

Load Java Source Code into the CA Repository

U.S. Dial-In #: 866 394 - 9787

Int'l/Canada Dial-In #: 706 679 - 0852

Conference ID: 77600222

Loading, Managing, and
Analyzing Enterprise
Software Assets

What are we talking about

- > Bringing enterprise J2EE/Java Software into the repository using XML Data Exchange
- > Enabling enhanced management and understanding of complex object oriented software assets
- > Enhancing the ROI of CA Repository
 - Reduce analysis time
 - Reduce software defects
 - Remove redundant routines
 - And much more...

Companies Presenting

> **ADC Austin Tech (John Rhodes, Principal Architect)**

- A primary CA reseller of software development tooling
- Long association as a services and technology partner
- Experienced with software and metamodels

> **Semantic Designs (Chad Wellington, Software Engineer)**

- Developer of DMS, proven compiler grade analysis engine underlying SDSourceScanners

Agenda

- > Software Analysis Methodologies
- > ROI Factors
- > How does source scanning work?
- > Demonstration
 - Code Analysis Step
 - XML Load and View in Repository Step
- > Q&A

> Software Analysis Methodologies

Software Asset Analysis

Oh...
and Where
does Interline
Accounting fit
in?

How can I see the
program calling
chain?

What are the
enterprise
naming
standards?

What other
systems are
effected by this
change?

Has this code
already been
written?

Who wrote this?
Who is the domain expert?

What are the
(business)
requirements?

Where are the
specs?

What external
data was used?



The Software Maintenance Problem

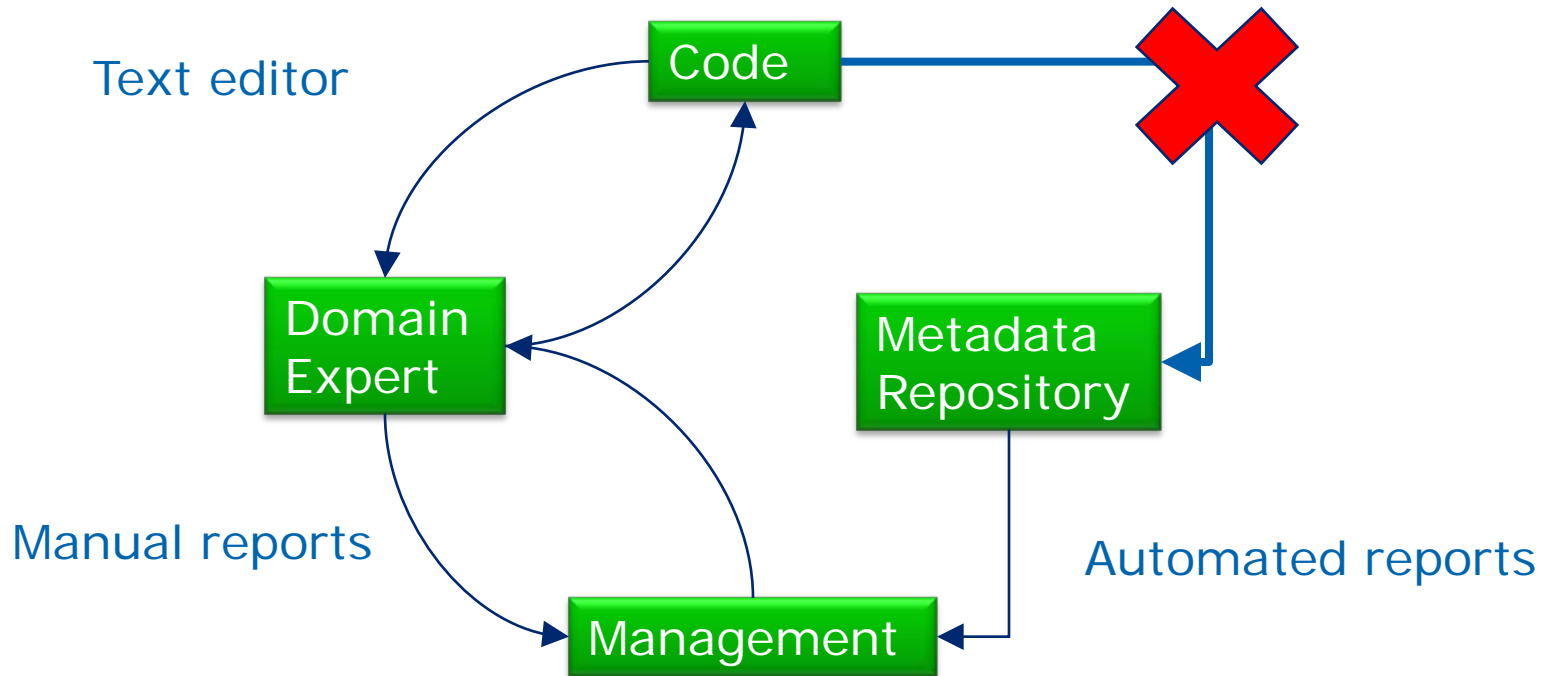
- > Software change is difficult, risky, and necessary
- > Difficult from understandability
 - Current state difficult to ascertain
- > Risky from unpredictability
 - Correctness is fragile
 - Small alterations cause large results
- > Necessary for organizational success
 - Environment, culture, regulation,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

