PP: The Program Porting Machine

REXXLA 2010 meeting,
Dec. 14th, 2010,
Almere, The Netherlands

Thomas Schneider (ths@db-123.com)

www.ThSITC.com

LOGOS – The „Missing Link“ in automatic Simultane Natural Language Translation

Input

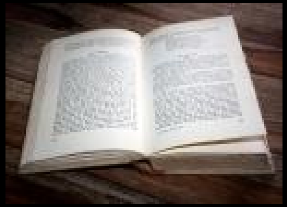
Language	Text	
Direct spoken Recordings Telefone, TV, Radio, etc.	Directly as Original E-Mails, Text-Documents, Computer Output, WEB, SMS, Teletext	On Paper (as a Picture)
Speech to Text Umwandlung in codierten Text		Text-Recognition (OCR)

Process

Text-File (in Source-Language)

Identification of the Language
Semantic Analysis,
Meaning of the Content

Translation to Target-Language



Text-File (in Target-Language)

Output

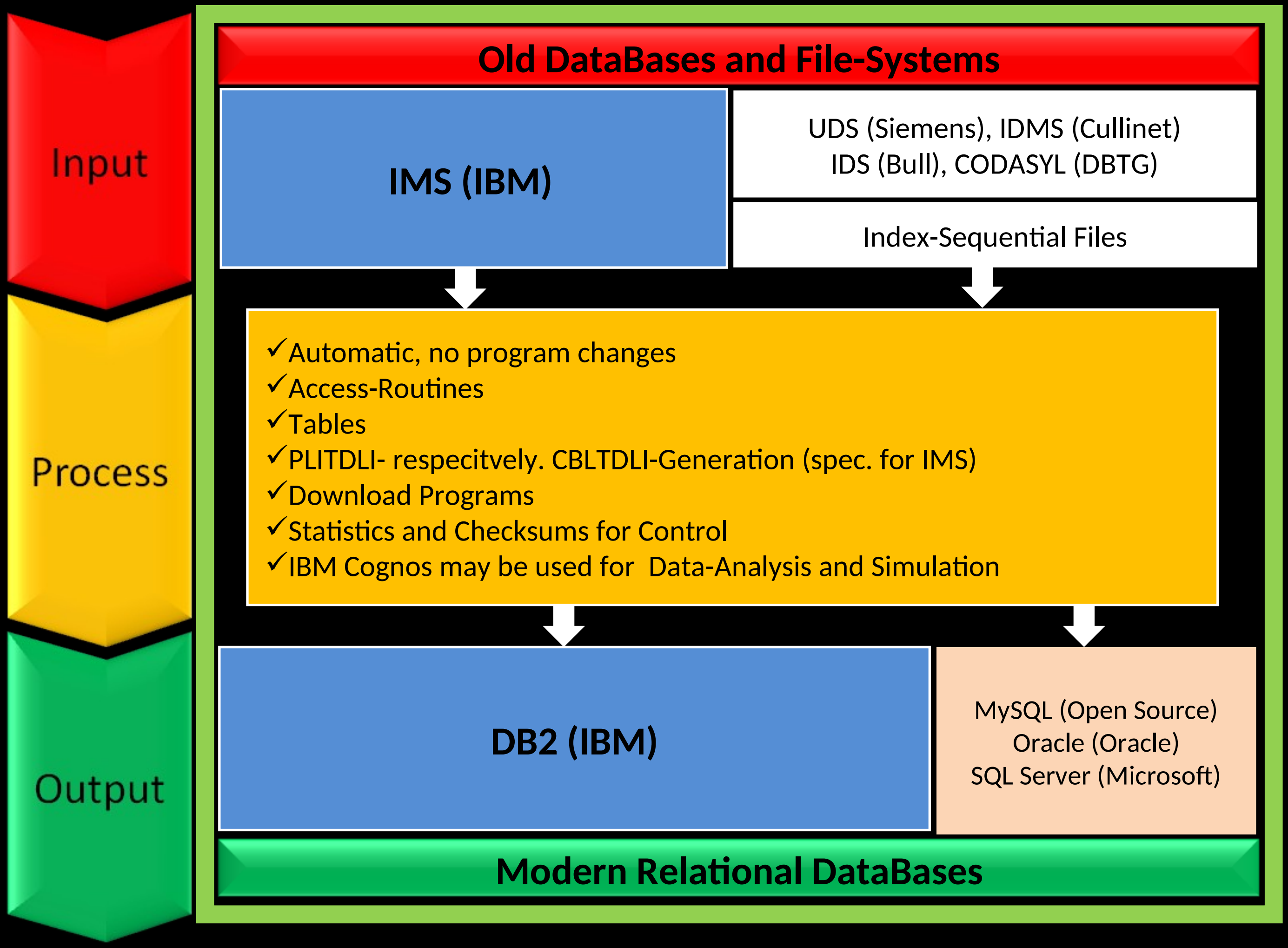
Text to Speech Transformation	Directly as Translated E-Mails, Text-Documents, Computer Output, WEB, SMS, Teletext	Printing & Publishing
Direct Output on Telefone, TV, Radio etc.		On Paper (as a Picture)
Sprache	**Text**	

Existing Software | New Developmen | New Solution

LOGOS – Where to apply

- International Companies, Governments und Organisations
- Private and Business Travellers
- Language oriented Jobs and Lines of Businesses
- All Parties interested in Foreign Language Informations (News, Culture, etc.)

