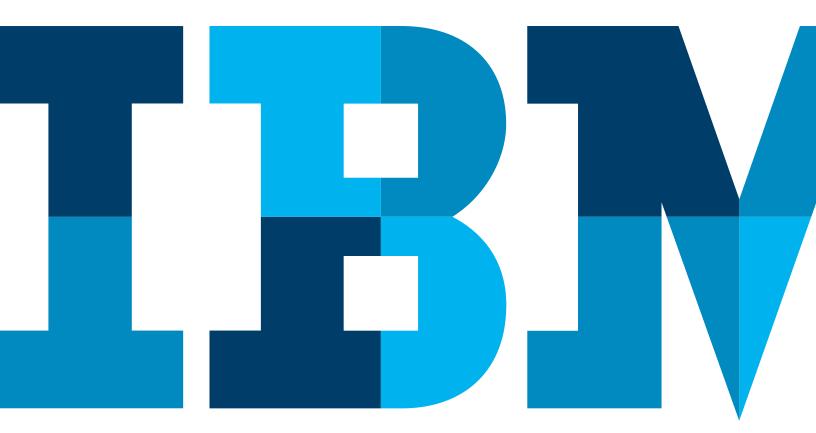# Simple is better

Overcoming the complexity that robs traditional data warehouses of their full potential

by Mike Kearney, Senior Director of Product Marketing, IBM

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Introduction

Have you noticed how we enjoy our favorite gadgets and devices with no concern for their technology? Because the designers have done their job so well, the underlying technology almost disappears, freeing us to focus exclusively on our task at hand. Imagine the opposite situation—each time we use our smart phones or fill our washing machines, we must engage with the minutiae of telephony or the intricacies of the water utility. Although this sounds preposterous, many organizations find themselves in this predicament whenever they attempt meaningful interaction with their enterprise data.

We use machines to automate tasks so we can achieve more with fewer resources. We judge the success of machines or systems by how well they automate those tasks; highly successful systems free us to concentrate on our objectives – they are simple to learn, simple to use and simple to own. Less successful systems are unable to mask complexity in the job at hand; they distract their operators from what they are trying to achieve while drawing them in to how the system itself operates. These systems are complicated to learn, complicated to use and complicated to own.

Bringing big data under management and making these assets available for analyses are complex, daunting challenges. Hundreds of organizations have escaped the frustrations of their first-generation data warehouses by replacing older database technologies with IBM PureData™ System for Analytics, powered by Netezza® technology. The systems that were replaced forced their users to deal with too much complexity; their warehouses demanded constant administration from highly trained specialists. This complexity is doubly corrosive: the costs of administration spiral upwards and out of control as data volumes grow, while the business, distanced from its data, must seek technical expertise to manage its interaction with its information. Disenchantment can lead business units to abandon the warehouse in pursuit of their own business intelligence initiatives: creating data silos, duplicating technology stacks, and introducing unwelcome risk to data governance and security.

IBM PureData System for Analytics is designed to be simple to learn, simple to use and simple to own. This simplicity frees technical teams to cultivate deeper relationships with their business peers, investigating new ways to create value from data.

Our customers' chief information officers and business intelligence managers encourage their technical specialists to reshape their daily work, refocusing their time away from the technical aspects of managing data and toward the business and the greater role that data can play in its success. Individuals who previously spent as much as 90 percent of their time consumed in low-level technical work now rarely interact with the technology but constantly interact with their data.

By bringing simplicity to data warehousing and analytics, PureData System for Analytics frees technologists to focus on data, not data management, driving real alignment between IT and business functions.

Simplicity: better by design

Bringing a huge volume of information under management, keeping it up to date and making it instantly available for the mathematical algorithms of advanced analytics are complex challenges. Many first-generation data warehouses have had limited success: the technologies chosen to solve the big data challenge expose their complexity to the user. In asking too much of their administrators, these early data warehouses contribute too little to their businesses.

Complexity robs data warehouses of their potential. When a computing infrastructure becomes more and more complex to manage, the technical team spends most of its time managing the mess. Technical experts, rather than working with their business peers to create value from computing, spend days and weeks consumed in database, server and storage administration. Although the warehouse may contain valuable information, the technology team is left with too little time to engage and to champion data-based decision making within the organization's business functions.

