

Introduction to Genero Enterprise

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FOUR Js
The Power of Simplicity



Definition

One sentence & some facts

➤ **Genero is a suite of products that allows you to quickly and efficiently develop and deploy new or existing business applications across Operating Systems, Databases or User Interfaces**

- * Enables modernization of I-4GL legacy applications at your own pace with maximum Return of Investment.
- * Takes over where Informix 4gl where left it off, extending your programs' life by adding new features every year/release
- * Over the last 18 years, helped some of the world's largest (and smallest) enterprises
- * Used by many existing customers to develop brand new applications or modules



Genero Enterprise Suite

List of products

- **Programming Language (called BDL) & compiler**
- **Runtime System (Dynamic Virtual Machine)**
- **Integrated Development Environment (Studio)**
- **Web Services API**
- **Application Server**
- **Graphical clients**
 - * Desktop Client (Windows, MacOS, Linux)
 - * Universal Web Client (HTML5/CSS/Javascript based)
 - * Mobile packaging for IOS and Android
- **Report Writer/Publisher**



Language

BDL stands for Business Development Language

➤ Key component of our value proposition

- * It has proven over the years to be a great choice to design and maintain sophisticated business / intensive data entry applications
- * Efficient & Comprehensive high level language to quickly get information in/out of a database to be displayed on screen
- * Easy to learn to add new programmers using our complementary GUI development environment

➤ Superset of Informix 4gl

- * Fully backward compatible meaning legacy code / screens / reports can be used as a base

➤ New features, widgets and APIs added every year in order to always extend the developer's possibilities

➤ You can code manually or use a code generator

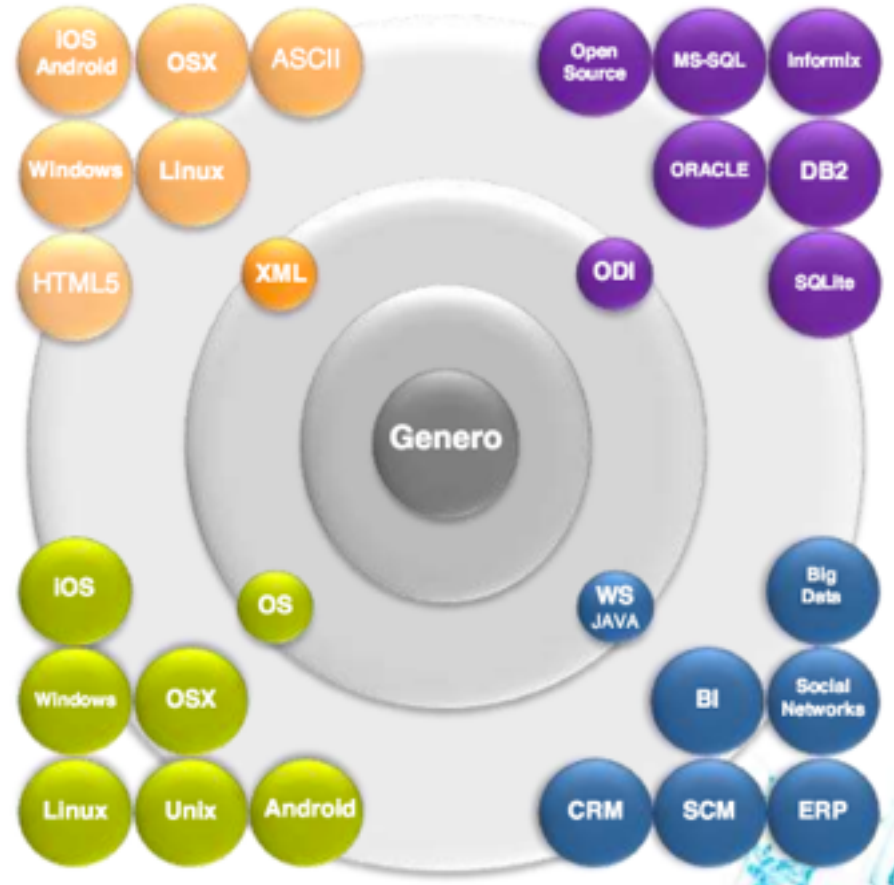
- * Business Application Manager (BAM)



