

WHITE PAPER
QUERY, REPORTING AND BUSINESS INTELLIGENCE
ON THE IBM i:
FINDING YOUR WAY

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Foreword

Since 2007, IBM has kept up a nearly constant barrage of announcements about business intelligence (BI) software and services. Ironically, considering the topic, the frequency and variety of these announcements has created a serious case of information overload for many IBM customers who don't have the time to analyze and digest what all these offerings and strategies might mean to their business. Because of New Generation Software, Inc.'s (NGS) position as an IBM Solution Select ISV, Premier IBM Business Partner and independent developer of reporting and BI software for the IBM i (System i, iSeries, AS/400) operating system, numerous customers, business partners, and the trade press have come to us for our analysis. We've done the research and summarized it in this White Paper to help you make informed decisions about the different BI technologies and architectures you may be considering.

For IBM i customers, the biggest BI announcement in recent times occurred in 2007 when IBM and Information Builders, Inc. (IBI) released a product known as DB2 Web Query that would be marketed exclusively by IBM. This product was presented as the upward migration solution for IBM Query/400 users and drew tremendous interest from IBM i customers hoping for a free path to BI. Although more than three years have passed since the product launch, many IBM i customers continue to use Query/400 and are just now running the V5R4, 6.1, and 7.1 releases of the IBM i operating system required by DB2 Web Query. Thousands of copies of DB2 Web Query have been shipped, but only a small percentage of these licenses have been installed and only a small percentage of those licenses have been put into production. As a result, there are still many gaps in people's knowledge of DB2 Web Query's availability, features and licensing terms. This White Paper can help you fill in many of those gaps.

From a broader perspective, the largest IBM BI-related announcement in recent years was the 2007 acquisition of Cognos, Inc. Cognos is a major name in BI with query, reporting, and analytics software primarily designed for Windows, Unix, and LINUX environments. The Cognos products are at the center of IBM's BI software and services strategy, but do not run on the IBM i operating system and, despite recent product rollouts, tend to carry a higher cost of licensing and implementation than competing solutions designed for IBM i. We examine the Cognos offerings from an IBM i customer perspective in this White Paper.

During 2009, IBM decided to expand its BI portfolio again by buying SPSS, Inc. SPSS, although known to some IBM i customers for their ShowCase line of query, reporting, and OLAP software, was purchased by IBM because of its predictive analytics technology designed for the Unix and LINUX operating systems. Some background on the ShowCase products is included in this White Paper.

In April 2009, IBM made a major move to grow its BI-related consulting revenue by announcing the formation of a Business Analytics Group within their Global Business Services division. At the time of its creation, this group was staffed with 4,000 consultants. IBM's announcements at the time indicated they expected most of these consultants to be engaged in projects related to the deployment of the Cognos software products. This White Paper includes a section that discusses some of the considerations an IBM i customer should weigh before contracting with IBM or any other BI consulting firm.

During this same timeframe, IBM has made many other smaller acquisitions to fill niches identified by its Business Analytics group. It has also announced initiatives related to "cloud-based" BI including the IBM Smart Analytics Cloud, a massively scalable architecture built for the IBM System z mainframe. On August 17, 2010, IBM announced the Smart Analytics System 77 – a POWER7

based platform running AIX 6.1 and IBM InfoSphere software. This solution carries an approximate entry level cost of \$4,000,000US and is designed to compete with Oracle's high-end data warehousing solutions. In September 2010 IBM made a \$1.7 billion US offer to buy data warehouse appliance provider Netezza. Netezza projects typically cost over \$1 million US. The manufacturing and distribution industries, where IBM i is most popular, are noticeably absent from the industry solutions list on the Netezza Web site. In October 2010 IBM acquired Canadian software developer Clarity Systems. Clarity's solutions are described as helping companies satisfy financial reporting mandates from the US Securities and Exchange Commission (SEC).

