System Overview

Derivative Genius® provides the best solution for derivative accounting as well as pricing of derivatives

Derivative Genius® provides matchless back office processing and support for a variety of products, including interest rate swaps, caps, floors, collars, options, futures, and more. Its flexible scheduling capabilities enable it to support a wide variety of swap structures—including swaps amortizing and accreting by an index, and having any number of legs. *Derivative Genius*® produces daily accounting and sub ledger accounting entries and counterparty payments. It comes with an optional pricing module allowing you to price your derivatives as required.

Derivative Genius® complies with Generally Accepted Accounting Principles (GAAP) and all formulas used in system calculations follow guidelines established by:

- The Financial Accounting Standards Board's (FASB) published requirements, including FAS 91, FAS 115 and FAS 133;

- The International Swap and Derivatives Association (ISDA); and

- The Public Securities Association (PSA), published in the Uniform Practices by PSA, when appropriate.

Transaction Processing

The system allows you to process on a daily basis or multiple days at once with positing aggregated. And if you mistakenly enter a transaction, removal is safe and easy. History and balance information is stored daily and is accessible at any time. Additionally, because all TPG products share a common database, you can effortlessly link the transactions entered into *Derivative Genius*® with your asset and liability portfolio in *Portfolio Genius*®, providing useful information for the related assets and their FAS 115 designations.

As mentioned earlier, *Derivative Genius*® provides sub ledger accounting for all derivative instruments and counterparty payment processing. Transactions post separately for par values, accrual values, and associated premiums, discounts and fees. The summary general ledger postings automatically flow to the general ledger.

Data Transfer Capabilities

Derivative Genius® allows for the use of ODBC- (Microsoft Excel, Microsoft Access and Crystal Reports) and OLE- compliant tools for efficient data access, report and presentation purposes. The application is compatible with Microsoft Object linking and embedding standards, and is equipped to send objects to or receive data from those applications. The *Derivative Genius*® database resides in the Microsoft SQL server.

System Functionality

Internal Modules

Application Security provides a logon validation process and works in conjunction with Microsoft Windows and Microsoft SQL Server security implementations.

General Ledger provides a means to manage the chart of accounts, with no limit to the number of line items for either the balance sheet or the income statement. The module provides the flexibility to make changes to the chart of accounts on an as-needed basis, allows for the creation of sub-portfolios, and consolidation of the sub-portfolios to the total level for both point-in-time and average balances (average by month and year).

Report Manager supplies tools to manage your reports—apply filters and set date parameters, create batches, roll reports into holding company reporting, create consolidated reports, add custom reports, and more. The Report Manager Module uses Crystal as the report writer.

Reporting Capabilities

The system incorporates Crystal and Microsoft SQL Query reporting tools for data retrieval, allowing for easy report generation and the ability to edit existing reports and create new user-defined reports (with Crystal software). The report writer can access all historical and forecast periods, average balances, or average balances, or any aggregation thereof for all data used and produced by the system.

Optional Modules

Hedge Accounting Module provides compliance with regulations described in FAS 133. Assigns portions of assets/liabilities to derivatives, link the underlying security to the derivative, calculate hedge effectiveness per FAS 133, and document hedge strategy. Tracks fair value and cash flow hedges and their impact on unrealized gains, losses, and comprehensive income, and includes posting to the general ledger and reporting mechanisms.

Pricing Module provides the tools to price any derivative—from vanilla to the most exotic—using Numerix CrossAsset's analytics and infinitely flexible deal-structuring architecture. The module uses Numerix to simplify the computation of complex derivatives' pricing and to generate Greeks for any instrument. Numerix also provides support for Credit and Market Risk, including CVA, PFE and VaR calculations. Traders, structurers and risk managers can leverage the most comprehensive cross-asset library of industry-vetted models and proprietary numerical methods with Numerix CrossAsset.

NEW DTCC Interface provides a link to DTCC's clearing, settlement, and information services.

System Functionality
and Technology Platform

NEW **Pricing Interfaces** are available to these data providers: Bloomberg BVAL, Bloomberg Terminal (via the Bloomberg Swap Manager Interface), Broker Interface, and SuperDerivatives.
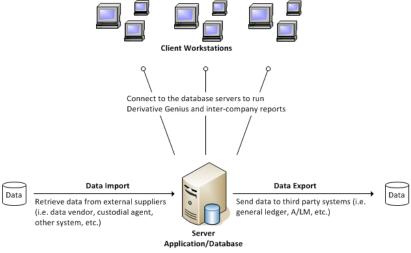
TPG Technology

TPG's Windows-based systems are developed using the latest software tools and languages. The system's database manager is maintained in Microsoft SQL Server 2008r2 or newer and the user interface was built using Microsoft.Net. The report writer uses both Crystal and Microsoft Reporting Services.

TPG's **Client-Server Architecture** contains a client workstation and a server—the business logic is shared. The business and data tiers are both installed on a shared back-end server.

Recommended Architecture

The diagram displays the recommended architecture for TPG systems:

Client Workstations

Connect to the database servers to run
Derivative Genius and inter-company reports

Data Import

Data — Retrieve data from external suppliers (i.e. data vendor, custodial agent, other system, etc.)

Data Export

Send data to third party systems (i.e. general ledger, A/LM, etc.) — Data

Server
Application/Database
- Data storage for Derivative Genius
- Processor