DB-123 – The Database Conversion Machine
Secure Investements for Customers and Providers



Input

Process

Output

Old DataBases and File-Systems

IMS (IBM)

UDS (Siemens), IDMS (Cullinet)
IDS (Bull), CODASYL (DBTG)

Index-Sequential Files

- ✓Automatic, no program changes
- ✓Access-Routines
- ✓Tables
- ✓PLITDLI- respecitvely. CBLTDLI-Generation (spec. for IMS)
- ✓Download Programs
- ✓Statistics and Checksums for Control
- ✓IBM Cognos may be used for Data-Analysis and Simulation

DB2 (IBM)

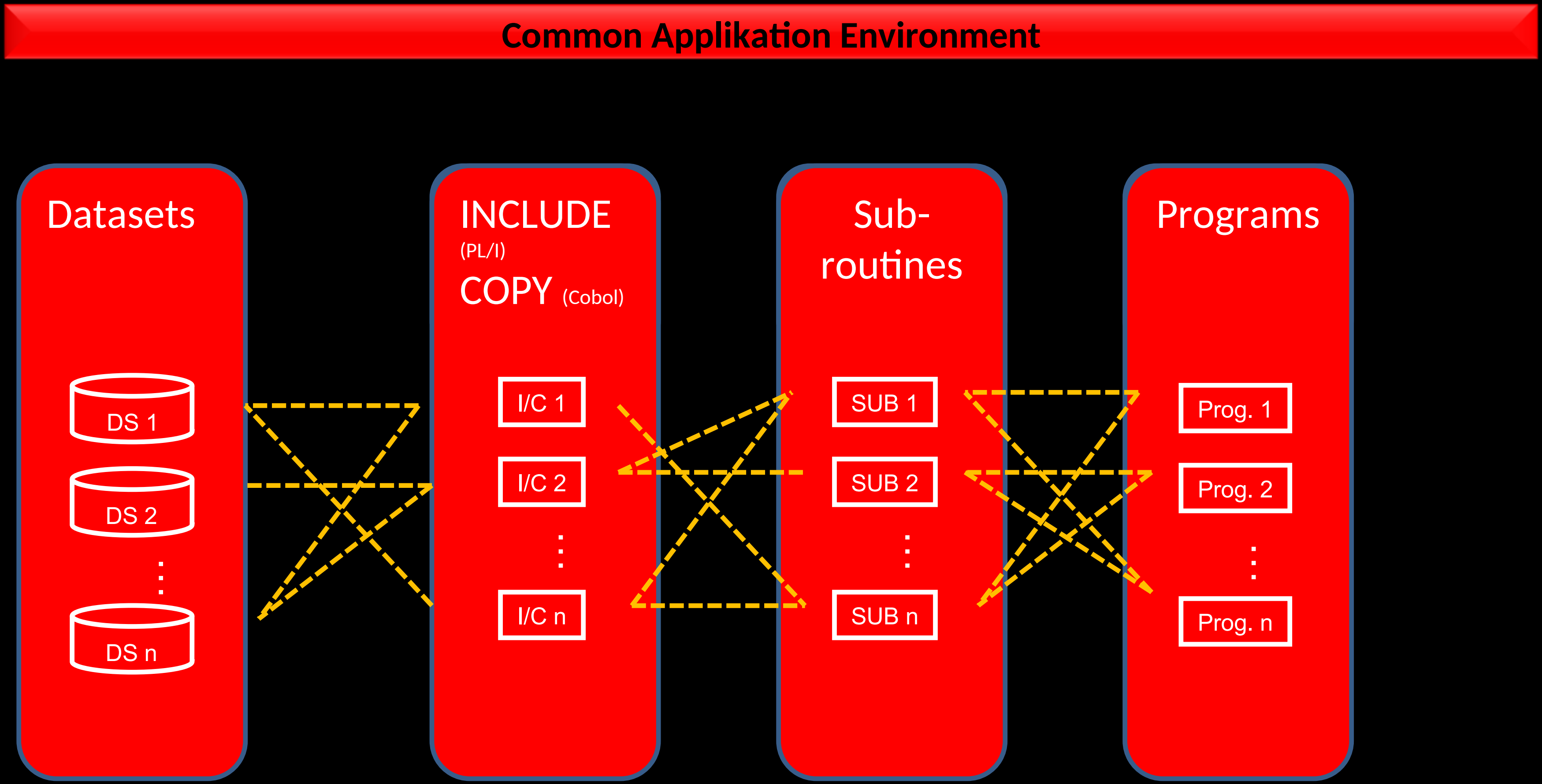
MySQL (Open Source)
Oracle (Oracle)
SQL Server (Microsoft)

