| 01 | 01 | Angus King | 7712 | 96 | 100000 | | | 6 | | | |
| ----- | | | | | | 5 Line(s) suppressed | | | | | |
| ----- | | | | | | 3 Line(s) not selected | | | | | |
| ----- | | | | | | 5 Line(s) suppressed | | | | | |
| ----- | | | | | | 2 Line(s) not selected | | | | | |
| ----- | | | | | | 4 Line(s) suppressed | | | | | |
| ----- | | | | | | 1 Line(s) not selected | | | | | |
| **** End of data **** | | | | | | | | | | | |
| F1=Help F8=Down | | F2=Zoom F9=Swap | | F3=Exit F10=Left | | F4=CRetrieval F11=Right | | F5=RFind F12=Cancel | | F7=Up | |
| MB | a | | | | | | | | | | 04/017 |
| Connexion au serveur (ou hôte) à distance 9.100.192.105 éGadis Complémentaires pour OS/390 | | | | | | | | | | | |

IBM File Manager

- Un outil
 - VSAM, DB2, DL1
 - Sélection, Visualisation, Modification
 - Copie, Extraction, comparaison
 - Interactif ou Batch
-
- ▶ pour manipuler des données de développement, de test et de production sur de multiples formats et supports
 - ▶ offre des fonctions étendues d'édition, de visualisation, d'impression, de création de données et de copie afin d'améliorer la productivité des développeurs

Cycle de vie d'une application



IBM Application Monitor

- Un outil
- Batch, CICS
- Temps réel et Batch (surveillance programmée)
- Facile d'emploi
- Pas de modification à apporter
 - ▶ fournit des statistiques de performance pour tout job supervisé
 - ▶ peut effectuer à la fois une analyse en temps réel des contraintes (goulots) et une analyse à postériori sur les données

Menu principal

```
FBIPRIM -----
IBM Application Monitor for z/OS and OS/390
Primary Selection
Option ===> _

Job Selection Options

1. Select by Job Identification
2. Select from Current Analysis Sessions
3. Select from Currently Active Jobs on the System
4. Select from Historical Analysis Databases
5. Specify Time-Activated Monitoring Criteria

Miscellaneous Options

6. Utilities
7. Select Processing Options
X. Exit

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```

Sélection d'un job à analyser : options 1, 2 ou 3

Sélection de l'analyse historique : option 4

Sélection de la surveillance programmée : option 5

Ou sélectionnez d'autres options

Menu de surveillance

```
Menu View Options Help
-----
FBI902A          IBM Application Monitor - Job Analysis
                  View Analysis Data
Command ==>
Job Identification
Job Name . . JES2 ASID . . 0028 Analysis Status . . : ACTIVE
Nom du job à surveiller
Ces champs se renseignent si le job est actif

Job Analysis Operating Criteria
Enter "/" to select option
/ Record History / Delay Analysis
View Analysis Data
1 1. CPU and Loadmod Analysis
2. Delay Analysis
3. Dataset Analysis
*. SQL Analysis
La sélection s'affiche en rouge
Peut être enregistrement ET surveillance

Recording to Dataset : USERID.FBI.JES2.D2002106.T150026
```

CPU and Load Module Analysis

```
Menu View Options Help
-----
FBI210                               CPU and LoadMod Analysis      Row 1 to 13 of 113
Command ==>                           Scroll . . . PAGE

Jobname : JES2                      Stepname : JES2                Job CPU Pct : 00.6
Trace Duration : 16:37.87   %Supv : 100.0   %Prob : 00.0   Sample Count : 02982
%Out : 00.0   %Out Ready : 00.0   %Out Log : 00.0   %In Wait : 00.0   %In Ready : 99.2
JOB JES2    HAS A PRESET DPRTY.

Module   Area Address < 10   20   30   40   50   60   70   80   90   >   Pct.
IXLM2MR  NUC  012A6408  ======>                                31.48
HASJES20 PVT  00006000  ======>                                16.19
IARIR    NUC  014763B8  ==>                                07.24
IXLR1FCP NUC  011257C0  =>                                05.90
IARPI    NUC  014D0020  =>                                05.70
IXLS1RNP NUC  012D0560  >                                03.65
IXLS1TMR NUC  012D51F0  >                                03.28
?CSAHI   ECSA  0C1D1D5A  >                                02.24
IEAVELK   NUC  00FF7738
IGVVSTOR NUC  011ABB88
IEAVEPST  NUC  00FDB628
IXLR1LST  NUC  011319B0
IEAVEWAT  NUC  00FE9B90
```

COBOL Statement Analysis