The Solution

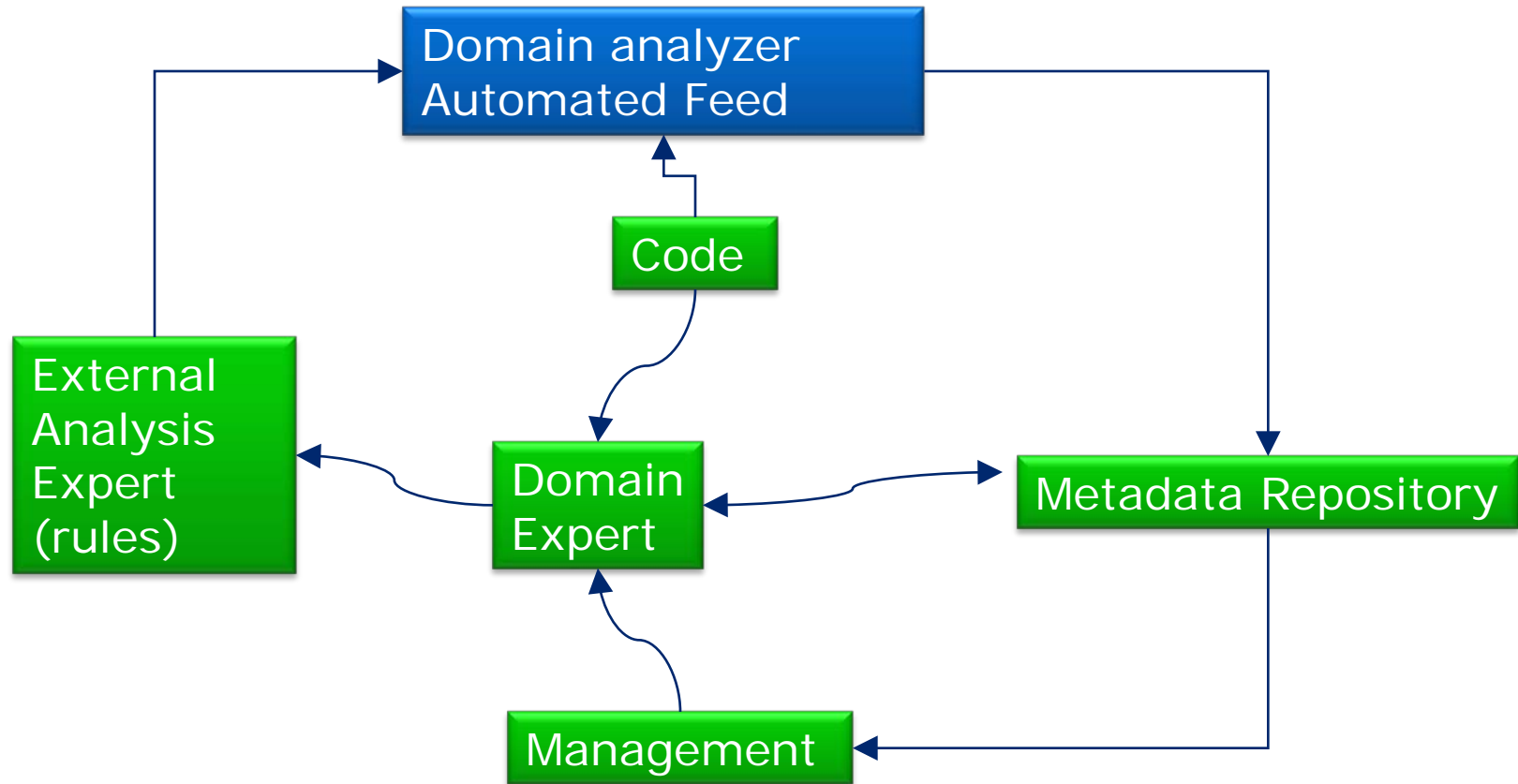
- > Relationships create understanding
 - Containment
 - Location
 - Derivation
 - Information flow
 - Within domain (control flow)
 - Across domain boundaries (interfaces)
- > Understanding change alleviates risk
 - Impact analysis
 - Cost, complexity metrics

