



Sample Product Review

A compilation of chapters from product reviews in The BI Verdict

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The BI Verdict - Sample Product Review

A compilation of sections from actual reviews in The BI Verdict

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➔ Cognos 8 BI history

Cognos got its start in Ottawa, Canada in 1969 with application development tools, but it became much better known for its BI tools, Impromptu and PowerPlay. In 2003 Cognos introduced ReportNet, a Web-based reporting solution. It was the first step in a dramatic

change in the product line. The ReportNet concept was extended to a complete platform with shared services when Cognos 8 was released in 2005. The reporting components sit on top of a consistent model with centrally administered security. But despite its internal consistency, the product is quite separate from the previous Cognos portfolio.

In essence, Cognos 8 BI extends ReportNet's Web-based architecture to multidimensional sources and analysis. Reports are presented in the portal, Cognos Connection. The front ends are now all Web-based, including the report building components, so the product is easier to roll out in a large organization. Several important changes were made to the product line:

- Impromptu was replaced by Report Studio.
- Analysis Studio was brought out and billed as the successor to PowerPlay.
- Support for multidimensional databases was improved.
- Metric Studio reports were tied into the front-end so they can be viewed alongside other reports.

Cognos 8 BI comes with a unified semantic layer and a central user rights system. The semantic layer allows the various components of the product to integrate a good deal further than what most of its direct competitors can offer. A semantic layer like this is a real benefit for a large organization looking for a standardized solution. Business users get a single simplified view of the data. Rights and data model information are administered in one place, and users can transfer content between the various studios.

➔ Cognos 8 BI components

Component	Description
Report Studio	The Cognos tool for standard reporting.
Query Studio	A simple query building tool.
Analysis Studio	The Cognos 8 BI tool for analytics.
Event Studio	A tool that provides scheduling and alerts.
Cognos Configuration	The home of Cognos 8's initial administration. Administrators can specify environment, security, data access and other initial settings that are rarely changed during general operation.
Framework Manager	The tool that connects Cognos 8 BI to source systems. It manages the semantic layer, modeling and transformation of source tables to business views for reporting.
Metric Designer	A modeling tool that creates extracts from the metadata for Cognos 8 scorecards and stores them in a separate repository.
Metric Studio	The scorecard application in the Cognos suite.
Go! Office	A tool that displays objects defined in Cognos 8 BI in Microsoft Excel, Word or PowerPoint.
Cognos Connection	The BI portal for all the Web based components of the suite.

This document is mainly concerned with the core products Query Studio, Analysis Studio and Report Studio — the three Web front-ends Cognos 8 BI offers for reporting and analysis.

Some other Cognos 7 modules have also been upgraded to share the modern architecture and look and feel of Cognos 8, including Metric Studio (formerly Metrics Manager) and Event Studio (formerly NoticeCast). However, Metrics Studio still stores its metadata in its own

separate database, and cannot exchange reports with the other studios. The only connection to the rest of the suite is that the Cognos 8 BI metadata layer can use the Metric Studio data as a data source.

The planning and financial consolidation applications have yet to be updated to the same services, but they have been updated to allow Cognos 8 BI access to their data sources. This means that the users can implement BI against the published plan, the workflow and the live plan as well as the consolidated ledgers. According to Cognos, a future release will put Cognos Planning and Cognos Controller onto the same Web basis as Cognos 8 BI.

Even more interesting is the fact that the PowerPlay Enterprise Server has not been enhanced for Cognos 8. It has been demoted to being just another data source for Cognos 8 BI. In recent years PowerPlay has enjoyed little promotion, and even the name is now being phased out (except for existing PowerPlay customers). Until very recently, Cognos was saying that it would no longer promote its own OLAP server. Instead it would improve its minimal support for other OLAP server vendors' products. As discussed below, this policy is changing, but final details have not been published.

The long, steady flow of improvements starting with PowerPlay 1.0 in 1990, seemed to have come to an end with PowerPlay 7 in 2002. This would make Cognos the latest OLAP server vendor to abandon the OLAP server market share to Microsoft and, to a lesser extent, SAP and Hyperion. Cognos has concentrated on reporting on data from third party OLAP servers, using MDX as the query language. This means that PowerPlay server has been enhanced to support MDX queries, even though Cognos has not implemented an external API that would allow other vendors client tools to query PowerPlay Powercubes via PowerPlay Enterprise Server. However, Cognos has had a change of heart and is to bring PowerPlay Transformer into the Cognos 8 family.

➔ Licensing

Unlike some vendors, Oracle is quite open with its prices, and publishes them on its website. The server prices are about 150 times the price of the named user price, which is in line with Oracle's recommendation of about 150 users per server.

Product	Named User	Support	Processor License	Support
BI Suite Enterprise Edition Plus	\$2000	\$440	\$295.000	\$64.900
Oracle BI Answers	\$580	\$127,60	\$86.500	\$19.030
Oracle BI Interactive Dashboards	\$580	\$127,60	\$86.500	\$19.030
Oracle BI Delivers	\$350	\$77	51.800	11.396
Oracle Office Plug-in	\$230	\$50,60	\$34.500	\$7.590
Reporting and Publishing	\$460	101,20	70.000	15.400
Data Integrator	\$460	101,20	70.000	15.400
Disconnected Analytics	\$580	\$127,60		
Server Administrator	\$5800	\$1276		

Buying the suite is a lot cheaper than buying the components individually, even without the former Hyperion products. Oracle is essentially giving its OBIEE+ customers the former Hyperion products free of charge.

➔ **Architecture and administration**

Business Objects offers several Web-based features in reporting and analysis. Only Crystal Reports requires the Windows full client for developing reports. The server components and access rights are managed in the Web-based central management console (CMC). On the other hand, the Universe Designer is a windows client. In our view, it is important for the clients to be Web-based, but administration tools, which have relatively few users, are fine as Windows clients.

BusinessObjects InfoView offers a common point of access for the complete BusinessObjects Enterprise XI suite and even Voyager. Report authors and recipients can execute all Web-based and non Web-based applications through Business Objects InfoView. Security and data connection settings are administered in the CMC.

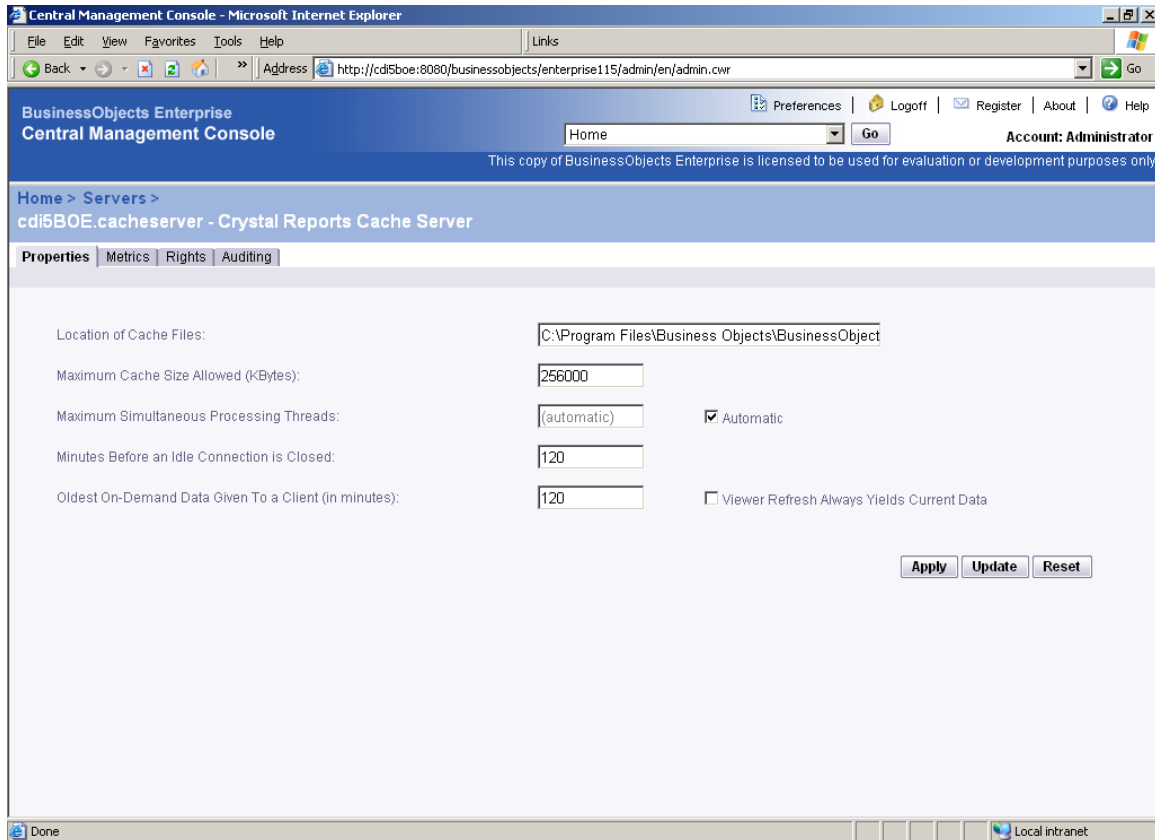
Business Objects WebIntelligence, Polestar and Voyager - the three front-end tools we will discuss in this document - are Web-based tools for reporting, BI search and ad hoc analysis. The InfoView portal provides a framework for viewing all content.