Many organizations built their first-generation warehouses using the same database management system as they used for their online transaction-processing systems and other tasks. By their nature, general-purpose database systems lack the specialization to excel at analytic processing. These systems require configuration and tuning, in effect, aftermarket engineering work undertaken by the customer to specialize a general-purpose product. Witnessing customers' struggles with the complexity of coercing general-purpose database systems to be warehouses, the Netezza technology team pioneered a different approach: appliances built on a database management system specialized for analytic processing. PureData System for Analytics was built to manage data automatically and hide complexity, freeing our customers to focus on tasks that create value.

IBM designers and engineers make simplicity a goal, testing PureData Systems at each stage of development? Because PureData Systems contain complexity's creep, customers report their ownership as being refreshingly different from their frustrating attempts to employ older database technologies to corral big data into warehouses. Simplicity of operation emerges as a measure of success, both for IBM engineers and for organizations deploying PureData System for Analytics as their data warehouses. For IBM customers, simplicity has tangible value; their technical staff are no longer fully consumed in low-level database administration.

"Our data warehouse team consists of one to two employees that we need once every three months."

– Mark Saponar, Vice President, Information Systems at iBasis

The fruits of simplicity

Simply evaluated: your proof-of-concept

When assessing which new vehicle to buy, few of us consider speed and acceleration alone. We want to sample the experience of living with the new car. We investigate its safety record, recommended service frequency, fuel consumption and many other variables before ultimately taking it for a test-drive.

IBM designed PureData Systems to be simple to live with while delivering the best price/performance. In an industry dominated by inflated marketing claims, we stand behind our promise, inviting prospective customers to evaluate the simplicity and performance of our appliances for themselves and to gain this understanding through their own hands-on experience.

An onsite proof-of-concept offers incomparable opportunities to experience life with a new system, including its performance for your queries and how simply that performance is delivered. Ask yourself when considering vendors providing newly integrated hardware-plus-software offerings: "Has this company established a reputation for delivering products that are simple to learn, simple to use and simple to own?"

If you answer with anything other than a resounding "yes," their claims to newfound simplicity demand close inspection by your staff in your data center – not off-site, where days and weeks spent cajoling performance from their product may be less than apparent. Not assessing the whole system before making a purchase risks committing IT teams to more years of unnecessary and expensive configuration and administration work while losing an opportunity to get close to the business and fulfill its information needs.

"Netezza came, they installed, they moved the data, and within 48 hours we were up and running with real production data."

– Vasant Gadgil, Enterprise Architect at Con-way Freight

Simply priced

As customers, we value simple pricing, yet some vendors make pricing so complex as to create a mini-industry of independent pricing consultants. Complicated pricing confuses customers, wastes time and money, and creates uncertainty. PureData System for Analytics appliances are simply priced: a price for the appliance and a price for annual maintenance. "Netezza is our partner of choice because they offer us the complete package. They offer us the product we want, the support we demand, at a price that's competitive," says a C-level executive at a major financial institution.

Simply fast: performance with no tuning

To run analytic queries at top speed, general-purpose database management systems must be configured and tuned. Much of this tuning is expressed as code in SQL's Data Definition Language, or DDL. Industry experts suggest that as much as 75 percent of the total cost of each line of code is expended after it is first written. Maintenance costs created by database systems requiring DDL coding for their performance create a drag on IT budgets for years. A financial services company reduced its total DDL from 103,600 lines to 2,600 lines (one statement alone reduced from 9,208 lines to 13 lines of code) by moving its warehouse from a database system designed for transaction processing to PureData System for Analytics appliance. The code maintenance cost savings made by migrating to PureData System are enormous—equally gratifying is that administrators are freed from the future burden of creating new code. As noted by a Chief Information Officer from one of the largest private, multi-specialty group practices in the United States, "Netezza's performance in terms of handling data loads and query responses is tremendous, improving our responsiveness, and represents a fraction of the initial and long-term costs of older enterprise data warehouse approaches."