Typical Repository Analysis Methodology without Software Scanning

> Without Automated Source Scanning



Unified Repository Methodology with Software Assistance



> Return on Investment

CA Repository with
Software Assets

Calculating ROI



> Intel reports a **\$6** return for every **\$1** spent on (ComputerWorld)

- \$53 Million Savings in Code Reuse

> ITIL / CMDB ROI

Problems in productivity (per TDAN)

- > Data warehouses that aren't used because nobody documented what the data means and where it came from.
- > Mergers and acquisitions that don't work because nobody really knows
- > Inability to manage data (GLBA, PCI) because there is no list of files, databases, and programs that access consumer data
- > Expanding the length of a primary key field called X by Y number of bytes begets a project that cost Z millions of dollars

**Common Thread
Millions of Dollars
Wasted**

Classes of ROI Savings

> Process and Data Standardization

- Elimination of silos

> Increase Process Efficiency

- Software development efficiency
 - 30% of a developers time can be spent finding reusable objects – with obvious motivation for redundancy
- Analyst/Architect efficiency
 - Eliminating tedious tasks leaves more time for actual analysis – more functions points developed

> Eliminate Process Events Altogether

- Failed change management, audit, etc.

Do the math on automated software analysis

- > x Architects @ \$130K * (5-30)% efficiency gain
- > y Developers @ \$90K * (5-30)% efficiency gain
- > ...

VS

- > One time fixed cost of software
- > Ongoing maintenance and support
- =
- > Often is a 5-10x return on investment in the first year