Modern Relational DataBases

DB-123 – Features

- Automatic, no program changes necessary
- SQL-Tables automatically designed
- Manual Review, Refinement possible
- Generation of ACCESS-Functions
- Download Programs generated
- PLITDLI- bzw. CBLTDLI-generation (IMS !)
- Statistics and Check-Sums for Control
- Enables usage of IBM Cognos

PP – The Program Porting Machine


Common Applikation Environment

Datasets

DS 1

DS 2

⋮

DS n

INCLUDE (PL/I)

COPY (Cobol)

I/C 1

I/C 2

⋮

I/C n

Sub-routines

SUB 1

SUB 2

⋮

SUB n

Programs

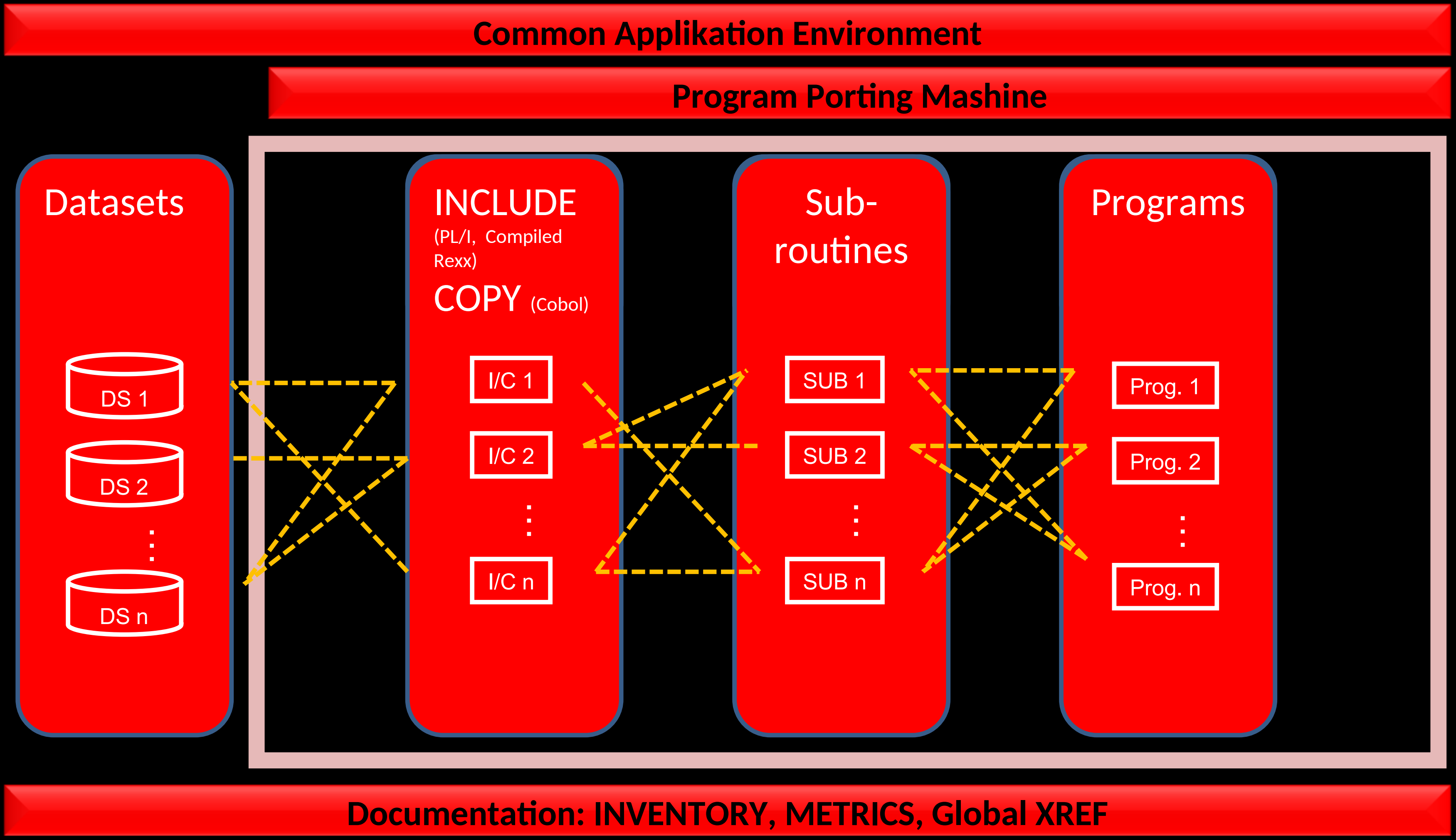
Prog. 1

Prog. 2

⋮

Prog. n

PP – The Program Porting Machine



Common Applikation Environment

Program Porting Mashine

Datasets

DS 1

DS 2

DS n

INCLUDE (PL/I, Compiled Rexx)

COPY (Cobol)