At this time, most of IBM's BI plans appear to help them compete at the top tier of the BI market where multi-year services engagements with seven and eight figure budgets are common but use of the IBM i as a BI platform is not. Consequently, most mid-size IBM i customers are advised to look beyond the IBM i for cost-effective BI solutions. Fortunately, there are IBM-based BI solutions that optimize the strengths of the operating system and fit within the budget of IBM i customers of all sizes. We'll introduce you to some of the features of our own BI solution, *NGS-IQ™*, and contrast it with some of the alternatives you may be considering. We'll also help you recognize what type of BI solution fits your organization. There are many good steps you can take to bring BI into your business, whether you just want to improve your operational reporting or you're ready to develop a data warehouse and mine your data.

Query/400 and DB2 Web Query on the IBM i: The Basics

If you're like most IBM i customers, you have staff members who rely on IBM Query/400 to generate simple queries of your DB2 database. Query/400 was introduced with the AS/400 in 1988 and has remained essentially unchanged since that time. It has its limitations, but it's familiar and you may be running hundreds of Query/400 queries.

Now, IBM says it's time to replace Query/400. They've withdrawn the stand-alone Query/400 application from marketing and announced that beginning at i5/OS V5R4, Query/400 must be ordered as part of the new DB2 Web Query software. This tactic is to encourage you to voluntarily migrate off Query/400.

DB2 Web Query was designed and developed by IBI and IBM. It is a less functional, OEM version of IBI's WebFOCUS software product which originated on another platform and was ported to the IBM i. IBM now refers to Query/400 as QU1 and DB2 Web Query as QU2. Please note, despite what you may have heard, that migrating to QU2 is not free.

New Generation Software, Inc. (NGS) does not believe QU2 represents your best replacement for Query/400 or best IBM i-based BI solution. If your company uses Query/400, we'd like to propose that you follow a more reasonable course:

1. Do not install QU2 at this time.
2. Do not pay the QU2 software maintenance invoice when it arrives shortly after the software. IBM will still provide technical support for Query/400 whether or not you pay for QU2 maintenance.
3. Keep using Query/400 while you explore your options.
4. Order a no-cost, two-concurrent user license of our *Qport Office™* software so that you can immediately enhance the output of your existing Query/400 queries.
5. View a Web demonstration of *NGS-IQ* and see how our Query/400 API enables Query/400 queries with new features – without requiring any redesign.
6. See how the complete *NGS-IQ* solution can take you far beyond Query/400.

When considering QU2, we recommend that you look carefully at the following factors:

- Total Cost and Licensing Terms
- Performance
- Learning Curve, Particularly for Long-Time Query/400 Users
- Technical Support
- Installation Complexity
- Setup and Ongoing Administration Requirements
- Disk Space Requirements
- IBM i Operating System Release Compatibility
- IBM's Commitment to the Software

We encourage you to explore these points with us herein and download the IBM DB2 Web Query Redbook.

DB2 Web Query Licensing Terms

IBM sells a base, named user license of QU2 to customers when they move up to one of the operating system releases where QU2 can run. If you are buying or leasing a new IBM Power System, your configuration may include a QU2 license fee unless you request otherwise. Given the way it's licensed, we like to refer to the base QU2 as the "free" puppy.

Query/400 comes with an unlimited user license. QU2 is licensed by named user. The IBM base license covers the following number of named users:

P5	2 users	P40	10 users
P10	4 users	P50	15 users
P20	6 users	P60	20 users
P30	8 users		

You must register each user profile in the QU2 application and own a named user license for everyone who develops queries – whether they use the software frequently or only occasionally. Additional named users cost \$400US each. IBM sells a "runtime enablement" feature for companies who want to create groups of run-only users from their named user profiles. The cost of this feature ranges from \$3,200 to \$48,000US, depending on your IBM i processor group. You must still license a sufficient number of named users to support your total number of query developers and groups of runtime users.

