



CLABBY ANALYTICS

Case Study

The “Wow!” Factor: A Perfect Example of Using Business Analytics and Cloud Computing to Create Business Value

Introduction

This *Case Study* is about how one enterprise (IBM) found a way to extract additional business value from its existing sales pipeline database. But within this case study are numerous sub-stories and sub-themes, including:

- *An innovation theme*— how two individuals found the computing resources and tools needed to perform deeper analysis of IBM’s sales pipeline database;
- *A cloud computing story*— how IBM quickly provisioned the computing resources needed to conduct this analysis by allocating resources from its own cloud pool;
- *Business analytics story* — how IBM’s Cognos analytic tools were used to extract additional business value from the sales pipeline database; and,
- *Workload optimization story* — how a mainframe proved to be the best system for the job when it came to analyzing a very large database.

In short, IBM extracted additional business value from its existing sales pipeline database (a sales tracking database) thanks to two innovative IBM marketing managers who determined that IBM’s pipeline analysis process could be vastly improved using business intelligence/business analytics software. As things were, IBM’s pipeline database (which consists of millions of records) was cumbersome — and marketing managers who used this database had to wade through hundreds and sometimes thousands of records to extract the data they needed to predict buying trends and behaviors. Also, isolating issues or opportunities could be time consuming, labor intensive or could not be manually created. Further, the results of this manual analysis sometimes did not isolate the true causes of a problem or help identify opportunities. Two of IBM’s marketing managers leveraged business intelligence/business analytics tools to automate a lot of the manual pipeline management processes and reports. And by so doing, IBM was able to obtain more accurate insights and increase its business.

The bottom line is this: Using a new, graphically driven business analytics environment, IBM sales and marketing managers can now more easily extract sales trend information from the company’s pipeline database. Problems can be identified and opportunities can be found more quickly than ever before — resulting in more business for IBM. This case study shows how innovative thinking, combined with access to the computing resources needed to conduct in-depth database analysis on an existing database, can yield a huge increase in business value for a given enterprise.

A Closer Look at the Previous Business Process

At IBM, the sales organization manages the sales pipeline for the current quarter. IBM’s marketing organization manages the pipeline beyond the current quarter. Sales and marketing managers assess the pipeline using several key metrics (these metrics are

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proprietary, so they are not defined here). Using these metrics, sales and marketing managers can create composite reports that show business activities and trends within certain geographies (such as activities within a large geographic area, or activities at the region/country level). Pipeline data can also be sorted according to IBM brands (hardware, software and/or services) — even down to the machine/configuration level or service product offering.

The challenge in analyzing this data is that it is difficult to isolate problems because the datasets being analyzed can be very large. And if problem isolation is difficult, then it is also difficult to take actions to correct a given situation. Likewise, if opportunities don't rise to the surface, then it is difficult to make plans to capitalize on those opportunities.

Using manual processes and few analytics tools, IBM's pipeline managers were frequently only left with enough information to make “educated guesses” to the sources of problems or opportunities...

Solving This Challenge: Gumption, Innovative Thinking, Business Analytics Tools, a Computing Environment and Workload Optimization

IBM's two marketing managers understood that better analytics tools would help them more quickly analyze the data in their database. Further, they understood that business analytics tools would enable them to drill more deeply into the data that they already had.

Gumption and Innovative Thinking

“Gumption” is described in *The Free Dictionary* as:

1. Boldness of enterprise; initiative or aggressiveness.
2. Guts; spunk.
3. Common sense.

IBM's marketing managers could have easily continued with the existing, manually intensive process of pipeline analysis — and IBM would have continued to manage its pipeline in the same manner that it has managed it for years. But these two pipeline managers work in an environment that encourages innovation and that rewards common sense. Accordingly, gumption (the boldness of enterprise and the use of common sense) was a major driving factors that helped get the vision of these managers off-the-ground.

Requirements: Computing Power, Business Analytics Software, and People

What these managers envisioned at the outset was a business analytics environment that could analyze the pipeline database and deliver analytical insights in a graphically-driven form to pipeline managers. What they lacked was:

- Access to the computing resources needed to drill into a large database. (This includes access to both computing systems as well as related storage — discussed in the next subsection);
- Access to business analytics software. (This was easy to obtain given that IBM now owns Cognos). A description of the Cognos environment that these two pipeline managers developed can be found in the next major section: *What The New Environment Looks Like: The “Wow!” Factor*); and,

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- Marketing/technical assistance in designing and managing a new pipeline analytics system. (These marketing managers were able to obtain the help of four interns who were participating in an IBM summer internship program — two with business background and two with technical background — were recruited to help design, build and deploy the new pipeline business analytics environment).

