Data Visibility and Protection

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Analyze Your Business Intelligence and Analytical Applications to Improve Business Value

Data Usage Analysis Drives New Insights, Speeds Business Process, and Streamlines BI/Data Warehouse Operations

Overview

Companies across many industries leverage their data with business intelligence and analytic applications to improve business results. Now, organizations are beginning to leverage those very same analytical tools to better understand how their organizations actually do their business analysis. They are applying "Analytics on Analytics". That is, they are analyzing and gaining greater insight into how their organizations use their analytical tools and their data in order to further optimize their business analysis and deliver more value to the business. Armed with this deeper insight on the data analysis process, they can improve analytical results within the business areas as well as build better analytical tools to further increase value from the data.

I have been working as a business intelligence and analytics professional for over 20 years in the insurance, financial services, healthcare, and high-tech industries. I help businesses realize the benefits of BI and analytical applications through developing BI strategy, architecture, and ongoing management and improvement of BI and analytical systems. For the last few years, I have been recommending and using a tool from a software company, Teleran, which enables organizations to do analytics on analytics. It helps BI, information management, data warehousing as well as audit, compliance and security teams to do their jobs better and faster, and to enhance the value of BI, analytics, and data to the business. The purpose of this paper is to describe the use cases where I have seen companies gain both business and technical value from their use of the Teleran solution.

Background on the Teleran Solution

Teleran's software solution captures all or a configurable set of queries and report requests going to databases. It tracks and analyzes queries as well as results metrics like how long the query took to process, how much data was returned to the user or application, as well as what data was accessed by the query. It stores these details in a repository that provides a rich and robust view of user and application interaction with the data. All of the details of a data request, down to the userid, internet protocol (IP) address of the requestor, and the specific SQL statements are logged and correlated. It also has extensions into leading BI tools such as SAP BusinessObjects and others. This enables the Teleran system to associate database queries and usage metrics with specific BI users, reports and semantic layers (Universes in the case of SAP BusinessObjects) and offer a complete view of usage activity from the database to the application back to the specific business user or analyst.

The Teleran repository is organized for effective and efficient view of all of this information to provide the insights for the business users, BI and analytics support teams, data management as well as compliance and security staff. In many cases customers choose to use the Teleran provided reporting and analysis system. In the case of one large company, they use SAP BusinessObjects as their Teleran analysis tool as well as their predominant BI platform. Although the Teleran system works across all the major relational database platforms, the use cases that follow are from large Oracle database environments, some of which have migrated to the high performance Oracle Exadata platform. These environments support over 10,000 BI and analytical application users.

Improving Marketing Analysis, Enhancing Business Value

With Teleran an organization can benefit from knowing who has accessed and analyzed what data and how often. For example the Marketing Department will benefit knowing who are the real data explorers and experts who are able to get the most valuable insight from their analysis of the data. The Marketing Department can then gather together experts along with less expert users in workshops or training sessions to establish best practices analytical approaches and insights. These sessions can also serve to streamline the analytical process by identifying and reducing any redundant reporting or analysis and highlighting and eliminating potential inconsistencies with the data and analyses.

The promise of having consistent analytical usage metrics to continue to improve and expand best practices analytics within companies is significant. It is often best achieved by continual communications and coordination between the individuals analyzing the usage metrics as well as ongoing reviews and periodic measurement of how well the process improvement is going within each department. Often you will see increased intensity of data analysis and query complexity reflected as the process advances.

Another benefit to the use analytics on analytics is in the evaluation and management of marketing programs. Typically these programs are evaluated during the actual marketing campaign as well as after the campaign concludes. Having a consistent set of analytical usage metrics establishes a common and transparent evaluation of the business results that everyone can understand and believe in. This avoids some problems seen in the past where inconsistent analysis or a lack of confidence in the data led to delayed marketing programs or delivered faulty analysis that negatively impacted the next campaign's results. Teleran is a tool that enables the insight into the analysis and analytical process for establishing a common understanding of business results.

Teleran's solution provides template reports that are easy to consume and customize. For example, with the set of template reports from Teleran, the business can have a core set of reports to help monitor who is accessing what data and how.
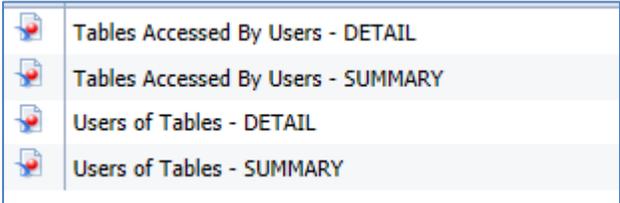
With these core reports the business can either view in summary or detail what tables are being accessed by a user or what users are accessing what tables. Summary reports deliver the aggregated view of data use by users and applications. Detailed reports provide the actual tables and views used by users as well as the specific SQL statements being generating.

New Business Insights Through Cross-Pollination of Analytics and Data

Another way that Teleran provides value to the business is by understanding what data is being utilized by different areas. Consider the Marketing Department viewing what data is being used by the Sales Department. The Marketing area can reach out to the Sales Area's analytic experts to discuss the data the Sales area is utilizing. This often reinforces the value outlined above of establishing consistent view of business results between Sales and Marketing. Additionally the Sales area may be accessing data the Marketing team is not familiar with.

I've seen Marketing teams identify real gaps in their analysis by better understanding what Sales analysts are doing and vice versa. In this case additional Sales analyses provided insights into the cost of sales and return rates. Consequently this additional data was incorporated into more effective marketing program evaluations and better, more consistent business results. Teleran's solution provides benefits across multiple business units within an organization.