IBM offers online analytical processing (OLAP) and "Active Reports" offline report viewing features for additional fees that are tiered by the size of your IBM i. The Active Reports module supports e-mail but requires the use of Microsoft's ActiveX control and is only compatible with Microsoft's Internet Explorer Web browser. Even then, users must modify their Internet Explorer security settings to allow the scripting of ActiveX controls that are not marked as safe. This requirement may violate your company's security policies as scripts are a common source of viruses. Firefox and other Web browsers are not supported. In addition, the Active Reports module can only directly send reports via e-mail to people using Microsoft® Outlook® as their e-mail client. Lotus Notes®, Mozilla, and other popular e-mail clients are not supported. To use the OLAP feature, you must also license at least one copy of QU2's Windows Developer Workbench at \$995US. (Note: We didn't say named or concurrent users here. This is a Windows product you install and license by the individual PC.) If you want to automate report scheduling and distribution, you must license the IBM DB2 Web Query

Report Broker (QU3) at a cost that ranges from \$3,200US on a P5 model to \$48,000US on a P60 model. IBM and IBI have also released two more separately priced features – a Spreadsheet Client for Excel users priced from \$400 to \$12,000US and a Microsoft SQL Server Database Adapter priced from \$1,600 to \$28,800US, depending on your IBM i Performance Group.

At NGS, we built e-mail and FTP output distribution features, as well as job scheduling through standard IBM and third-party utilities, right into our solution. Our customers do not pay separate license and maintenance fees for these functions. In addition to queries created using our software, we enable customers to run Query/400 queries from within our application and distribute the output via e-mail in popular formats like PDF, CSV, HTML, XML, and TXT. Consulting is typically not needed to implement these features. NGS also offers an optional module, *IQ Connexion™*, for customers who need to access MS SQL Server, MySQL, Oracle, PostgreSQL, and/or DB2 on other platforms.

IBM sells a DB2 Web Query Software Development Kit (SDK) to help developers integrate QU2 into their own applications. This SDK, known as QU4, is required if you want to offer users the ability to execute DB2 Web Query reports from Web sites, Web pages, portals, or other Web applications. The DB2 Web Query SDK requires a separate license and a fee of \$10,000US. Maintenance is an additional expense although in October 2010 IBM reduced the maintenance fees for some customers. *NGS-IQ* includes a run-time Web interface, and developers can easily integrate *NGS-IQ*'s Web execution function into any Web page without licensing a separate module or SDK. *NGS-IQ* queries run from a Web browser and can include prompts for variables and links for drilling down from the output of one query to another. Web users can generate HTML reports, Excel sheets, Adobe PDF files, and update and view NGS' Adobe Flash-based business performance dashboards.

Your *NGS-IQ* license enables you to install the *IQ Server™* software on your IBM i and the companion Windows modules, in either connected or offline mode, on a designated number of PC's. Your *NGS-IQ* license manager controls the number of queries you can simultaneously process. Because of the offline options for developers, analysts, and performance dashboard viewing, most companies can support a large number of offline users with just a small number of concurrent users and connected client licenses. E-mail and FTP functions are integrated, so you don't need to license a separate module. Everything a software developer needs to integrate the product into other applications is included in the *NGS-IQ* license and maintenance.

So what is the real cost of QU2? A mid-size IBM i customer on a P10 model – with 20 users who need to periodically run queries from DB2 Web Query or other Web pages, five developers who need to write and run more complex queries, plus five to 10 managers and staff who want OLAP and offline report viewing capabilities – could spend more than \$25,000US beyond the base license for software, training, consulting, and maintenance fees. If you also wanted integrated report distribution and job scheduling, your total cost might exceed \$50,000US.

If you want to see an estimate of what DB2 Web Query will cost your organization, use the DB2 Web Query Cost Estimating Worksheet that is available for you to download at http://www.ngsi.com/company/db2webquery_calc_cost_form.html. This Excel worksheet provides links to additional pricing, licensing and product information available from IBM and NGS.