Finding the Computing Environment and Project Design/Management Resources

Because IBM encourages innovative thinking, there is no shortage of potential projects to be launched. But, even though IBM is a computer maker, it does have a finite amount of computing power...

IBM Global Services runs IBM’s computing environments. And typically, a request for more computing power would have to go to Global Services — along with budget money to pay for the use of associated computing resources. This funding situation placed IBM’s pipeline marketing managers in a position where they would have to request a budget allocation to acquire the resources needed to implement a new business analytics systems — and where they would have to wait for months for application designers to build the new analytics environment they were seeking to build.

Instead of taking the longer budgeting/design route, however, IBM’s pipeline managers sought a less costly solution. These managers and their management team were aware that IBM Labs operates a large cloud computing environments — and that resources from that cloud can be made available to “qualified” service requestors. Further, these managers knew that IBM frequently hires summer “interns”, usually university students with business or technical backgrounds. What this team of marketing professionals decided to do in order to test its proposed business analytics environment was to request computing resources from IBM’s cloud environment leaders — and request summer interns be made available to work on the proposed project.

For those not familiar with cloud computing environments, clouds are a systems/storage/-network configuration that allows unused computing resources to be logically pooled (virtualized). In other words, if a computer system is running at 50% of its capacity, the remaining 50% can be assigned to a “resource pool” where it can be used by other applications that need computing resources. The real beauty of having access to such an environment is that it costs IBM very little to pool its computing resources — and it is very easy to provision servers and storage for new application environments (such as the proposed pipeline business analytics application). So, for very little in the way of machine and management labor costs, IBM is able to deliver computing services to qualified users who need additional computing power. (Note: some companies even allow users to provision their own resources, making it even easier to experiment with new concepts and new designs).

By taking advantage of IBM’s cloud computing environment, and by taking advantage of IBM’s internship program, IBM’s two pipeline managers were able to acquire the computing resources that they needed to perform large database analytics — while also gaining access to additional labor to help design a new pipeline management environment.

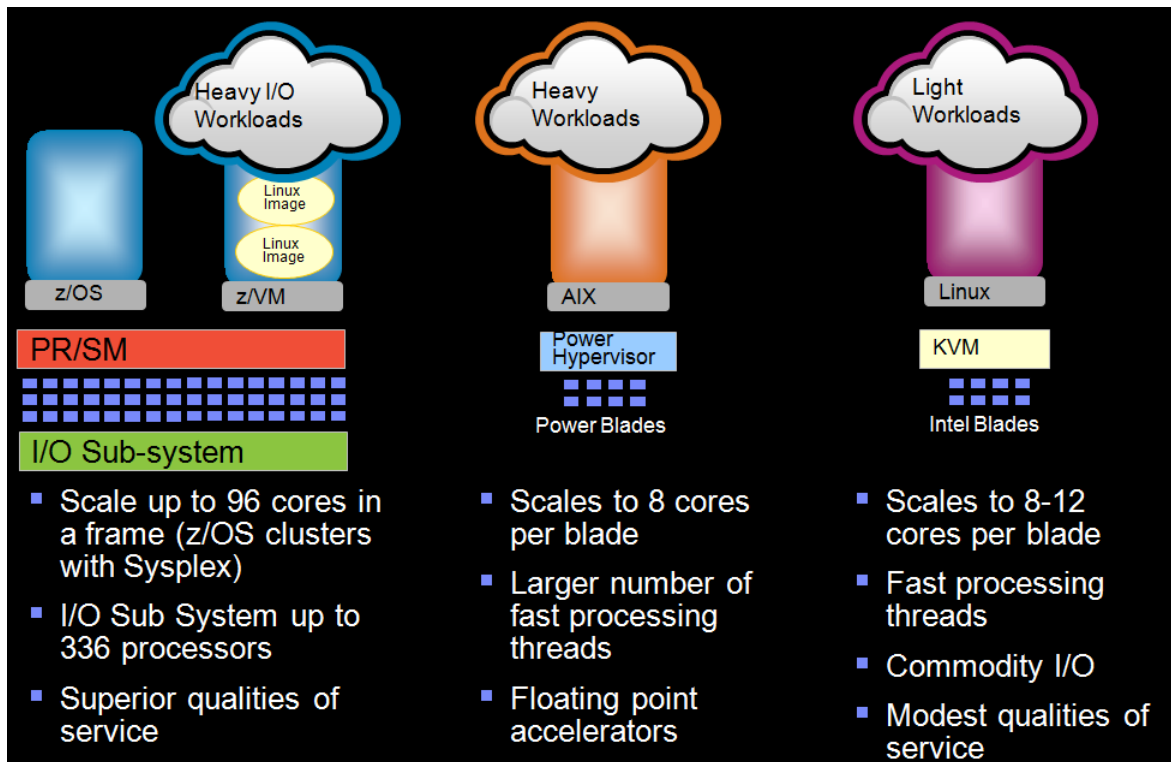
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Workload Optimization