InfoView is provided with the solution. Business Objects content can also be integrated into third-party portals including the SAP Enterprise Portal. Seen from the front-end point of view, the glue that holds the disparate parts of the portfolio together is the Enterprise Communication Framework, which works in the background to publish content created by the front ends in a portal. However, that sells the product a little short. The company prefers to look at its front ends as highly specific access points to its strong information delivery platform.

The merger with SAP has created new issues in the area of portal integration. Some SAP products, including Visual Composer and BEx Web Analyzer, require the NetWeaver Portal and its services to publish BI content. But the SAP portal is a general-purpose one, offering much more than BI content.

The Business Objects products are usually integrated with NetWeaver Portal for SAP customers, but they also need to work well without it for the far larger number of Business Objects customers who are not also SAP customers. Having two portals seems like a permanent extra cost of development for the product line. One idea would be to replace InfoView with SAP NetWeaver Portal, which is a broader platform component. But this would require all Business Objects customers to use NetWeaver, which is a larger and more complex portal than is really needed for BI alone. This might discourage some from using the software, and the company has no plans to do this. We expect InfoView to remain in the portfolio as a BI-specific portal.

WebIntelligence also shares the Enterprise Communication Framework with Crystal Reports. The Enterprise Communication Framework is part of what was formerly known as Crystal Enterprise and came into the Business Objects product portfolio with Crystal Reports. It is now known as Business Objects Enterprise XI.



The CMC offers Web-based access to nearly all administrative functions of the product portfolio.

Business Objects Enterprise provides the infrastructure and scalability for a comprehensive Web-based report distribution system. It comes in standard, professional and premium versions. The standard edition is limited in the areas of data protection and scalability.

The professional edition has a complete user concept and customization options. The professional version also has greater scalability thanks to multi-tier architecture components, load-balancing, fail-over functions and Web-based front ends.

The premium version extends the range of the professional version with advanced options for user management as well as more flexible functions for building interactive and ad hoc report applications. The following table gives an overview of the important components of Business Objects Enterprise.

Product	Function
Auditing	Auditing provides a set of WebIntelligence reports to audit use and performance of the whole suite.
BI Content Search	BI Content Search is a search tool for the InfoView portal. Users can use it to search report results and metadata.
Central Management Console	The Central Management Console (CMC) is a Web interface for managing an application, including security settings.
InfoView	InfoView is BusinessObjects Enterprise BI portal for end users. It includes security and personalization features, and allows end users to control and distribute their own content. It is a stand-alone BI portal, and can integrate with a variety of third-party portals.

Publishing	Publishing distributes personalized BI content to a mass audience.
Universe Designer	Universe Designer is a graphical design tool used to create the semantic layer, which is typical for Business Objects.

Business Objects Enterprise also includes a few rarefied functions such as the Process Tracker, for visualizing activities, Encyclopedia, a way for users to add comments to documents, and BI Widgets, a colorful, user-friendly way to present data. 'Query as a Web Service' is a wizard that creates queries and publishes them as Web services. Business Objects also has a new Office add-in called Live Office.

The suite also has a few other technical features, such as the SharePoint Portal Integration Kit, the Java Portal Integration Kit, Software Development Kits for Java EE and .NET and Web services.

The suite is backed up by a strong information delivery infrastructure. These components are actually responsible for mass distribution of reports and include a facility for mass customization of standard reports. This makes it possible to distribute a single report to many users and 'burst' the pages so that users automatically see only the information they are authorized to receive based on their individual or group security profile.

Business Objects also provides server-based 'intelligent agents' for automatic exception detection. Agents run on the server and automatically send reports to users when the conditions are met. The conditions can be based on data in both relational and multidimensional sources.

The alerting capability is aimed at large-scale reporting to passive users. Reports can be sent using by e-mail, to pagers and faxes with HTML. Reports are time driven and can be sent if unusual business events or conditions occur. The product can keep track of a recipient's schedule, so it can send the report to the appropriate device, depending on when it is sent. It can also send it to a different person if the original recipient does not respond in time.

➔ Security and distribution

Spotfire includes a component called Broadcast Services for distributing report systems. The functions it carries out include automatic data imports and storing the resulting reporting system in the library. Broadcast Services can also distribute content by email. The reports are stored on the server in a relational database, but as a file locally. The e-mail can contain a complete file or a link to a Web report. Broadcast Services has an API that allows a programmer to trigger actions from the outside the product.

Data access security is provided by giving users rights to views and filtering the views. Multiple views can be defined on the same data. This provides a workable way of limiting user access to data, but there are no dedicated, reusable security settings. Single sign-on is also available to make use of the data source security system. As in QlikView, this security feature operates when the data is being imported, not by applying run-time filters. However, Spotfire usually loads the data from the source system at run-time, instead of pre-loading it like QlikView, so the distinction is less clear.

➔ Metadata

Business Objects uses the Universe construct for dimensional models. It is one of the highlights of the Business Objects suite: a logical view that screens the user off from the complexity of the underlying data. System administrators can create and modify data models using the Universe Designer. They can also import metadata from a database. There is a wizard to help map new structures with the existing content of a Universe. Both Web Intelligence and Crystal have access to the semantic layer and can use the models defined

there. However, queries built in Web Intelligence are not available in Crystal Reports and vice versa.

Crystal Reports can access Business Objects Universes, but it is not strictly dependent on them. Considering Crystal Reports' long history before the Business Objects takeover and its huge installed base, it is no surprise that many Crystal Reports deployments do not use Universes. The metadata is usually stored directly in the Crystal Reports report file, either on a server or locally. Crystal Reports can also save metadata, such as calculations, in Business Views to be accessed by more than one report.

Business Views are a much thinner layer than the Universe, and were introduced into Crystal Reports in version 10, the last version before the takeover by Business Objects. They are a simple report-independent semantic layer. The only exception to the complete independence of the Crystal Reports metadata is the fact that the actual connections in Crystal Reports can be set in CMC. This makes it possible to have multiple deployment environments for a single set of reports.

The fact that the suite contains two roughly competing metadata layers does not seem to be of any great concern to Business Objects. New customers are advised to build their data models in Universes for Crystal Reports, and the company tells us that it will be investing more in innovation in the Universe. But it seems that there is no particular pressure from the company to persuade existing customers to upgrade their existing Business Views to Universes. That is a different attitude from the one displayed by Cognos, which applies steady pressure to move its customers to the newer platform. And there does not seem to be any tool in the offing to convert Business Views to Universes, which suggests that the company is happy for its customers to use the Business Views technology.

As a stand-alone system, Crystal Reports connects directly to a variety of data sources. These connections are managed in the Crystal Reports component. There is no separate administration tool. Crystal Reports can connect to local data sources including Excel documents directly and process the data in a report. It can also access a variety of XML formats as data sources.

Crystal Reports can also take full advantage of the features of the Business Objects Universe, which it connects to as if it were a normal data source. Crystal Reports uses its own interface to connect to SAP Netweaver 7 BI, and allows a direct link between different sources without using the Business Objects Enterprise.

➔ Front-ends

Originally a unified database and reporting package based on a 4GL language, FOCUS has metamorphosed into a general purpose host-based reporting system for large audiences. The metadata layer in the FOCUS reporting system is logically identical to the FOCUS database itself, but the data is usually retrieved using a data connector to a third-party data source, instead of from the native FOCUS data storage. However, the database continues to be used, and was recently upgraded to store up to four terabytes of data.

iWay is a stand-alone data integration package which accesses a wide variety of data sources. It also provides an abstraction layer that separates the database storage from the database logic in FOCUS. iWay was originally developed by Information Builders and now belongs to a wholly-owned subsidiary. iWay supports event-driven architecture and SOA.

FOCUS is a hierarchical database, but the FOCUS language also allows a direct SQL pass-through for relational data sources. The database is still part of the product platform and is sometimes used as a cache in projects. The language is similar to the SAS language or SAP's ABAP, and provides a unified underpinning for the entire WebFOCUS suite.

WebFOCUS is a set of Web-based tools for creating, viewing and distributing FOCUS reports, and contains quite a bit of overlapping functionality in its various components.