IBM and IBI have put a lot of thought into the product's design to encourage any customer who wants to go beyond query and reporting to upgrade the base license and engage with IBI or IBM's consulting organization to support that implementation.

QU2 software maintenance is also a cost factor. Query/400 software maintenance was always included in your operating system software maintenance. DB2 Web Query software maintenance is not. The new IBM DB2 Web Query Report Broker and SDK also have maintenance fees.

If you're an IBM i customer who has been off software maintenance but you are now considering a new IBM POWER6 or POWER7 model running release 6.1 or 7.1 of the IBM i operating system, ask your IBM Business Partner what QU2 license fees you will incur. You'll still be able to use Query/400 whether or not you pay for DB2 Web Query maintenance, so we suggest you consider switching to *NGS-IQ* at the time of your upgrade. At this time, IBM offers rebates to companies that license *NGS-IQ* to run on selected Power System models. See <http://www.ngsi.com> for more information.

If you compare these two licensing methods and think about your requirements, we believe you will find NGS' terms are easier to understand and manage.

Performance

NGS-IQ is designed for the IBM i. Your queries run in batch and the software is designed to encourage offline development, presentation, and analysis. For example, when using *IQ Client™*, *NGS-IQ*'s Windows query and reporting module, you need not be signed on to the IBM i except when transferring a query definition to or from your PC and the IBM i. When using the *SmartView™* OLAP module, you work offline over a read-only set of data that you can format, pivot, chart, highlight, and drill into without consuming IBM i resources. *NGS Business Performance Dashboard* provides you with dynamic, graphical presentations of query output stored on the IFS of the IBM i. The queries that deliver the data to the IFS can be run from a job scheduling utility or on demand, but users accessing a performance dashboard to view the various charts, tables and other elements use virtually zero of your IBM i resources.

In contrast, except when using the separately licensed and priced Active Reports feature, QU2 users must have a live connection when developing and viewing reports. IBM spokespeople have provided varying information about the CPW, memory, and disk arm requirements of DB2 Web Query. But IBM does point out that as a Java application, DB2 Web Query requires substantially greater CPW than Query/400.

DB2 Web Query Learning Curve, Particularly for Long-Time Query/400 Users

QU2 comes at the task of query and reporting from a very different perspective than Query/400. The user interface and flow is substantially different and requires time to learn.

NGS-IQ provides you with an integrated, yet modular, approach to reporting and BI. We know different users require different user interfaces and function. One user may simply want to run pre-defined reports from icons on his or her Windows desktop. Another user may want a Web interface for running queries and viewing the output. Your most technically adept users may move comfortably between Web, Windows, and 5250 interfaces. With *NGS-IQ*, all of these people can simultaneously work in the environment they prefer, where they are most productive.

Query/400 users find the flow of *NGS-IQ* familiar and easy to learn. NGS has gone to great lengths to provide an intuitive, step-by-step flow while providing a dramatically more functional, modern, and high-performance solution. Our Query/400 API enables you to run up to 10 Query/400 queries in a specified order from within a single *NGS-IQ* query. This capability means you can take output from Query/400 queries to Microsoft Excel, Word, and Access; PDF, HTML, XML, CSV, TXT; and NGS's online analytical processing (OLAP) solution known as *SmartView*. *NGS-IQ*'s integrated e-mail and FTP give you the ability to run these queries and automate the distribution of their output.

Furthermore, *NGS-IQ* lets you create, append to, and replace DB2 files as needed. QU2 can create and replace but not append data to files which can mean additional processing time when a simple nightly or weekly update is all that's needed.

DB2 Web Query Technical Support

QU2 is a joint venture of IBM and IBI, meaning that some requirements may be satisfied by IBM and some may require software from IBI. For example, customers who need to access Oracle, MySQL, or DB2 on other platforms must license an adapter from IBI. In some cases, adding function may require a complete migration to IBI's WebFOCUS software at a substantial additional cost.