It is important to note that IBM’s cloud environment consists of three types of systems: x86 servers, Unix-based Power Systems, and mainframes (System z). Each system has differing capabilities and offers different levels of quality-of-service (QOS).

Some of the biggest differences between these server environments can be found in scalability and in the way that they balance workloads. Mainframes, for instance, are a “shared everything” architecture designed to find and make available the computing resources needed to execute a wide range of applications at a very high utilization rate. Mainframes have large memory caches that are managed extremely well (constantly checked for coherence to ensure that cache misses or I/O delays do not cause saturation bottlenecks). x86 servers, on the other hand, are good at processing numerous application threads at rapid speeds (making x86 servers excellent parallel processing systems). Figure 1 shows some of the scalability and QOS differences between the above mentioned three systems types.

Figure 1: Comparative Differences in Systems Scalability/QOS



Source: IBM Corporation: October, 2010

What is particularly interesting about the new pipeline analytics application is that it could have been run on any equipment available in IBM’s cloud environment. But given that the application needed to deal with a very large database — and given the need to process a lot of transactions — this application gravitated toward the industry’s best large scale data processing platforms — the mainframe.

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Many enterprises have a built-in bias toward x86- and Unix-based servers. But business analytics applications run extremely well on mainframe-class servers. IT executives who are looking to conduct business analytics applications on large databases might be wise to follow IBM's suit and consider deploying such applications on an IBM mainframe.

What The New Environment Looks Like: The “Wow!” Factor

Imagine using rudimentary, for-the-most-part character-driven analytics tools — and rudimentary reporting tools — to build a “future pipeline” report (a report that attempts to isolate problems and opportunities beyond the current quarter). Now image using a Web-based interface tool that offers an easy-to-use interface, that links transparently with back-end Cognos business analytics tools, and that can deliver a number of different reports in various formats while applying business logic / intelligence designed to recommend appropriate next steps based on the ever changing data. Welcome to the new world of IBM’s Cognos-based “Future Quarter Pipeline Tool”.

Figure 2 (next page) provides a snapshot of IBM’s Future Quarter Pipeline Tool. As depicted, users can:

- Launch a pipeline summary report that provides a view of pipeline metrics;
- Identify potential opportunities (and view specific details about those opportunities).
- Easily access a graphically-driven dashboard helping pipeline managers track trends and evaluate sales activities across large or granularly small geographies and product categories;
- Evaluate the health of the pipeline through visualizations of key metrics and trends. The complex analytics calculations and applied business rules identify pipeline challenges and provide context specific guidance on the next steps in the root cause analysis for the different geographical and product categories.