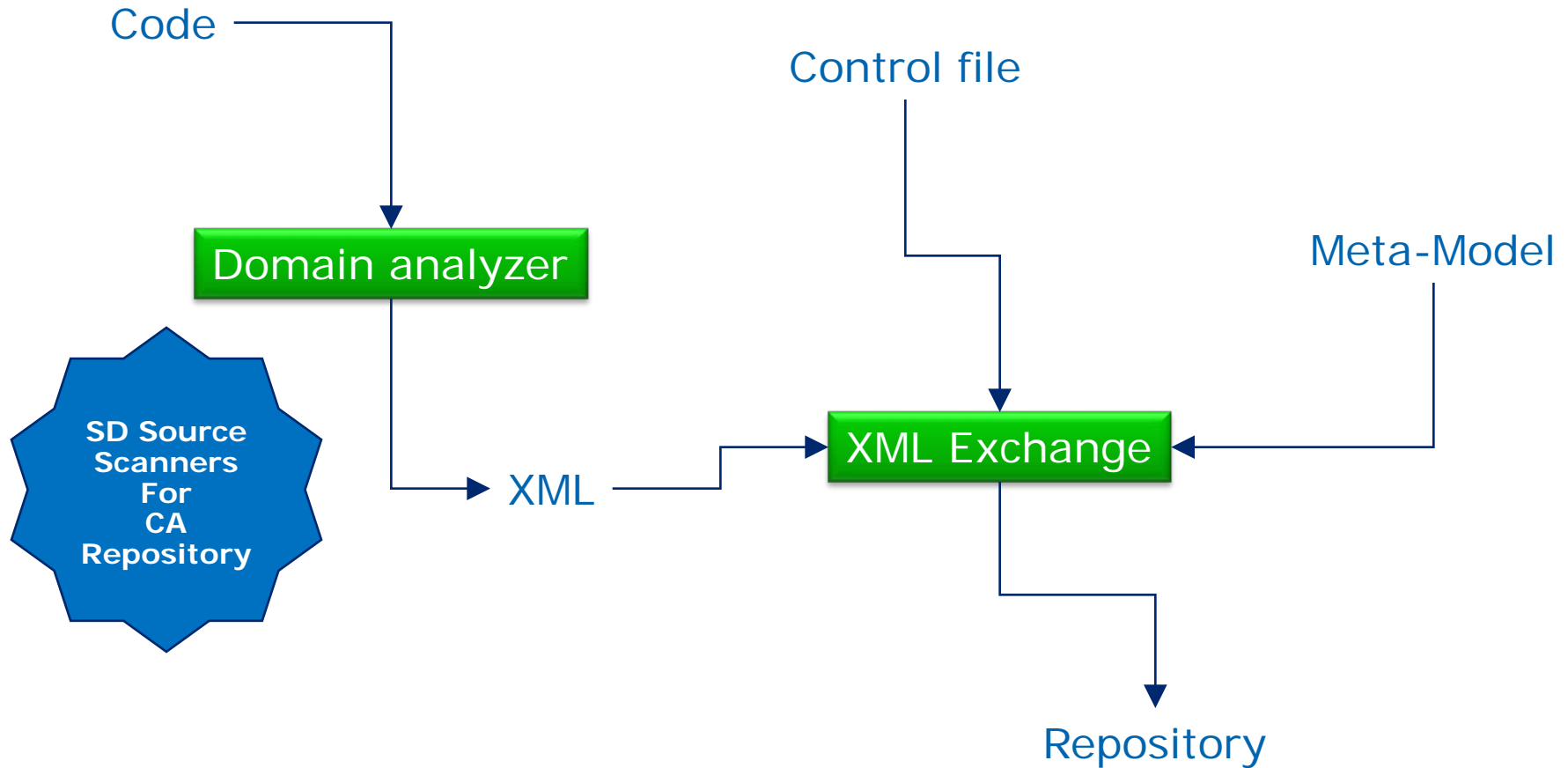
> How does it work?