I/C 1

I/C 2

I/C n

Sub-routines

SUB 1

SUB 2

SUB n

Programs

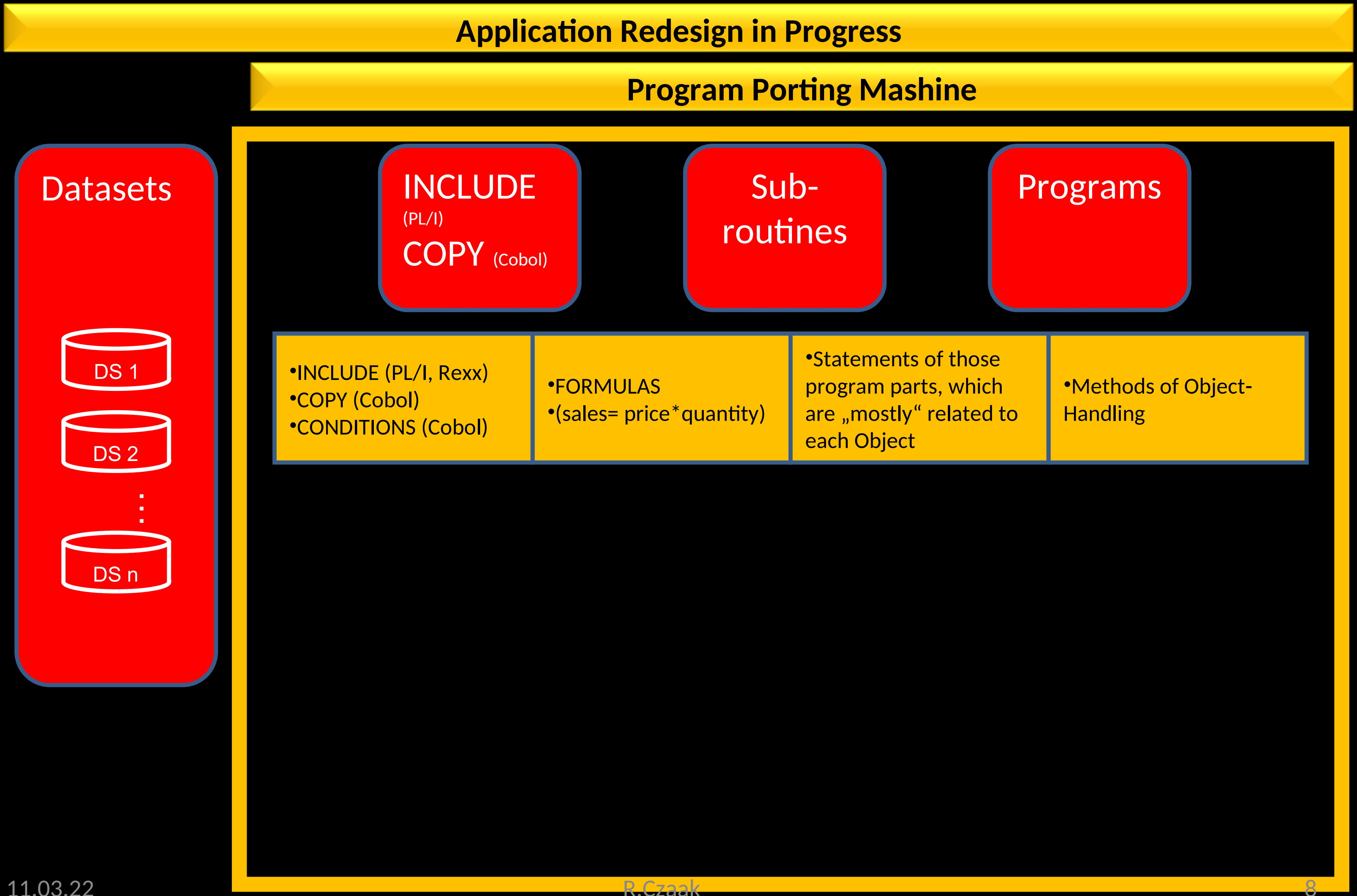
Prog. 1

Prog. 2

Prog. n

Documentation: INVENTORY, METRICS, Global XREF

PP – The Program Porting Machine



Application Redesign in Progress

Program Porting Mashine

Datasets

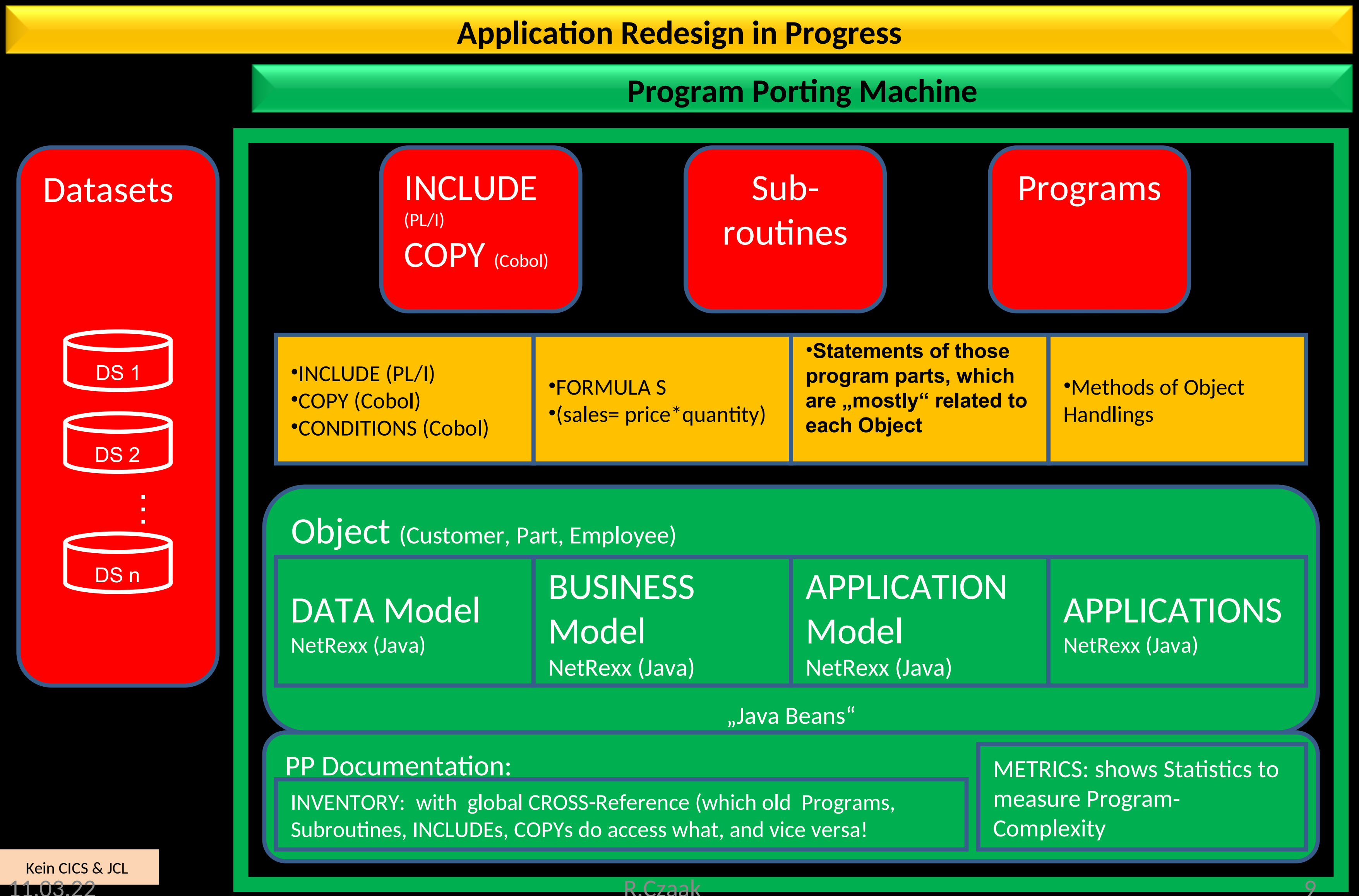
INCLUDE (PL/I)
COPY (Cobol)

Sub-routines

Programs

•INCLUDE (PL/I, Rexx) •COPY (Cobol) •CONDITIONS (Cobol)	•FORMULAS •(sales= price*quantity)	•Statements of those program parts, which are „mostly“ related to each Object	•Methods of Object-Handling

PP – The Program Porting Machine



Application Redesign in Progress

Program Porting Machine

Datasets

DS 1

DS 2

⋮

DS n

INCLUDE (PL/I)

COPY (Cobol)

Sub-routines

Programs

•INCLUDE (PL/I) •COPY (Cobol) •CONDITIONS (Cobol)	•FORMULA S •(sales= price*quantity)	**•Statements of those program parts, which are „mostly“ related to each Object**	•Methods of Object Handlings

Object (Customer, Part, Employee)

DATA Model NetRexx (Java)	BUSINESS Model NetRexx (Java)	APPLICATION Model NetRexx (Java)	APPLICATIONS NetRexx (Java)