```
Menu  View  Options  Help
-----
FBI232                      Statement Analyzer
Command ===>                  Scroll . . . PAGE

Jobname : USERID           Stepname : S010           LMOD : DOIT5           Job CPU Pct : 85.5
Trace Duration : 00:26.14      CSECT : DOIT5          Sample Count : 09953

Stmtno Statement                                < 1 2 3 4 5 6 7 8 9 0>   Pct.
000038    IF FIND-SW = 'ON'                      >                   05.04
000048    MOVE +4      TO NEWFIELD                >                   06.53
000050    COMPUTE DATAADDR = FLDADDR +           =====>             27.98
              FLDLGTH + 1
000051    COMPUTE DATALGTH = ENDADDR -           =====>             27.19
              DATAADDR
000052    PROCEDURE DIVISION.                  00.66
```

CICS

----- IBM Application Monitor Active CICS Regions Row 1 to 1 of 1

Select the desired CICS region with a "/". Then press Enter.

| Act | Region | ASID | Rel | SIO/Sec | Tasks | Real | Status | Type | CPU busy |
|-----|----------|------|-----|---------|----------|------|--------|------|----------|
| - | CICSC001 | 00FC | 5.3 | 000.00 | 14926807 | 2846 | N/S | STC | 000.08 |

***** Bottom of data *****

----- CICS Transactions List ----- Row 1 to 5 of 5

| Tran | Count | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | Pct |
|--------|-------|-------|----|----|----|----|----|----|----|----|-----|------|
| - CEDA | 23 | ***** | | | | | | | | | | 15.8 |
| - FBIA | 35 | ***** | | | | | | | | | | 24.1 |
| - FBIB | 25 | ***** | | | | | | | | | | 17.2 |
| - FBIC | 27 | ***** | | | | | | | | | | 18.6 |
| - FBID | 35 | ***** | | | | | | | | | | 24.1 |

***** Bottom of data *****

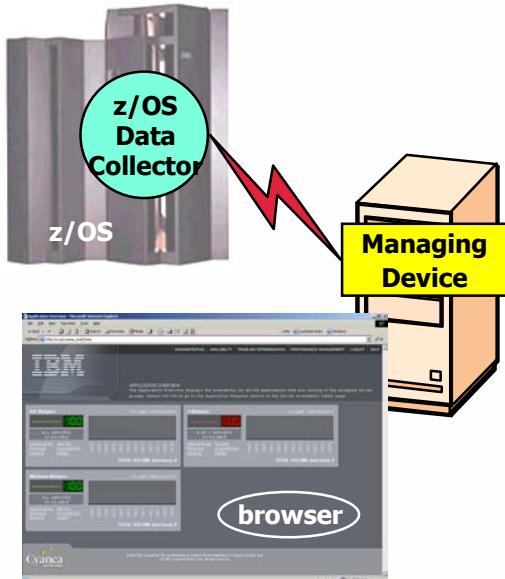
----- CICS Task Analysis: Tran CEDA Task 83978 ----- Row 1 to 3 of 3

| Program | Loc | Command | Count | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | Pct |
|---------|------|-----------------|-------|-------|----|----|----|----|----|----|----|----|-----|------|
| DFHEDAD | 4242 | CONVERSE | 1 | ***** | | | | | | | | | | 33.3 |
| DFHEDAD | 9440 | ASKTIME ABSTIME | 1 | ***** | | | | | | | | | | 33.3 |
| DFHEDAD | 9488 | FORMATTIME | 1 | ***** | | | | | | | | | | 33.3 |