If you have a question about *NGS-IQ*, from technical questions to inquiries about additional features or modules, you can call NGS. Nearly every time you do, you'll be connected to a live person who will know the answer. We know that's unusual and you may not believe it, so we hope you'll put us to the test.

DB2 Web Query Installation

The complexity of QU2 installation has been mentioned in trade journals and online newsletters. Some consultants and business partners charge \$1,000US and more to install the software. NGS does not believe you should have to power down your IBM i or hire a consultant to install a BI and reporting application.

DB2 Web Query Setup and Ongoing Administration Requirements

NGS-IQ works directly with your DB2 database. While *NGS-IQ* offers meta-data features to help you simplify end-user understanding and navigation of your database, meta-data is not required. QU2 requires you to set up and maintain a meta-data repository of your DB2 files.

DB2 files added to QU2's meta-data repository aren't organized by library which can make finding them difficult. You cannot query files stored in your QTEMP library because QU2 doesn't allow these files to be defined in its meta-data repository. This restriction effectively eliminates the convenience of using QTEMP to store query output that is needed to process a second query.

QU2's meta-data repository can be used to identify any Query/400 objects that you wish to run from within QU2, but QU2 requires you to re-enter these query objects in the meta-data repository if they have been changed since the last time they were run from QU2. This can be frustrating in an environment where QU2 is being used by some people while others continue using Query/400 to maintain queries.

DB2 Web Query Storage Requirements

NGS-IQ requires less than 100MB of disk space on the IBM i. *QU2* takes many times that amount and the pre-requisites can more than double that total. We recommend you get firm numbers from IBM or IBI before you attempt to install *QU2*.

DB2 Web Query: IBM i Operating System Compatibility

QU2 requires i5/OS release V5R4, 6.1 or 7.1.

NGS-IQ currently runs on any IBM i with i5/OS V5R1 through 7.1. You can begin using *NGS-IQ* now, whether or not you are running the latest i5/OS release.

If you're a Query/400 user who is installing one of the releases *QU2* supports and you don't have the time or budget to evaluate new BI software right now, we suggest you hold onto your money and take a look at our entry-level *Qport Office* software. For a limited time, we're offering the complete product, not a trial license, at a 100% license fee discount to non-NGS customers who have read this White Paper. To order:

1. Go to http://www.ngsi.com/company/qportoffice_license.html.
2. Complete the form, and after the Promotion Code field, use the drop down list to identify the event or publication where you learned of this offer.

Qport Office lets you run Query/400 queries from Windows and direct your output in one step to Microsoft Excel, Word, and Access without modifying the underlying queries. You can license, download, and begin using *Qport Office* in about 10 minutes. We include a 90-day warranty and toll-free telephone support at no additional cost.

Go to <http://www.ngsi.com/company/qportoffice.html> for more information about *Qport Office*.

IBM Cognos BI Offerings

IBM acquired Cognos in 2007 and has worked steadily since that time to use this software as the foundation of its worldwide business analytics practice. The Cognos products are too numerous to list here, but span query, reporting, OLAP, analytics, financial performance, extraction-transformation-loading (ETL), planning, and other BI functions. Cognos products do not run natively on IBM i. Each module is installed on one or more Windows, Unix, or Linux servers or AIX or Linux partitions of an IBM Power System server. The software uses ODBC, OLE, or JDBC to access DB2 on i and other databases. Frequently, Cognos implementations that need to address the needs of more than a few users become data warehousing projects where data from multiple servers and databases are replicated, restructured, and summarized into one or more specialized databases on one or more dedicated servers.

Although IBM now offers the lower-cost Cognos Express alternative for mid-size businesses, customers considering Cognos need to understand that license fees represent a small portion of the cost of owning and running a Cognos-based BI solution. Consulting, implementation, middle-

ware, databases, and dedicated servers are a larger cost factor in all but the simplest of environments.