➔ **Standard reporting**

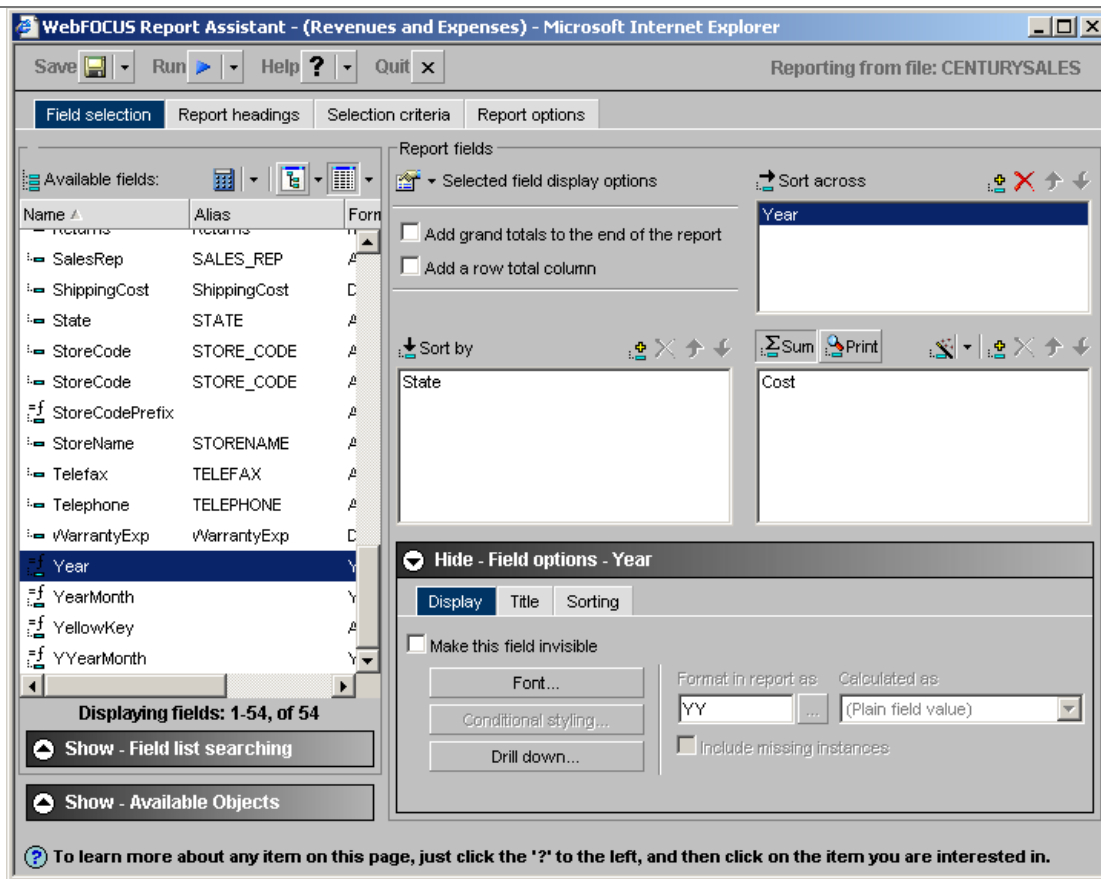
Information Builders' approach is to provide consistent access to all data sources, typically via an SQL statement. This means that, once the metadata has been set up, all sources are accessed as if they were a simple relational source; there is no requirement to set up the data in any particular schema, such as a star or snowflake schema. This is an advantage for legacy sources that do not support SQL queries, or which have complex query languages. However, unlike products like Analysis Services, WebFOCUS does not provide any automated detection of dimensions in relational sources.

But this egalitarian approach has a downside: WebFOCUS takes no advantage of the extra capabilities available from some data sources. For example, WebFOCUS is not aggregate-aware, so even if you have a data warehouse with pre-defined aggregate tables, WebFOCUS will not be able to take advantage of them without custom programming. In contrast, MicroStrategy and Business Objects have well-developed aggregate awareness. Similarly, while WebFOCUS can access Analysis Services, Essbase and SAP BW, it does not take advantage of the rich MDX functionality that these servers support, for example for server-side ad hoc sorting and calculations. Instead, WebFOCUS provides some limited analytical capabilities in its own server, based on FOCUS.

This means that we cannot recommend WebFOCUS as the primary client tool for any of these OLAP servers. However, in an environment where a common front-end tool is to be used for multiple data sources, including legacy databases, WebFOCUS may be the only single tool that can access and report from all the data sources. WebFOCUS provides the FOCUS programming language that allows the user to build reports. On top of that, there is set of code generators to make the product more attractive to business users.

➔ **The Report Assistant**

The Report Assistant is a tool for creating formatted queries. It is an example of WebFOCUS at its best: simple yet powerful. The tool includes a visual environment for creating calculations and conditional formats. Style sheets are available. Output is not limited to simple HTML: the Report Assistant produces PDF files, Excel files and Information Builders' unique Active Report format.



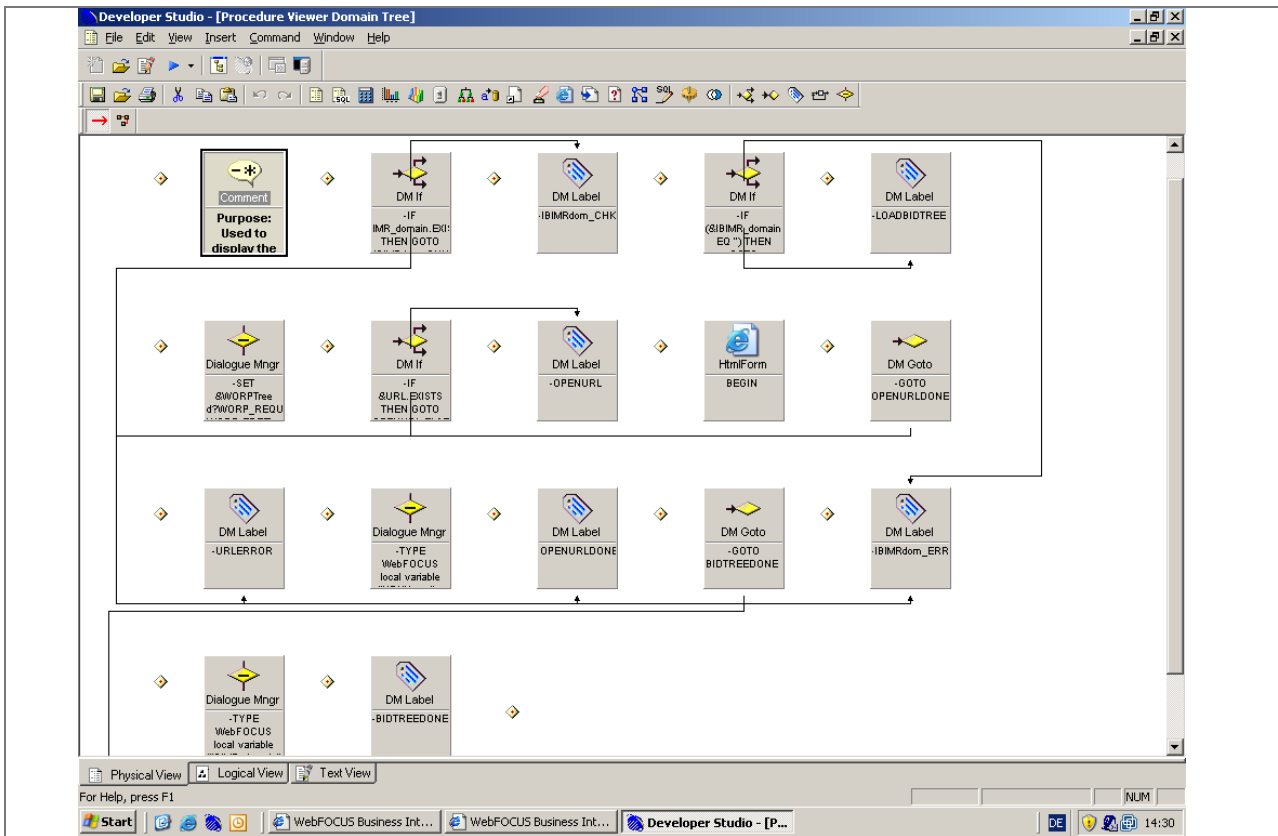
The field selection interface of the Report Assistant. Calculated values can also be defined here. The tool does not support all of Information Builders' output formats. The wizard produces a procedure in the FOCUS language, which can be run by itself or reused in a compound report.

There are several GUIs for creating reports with overlapping functionality, aimed at different user groups and using different technology platforms. The most commonly-used report creation tool is Developer Studio, which itself includes several tools. There is also a newer Web-based system called the PowerPainter. All of them work by generating FOCUS code.

Reports would generally be designed by IT professionals, not business users, just as would be the case with products like Crystal Reports and Microsoft Reporting Services (but unlike Hyperion System 9, Cognos 8 or Business Objects). In our view, OLAP-style financial reports are much easier to design in WebFOCUS than in products like Crystal, and they are ultimately more flexible, because any part can be programmed in the mature FOCUS fourth-generation language. In addition to the usual relational list and cross tab reports available in most products, WebFOCUS offers what are called matrix reports, which are ideal for financial reporting.