Open Architecture

Secure, Scalable, integrates within the existing IT landscape

- **SSH, TELNET & HTTP(s) protocol support**
- **Lightweight app server**
 - * Plugin to Apache, IIS, WebSphere, Tomcat, ...
- **Thin client, 'n' tier**
- **Abstraction layers**
 - * Presentation
 - * Data
 - * OS
 - * Network



Open Architecture

One code set, many possibilities

- **Write once, deploy anywhere**
- **P-code is OS cross-platform like Java Byte code**
- **Operating System agnostic**
 - * Linux, AIX, MacOS, Windows, SUN, HP, ...
- **Database agnostic using native drivers**
- **Our Dynamic Virtual machine loads DLLs at runtime (like Apache)**
 - * XML API
 - * Web Services API
 - * Utils/Mathematical API
 - * Custom C/Java functions
- **Cross front-end User Interface protocol based on DOM/XML**



Front-ends

One form definition, many possibilities

- **Still supports legacy ASCII code with almost no changes**
- **4gl screens (.per) are backward compatible with Genero UI but in order to maximize the possibilities, a migration is recommended.**
- **Dynamic Virtual Machine (DVM) synchronizes the same XML structure with each front-ends**
- **Available clients**
 - * ASCII
 - * Desktop
 - * Web
 - * Mobile



Reports

Adapt at your own pace

➤ Backward compatibility

- * Legacy 4gl report engine still works as-is

➤ Genero report Writer

- * You can simply start pointing your dataset to be streamed and published by the new engine
- * Compatibility mode allows you to run your reports unchanged in an 'ASCII' look&feel
- * Same value proposition as Genero screen redesign for applications
- * Separates data from decoration allowing you to apply multiple report templates/designs to the same set of data



Migration steps

3 defined phases, progress at your own pace with instant rewards

☑ **Step 1 : Straight recompile**

- * Almost no changes needed to the business logic or forms
- * Runs in ASCII/console mode in place of I-4gl
- * Runs in GUI 'as-is' using our 'traditional' mode: not beautified but functional

☑ **Step 1.1 : Integrate code in GUI Development Environment**

- * Use of Studio is not a requirement (all tools are available in command line)
- * Increases productivity instantly
- * Familiar & expected to Java, C#, web developers



Productivity - Studio IDE

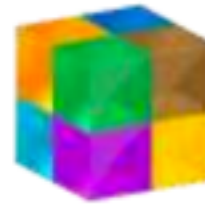
Model Driven Architecture, list of modules



Code Editor



Form Designer



Manage Projects



Graphic Debugger



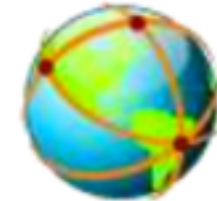
App Generator



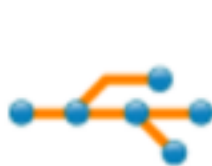
Bus App Modeler



Report Designer



SOA & WS



Team work (SCM)