Improving the Speed of Analysis and Business Process

One way Teleran can provide benefits to both Business and IT is in the area of application performance tuning. For example let's look at when a new application is introduced to the data warehouse or other database. With a packaged or custom application the SQL issued is often challenging to understand from

looking at just the application layer. Teleran provides a transparent and combined view of how the application SQL is interacting with the database. Specifically the Teleran system can monitor the custom or dynamic SQL being issued to the database and provide insight into what queries or reports would benefit from optimization and how frequently they are run. This kind of profiling enables a priority to be established to optimize the most frequently run queries and reports to gain the greatest benefit for the business users.

The following is a view of performance and resource utilization by application and user. From this view both business and technical areas can monitor the ongoing performance of important applications and analytical processes.

Resource Utilization Summary by Application and User

App Name	OS User ID	DB User ID	Total Query Execs	Distinct Users	Total KBytes	Total Rows	Tot Elapsed Time (secs)	Tot Resp Time (secs)	Avg Kbytes	Avg Rows	Avg Elapsed Time	Avg Resp Time

Improving Data Protection and Compliance

Financial institutions as well as healthcare insurers and providers must adhere to an expanding array of data protection and compliance regulations. Teleran enables companies to address these data protection and compliance requirements. Security and compliance departments can quickly and easily access pre-built reports to monitor end user access and the methods of access to sensitive company or customer data. For example Teleran's compliance reports show by userid and IP address (computer) who is accessing what sensitive data, providing an internal or external auditor the proof they need that the sensitive data access is monitored and controlled.

The Teleran usage metrics are also used to identify usage anomalies that indicate suspicious or malicious data access and use. It can identify for example how a unique userid may be utilized across multiple IP addresses which may indicate that different people are sharing the same credentials, a significant, if not uncommon, compliance and security issue. It also has identified when users are downloading data to departmental servers for further analysis in breach of compliance and governance policies.

Streamlining BI and Data Warehouse Operations

Within the BI and data warehouse technical areas, Teleran is a great tool for building increasingly more valuable analytics as well as reducing the overall costs of solutions. For example Teleran highlights the longest running data requests and how frequently they are run. The owner of the analytic environment can evaluate these data access patterns to either pinpoint performance improvements to be made on the existing data structures or consider alternative data structures to better support the business. This results in more timely analytical results to the business as well as reducing the overall load on the data warehouse and analytical environments. Managing system efficiency over time helps forestall or eliminate costly hardware upgrades and other associated data processing expenses.

The following is a view of the top queries by either elapsed time or the number of rows retrieved. This information easily identifies the queries that should be reviewed for performance tuning or that may be retrieving more data than needed, thus wasting processing and network resources.

Identifying and Archiving Dark Data

In addition to knowing what data is being accessed most frequently, the owner of an analytic environment will benefit from knowing what data is not being accessed. It is common when initially building an analytical applications to include all available data. Over time, however, this data accumulates and grows geometrically, often with large portions never or very infrequently used. With the increasing cost of storing data in high end data appliances, an evaluation of what data is not accessed is important to keep storage, processing, and data handling costs down. By evaluating data usage patterns the environment owner can better determine what data should be hosted in the higher cost database appliance and what data is a better fit for a cheaper data storage platform such as Hadoop or other archiving system.

This Teleran report displays what data is accessed most often and by whom as well was what data is not being utilized.

Migrating Workloads to Hadoop or the Cloud

Teleran's solution has also been an effective tool for profiling workloads to identify candidates for migrating to Hadoop on premise or to cloud-based platforms. Using a combination of data usage and resource utilization analyses, solution architects and information management teams have identified and prioritized what workloads are suitable and will generate both cost and operational efficiency benefits from moving to a new platform. These workload profiles take into consideration query processing intensity, query performance requirements (service levels), frequency of queries or reports, data sensitivity, as well as the business-criticality of the transactions. Teleran provides the fact-based results that promote better IT planning and IT budget allocation. The Teleran system will continue to be instrumental in enabling IT organizations to efficiently evolve to new architectures and operating environments over time.

Conclusion

The huge and accelerating growth of data, the broad acceptance and expanding use of BI and analytics, as well as the increasing expectations for deriving greater value from that data are driving organizations to find ways to better understand and optimize their data and analytical assets. For the past 10 years I've been able to experience the numerous benefits of the Teleran solution in both business and technical areas of several large organizations. Teleran delivers significant value to organizations seeking to optimize the benefits they generate from their analytical systems and data assets.

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About the Author

Tim Rodine is president of TCR solutions and has been working in Business Intelligence and Analytics for over 20 years. He has worked for both IT and Business for financial services, healthcare and high tech industries with companies such as Advocate Healthcare, Allstate Insurance, CNA Insurance, Rush University Medical Center, The Warranty Group and Zurich North America, among others. He has a comprehensive knowledge of and experience with creating strategy, architecture, management, development and maintenance of the full range of business intelligence and analytic solutions. Tim is currently directing several high value analytics projects at a large insurance company and is responsible for the data and business intelligence architecture, modeling, data integration, data quality, and information delivery via reporting, ad hoc analysis and dashboards. Tim is also currently consulting with several healthcare organizations to help them expand their analytic capabilities to meet evolving needs.

For more information on Teleran's Data Security and Compliance Solution visit www.teleran.com or call +1.973.439.1820, ext. 203.