➔ Developer Studio

Developer Studio is a report design tool aimed at IT professionals. It runs as a Windows full client and has the same basic reporting concept as the SAS Enterprise Guide or SAP Visual Composer. In particular, a report is thought of as a process containing several steps which lead to the finished report. The main window of the Developer Studio presents the process to the report designer visually or as code. This kind of development environment is more typical of data integration processes than of reporting. It provides a good deal of flexibility and error handling, but is better suited to an application developer than a business user.



The Procedure Viewer provides the base view for report creation in the Developer Studio. The tabs at the bottom allow the report designer to view the source code. The buttons at the top are used for creating new tables, charts, or other components of the report. Note the ambiguous arrow formatting and cut off strings — typical examples of the user interface weaknesses of WebFOCUS.

The procedures created in the reporting tools are just queries that retrieve data from the databases via the metadata layer. They can be reused in different environments and manually modified by a user who understands the language. We have already presented two ways of creating queries, but there are several others. One is a Report Wizard that is included in the Developer Studio. It is more powerful than the Report Assistant, but it is difficult to use and seems to be targeted at programmers rather than business users.

➔ Report Painter

WebFOCUS is primarily a production reporting tool, often used for high-volume operational reporting. The emphasis is more on throughput than pixel-perfect formatting, though perfectly acceptable reports can be created. The Report Painter is yet another tool for creating procedures, but it has more features than the simple tools we have seen so far, and can create reports for enterprise reporting. It is the main report creation environment in WebFOCUS. Pictured below is a design environment based on the band model, a standard way of creating relational reports whose metaphor is a page divided into horizontal bands with predefined functions like sum, page header, details and so on.

The band model has been implemented by a variety of vendors, and it varies from the simple to the very complex. The most feature-rich is probably found in Crystal Reports. WebFOCUS has a relatively simple model, more like Cognos 8 BI. Each band can contain a table or text and images, depending on the type. The fields are packed together in a table in the band, not free floating like Crystal or Hyperion Production Reporting. Their behavior is determined by their position in the table and the data properties such as 'detail' and 'sum' that appear in the columns toolbar.

Report Painter provides good page layout support. The numbers in the reports can be visualized as gauges, and charts can be inserted as well. Page layout functions include titles, sums per page, page numbering, page count and date. Text and images can be added to the page header or footer. Partial delivery of long reports is available in The Report Viewer but not all delivery channels provide paging, the product having been designed for maximum throughput and not maximum interactivity.

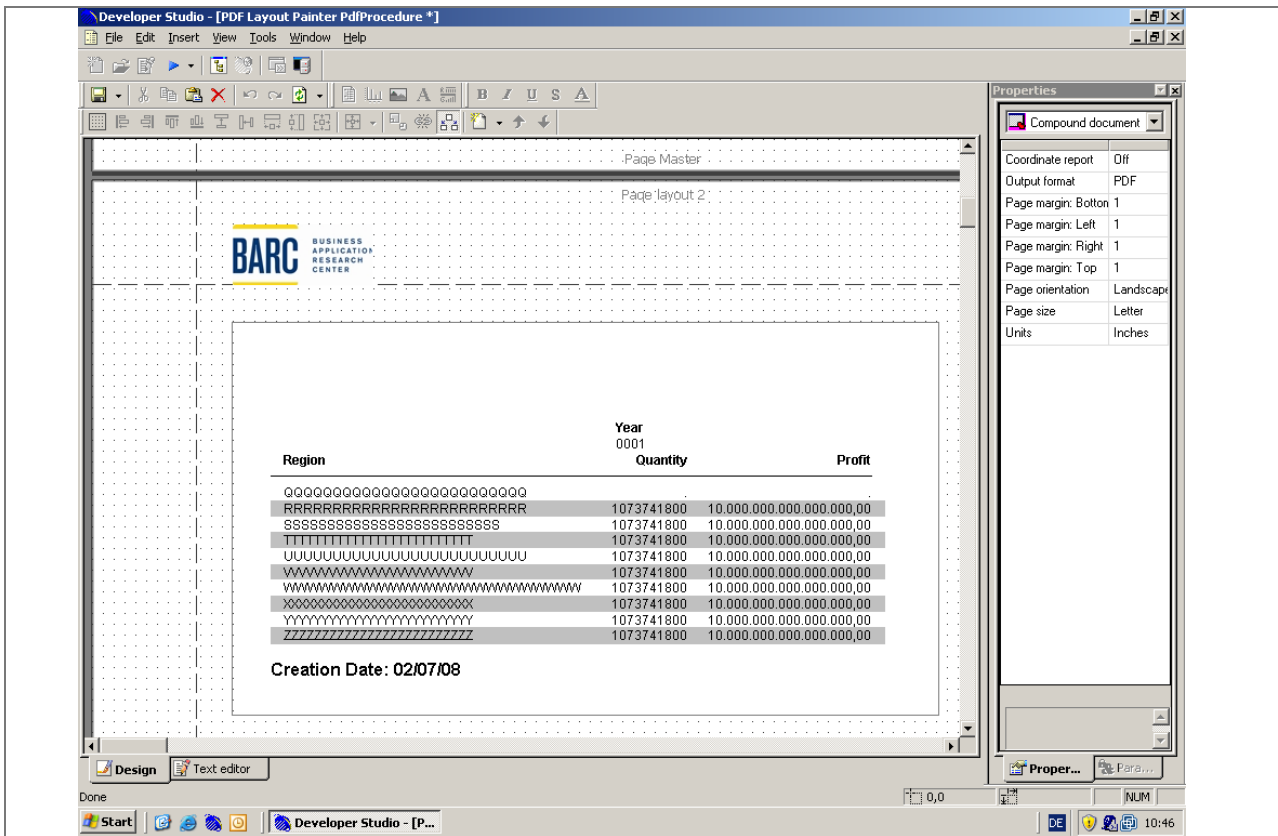
The screenshot shows the 'Developer Studio - [Report Painter rptolap [CENTURYSALES]]' window. The interface includes a menu bar (File, Edit, Insert, Properties, Repgrt, View, Window, Help), a toolbar with various report design tools, and a main workspace. On the left, the 'Object Inspector' pane is open, showing a tree view of report elements: Special Fields, Variables (Report Variables, External Variables, System Variables, Computed Fields), and ORDERS (with sub-items like OrderNumber, ProductNumber, OrderDate, etc.). The main workspace displays a report preview with a table. The table has columns for &MainSort, &InnerSort, Returns, Quantity, and Line Tot. The data is formatted with commas as thousands separators. A red box highlights a cell in the first row of the table. Below the table, there are sections for 'Page Footing' and 'Report Footing'. At the bottom of the window, there are buttons for 'Report', 'Source', 'Images', and 'Matrix', and a status bar with 'For Help, press F1' and 'NUM'.

The Report Painter is unchanged for most sources. Fields are dragged into the individual bands to determine where they feature in the report. Literally any part of the report can be prompted at run-time using report variables, like the six variables in this report.

The Report Painter has been upgraded in recent releases to provide better support for PowerPoint, something that Information Builders emphasizes in its presentations. PowerPoint templates can now be inserted into the Report Painter reports, and multi-slide presentation can be updated in a single action. Native PowerPoint objects are used. The feature set shows strong similarities with the PDF Layout Painter described below. However, Report Painter does not offer as many options for PowerPoint reports as for PDF reports created with the PDF Layout Painter.

➔ PDF Layout Painter

Information Builders refers to the Report Painter in its official presentations as 'old school' and continues to bring out new development environments. In recent releases there has been a good deal of emphasis on the PDF Layout Painter as a tool for creating pixel-perfect layout. Like the HTML Layout Painter, the PDF Layout Painter is a canvas-based reporting system. The emphasis is on page design for printing, not interactive reporting. The reporting environment has a second view, available as a tab at the bottom of the screen, which shows the code that is generated. The code can be modified manually if necessary.



PDF Layout Painter has good functions for arranging report objects created elsewhere in the suite for pixel perfect printed reports. In the image, the creation date is a part of the Report Painter page concept, but the PDF Layout Painter also has its own concept. The report designer is left to sort this redundancy out.

The key feature in the product is the ability to position objects that fit on a single page and long objects that flow over several pages together. The report designer can define several pages which are printed in the order they appear in the definition, even if they are several pages long.

➔ Ad hoc reporting

Developers have the most contact with arcplan's direct user interface, while end-users are exposed to applications built using arcplan. Overall, the usability of such applications will depend as much on how well they were designed by the developer as on any arcplan aspect. But there are some unavoidable weaknesses in the Java client that result from the client being a monolithic applet, rather than multiple smaller applets embedded within an HTML page (which is how more modern Java clients work):

- The application must include its own back and home buttons; if the user clicks on the standard browser buttons, they will be taken right out of the arcplan application to the previous HTML page. This means that, in practice, arcplan applications need to be started up in full-screen mode or those buttons need to be disabled.
- If the user clicks on the browser refresh button, then the Java applet will again terminate.
- No right-button functionality is available within the Java application.
- No tool-tips are provided when the cursor hovers over a pickable field (though actions can be defined when this happens).

- Printing has to be built into the application, as the browser print will not pick up the content from the applet.

