Harnessing the Value of Big Data with Advanced Analytics

March 2017

In today’s digitally connected economy, data is created constantly within an end-to-end value chain. We have experienced a dramatic increase in connectivity across the value chain, which shows no signs of slowing down and, in fact, is accelerating at a rapid pace. As the volume of data created continues to increase, it’s imperative that enterprises seek to identify opportunities to leverage advanced analytics to drive value for their business.

The following questions were posed to Tim Grieser, program vice president of IDC’s Enterprise System Management Software research, by CA Technologies on behalf of CA’s customers.

Q. From an IT and DevOps perspective, how effective is the traditional business intelligence (BI) approach in the new world of big data?

A. Traditional approaches to gaining knowledge from business intelligence typically involve a variety of analytical skills and software tools needed to extract meaningful information and insights from business data. Traditional BI is based on operational business data, which can range from data stored in spreadsheets to data in a structured data warehouse. Traditional BI approaches are enabled by “data scientists” often requiring knowledge of statistics, data analysis techniques, and related analytic methods and processes — using tools to search, visualize, and analyze data to discover patterns and gain intelligence.

Today, the enormous volume, variety, and velocity of IT and DevOps data — especially machine-generated data — make it extremely difficult to follow this type of process for IT operations analytics (ITOA). IT service optimization solutions need to have built-in big data analytics capabilities that enable developers and IT operations staff to understand the operational environment, discover key relationships and trends, and anticipate and prevent problems as well as recover quickly if problems do occur — without requiring data science skills.
Q. What is the value of embedding advanced analytics into functional, use-case specific applications for IT?

A. Analytics can be implemented based on general-purpose tools or as integral parts of specific solutions. Increasingly, we are seeing analytics such as machine learning being "built in" to specific IT service and operations management applications such as performance management, event management, and application performance management (APM). For example, an APM application may incorporate advanced analytics to understand normal behavior and take actions such as automatically moving work to lightly loaded hardware resources to achieve required service levels.

Moreover, analytics at the level of specific applications or use cases can incorporate domain knowledge to drive insights and build localized knowledge. Tools incorporating advanced analytics to optimize specific applications, technology silos, and use cases can help IT organizations increase performance, experience higher agility, and adapt to changing conditions more quickly. Typical use cases include IT infrastructure optimization, storage optimization, and insights into network health and availability.

Advanced analytics enable troubleshooting processes to more quickly find root causes of incidents and speed remediation. Another use case relates to DevOps where incidents in production can be traced back to application source code defects. Embedded analytics also are driving real business value in security, in areas such as identity management and fraud detection.

Q. Should IT organizations build their own data science teams to uncover value in big data?

A. The strong recommendation for IT organizations is no — do not build your own data science teams to analyze and derive value from big data. The value of big data analytics—based technologies for IT organizations comes from applying ITOA technologies to track, analyze, and optimize IT processes, applications, and end-user experience — not from developing their own data science skills. IT organizations need to focus on optimizing IT development and operations with IT-specific knowledge and skills.

Instead, IT organizations should evaluate software and SaaS vendor offerings that deliver IT-oriented analytics capabilities such as log management, consolidation and correlation, machine learning of baselines and dynamic thresholding, and predictive capabilities to discover trends and forecast future progress to anticipate and avoid service-impacting events. The role of the data scientist should be oriented toward helping build smart, use-case specific tools for IT service optimization.

Q. How do you view embedded analytics compared with IT using analytics platforms for ITOA purposes, using open source tools, for example?

A. Embedded analytics can add important usability and in-context analysis features enabling users to engage analytics capabilities without transitioning to a separate application, a specialized dashboard, or an ITOA platform. With embedded analytics, data for the application can be made available for use in analytics for specific process optimization, orchestration, and automation, which can include remediation.

Given the close relationship between application and embedded analytics, IT staff typically do not need to learn the operational characteristics or user interfaces of an external analytics solution. While there are several open source tools for analytics, they are often complex and typically not embedded into specific applications. IT organizations are best served by eliminating the need for context switching from tool to tool, which is the biggest barrier to accomplishing deep, thoughtful work.
Q. Will the embedded approach address the challenge of limited domain expertise and availability of IT skills?

A. The need for IT domain expertise and IT skills has been constantly increasing. Skills shortages are driven by a number of factors, including an aging workforce, continuously evolving technologies such as containers and microservices, growth in infrastructure and application scale and complexity, and the competitive drive to continuously build and deploy new applications for digital business enablement.

Embedded analytics can help simplify user interfaces, streamline operations, and reduce the skills needed to manage and optimize IT processes and services. As artificial intelligence (AI) technologies become more widely available and are embedded with specific applications and capabilities such as natural language interfaces (both text and speech), IT organizations will need fewer specialized skills and less domain expertise.

ABOUT THIS ANALYST

Tim Grieser, program vice president, Enterprise System Management Software, is responsible for system management software research in IDC’s Enterprise System Management Software program. His coverage includes software for managing systems and applications across a wide variety of platforms. Key focus areas are ebusiness and distributed application performance and availability, especially Web application response time from the end-user perspective.

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