„Java Beans“

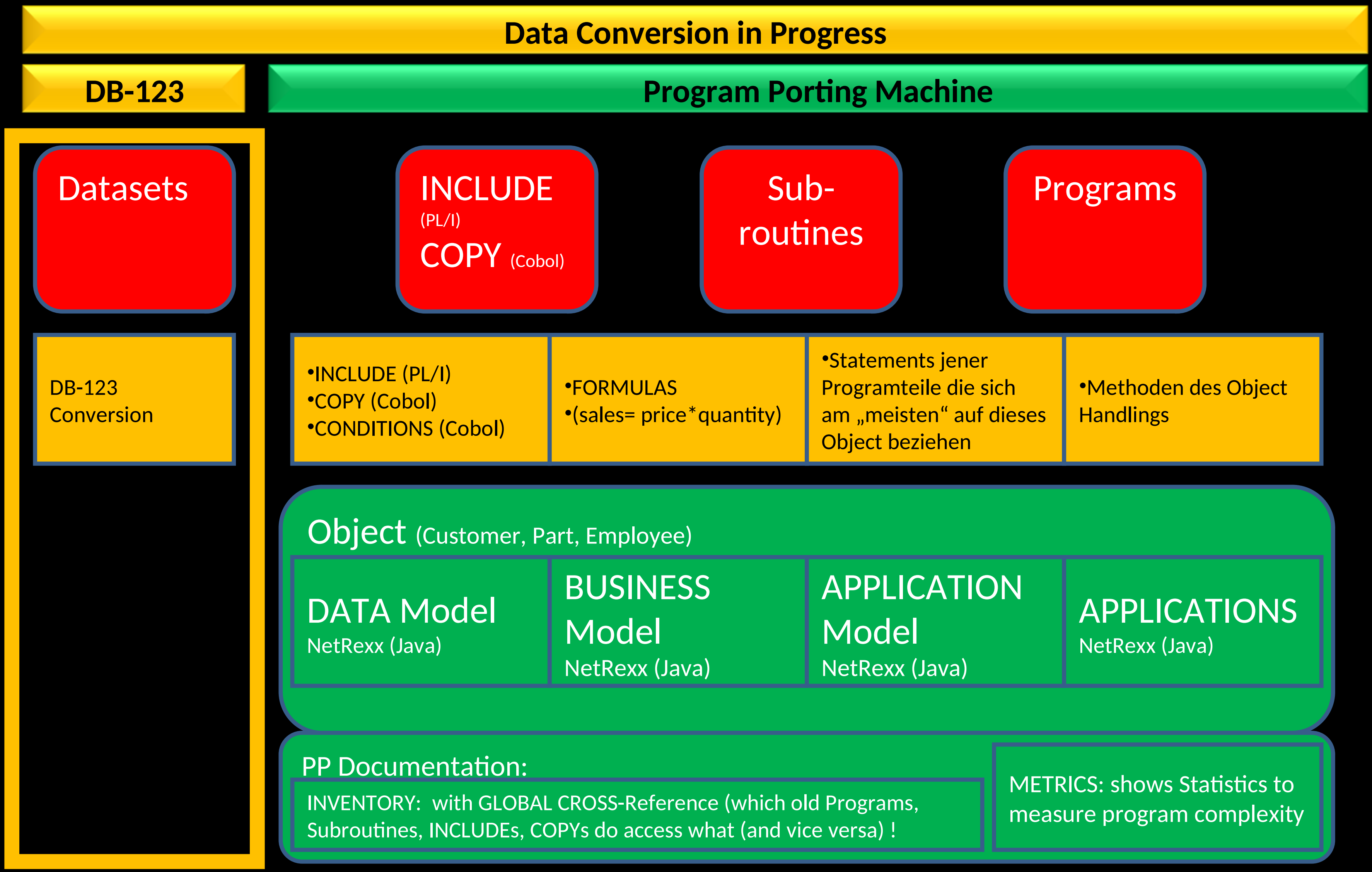
PP Documentation:

INVENTORY: with global CROSS-Reference (which old Programs, Subroutines, INCLUDEs, COPYs do access what, and vice versa!

METRICS: shows Statistics to measure Program-Complexity

Kein CICS & JCL

PP – The Program Porting Machine



Data Conversion in Progress

DB-123

Program Porting Machine

Datasets

INCLUDE (PL/I)
COPY (Cobol)

Sub-routines

Programs

DB-123 Conversion

- INCLUDE (PL/I)
- COPY (Cobol)
- CONDITIONS (Cobol)

- FORMULAS
- (sales= price*quantity)

- Statements jener Programteile die sich am „meisten“ auf dieses Object beziehen

- Methoden des Object Handlings

Object (Customer, Part, Employee)

DATA Model
NetRexx (Java)

BUSINESS Model
NetRexx (Java)

APPLICATION Model
NetRexx (Java)