Overall, applications built using arcplan tend to be a little clumsier, less intuitive and more old-fashioned than the best modern Web applications.

Chart and grid objects can be linked and can appear as a single, integrated object in the finished screen so that they scroll together. In any case, charts are always derived from tables (which may or may not be displayed), but can contain a subset of the data in the table.

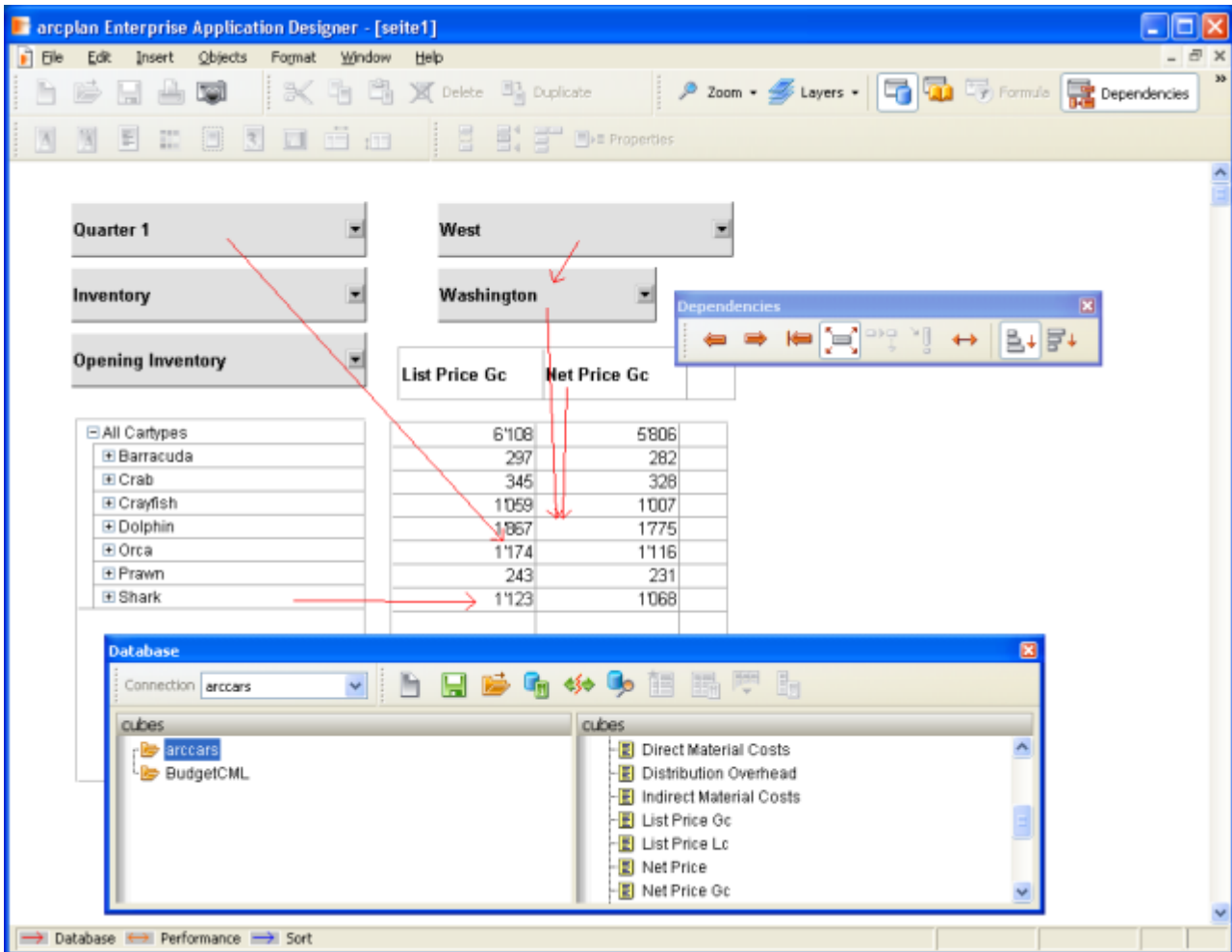


This report illustrates a number of arcplan features. The customer dimension is a hierarchy which can be expanded and contracted at will by the end-user. The cells in the table are colored depending on the product level being displayed (any part of the cell format could be made level-dependent). The bar chart on the right is linked to the table, and as the customer list is expanded, the bar chart is synchronized with it. The two scroll together when the table is too long to fit on the page. The end-user can control which of the measures are included in the chart.

Table and chart objects are linked to any data source including a Web service and selection objects which, in the OLAP context, would usually be dimensions. The linkage is defined simply by pulling connection arrows from the control object to the table. The various components of a chart (eg, categories, values for the different axis, description of axis, minimum, maximum, legend, etc.) can come from various object types as well. A chart may not be based on a table at all, depending on the chart type and purpose. All components can be linked to other objects (or portions of objects, or combined objects) and therefore allow dynamic population and adjustment of charts.

arcplan provides support for nested dimensions in rows and columns in tables, though the method for creating them is not well documented or intuitive. Some effects have to be achieved in a more involved way, by creating multiple table objects for each sub-selection. This is much less direct than in products that support flexible nested dimensions in rows and columns.

The company makes the point that arcplan Enterprise is a visual development environment suitable for a BI competency center, not a tool for business users to build screens and reports. This means that considerably more can be achieved by an expert developer than is apparent from just following menus and help messages. To assist with this, arcplan maintains an on-line knowledge base to collect examples of ingenious techniques and best practice.



This shows how dimension controls are visually linked to a table object in arcplan, and how dimension controls themselves can be based on other dimension controls. At run-time, if the data in the table is scrolled, then the row and column objects are scrolled in synchrony. Note that the row and column headers, and the other dimension control objects, can be placed anywhere. This makes it relatively straightforward to create asymmetric reports.

arcplan provides a surprising amount of calculation functionality in its application-building tool set. Calculations and some other actions are defined in the formulas that can perform them.

Calculations are based on a spreadsheet metaphor, so rows, columns, tables and cells can have calculations defined in terms of each other. Objects are automatically numbered with pages, and rows and columns within objects. These can then be referenced within formulas, which can either be typed in or generated by clicking on the appropriate reference. Formulas can also reference objects on other pages. The formula editor also lets the application developer determine actions that occur following various events, such as mouse clicks.

actua OBJ7 9/200 OBJ6

All branches Bank Car OBJ9 Computer

	Turnover	Cost	OBJ8ntity	G OBJ10fit
Automobile Inc.	30,652	10,792	342	64.8%
Bank Inc.	56,480	21,906	876	80.9%
Bond Inc.	65,768	18,112	924	83.6%
Buildings Inc.	108,166	36,776	1,524	90.0%
Calculator Inc.	61,810	21,584	610	82.5%
Car Inc.	97,046	33,490	1,444	88.9%
Chemis OBJ5	100,780	36,0 OBJ1	1,084	OBJ11
Computer Inc.	97,740	36,234	1,155	89.0%

Formula window
Here you can define calculation and functionality for single objects.

Formulas Categorized Alphabetical Parameter Search

Calculation*
 After Update
 On Input
 On InputInitialization
 On Commit
 On Mouse click
 Cursor inside
 Cursor outside
 Comment
 On Object Button

[OBJ1;COLUMN1] - [OBJ1;COLUMN2;ROW1] / [OBJ1;COLUMN1]

Help OK Cancel

This shows how a column can be calculated based on columns in another object. The image shows a column called OBJ11 is being calculated based on column 1 and a cell in column 2 in OBJ1. Calculations can be based on individual cells, rows, columns or entire objects, which need not be on the same page. The dialog box presents a number of events that trigger the calculation.

A wide range of calculation functions are provided, and these vary slightly depending on the data source. In addition to the normal arithmetic functions, arcplan also offers:

- Logic functions
- Aggregates like sum, count and max
- Data, arithmetic and conversion functions, including RGB conversions
- Average, moving ('sliding') average
- String handling and comparison functions, including transpose
- Intersection, union
- Financial functions
- Program control features such as case
- Math functions
- Select (results from embedded SQL or MDX queries).