***** Bottom of data *****

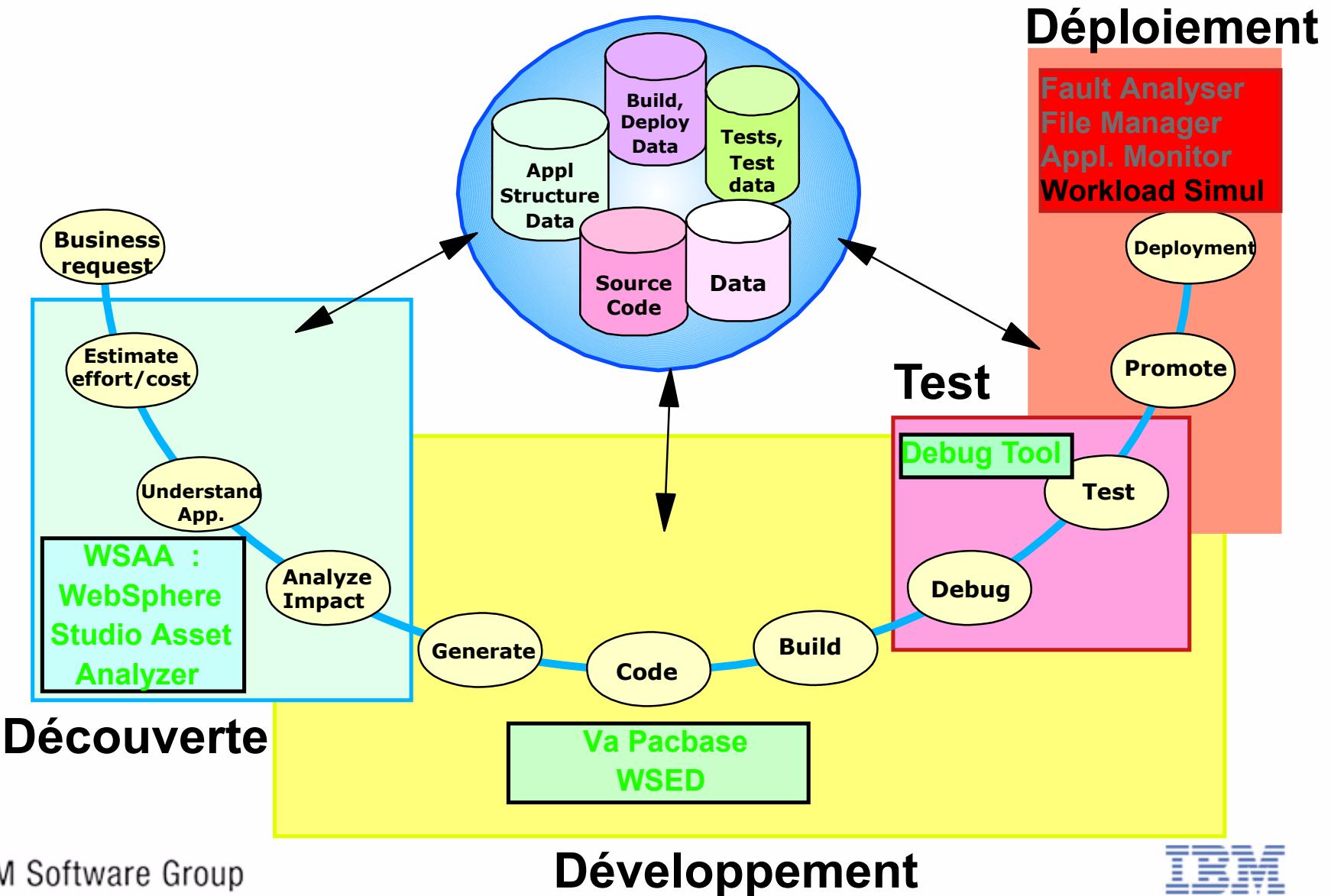
IBM WebSphere Studio Application Monitor for z/OS and OS/390

- IBM WebSphere Studio Application Monitor for z/OS and OS/390 provides trouble-shooting, performance-monitoring, and performance analysis functions to large-scale J2EE applications running in development and production environments on the WebSphere for z/OS platform.
- ▶ It enables developers and Quality Assurance personnel to analyze the behavior of Java applications, and take corrective actions to resolve problems.



- ▶ The product consists of two components:
 - ◆ The "data collectors" (one for each WS Application Server) gather information about the applications
 - ◆ The "Managing Device" processes and displays the information on a browser

Cycle de vie d'une application



IBM Workload Simulator

- Un outil
- Issu de TPNS en beaucoup plus simple d'emploi
 - ▶ Génération de script par capture ou par saisie
 - ▶ Simulation de réseau
 - ▶ Possibilité de suivi des différents travaux
- Extension à Websphere prévue: Websphere Workload Simulator