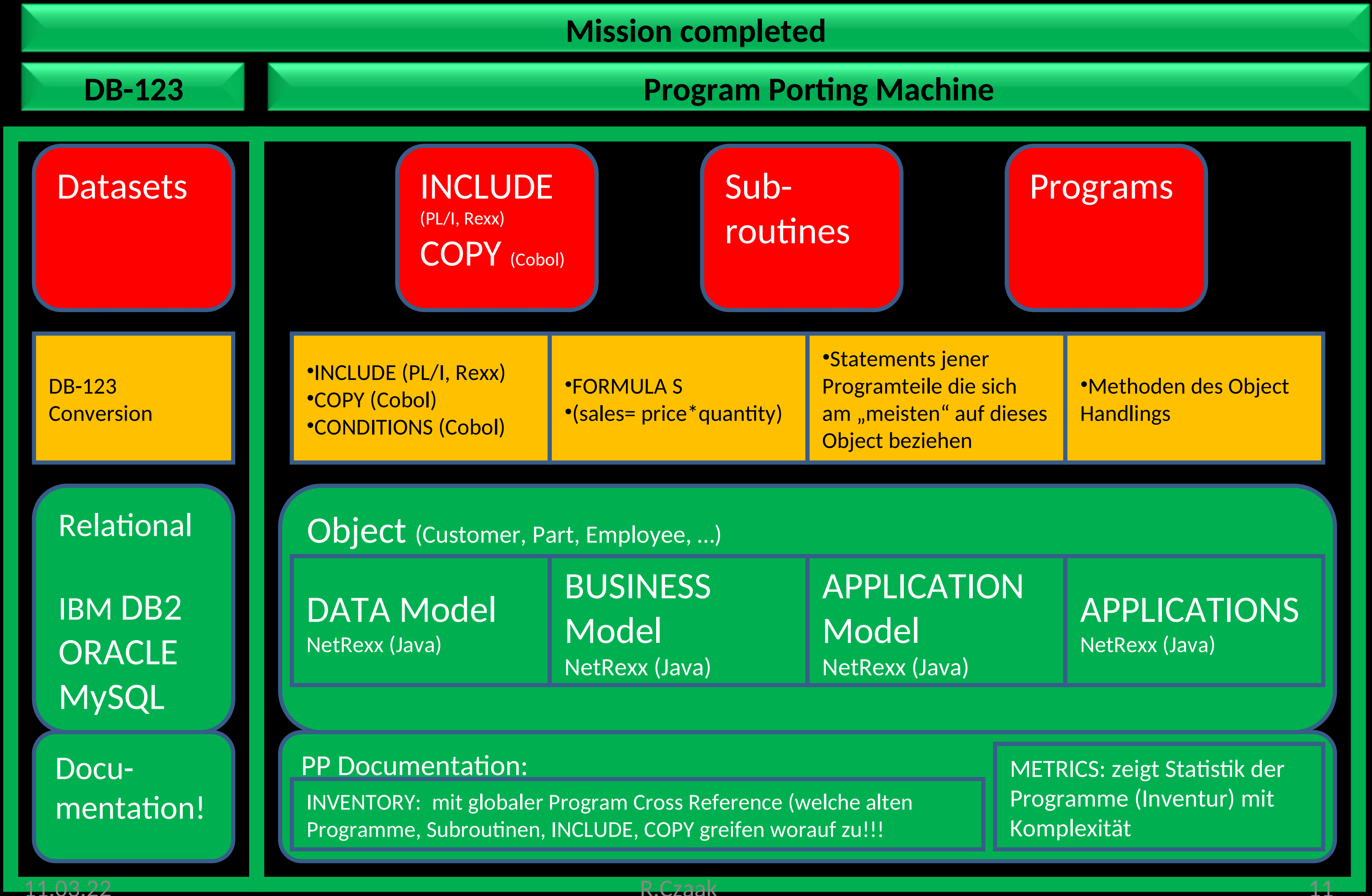
APPLICATIONS
NetRexx (Java)

PP Documentation:

INVENTORY: with GLOBAL CROSS-Reference (which old Programs, Subroutines, INCLUDEs, COPYs do access what (and vice versa) !

METRICS: shows Statistics to measure program complexity

PP & DB-123 – The Application Update



Mission completed

DB-123

Program Porting Machine

Datasets

INCLUDE (PL/I, Rexx)
COPY (Cobol)

Sub-routines

Programs

DB-123 Conversion

- INCLUDE (PL/I, Rexx)
- COPY (Cobol)
- CONDITIONS (Cobol)

- FORMULA S
- (sales= price*quantity)

- Statements jener Programteile die sich am „meisten“ auf dieses Object beziehen

- Methoden des Object Handlings

Relational

IBM DB2
ORACLE
MySQL

Object (Customer, Part, Employee, ...)

DATA Model NetRexx (Java)	BUSINESS Model NetRexx (Java)	APPLICATION Model NetRexx (Java)	APPLICATIONS NetRexx (Java)

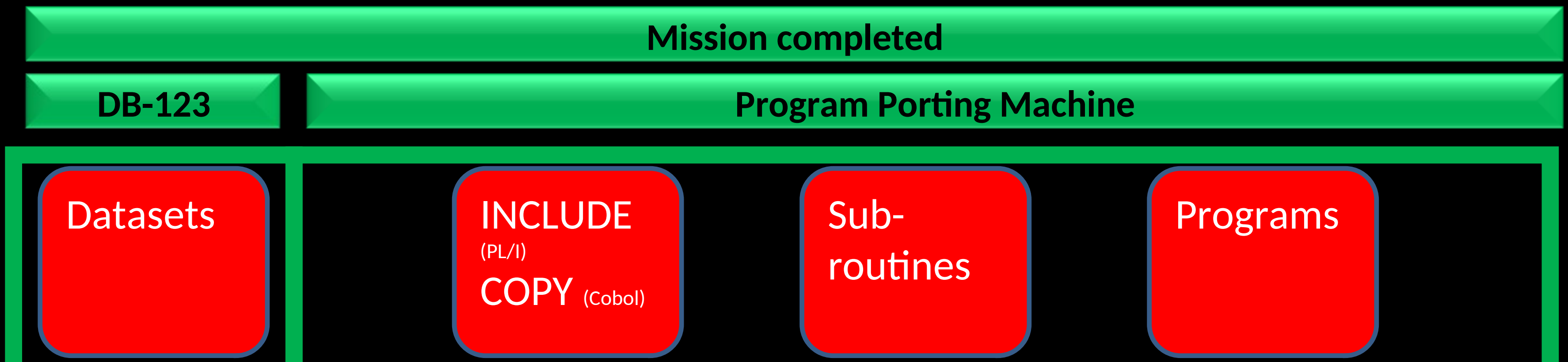
Docu-mentation!