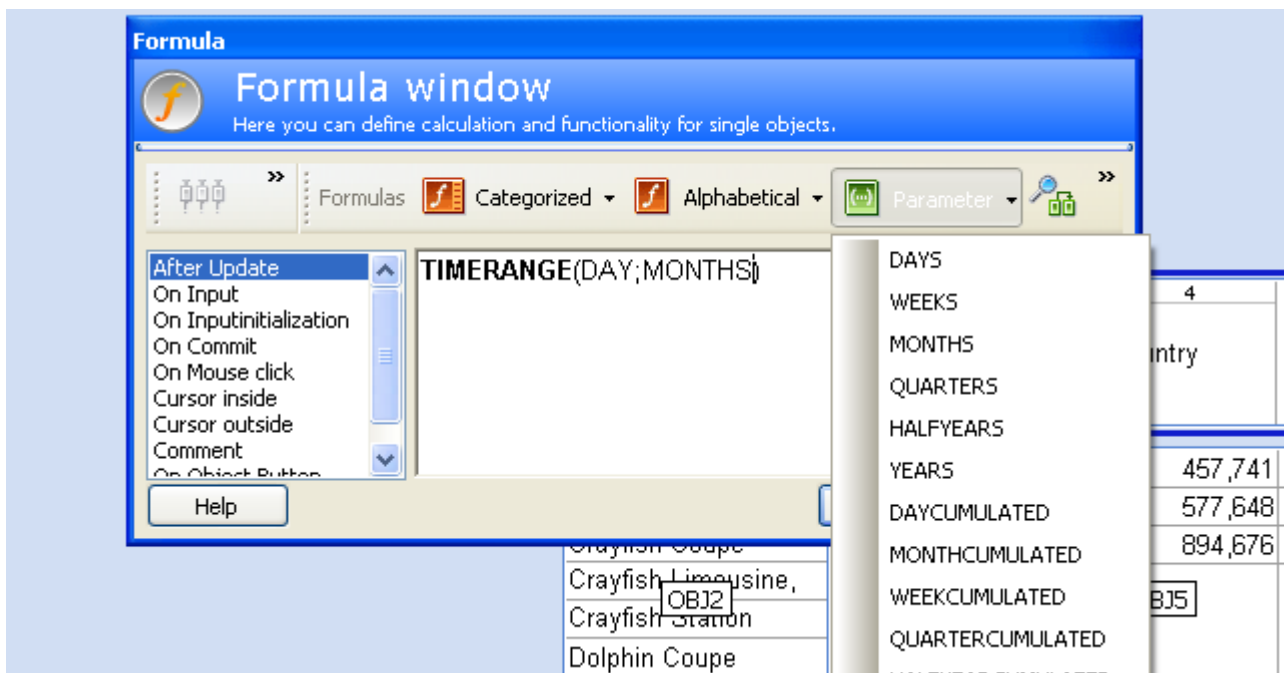
User-defined functions, written as Web services with up to eight input parameters, can also be called. There are additional database-specific calculation and control functions for SAP applications (R/3, BW, OIW), Microsoft Analysis Services, Hyperion products (Essbase, Enterprise and Financial Management) and Applix TM1. The function menu also has a dedicated section for SAP functions.

arcplan's extensive range of calculation functions generally work with data that is first retrieved from the external database to the arcplan server, though if there is an equivalent function available in the server API, arcplan automatically uses it. For example, arcplan will define a sort as part of an SQL or MDX query definition, and it automatically takes advantage of such MDX functions as TopPercent.

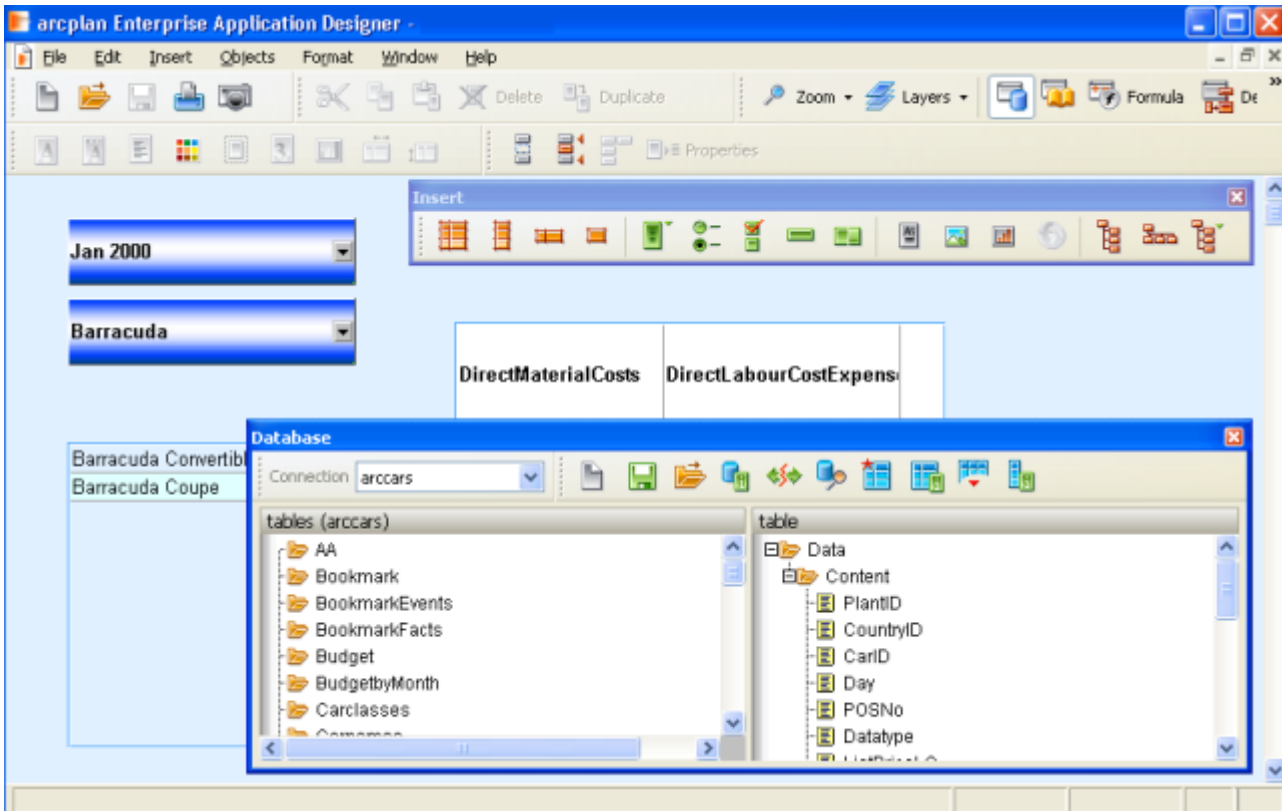
Depending on the functionality of the external database, significant dynamic calculation and selection capabilities may be available in queries (for example, when MDX is used as the query language). Of course, if the data has already been retrieved, it may be more efficient to reuse it, rather than to issue a new query. Also, the ability to model the data once retrieved from the original data source can help to overcome technical limitations querying a database, or combine result sets from multiple cubes or even heterogeneous data sources in one report.

Calculations and references can use any object, independent of the page. This provides the basis for advanced techniques in application design. For instance, a menu (eg, a product dimension or hierarchy used as a filter) may be queried only once in a reference document. All subsequent documents would simply reference this original object. The image above shows an example of the syntax.

This technique ensures consistent default filter setting across the application while navigating different reports (ie, across documents) and also minimizes the number of queries for the application. The result set of the first query (ie, the reference document) stays in memory and is shared across the application.



The example above shows the use of the *TIMERANGE* time-series function in an arcplan formula. The screen shot on the following page shows the screen being used.



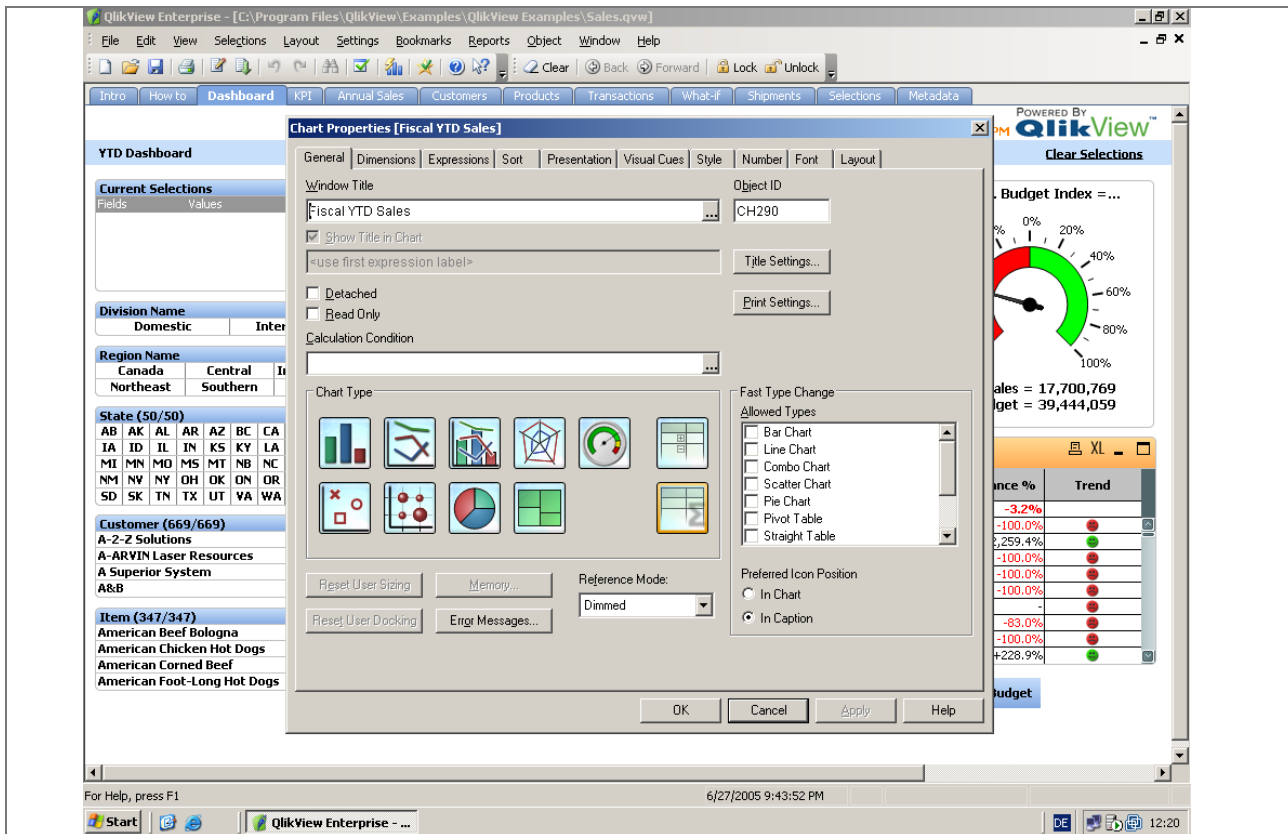
It should be noted that arcplan's calculations must be built into the application by the developer. They are not available in an *ad hoc* fashion to end-users if the application does not already have the calculations defined. So there is no pop-up calculator for ad hoc analysis; customers who need such tools should purchase a flexible OLAP browser, rather than an application-building tool like arcplan.