Technology Focus

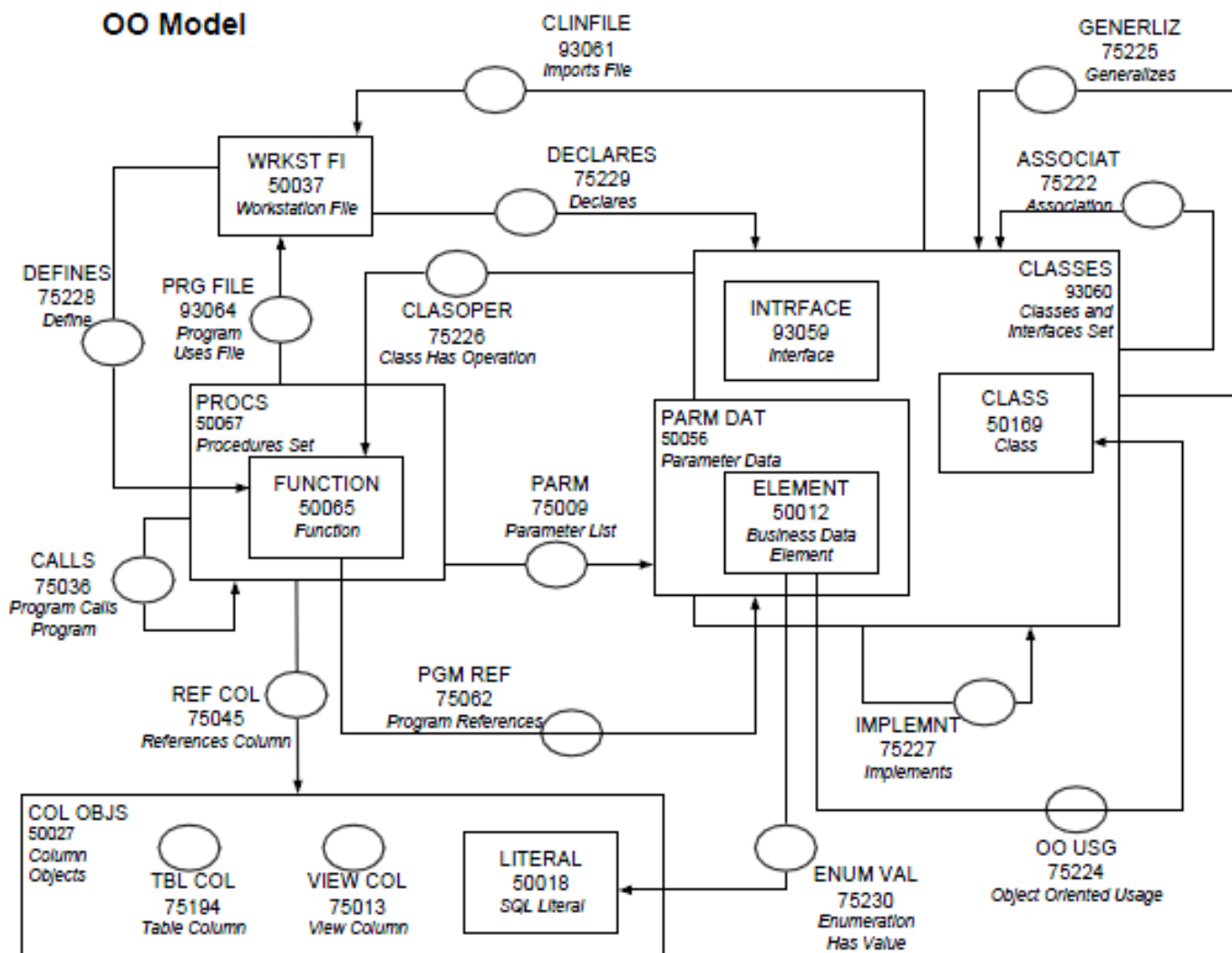
SDSourceScanners – Overview

- > Domain analyzer analyzes the source data and creates meta data from the source
- > Control File is an XML Document in itself that contains the rules on how to map an object in the XML Document to an object in the repository
- > XML Exchange reads the source to produce an XML using control file, domain analyzer and the meta model which can be imported in to repository