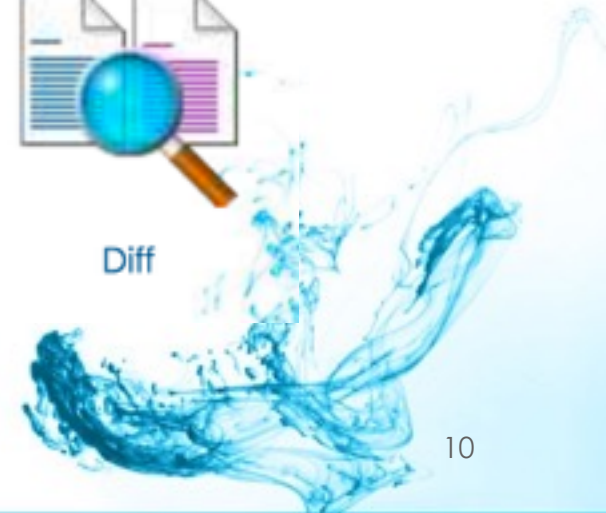
Profiler



DB Meta schema

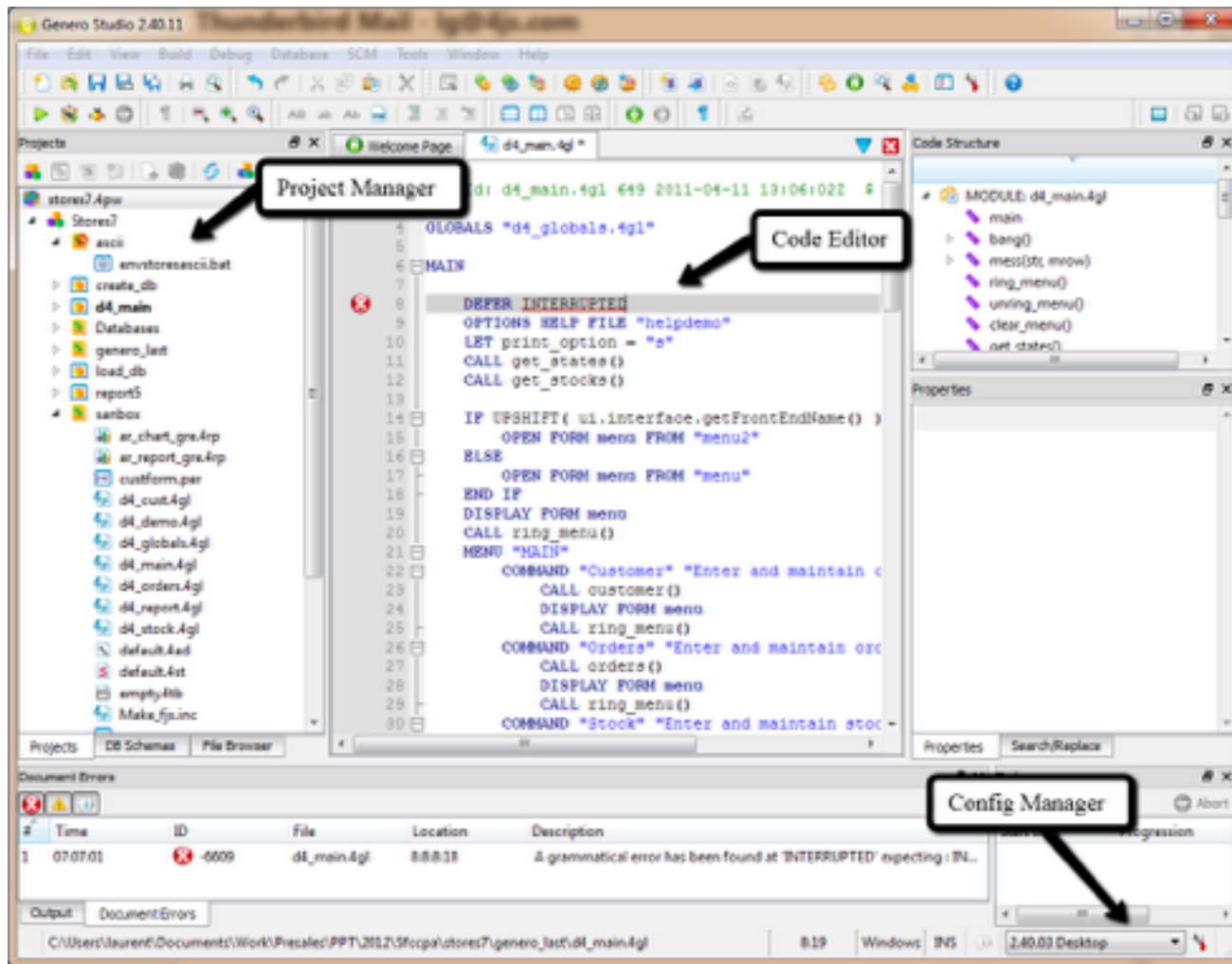


Diff



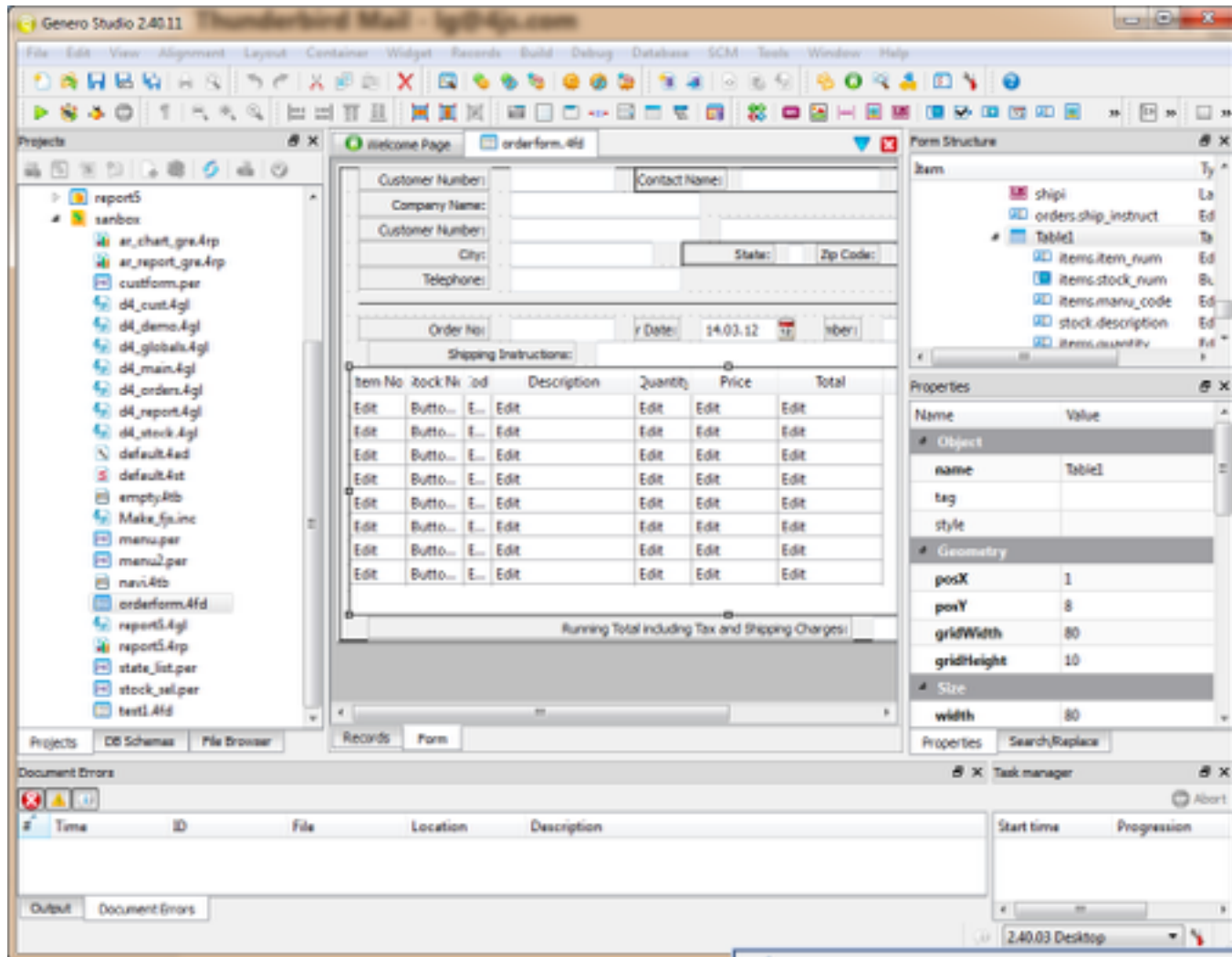
Productivity - Studio IDE

Project manager, Code editor, Config manager, instant code error detection



Productivity - Studio IDE

Screen designer

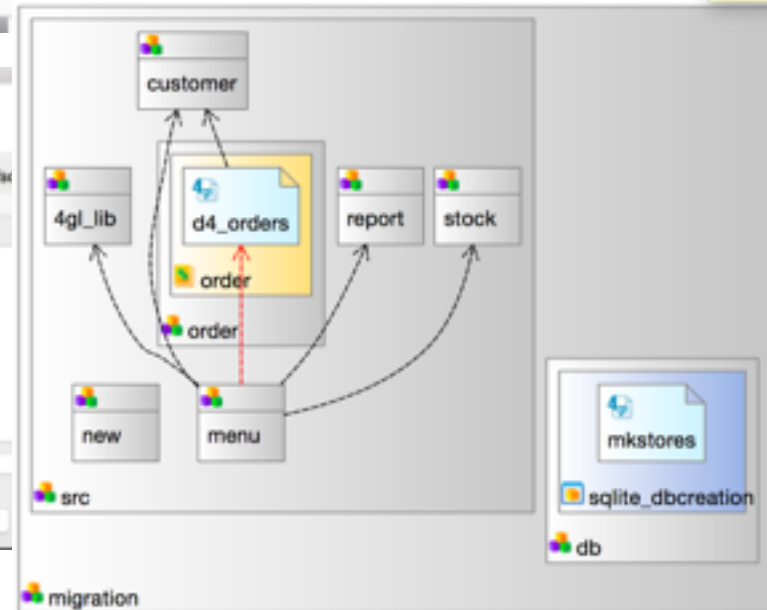


Productivity - Studio IDE

DB explorer, meta-schema, dependency diagram

The screenshot displays the 'Database Structure' window in Studio IDE. It shows a tree view of the 'stores7' database with folders for 'customer', 'items', and 'stock'. The 'customer' folder is expanded, showing tables 'customer' and 'manufact'. The 'items' folder is also expanded, showing tables 'item' and 'orders'. The 'stock' folder is expanded, showing tables 'stock' and 'unit_desc'. Each table is shown with its columns and data types. For example, the 'customer' table has columns: customer_num (SERIAL), fname (CHAR(15)), lname (CHAR(15)), company (CHAR(20)), address1 (CHAR(20)), address2 (CHAR(20)), city (CHAR(15)), state (CHAR(2)), zipcode (CHAR(5)), and phone (CHAR(18)).