IBM and many independent consulting providers have built substantial profit centers around the delivery of Cognos implementation services. In fact, the simple awareness of just how many consultants (4,000+ inside IBM) earn a good living working with Cognos products, should give you an indication of just how complex this software can be to deploy and maintain.

Cognos consultants, including those employed by IBM, commonly design a BI infrastructure that sacrifices the strengths of IBM i – security, integrated DB2 database, availability, performance, and low staffing – in an effort to “standardize” on a platform more familiar to the consultant. For an IBM i customer primarily interested in accessing, analyzing, and generating reports from DB2 on i and maybe one other data source, the Cognos products can add unnecessary complexity to the BI infrastructure. IBM’s own database and BI executives routinely made this point to IBM i customers right up until the day IBM bought Cognos, Inc.

SPSS and the ShowCase Product Family

SPSS, acquired in 2009 by IBM, entered the IBM i software market in 2000 by purchasing the ShowCase Corporation. The ShowCase line of query, reporting, and OLAP software was aggressively marketed by IBM and ShowCase Corporation in the late 1990’s. The ShowCase-IBM partnership ended shortly after SPSS acquired the company, and the ShowCase products have received only modest marketing support from SPSS in recent years. A senior company official was quoted in the IT Jungle newsletter on January 6, 2009 as saying that SPSS was focused on supporting existing customers rather than seeking new business.

Given its emphasis on integrating SPSS’ predictive analytics software with the Cognos products running on other platforms, IBM probably won’t invest much in marketing or developing the ShowCase software product family. Casting further doubt on the future of the ShowCase product family is the fact that Oracle Corporation’s Hyperion OLAP software is the technological foundation of the ShowCase Essbase offering. SPSS operated as an OEM distributor of Hyperion OLAP with exclusive rights to port this software to the IBM i. One can’t help but doubt IBM’s commitment to ShowCase Essbase given that IBM has competing OLAP software of its own to promote and a desire to grow its substantial consulting business around those products, not Oracle’s.

BI Software from Microsoft and Others

This White Paper is meant to help IBM i customers understand the BI offerings from IBM and NGS. Of course, there are many other BI products in the market. Most of these products, like the Cognos offerings, do not leverage IBM i and DB2 on i.

Companies using Microsoft SQL Server 2008 as a database may be tempted to consider using Microsoft SQL Server Reporting Services (SSRS) as a BI platform. SSRS is included in the SQL Server 2008 Standard and Enterprise editions. Companies in this situation often say, “SSRS is free because we already have a SQL Server license and an unused PC server sitting in the corner.” This line of thinking is a gross oversimplification of reality. If you plan to make SSRS your BI platform and have a variety of business and technical users working in the software regularly, you will need to bring in a new, fully-loaded Windows server and with that you will need a new license of SQL Server 2008. SQL Server 2008 Enterprise currently licenses for approximately \$8500US per server

or \$25,000US for unlimited users. The one or more servers needed to support a company-wide deployment can easily triple that cost. In addition, in this environment you will probably also need an experienced staff member or consultant to sort out connectivity, performance, and security considerations.

Many companies don't realize they have never effectively established IBM i object-level security over their database until they give users access to IBM i from an application that connects to DB2 via ODBC or OLE. If not immediately, within time, a company that takes this approach to BI may need to add a Database Administrator to its staff, further increasing the total cost of ownership.

The open source community has also spawned several BI software applications. These applications, like SSRS, also often get their start in companies where the perception of them being free is very appealing. Jaspersoft is one open source BI software vendor. They currently only support their software on selected UNIX, LINUX, and Windows operating systems. While some open source BI software tools can run on the IBM i, it is difficult to find people who have done so and are running the software in a production environment outside the IT department.