- ▶ donne la possibilité de simuler un réseau de terminaux et les messages associés
- ▶ apporte l'assurance que les réseaux vont fonctionner sous un volume de transaction donné

Aurions-nous dû faire un test de charge ?



Test de charge

- ◆ Observer le comportement selon diverses charges
- ◆ Réaction du système quand la charge croît
- ◆ Indicateur: le temps de réponse

Test aux limites (Stress-testing)

- ◆ Trouver la limite du système



Summary

1. Create a simulation program



2. Run the simulation program

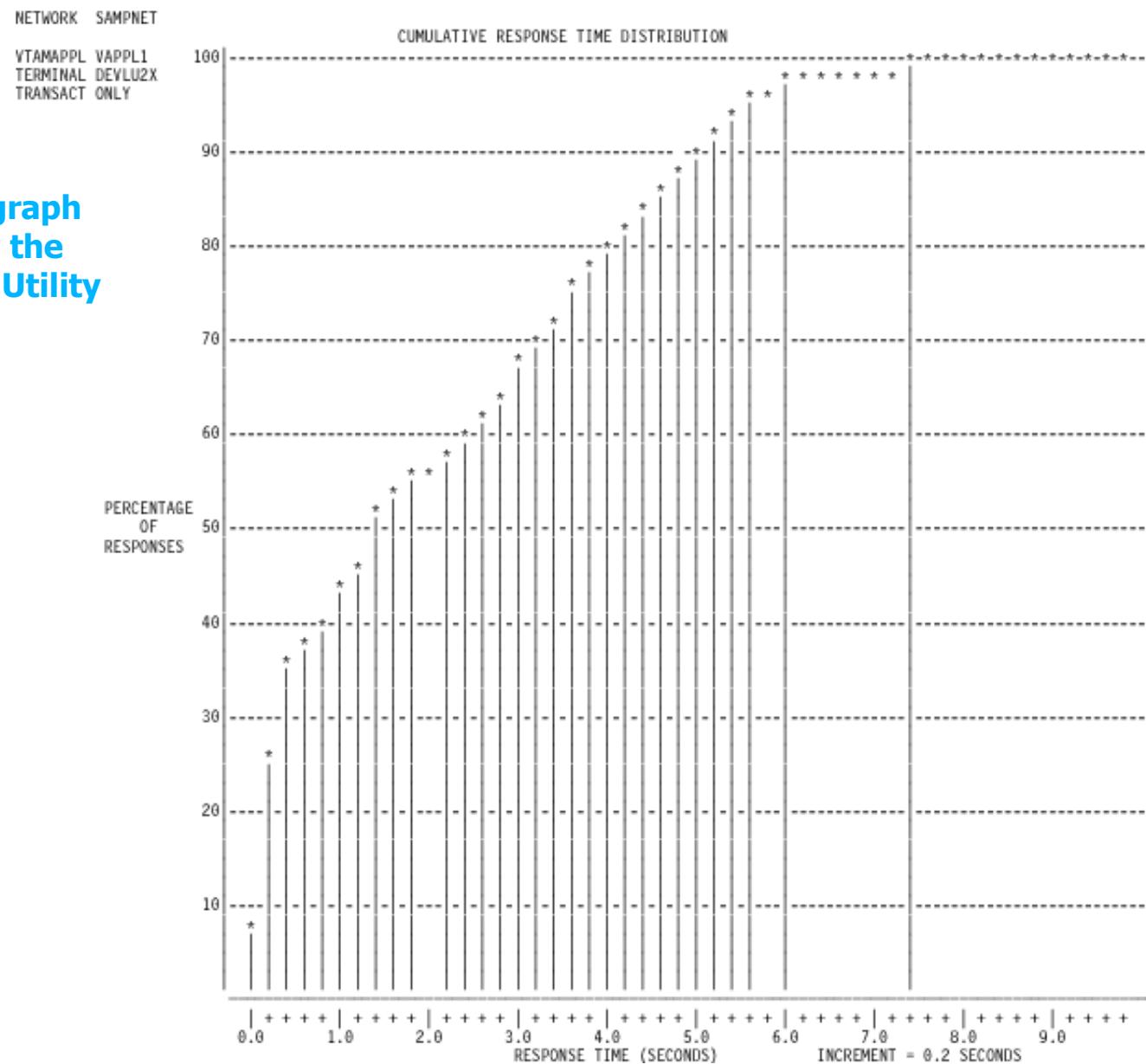


3. Analyze the results



3. Analyze the Results [cont.]

Example of a graph
generated by the
Response Time Utility



IBM WebSphere Studio Workload Simulator for z/OS and OS/390

- IBM WebSphere Studio Workload Simulator for z/OS and OS/390 is used to conduct load-, stress-, performance-, regression-testing, and capacity-planning tests.
 - ▶ It simulates multiple Internet browsers ("virtual users") to test web servers. Quality Assurance personnel can use this product to validate that their web-serving environment will adequately handle production-level loads.

Controller