The screenshot shows the 'Query Editor' window in Studio IDE. The 'Edit query' tab is active, showing the current connection path: 'Users\laurent\Documents\Work\Demos\GeneroStores\migration\db\src'. The query being executed is 'select * from customer'. Below the query editor, a table of results is displayed, showing 28 rows of data. The table has columns: customer_num, fname, lname, and phone. The first few rows are: 101 Ludwig Pauli, 102 Carole Sadler, 103 Philip Currie, 104 Anthony Higgins, 105 Raymond Vector, 106 George Watson, 107 Charles Ream, and 108 Charles Ream.



Migration steps

3 defined phases, progress at your own pace with instant rewards

☑ **Step 2 : Modify screens only**

- * Toolbars, TopMenu
- * Tables, Treeviews
- * Containers like foldertabs, groups, ...
- * Widgets: Dropboxes, Images, Date pickers, ...



Modifying screens only

Small effort, maximum reward

AP:Invoice Entry

File Process Enquiry Maintain Report

Invoice Journal

Company CS Transaction 000521 1/2002:01Jul2001-31Jul2001

Bank WPAC1 Trans Date 12/01/1994 Control Total 11,519.50

Source MAN Post Date 12/01/1994 Computed 11,519.50

Currency AUD Rate 1.0000 Difference 0.00

Status == POSTED ==

Invoice Entries Details

Trx	Supp ID	Type	Number	Inv Date	Amount
2	INFORMIX	D	104963	13/12/1993	350.00
3	INFORMIX	D	104964	13/12/1993	2,424.00
4	INFORMIX	D	104903	24/11/1993	7,037.30
5	JAYARE	D	JK1293	13/12/1993	390.00
1	HIDEN	D	3121500056	20/12/1993	1,318.20

View Cancel PgDown Prev Help PgUp Notes View

Demo

MODIFY: enter data

VIEW details of the current record

** CORPORATE SOLUTIONS ** - INVOICE ENTRY - Mon Sep 02 2002

Company CS Transaction Number 000521 1/2002:01Jul2001-31Jul2001

Bank WPAC1 Date 12/01/1994 Control Total 11,519.50

Source MAN Postdate 12/01/1994 Computed 11,519.50

Currency AUD Rate 1.0000 Difference 0.00

** POSTED **

INVOICE ENTRIES

Trx	Supp. ID	Supplier Name	Type	Number	Inv Date	Amount
1	HIDEN	Hiden Pacific	D	3121500056	20/12/1993	1,318.20
2	INFORMIX	Informix Software	D	104963	13/12/1993	350.00
3	INFORMIX	Informix Software	D	104964	13/12/1993	2,424.00
4	INFORMIX	Informix Software	D	104903	24/11/1993	7,037.30
5	JAYARE	Jayare's Cleaning	D	JK1293	13/12/1993	390.00