Part of the challenge is that these open source products are developed in the Java language which is not widely used by IBM i application developers and has a reputation for poor performance on older low-end IBM i models. Companies that aren't sure about running Java applications on their IBM i either turn to alternative solutions or deploy the open source software on a separate server and pull data from DB2 to perform their BI work. As with the Microsoft and Cognos models, this architecture brings with it complexity, middleware, hardware, and potentially additional staff, if you go beyond the most basic deployment. Annual support agreements with the leading open source BI vendors currently start at \$25,000US and scale upward depending on various factors.

BI Consultants: From the IBM i Perspective

As mentioned earlier, the BI marketplace is filled with consulting firms that have developed expertise in gathering user requirements, designing a BI architecture, and implementing BI software. Unfortunately, finding a BI consultant who has more than a passing knowledge of the IBM i environment is extremely rare. This predicament is because consulting firms maximize their revenue and stay out of trouble by mastering a particular way of carrying out a project and then finding as many clients as possible who will pay them to duplicate that model. The model most of today's BI consultants have learned how to duplicate is centered around products from Cognos, Business Objects (owned by SAP), Microsoft SSRS, and others that were built for the Windows or Unix/LINUX operating systems. Microsoft SQLServer and Oracle are the most common databases used in these environments.

If you hire a consulting firm to help you design your BI solution, you probably won't end up with a solution that leverages IBM i. This problem is precisely why IBM's Power Systems organization promotes DB2 Web Query at a time when most of the IBM organization is promoting Cognos. Unfortunately, as explained earlier in this White Paper, DB2 Web Query poses other challenges to IBM i customers that should not be overlooked. We believe *NGS-IQ* presents the optimal, IBM i-based, cost-effective BI solution for the widest range of companies.

Training and Consulting Costs

NGS has a 28-year heritage in the IBM marketplace. We completely understand and practice the traditional IBM i value proposition of integration, ease of implementation, and low cost of ownership. These values are ingrained in NGS' design, so customers achieve remarkable results and a fast return on investment.

NGS offers implementation consulting to those customers who require it, but most don't. The minimal need for consulting reflects our heritage on IBM i where integration is built into the product at the factory, not by a billable consultant after installation. Our goal is to transfer our knowledge and skills to you as quickly as we can and provide you with technical support and documentation to make you self-sufficient.

Matching Solutions to Requirements

Regardless of the BI software you consider, you first need to determine what type of BI solution you need. BI solutions generally fit into one or more of the following categories:

- Ad Hoc Query and Enterprise Reporting
- Online Analytical Processing (OLAP)
- Dashboards and Scorecards
- Data Mining/Predictive Analytics
- Extraction, Transformation and Loading (ETL)
- Data Warehousing

Ad hoc Query and Enterprise Reporting

Ad hoc query and enterprise reporting software is usually the first step companies take when looking to give managers and business analysts better access to company data. If your primary goal at this time is to enable a small group of users to write and run queries and work with the resulting data in Excel spreadsheets, view formatted output on screen, or generate printed reports from your online transaction processing (OLTP) database, this type of software will probably meet your needs. The success of this type of software depends heavily on the quality of your data and your knowledge of the database design. A highly normalized OLTP database can be challenging for non-IT staff to query. However, if query development is limited to IT staff members who understand the database and others simply run pre-defined queries with a variety of run-time prompts to support customized output, this may not be an issue. *NGS-IQ* provides tremendous ad hoc query and enterprise reporting features.

OLAP

If you have managers or others who want to perform more sophisticated analysis over highly summarized data with the ability to selectively drill into detail on demand, an online analytical processing (OLAP) solution may be ideal. OLAP software aggregates data into multi-dimensional models that make it easy to do comparisons across periods, customers, products, services, or other business dimensions.