While PureData System for Analytics reduces our customers' maintenance load it also runs their queries faster than they previously dreamed possible. VP Data & Information Strategy at MediaMath, Tom Craig comments: "Things that looked impossible to us prior to the implementation are now second nature." This confidence is confirmed by his CTO colleague Roland Cozzolino: "I've yet to bring something to Netezza that it couldn't handle." See the video at www.ibmbigdatahub. com/video/netezza-data-analysis-powers-real-time-bidding-mediamath-demand-side-platform.

Simply implemented: migrate from old and complex database systems

Years of reliance on the same database systems can create a feeling of being "locked in" and lead to concerns that the costs of moving to a new technology may swamp any benefits accrued. The vast majority of PureData System for Analytics customers have successfully navigated this process, many guided by systems integration partners experienced in these migration projects. Customers prepared to undertake a proof-of-concept quickly realize that PureData Systems offer a different, more promising future than the constant, low-level administration demanded by their previous database technology. Typically, organizations plan which existing applications and databases to migrate to a new system and then start their new journey, planning deployment of high-value analytic applications they previously considered beyond their reach. A C-level executive from a major financial institution describes his company's experience of migrating to Netezza technology: "We deployed our first Netezza platform in just three months. This included our application conversion and migration of 26 terabytes of data. What I particularly like is the power and simplicity of the Netezza appliance."

"We basically migrated our data in one day" and then went on to fulfill a request from an external regulator The query that we did to basically fulfill the request normally took about four days because of the very large data request. We went ahead and tried this out on Netezza instead of the legacy system and we were able to put the data together in about two hours" says Betsy Meeker, Director of Data Warehousing for Intercontinental Exchange (ICE) See the video stream at www.youtube.com/watch?v=96dl55NLPos.

Simply learned: fast to value

Failing to hide the complexity of managing big data, older database technologies require administrators and business users to be trained before they can use the warehouse. This training is not a one-off event; with each major release of their software, vendors recommend database administrators recertify by attending many new training courses. Training is expensive and takes staff away from their jobs. Complex database technologies cost businesses real money and delay their returns on investment. Shielded from the complications of data management, business users enjoy immediate access to their data as soon as the new PureData System for Analytics is installed. Building confidence and momentum among business units is critical to the long-term success of a new data warehouse platform. Danny Sangster, Senior Manager of Enterprise BI, at XO Communications' notes: "We process 80-plus million records down to 14 million records, billing some $5 million along the way. We would have never been able to do that with our old processing, but we did it with a Netezza back-end and Cognos front-end. We were able to go through that in less than a week." That is fast time to value: less than one week's work to generate $5 million in revenue recovery – see the full video at www.youtube.com/watch?v=_b_nFbTtcOw.

"Allowing the business users access to the box was what really sold it. They were running analytics on Netezza six months before even having any training."

– Steve Taff, Executive Director IT Services at XO Communications

Simply upgraded: scaling as your data grows

Organizations commonly report that their enterprise data grows at 50 percent or more each year. IBM designs PureData System for Analytics to be simple to upgrade, either for customers moving up to a newer generation or to expand the footprint of a machine already in production. The simplicity of PureData System for Analytics means that as an installation's capacity and physical footprint grows, costs of administration remain small. As noted by Jonjie Sena, Senior Director of Product Management at TEOCO Corporation, "We have approximately 24 racks in our environment and we only need two full-time people to manage the environment. For the kind of data volumes we're processing, that's just not possible using traditional database methodologies." Learn more about this customer's success at www.ibmbigdatahub.com/video/teoco-corporation-simplifying-business-analytics-ibm-netezza.

"We don't have to spend non-value-add time just moving the data around; rather we can go straight to where the data sits and run those analytics right on the data."

– SVP Application Development at a major digital media company

Simply aligned: business and IT together exploiting your data

Many CIOs feel pressure from their business peers to help them do more with their data. Data warehouse systems built on old database technology have hindered rather than helped CIOs align their teams with other business units. For IBM's customers, PureData System for Analytics is transformational; technology shields rather than exposes complexity and frees technical teams to work on higher-value tasks. The PureData System creates opportunities for CIOs to engage with their executive peers and reimagine their businesses, to become driven by analytics and data-based decisions. Performance has its role to play, but this realignment becomes possible when performance is delivered with simplicity, or in the words of a customer at a major digital media company, "It's not just about making a query go faster, it's about rethinking the way you do business." That is how IBM's customers think; for them, data warehousing and analytics enable real and fundamental change. Making this change requires a new database strategy, but with change, results come quickly.