arcplan has changed this situation somewhat, however, with its new Excel Analytics, which was introduced in March 2008. This add-in allows content to be imported to Excel from Enterprise reports, and can add Excel calculations to the tables and use Microsoft's PivotTable Services to analyze the data.

OLAP servers often include special time-handling functionality and OLAP applications typically include a time dimension, so arcplan is designed to take advantage of such functionality and dimensions. Relational databases do not have time-series intelligence, so arcplan includes a set of time-handling functions so applications can provide such capabilities when an RDBMS is the data source.

➔ Charts

The main display objects for data are referred to as charts. Tables and pivot tables are treated as a kind of chart and share many properties with them. The drill behavior in the tables and charts is the same - a nice touch. All in all the charts offer a good level of interactivity.

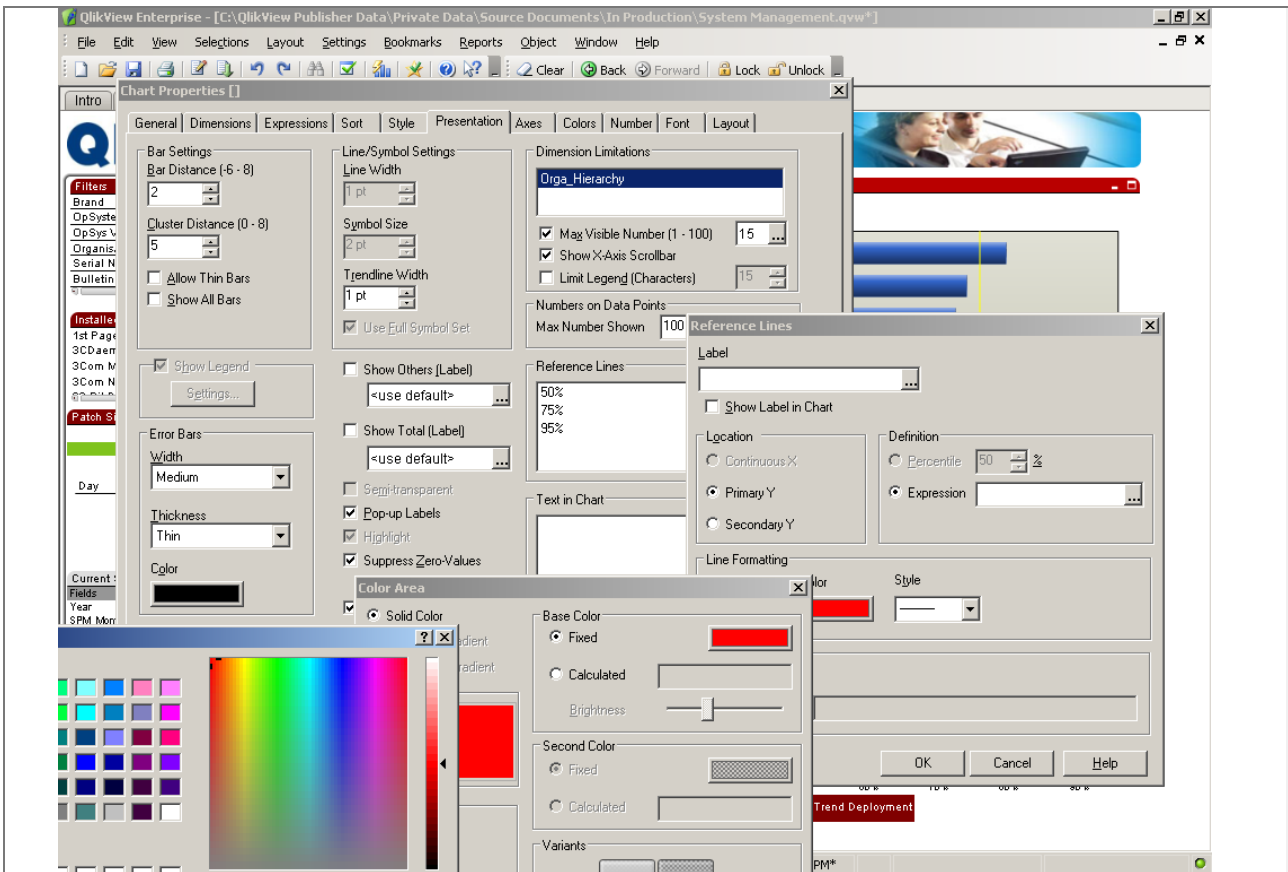


The combined table and chart object creates good-looking images and includes some fashionable types like area charts and speedometers. The charts are strongly interactive. A particular highlight is “fast type change” — the ability to allow a user with no rights to modify the reports to switch between chart types.

BusinessObjects Web Intelligence is similar in that the tables are viewed as a kind of chart. But this concept is better executed in QlikView. In QlikView, it is not necessary to switch to a table to modify the data properties. And switching types from a chart to a table and back does not delete formatting information, which is a serious annoyance in Web Intelligence.

Unfortunately, visual cues are available in the tables only. There is a separate system for charts. QlikView allows colors to be calculated in additional expressions and applied to the chart data points — a powerful but complicated workaround reminiscent of Crystal Reports’ formatting formulas.

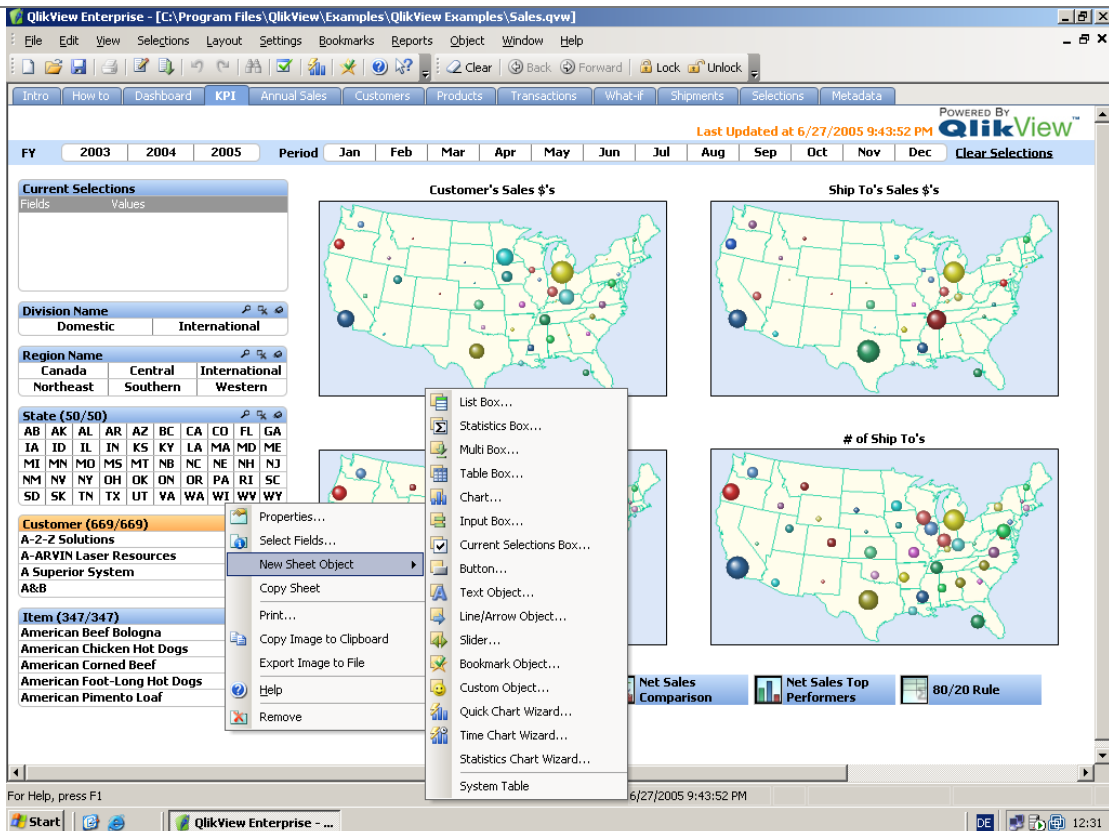
All properties are set in a very large dialog box, which is available from a context menu. It combines object type, data source, calculation, sorting and filtering, formatting, and behaviors. Because so much is packed into this single dialog, design interactivity is relatively weak, features are hard to find, and casual users are presented with more information than they are likely to want to see. The company argues that the design is optimized to maximize productivity of trained rather than casual users.