PP Documentation:

INVENTORY: mit globaler Program Cross Reference (welche alten Programme, Subroutinen, INCLUDE, COPY greifen worauf zu!!!

METRICS: zeigt Statistik der Programme (Inventur) mit Komplexität

PP – Documentation INVENTORY & METRICS



Mission completed

DB-123

Program Porting Machine

Datasets

INCLUDE (PL/I)

COPY (Cobol)

Sub-routines

Programs

PP Documentation METRICS: Program / Module Statistics (Inventory) measuring the Complexity

Program	#Source	#Doc	#if	#perform	#call
Prog.#1					
Prog.#2					
Prog.#n					

PP Documentation INVENTORY: with GLOBAL Program Cross Reference (which old Programs, Subroutines, INCLUDEs, COPYs do access what (and Vice Versa) !

PP – Features

- Note: Old Processes NOT defined in source-programs, but in batch JCL & CICS / IMS/DC !
- JCL: Old Libraries (COBOL, PL/I, Rexx, IMS) are replaced by new Libraries (Java Jar-Files)
- CICS Emulators (e.g. XCICS) do enable WEB-access to all applications
- Stepwise refinement using the generated Java-Beans possible.

PP – Phases

- Mainframe Applikations are running OO with WEB-access and look&feel like old appl‘s
- Adaption of Screen-Layout (XCICS)
- Stepwise Conversion of old Business Logic (Batch-Programs) to WEB-enabled ONLINE-applications (-50 thru -60% Development-Time)
- Change of platform requires change of JCL, for instance UC4 (Austrian SW for Job-Scheduling in Realtime-Systems)

Project-Cooperations

IBM ISV (Independent Software Vendor) to be signed start of 2011

PP possibly offered on IBM ERMIS as a Value Added Service

Seeking for Business and/or Implementation Partners worldwide

PP - Documentation

- Can be done as a separate Project, in advance, to estimate complexity & perform a risk analysis!
- Various measures to estimate complexity
- Identification and elimination of DUPLICATE Code

Why NetRexx as TARGET-Language?

- Easy to read sources, human oriented syntax & semantics
- Understandable for PL/I-, Cobol-, Rexx & Java-Programmers
- Ease of Maintenance
- Lesser Code than in Java (-30 bis -50%)
- Decimal Arithmetic with arbitrary presicion (IBM Chip coming along)
- No Longer „Rounding Problems“ due to binary arithmetic
- Excellent Handling of Program/User errors possible
- Platform Independent (Just in Time Compiler)
- Optional Generation of IBM‘s EGL Enterprise-Generation-Language
- Enables Optimal, Flexible „Right Sizing“
- Make existing Application Younger and State of the Art
- Reduce Pressure on Mainframe-Applications and IT-Managers!
- Secure Investments for Customers and Service-Providers

Typical Project

- METRICS & INVENTORY (Whole Application)
- Proof of Concept:
  - 5-10 Main Programs with all SubRoutines, INCLUDES etc.
  - Ca. 6 Weeks Elapsed Time
- Project-Plan
- Offer with Partner (IBM, Oracle, etc)
- Order
- Actual Conversion (in Tranches of max. 3-6 Month‘s)
- QA-Tests performed by Customer
- Acceptance thru Customer
- Go Live

Further Investigations show

- 60% - 70% of existing Code still in Cobol and PL/I (Gartner Group)
- PL/I widely used in DACH (PL/I Labor in Vienna, Austria)
- Old applications with CICS and/or IMS/DC out of date (80*25 char screens)
- Not WEB-fähig
- Difficulty to connect to various NetWorks
- 4 Alternatives für MainFrame Customers:
  - New Developments based on old Design make the problem even bigger
  - Do Nothing forces even more problems in the Future
    - Old Programmers go into Pension
    - No Doc‘s available for Prozesses, Code-Dependencies, Data-Model, etc
    - Applications not WEB-enabled
    - Too less USER-friendly
    - Too less CUSTOMER-friendly
  - New Developments based on new Technologies (other Platforms, Compatibility, Schnittstellen)
    - New Development from Scratch not feasable (whithout Docu? Budget? Recouserces?)
  - Automatic Port of OLD Applications: Old Programs *DO CONTAIN* the Business Logic as well as the (maybe ancient) Data-Model !