"Just three months after moving to Netezza, my team delivered more analytical applications than they could in the previous three years with Oracle."

– CIO, consumer-driven marketing company

Simply exciting: IBM Netezza data warehouse appliance roadmap

Data warehouses and advanced analytics promise to drive data-based decision making to all levels of an organization, from strategic planning through tactical management to business operations. Organizations such as NYSE Euronext are working with IBM to realize this future: "By 2015 we should be able to handle 10 plus petabytes as well as moving tens of terabytes within an hour in and out of our systems" – see the full video of Emile Werr, head of Enterprise Data Architecture at NYSE Euronext at www.ibmbigdatahub.com/video/nyse-euronext-innovating-and-preparing-future"www.ibmbigdatahub.com/video/nyse-euronext-innovating-and-preparing-future." IBM's roadmap.

Conclusion

Managing big data sets and making them available for deep analysis, often as events unfold, are complex computing and data management challenges. Recognizing the scale and complexity of these challenges, IBM PureData System for Analytics minimizes customers' risk by delivering a system to their data center for full and transparent evaluation at no cost. Our systems offer the best price/performance for the most demanding analytic challenges.

Most IBM customers replace older database technologies with PureData System for Analytics. Our customers attest on-the-record that their data warehouses are now simpler to operate and own. The customers' appreciation of the simplicity we bring to their data warehouses develops as their relationship with their data deepens. Performance delivered simply with no demand on database experts to tune queries and cajole the database system creates initial excitement. Next, customers realize that many valuable and computationally-demanding analytic applications, previously shelved as out-of-reach, are now possible and simply achieved.

Months in to their deployments, CIOs focus on the radical realignment taking place in their organization: highly skilled technicians freed from the burden of nursing complicated database technology, engaging with their business peers to create value from data.

This alignment between technologists and their business peers becomes possible when complex computing tasks are masked by appliance simplicity. PureData System for Analytics makes the technologies of data management and analytics disappear. With simplicity, big data volumes attain their promise as business assets.

See for yourself—take a test drive at no charge

Organizations can try out the PureData System for Analytics with the IBM PureExperience Program. This program is available at no charge to allow you to test drive the system with your own data. The program offers onsite installation and demonstration of business value, education and data migration services, use of the system for a specified period and a single line of support. For details on this program and to see what is available in your area, visit: **ibm.com**/PureExperience or contact your IBM representative.

About IBM PureData System for Analytics

The IBM PureData System for Analytics, powered by Netezza technology, integrates database, server and storage into a single, easy-to-manage appliance that requires minimal setup and ongoing administration while producing faster and more consistent analytic performance. The IBM PureData System for Analytics simplifies business analytics dramatically by consolidating all analytic activity in the appliance, right where the data resides, for industry-leading performance. Visit: **ibm.com**/PureData to see how our family of expert integrated systems eliminates complexity at every step and helps you drive true business value for your organization

About IBM Data Warehousing and Analytics Solutions

IBM provides the broadest and most comprehensive portfolio of data warehousing, information management and business analytic software, hardware and solutions to help clients maximize the value of their information assets and discover new insights to make better and faster decisions and optimize their business outcomes.

For more information

Help IT make the shift to the strategic center of your business, and leverage proven expertise to take the lead. To learn more about the PureSystems™ family and the PureData System for Analytics, contact your IBM representative or IBM Business Partner, or visit the following website: **ibm.com**/PureSystems/PureData/.

IBM Global Financing

Additionally, IBM Global Financing can help you acquire the software capabilities that your business needs in the most cost-effective and strategic way possible. We'll partner with credit-qualified clients to customize a financing solution to suit your business and development goals, enable effective cash management, and improve your total cost of ownership. Fund your critical IT investment and propel your business forward with IBM Global Financing. For more information, visit: **ibm.com**/financing.

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