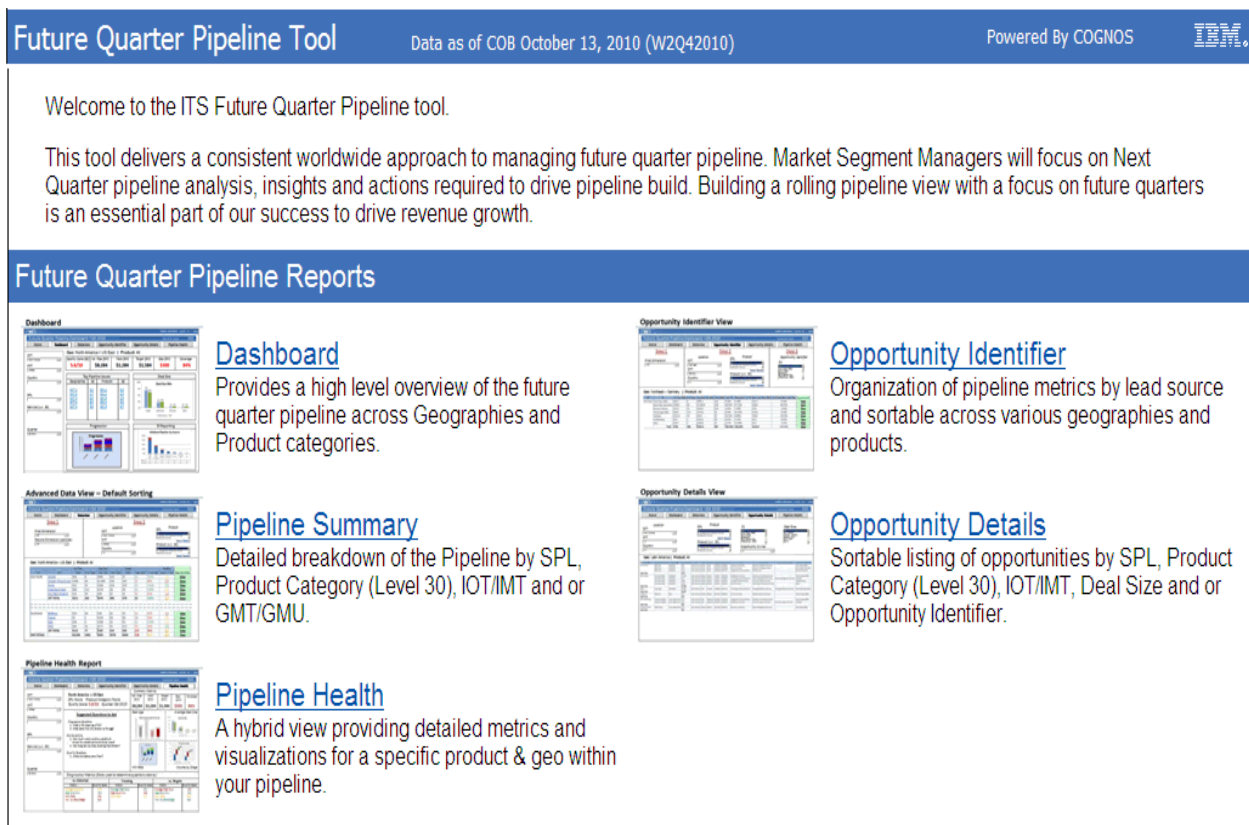
Using this tool, pipeline managers can graphically visualize activities within their pipelines — and these graphical representations are based on deep drill down techniques that were very complicated to perform due to the manual, labor intensive nature of the previous pipeline management reporting. With this data, pipeline managers can — with a greater degree of certainty — isolate problems, and then bring the right stakeholders into the picture to help solve problems.

After viewing the current pipeline analytics tool and contrasting it with the largely manual pipeline reporting of the past, it is easy to see why pipeline managers say “WOW!” after using the new application environment. According to some users: “this environment is like having a pipeline management expert sitting right next to me!”

According to the marketing managers who helped architect this environment: “we can’t add people fast enough to the approved user list for this environment. This environment simplifies pipeline management — and improves pipeline analysis. Our only regret is that we didn’t do this sooner!”

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Figure 2 — The New “Future Quarter Pipeline Tool”



Source: IBM Corporation: October, 2010

Summary Observations

Imagine having a very large database that contains important sales pipeline information — and then imagine not being able to effectively mine or analyze the data in that database to take action and create business value. This is a problem that thousands of enterprises are facing today — and some are just now beginning to take action to remedy this situation.

In this *Case Study*, we saw how non-technical IBM employees were able to identify a business need and get the corporation to buy into addressing that need. These employees are to be credited for their initiative — and their gumption. But IBM should also be credited for creating an atmosphere that fosters this kind of innovation.

Of equal interest to *Clabby Analytics* is the technological approach that these pipeline marketing managers took to solving their computing resource problem:

- The beauty of cloud computing is that it captures unused computing cycles and makes them available to other users who can take advantage of them. Enterprises that embrace cloud computing might be surprised by some of the new workloads that can be launched just by exploiting available, but unused computing power that is already available on premise.

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- We especially liked how easy it was to build the computing environment needed to support the pipeline marketing organization. As one of the marketing managers said: “building this environment was simply an exercise in provisioning resources — no new computers or storage devices had to be purchased or deployed”.
- We also liked the lesson in workload optimization that this pipeline implementation delivered. It was clear to IBM that this application was data intensive and that a strong back-end database server was needed to support this application. An IBM mainframe quickly became the obvious choice. (Enterprises that don’t use mainframes should take note — and consider using mainframes for these types of large database, business analytics applications).

Technological advances such as cloud computing, advances in server scalability, memory handling, and processing speed — combined with fast, sophisticated business intelligence/-business analytics software — are now making it possible to cost effectively launch new, business analytics initiatives.

Perhaps it is time for your enterprise to take advantage of the data that may already reside in your own database to increase the value that your computer systems and your people can deliver to your business.

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