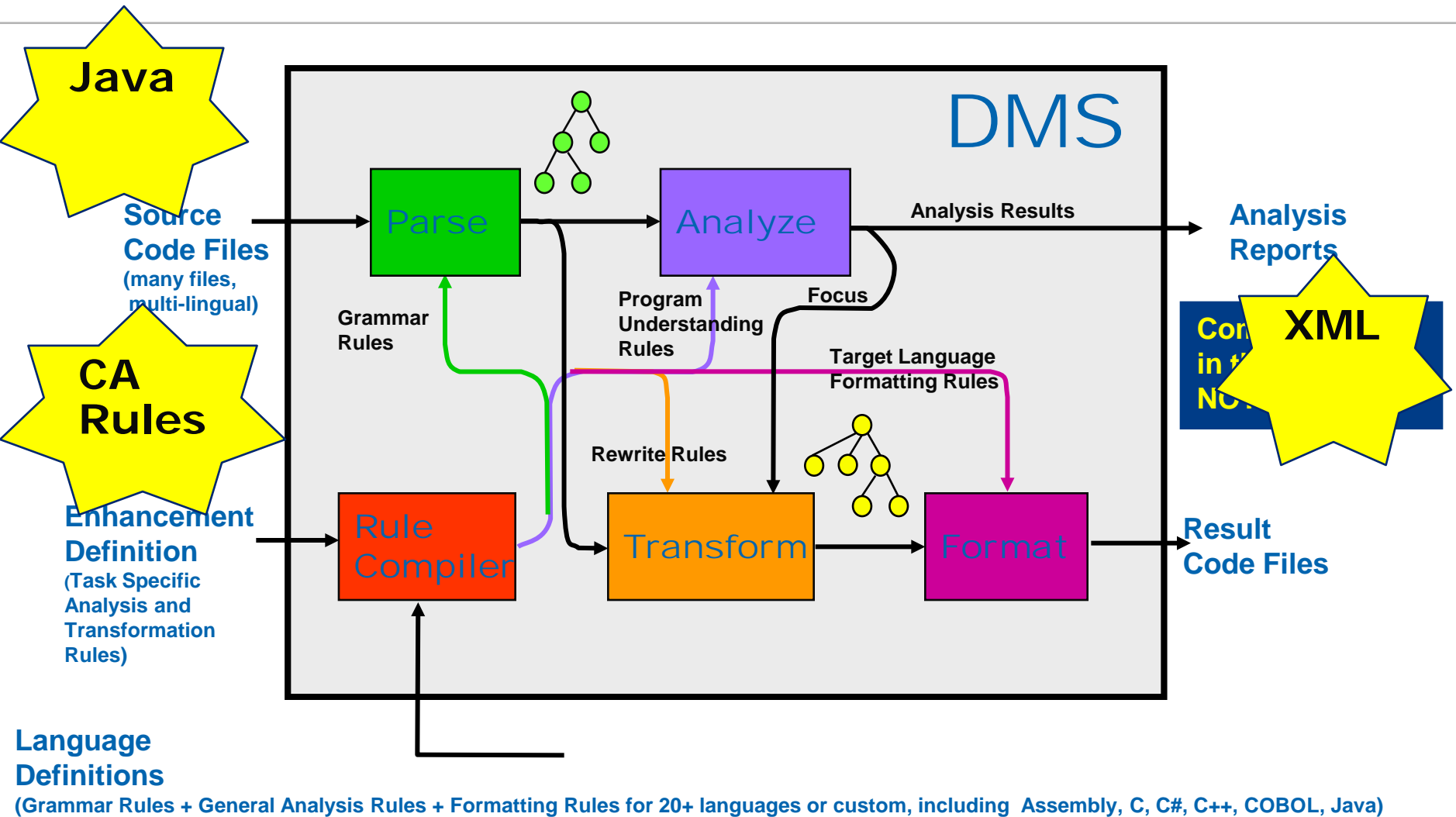
XML Exchange Overview



Domain Analyzer Transforms Source to...



Domain Analyzer – SDSourceScanner Technology



What is it doing?

> Analysis

- Name and Type Resolution
- Inspecting inheritance across system
- Usage Analysis (Call Graph)
- Database access*

> Formatting XML per rules

What can it do?