INVOICE DETAILS

Trx 1 Supplier HIDEN Hiden Pacific Number 3121500056

Ref Inv Date 20/12/1993 Due 03/01/1994 Amount 1,318.20

Inv Type D Separate Cheque

Ret.Amount Ret. Date GST

OPTIONS: use arrow keys, OR F1=VIEW DETAIL F4=QUIT F5=FMD F6=PREV F10=HELP

Web front-end

Ease of deployment, power of customization

➤ Clean and Responsive

- * Without changing the Business Logic or the code, will look & feel like a Desktop application

➤ Distributable

- * Without changing the Business Logic or the code, will look & feel like a Desktop application
- * Only need of a connected latest generation web browser, no other vendor specific software to install on the user's machine

➤ Highly customizable

- * Lightweight and efficient Javascript client
- * Customization framework provided
- * Using latest technologies any web developer would know
 - * node.js, npm, Sass, ...
 - * Split the teams !



Migration steps

3 defined phases, progress at your own pace with instant rewards

☑ **Step 3 : Adapt Business Logic for advanced code designs and UI capabilities**

- * Multiple Dialogs/Focus
- * Drag & Drop
- * Web Components
- * Web Services
- * Report Designs



Extending the possibilities

Interoperability & external components

➤ Web Services API

- * Mature 15 years old BDL extension
- * Can be used to consume third-party services or refactor 4gl business logic as a Service provider
- * Support for SOAP and REST: in most cases, code can be generated

➤ Java Bridge API

- * Allows you to import Java classes and instantiate Java objects in your BDL programs
- * Instant access to a huge list of standard as well as commercial utility libraries for specific purposes

➤ Web Components

- * Instant access to a vast # of html/JS advanced components outside of what Genero native widget do provide
- * Integrates inside a special container in the form
- * API available to exchange information to/from the component



Report Writer

More important info

➤ Not an ad-hoc product like Crystal Report

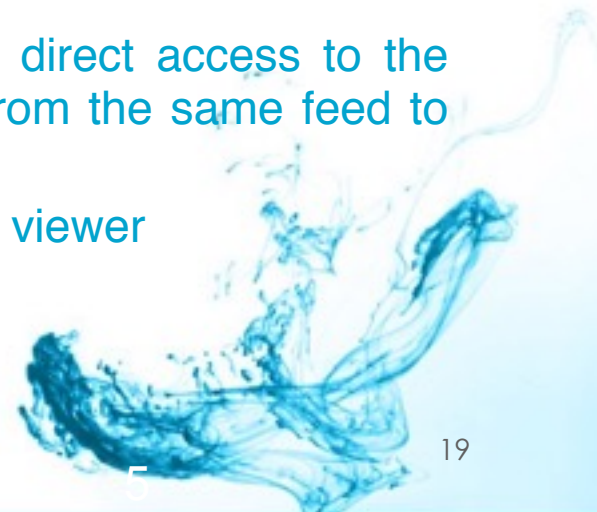
- * Separates the data from the designs
- * Not tailored to quickly create 'ad-hoc' reports, but rather to design sophisticated/predictable report designs that need to be quickly and efficiently published

➤ 3 distincts components

- * Code API to define advanced datasets
- * Report Designer to create sophisticated new designs
- * Performant streaming engine that blends the data + the designs together on-the-fly and publishes the content