There are many different OLAP software products on the market ranging from very advanced solutions that can require dedicated servers and substantial database design to implement and simple solutions like *NGS-IQ's SmartView* which provides users with most of the benefits of OLAP, but without a lengthy implementation and consulting. *SmartView* supports n-dimensional modeling over query output, offline analysis, drill-down, charting, pivoting, traffic-lighting, calculations, export to Excel and HTML, and other important features.

Dashboards and Scorecards

Dashboards and scorecards present highly summarized data, typically through the use of charts and graphs, to help managers monitor key performance indicators, hold staff members more accountable for performance, and see trends quickly. Dashboards and scorecards may support drill down to more detail, but they supplement rather than replace reports, spreadsheets, and OLAP models. They are meant for managers who want a high-level view of business activity. These managers often may not read the reports and spreadsheets others send them because they don't have the time to study the detail or they simply want the "big picture."

The NGS Business Performance Dashboard solution is an optional model of *NGS-IQ* that addresses this requirement. It can be easily added to an *NGS-IQ* implementation at any time.

Data Mining/Predictive Analytics

Data mining and predictive analytics are advanced BI functions that can provide tremendous ROI but typically require significant consulting and planning prior to implementation. This is one of the market segments targeted by IBM for strategic investment and growth.

Extraction, Transformation and Loading (ETL)

If you've determined that you need to develop a data warehouse or data marts to provide a foundation for your BI initiative, you may want to simplify your development work by using an ETL tool. ETL tools are query tools that enable you to extract data from your OLTP and possibly non-structured databases, restructure, cleanse, and format (transform) it to support BI, and populate (load) the tables of your data warehouse or data marts.

The *IQ Server* module of *NGS-IQ*, possibly extended with the addition of the *IQ Connexion* remote data access module, can serve as an IBM i-based ETL solution that can consolidate data from DB2 on i, MySQL, SQLServer, DB2 on other IBM platforms, Oracle, PostgreSQL, and other sources. *IQ Server* also allows you to cleanse and transform data before loading it into DB2 tables. One of the strengths of *NGS-IQ* is that the same user interface that supports ad hoc query and production report writing can, in the hands of an advanced user, step up to perform ETL functions without requiring additional licensing or investment.

Data Warehousing

Data warehousing is a methodology that supports the creation and maintenance of a data model where data is organized and summarized to simplify reporting and analytics rather than OLTP. In its simplest and most common form, a data warehouse may be a set of summary tables that are updated regularly from your OLTP data so that business users can get to the information they need without having to learn the relationships between the tables in the normalized OLTP database.

In global enterprises, it is not uncommon for data warehousing implementation projects to run into the millions of dollars and span many months or even years. In smaller companies, the effort can be much more modest. Although BI purists often argue otherwise, NGS does not believe every company that wants to deploy BI software needs to build a data warehouse.

For companies who feel they need a data warehouse to serve as the foundation for their BI project, NGS offers template starter kits including *Decision Assist – Business Performance*, *Decision Assist – Financial Performance*, and *Decision Assist – Healthcare*. These templates are documented DB2-based data models designed to support specific reporting and analytical requirements such as sales, customer, inventory, finance, and hospital patient finance. The templates are delivered with a set of ready-to-use queries that output to Excel spreadsheets, dashboards, OLAP models, Web pages, and other destinations. Customers may modify these templates to suit their needs.

Conclusion

We hope this White Paper shows you why you need to apply due diligence when evaluating BI solutions from IBM, just as you do with other vendors. And, we hope you will keep in mind that NGS has been synonymous with query, reporting, and BI on the IBM i, System i, iSeries, and AS/400 for over 20 years. We're an IBM Solution Select ISV and Premier Business Partner. No other IBM i developer provides a more complete query, reporting, OLAP, analytics, performance management, data warehousing, and security solution. We enjoy excellent working relationships with IBM and thousands of customers and business partners who appreciate the value we deliver. We hope you'll offer us the opportunity to provide a similarly impressive return on investment to your enterprise.

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