> Virtually anything

- Compiler grade analysis engine, all program information is cataloged for analysis
- Examples
 - Clone detection / Component reuse
 - Complex database usage scenarios
 - Audit / SOX

> Need to define to SD Source Scanner Engine

- Metamodel (CA Repository)
- Analysis rules

SDSourceScanner + CA Repository

Wider Application Possibilities

- > Opens up new possibilities to populate CA Repository
- > Object Oriented Languages
 - Java, currently available with ADC Austin (V2.3)
 - More to come
- > Web Services / SOA
 - Currently available with CA
- > Any object types

> Demonstration

SD Source Scanners Demonstration

- > Analyzing a Java based enterprise software application using Java / XML Exchange
 - Hipergate – Open Source CRM
 - 150K Lines of java source
 - Microsoft SQL Server back end

XML Exchange Solution –Overview

> Source Analysis Step

- Examine application
- Examine source
- Run Domain Analysis (SD Source Scanner) to produce XML

> Load XML into Repository Step

- View data shopper and client results

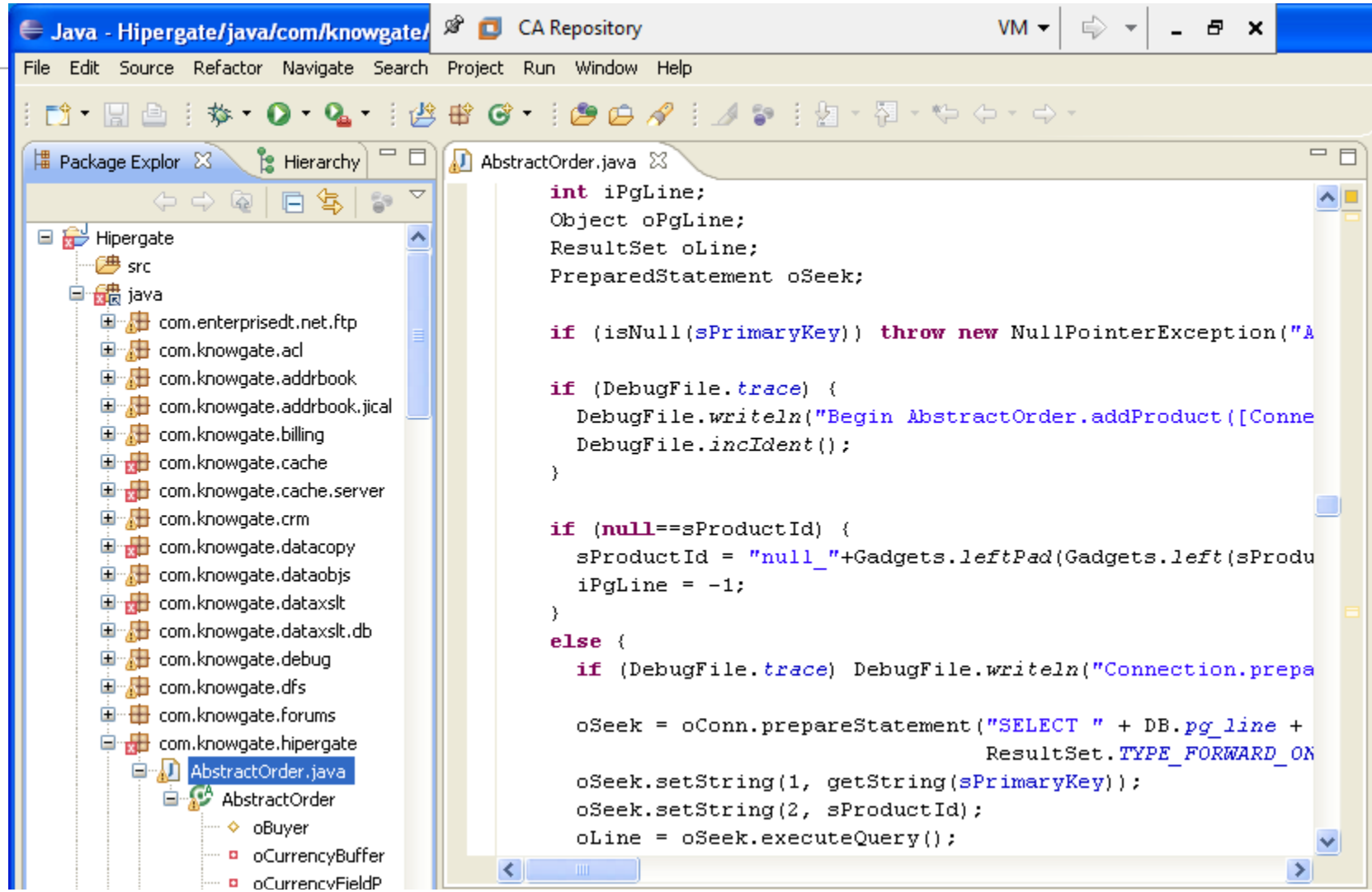
Application

The screenshot displays a web browser window with the address bar showing `http://localhost:8080/hipergate/crm/crmhome.jsp?selected=2&subselected=-1`. The main content area is divided into several sections:

- Navigation Menu:** A horizontal menu with buttons for "Project Management", "Content production", "Corporate Library", "Shop", "Training", and "Configuration". Below it are links for "Lists" and "Sellers".
- Login Form:** A box titled "v3.0 - Start Session" with fields for "E-mail" (containing `administrator@hipergate-test.com`) and "Password" (containing `TEST`), and an "Enter" button. Below the form is the text: "Application optimized for Internet Explorer 6 or Firefox 1.5 at 1024x768".
- Recent:** A blue tabbed section showing a list of recent items, with one entry: "SEMANTIC DESIGNS, INC. 51244412211".