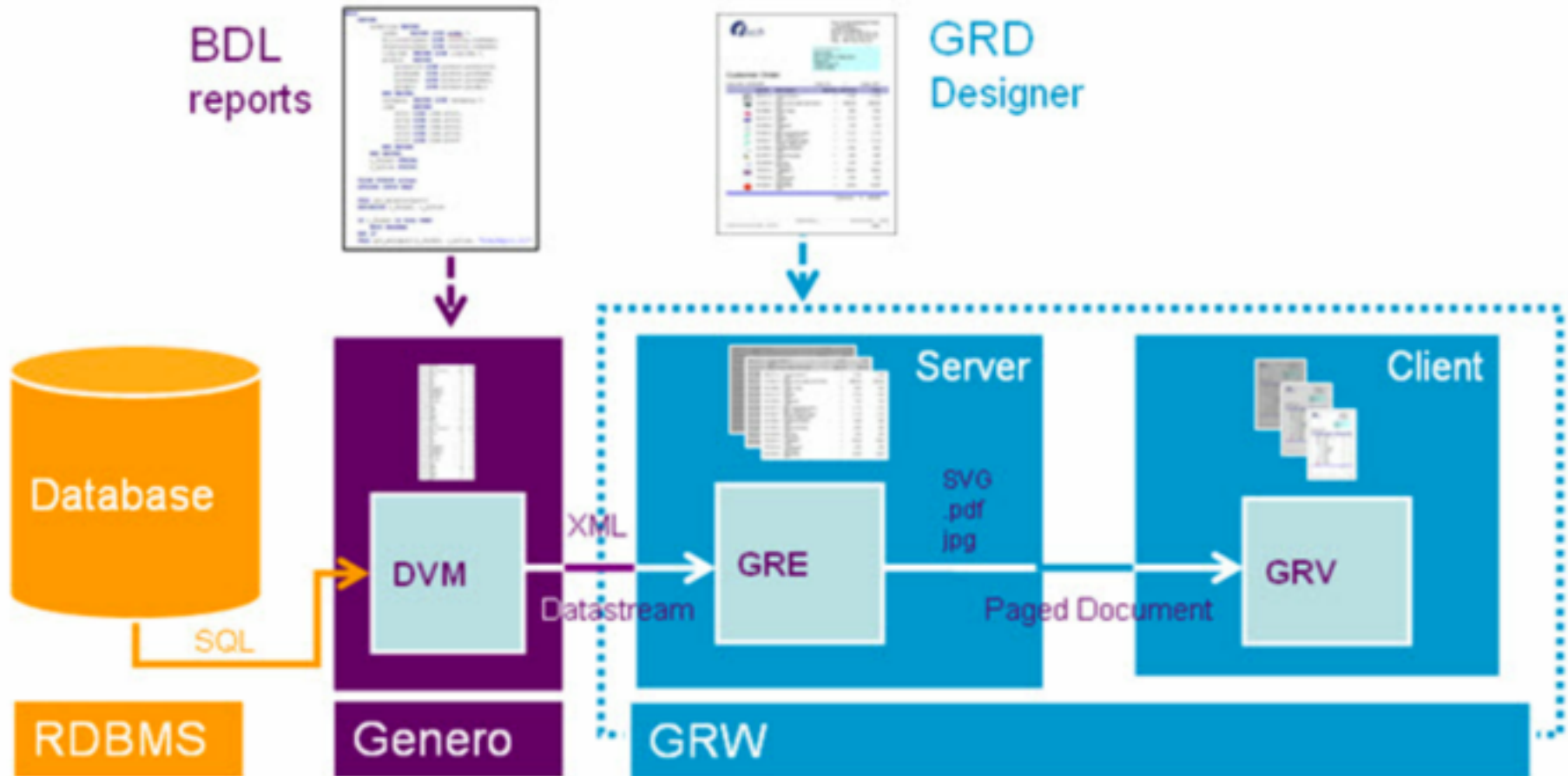
➤ Flexible and adaptable

- * Someone with few to no programming skills nor direct access to the production database can design various reports from the same feed to be added at runtime
- * Supported outputs: PDF, Excel, Word, HTML, Web viewer



Report Writer

Runtime Architecture



Mobile front-ends

All the power of the Genero suite available for easy mobile development

➤ Create companion applications

- * Same codeset for IOS and Android
- * Using the same Rapid Application Development Suite
- * Not all enterprise features are available for mobile (and vice-versa)

➤ Standalone deployment

- * Studio provides tools to package and deploy to an AppStore
- * .apk or .ipa contains a complete 'client-server' stack
 - ✓ Embedded database (sqlite)
 - ✓ Genero VM with web services API
 - ✓ Native IOS or Android client
- * Can be used in connected or 'in-flight' mode



THANK YOU!
Q&A session



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