The image shows the dialogs that pop up from just one of eleven tabs in the property dialog of a bar chart. Each of the tabs is packed as full as this one, and some contain rather advanced data and calculation logic. We found ourselves clicking back and forth between tabs looking for features on several occasions.

As a result, it is not possible to click on a single chart series and format it, or select the default gray chart background and delete it. A more modern approach would be to split the dialog into smaller units connected to the parts of the object they refer to. For more technical users, it might make sense to replace the popup with a property pane.

The product has no GIS features, although the company demos an ingenious workaround using scatter charts and a map as a background image. As with many other products, full integration with Microsoft mapping software is also available in a Web environment using JavaScript.



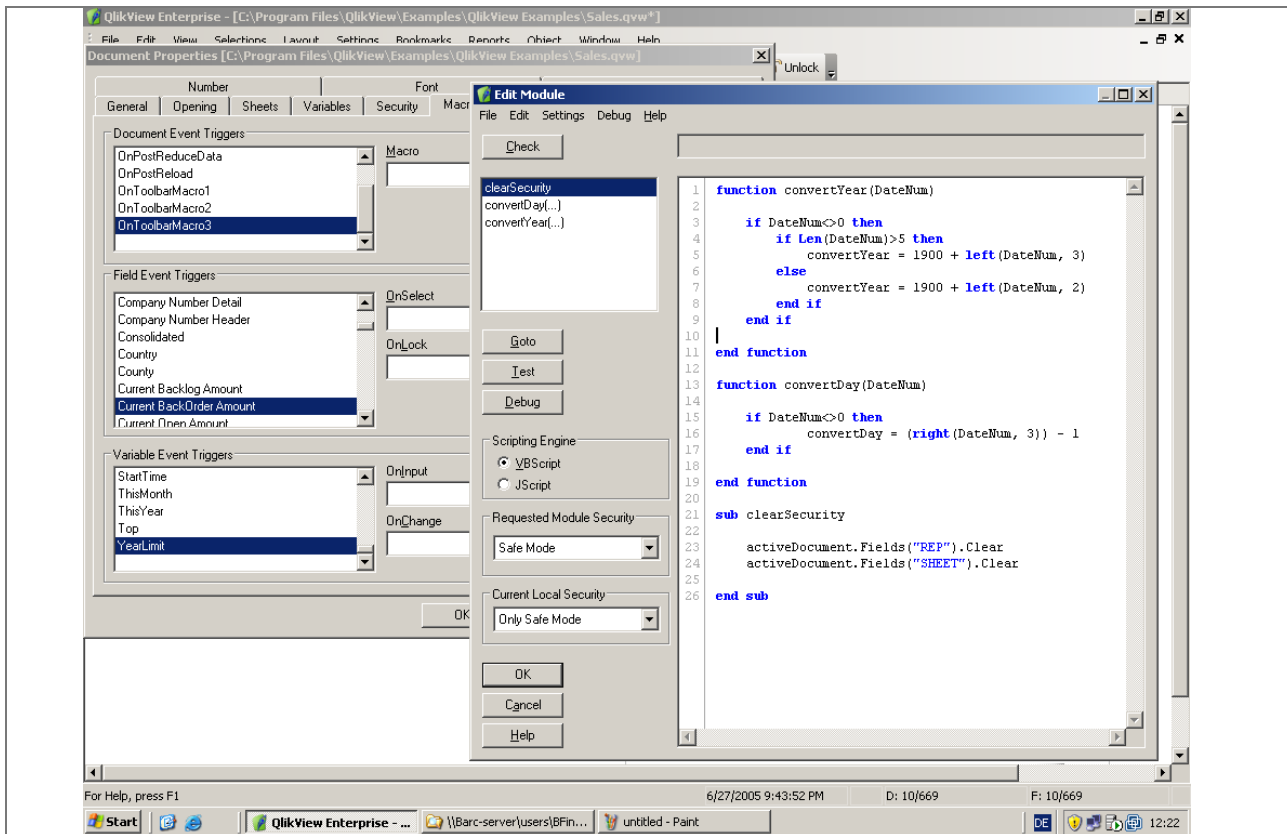
QlikView offers a good selection of interactive report objects with consistent behavior that helps make the reports easy to design and use. The map images in the demo report are simply images in the background of a bubble chart. QlikTech uses them to suggest that the product provides GIS capabilities, something Hyperion also used to do with Web Analyzer. In reality, QlikView has no GIS capabilities.

➔ Scripting

QlikView has a strong set of formulas for carrying out calculations in reports. The usual math, string and logic functions are available. But the mapping, color, inter-record, conditional, range and aggregation functions are all designed to go beyond the limits of spreadsheet-style calculations.

Each calculation is attached to an object such as a chart or a label and only applies to the context where it appears. By reducing the scope of the calculations to the visible context, QlikView speeds them up considerably. But the same applies to a spreadsheet adding two numbers from a slow database. It is difficult to separate front-end from back-end clearly, because the product is closed.

The scripting features that were originally intended for data import have gradually been merged with the calculation features of the charts. Many of the more advanced features and workarounds in QlikView take advantage of this. Calculated expressions can be used for colors, as conditions that determine whether an object is shown, and to calculate other chart attributes such as labels.



Scripts can be triggered by automated events such as data loads or by user actions. The development environment provides syntax highlighting and checking as well as basic debugging functions.

QlikView makes heavy use of JavaScript to support power users, and does not clearly differentiate between calculations and scripting. QlikView provides a development environment for macros triggered by a variety of events. It uses the Microsoft scripting engine, so it supports JavaScript and VBScript.

QlikView also provides good automation features in an OCX API and a JavaScript API. There is also an external API to automate or embed QlikView applications.

➔ Conclusions

Interactive Reporting is an example of a model of relational reporting that has become increasingly popular in recent years. It is a good-looking, accessible product, and it is powerful enough to satisfy most power users, especially because it is so open to JavaScript.

The product's dashboard seems to compete directly with Oracle BI Interactive Dashboards, which is now in the same suite. Its metadata is weaker, but it is better at creating highly interactive systems. It also has the advantage of better print reports.

Hyperion bought Brio to fill a gap in its product line. It continued to lead with financial applications and OLAP, but could include relational reporting for those customers who wanted to work with a single vendor offering a full spectrum of BI and CPM products. It also had good cross-selling opportunities for Brio into its base. All in all, Brio Software was a good acquisition for Hyperion, but its future role is less clear.

Because of Brio's financial woes and Hyperion's differing priorities, the Web version of the former Brio Query product has suffered from a lack of investment for a number of years. It now lags well behind the equivalent products from other BI vendors such as Business Objects (SAP), Cognos (IBM), MicroStrategy and, indeed, Oracle itself.

The gap that Brio filled in the Hyperion product line no longer exists: Oracle already has modern, high profile solutions for relational reporting, most notably the former Siebel Analytics, now called Oracle BI Suite Enterprise Edition.

Hyperion Interactive Reporting could be regarded as an accidental part of the Oracle product portfolio. It is not a product that Oracle would have built or acquired itself, but it arrived along with the rest of the Hyperion Solutions product portfolio. In our view, the product should be repositioned to get back to its roots as a flexible small-scale solution targeted at the business user.

Oracle may concur. In its white papers it speaks of the product's ability to "create self-sufficient user communities that rely very little on scarce IT resources," which sounds like a good description of a departmental solution. But Oracle's organization is geared towards selling enterprise solutions, and Hyperion's organization had been positioning the product as an enterprise tool for years.

For more detailed information and scores, please see the associated Oracle Hyperion Interactive Reporting factbase.

➔ **Similar products**

Interactive Reporting is best viewed as a departmental solution. If you are in the market for a new BI product, and you are considering Interactive Reporting, you might want to consider these products as well:

- QlikView
- Information Builders WebFOCUS
- arcplan
- Oracle BI Interactive Dashboards.

➔ **Strengths and weaknesses**

Strengths

- Strong offline support
- Easy to use
- Good application-building features.

Weaknesses

- The interface seems to rely on JavaScript more than it should
- Sorting is missing in the pivot tables
- Weak traffic lighting
- Lack of role basic function security limits size of user group.