- Main Content Area:**
 - A "Find Company" search box.
 - A "New Company" link.
 - A section titled "Individuals" containing:
 - A search box and a "Find Individual" link.
 - Links for "New Individual" and "Fast Edit".
 - Links for "Import Address Book Entries from outlook Express" and "Import contacts from text file".
 - A section titled "Distribution Lists" containing:
 - A dropdown menu and a "Send Mailing" link.
 - A "New List" link.

Below the login form, the text "Passwords for the development version are:" is visible.

Application Logic



```
int iPgLine;
Object oPgLine;
ResultSet oLine;
PreparedStatement oSeek;

if (isNull(sPrimaryKey)) throw new NullPointerException("A

if (DebugFile.trace) {
    DebugFile.writeln("Begin AbstractOrder.addProduct ([Conne
    DebugFile.incIdent();
}

if (null==sProductId) {
    sProductId = "null_" + Gadgets.leftPad(Gadgets.left(sProdu
    iPgLine = -1;
}
else {
    if (DebugFile.trace) DebugFile.writeln("Connection.prepa

oSeek = oConn.prepareStatement("SELECT " + DB.pg_line +
    ResultSet.TYPE_FORWARD_ON
oSeek.setString(1, getString(sPrimaryKey));
oSeek.setString(2, sProductId);
oLine = oSeek.executeQuery();
```

Summary

- > SDSourceScanners and XML Exchange enables the CA Repository to
 - Jump the hurdles to a wider repository application
 - **Announcing Java capability**
 - **With 2.3 GA on Distributed**
 - Eliminate tradeoff between technological progress and manageability
- > Specialized program analysis gives
 - Multi-domain support
 - Custom property derivation

Next Steps

- > ROI Analysis – we can assist
- > Z-OS Customers
 - Flat file import now
 - Evaluate XML during beta program
- > Distributed Customers
 - Currently available with v2.3 Release
 - Discuss evaluation



> QA

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