Windows client for:

- Test Preparation
- Execution
- Monitoring
- Reporting



Engine

- resides on a 390
- generates load to test any web-serving environment

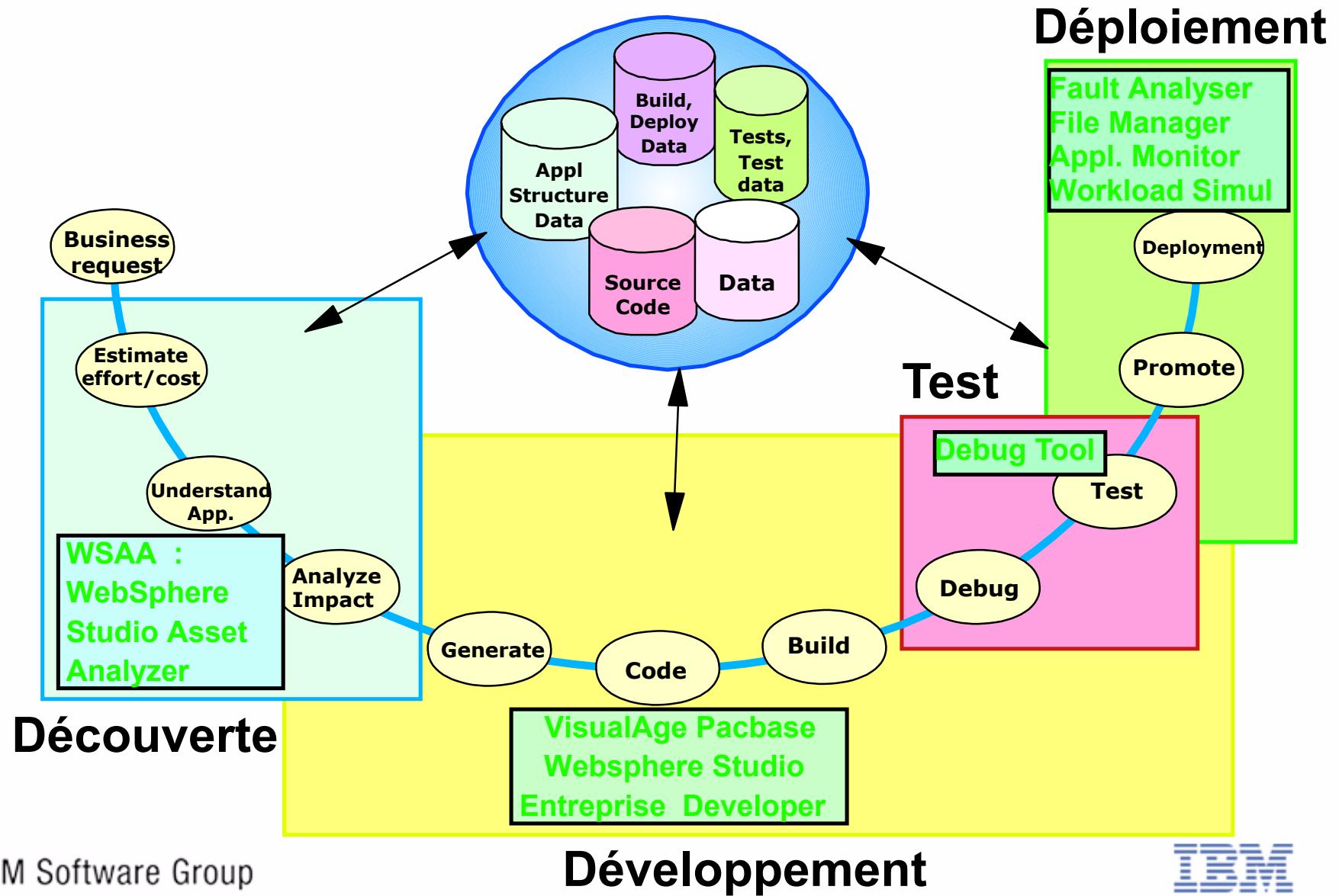


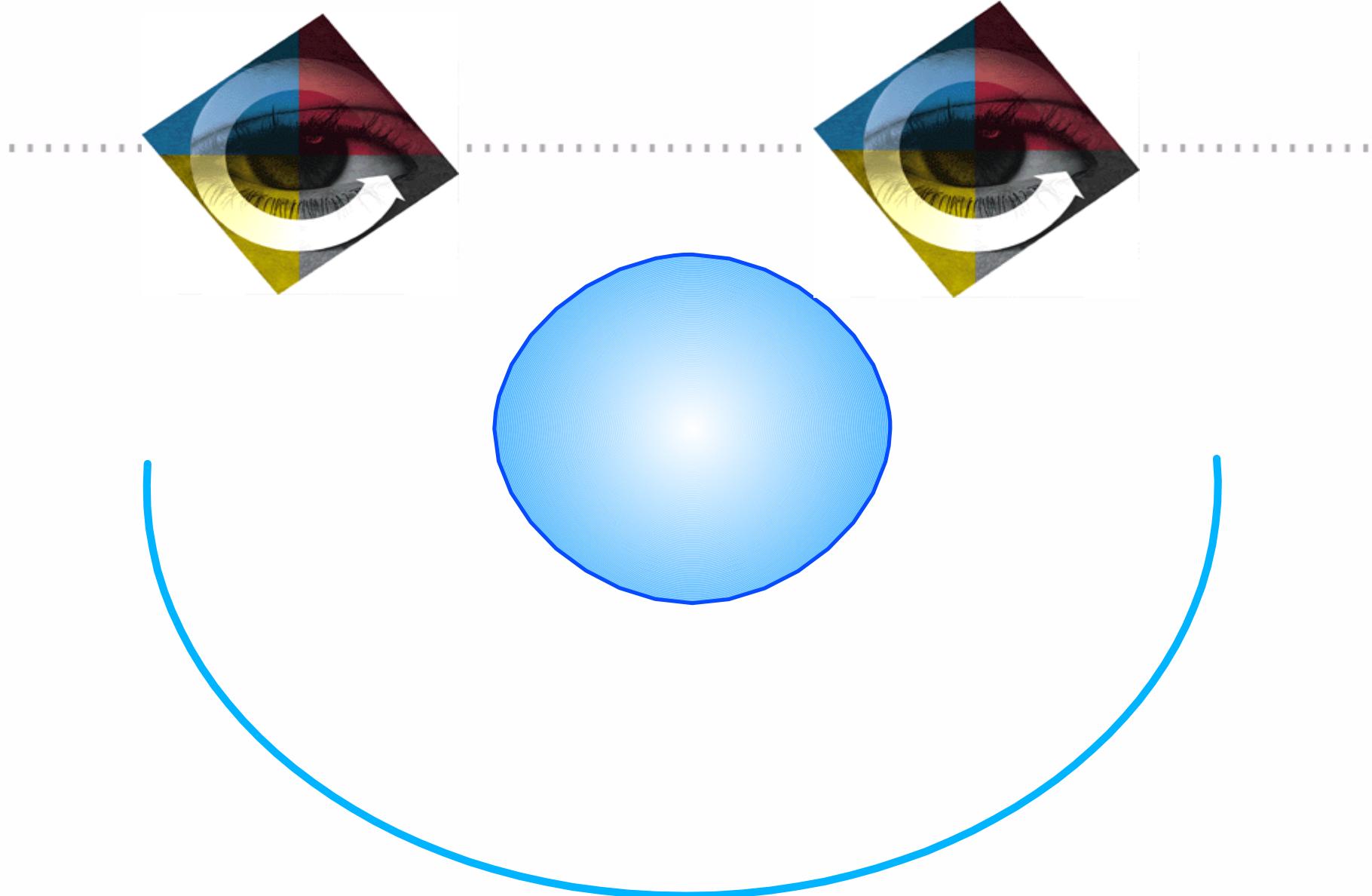
- ▶ IBM WebSphere Studio Workload Simulator for z/OS and OS/390 consists of two components: a "controller" which is the user interface's to the product, and an "engine", which generates the load..

Pour plus d'information

- IBM Enterprise Developer Domain
 - ▶ <http://www.ibm.com/software/ad/enterprise>
- Sites pour les développeurs :
 - ▶ <http://www7b.boulder.ibm.com/epdd/>
 - ▶ <http://www.ibm.com/servers/eserver/zseries/software/ads/>
- Fault Analyzer :
 - ▶ <http://www.ibm.com/software/ad/faultanalyzer/>
- File Manager :
 - ▶ <http://www.ibm.com/software/ad/filemanager/>
- Suite pour SCLM :
 - ▶ <http://www.ibm.com/software/ad/sclmsuite/>
- TPNS :
 - ▶ <http://www.ibm.com/software/network/tpns/>
- Debug Tool :
 - ▶ <http://www.ibm.com/servers/eserver/zseries/dt/>

Merci de votre attention





IBM Software Group

Outils complémentaires pour OS/390

IBM