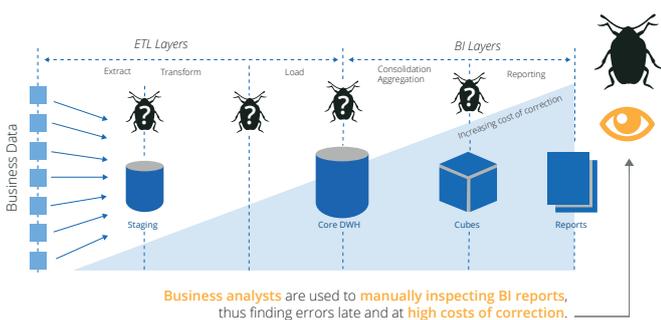# Data Integrity Testing for Business Intelligence/Data Warehouses

Businesses trust their BI tools to drive strategy and process optimization decisions, but the power of those tools depends upon a complex infrastructure accurately collecting and transforming critical data sources. The slightest data integrity error can have catastrophic impacts that ripple throughout the organization. Inaccurate data quality not only leads to sub-optimal decisions; it also opens the door to regulatory risks.

Typically, data integrity issues go undetected unless domain experts discover a discrepancy in a report. At this late stage, it's difficult and time-consuming to unravel and remediate the problem. The fact of the matter is that without a data testing strategy, the effectiveness of your BI tool will be compromised. Tricentis helps your business eliminate data integrity risk. We automatically verify data quality across all BI/DW stages (including the reporting layer) since data integrity can be compromised when data is created, integrated, moved, or transformed. With Tricentis, you can prevent data integrity issues by exposing the problem early and automatically.

Verify Data Quality and Processing

Tricentis Vital Checks expose data acquisition (ETL) errors. You can automatically generate vital checks for both data quality and data processing. The following test types can be created out-of-the-box:

· Pre-screening tests: Verify for missing values, duplicates, data formats etc.

· Metadata tests: Check whether table and column information has changed

· Completeness tests: Enable count comparisons between source and target

· Uniqueness tests: Check for the uniqueness constraint defined in the database

· Referential integrity tests: Check that complete records have been copied and that technical as well as logical integrity is maintained

· Reconciliation tests: Perform complete source-to-target comparison—including file-to-database and database-to-file comparisons

The generated test cases cover table-level checks as well as field-level checks for the various BI/DW layers.

Business analysts are used to manually inspecting BI reports, thus finding errors late and at high costs of correction.
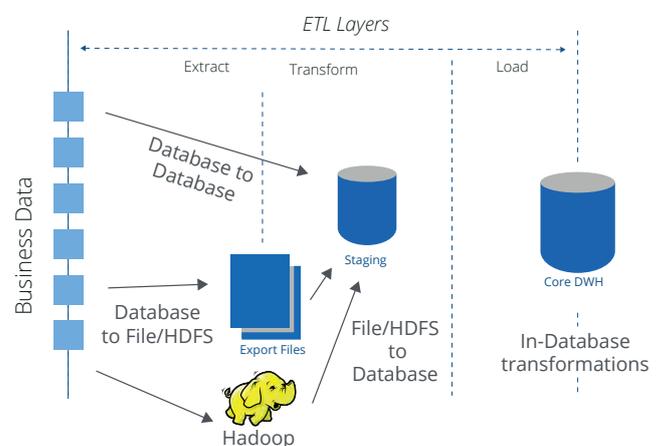
Automated End-to-End Data Integrity Testing

End-to-end testing can be performed using pre-screening tests on files and or databases; completeness, integrity, and reconciliation tests on the inner DW layers; and UI tests on the reporting layer. Databases, flat files, HDFS as well as web UIs, APIs/services, etc. are all supported, allowing a true end-to-end testing approach across all layers of the data warehouse environment.

Data Profiling

Multi-column profiling helps you inspect more complex business rules, particularly within the BI layers. You can easily setup both inferred and trend/targeted profiling tests on a business level. This establishes an early, automated alert system for both data quality and data processing issues.

BI Report Testing

Tricentis Tosca's Model-based Test Automation automates testing of BI reports by providing checks for fully-laid-out reports or analyzing the underlying data that is fed into the reports (e.g., Cognos, Tableau, QlikView, etc.). Tricentis customers who have used Model-based Test Automation to automate their BI report testing have achieved automation rates of up to 90+%.

Supported Technologies

Supported Databases
· All ODBC databases, e.g. Oracle, DB2, Teradata, MS SQL, Hive, HBase
· Hadoop through WebHDFS

File Support
· Fixed & Comma Separated
· XML, JSON
· Excel

Test Examples
· Straight data move
· Data transformations
· Report validation

Miscellaneous Support
· Any CI tool
· HPE ALM/QC
· Reporting

Sample Operations
· File to File
· File to DB
· DB to File
· DB to DB
· WebHDFS to DB/File
· DB/File to WebHDFS

Benefits

· Identify data acquisition (ETL) errors
· Reduce test creation and maintenance time
· Expose defects earlier—when they're faster and easier to resolve
· Improve data quality
· Eliminate delays from manual testing
· Comply with regulatory requirements (e.g., BCBS 239, Basel III and 4, SOX, etc.)

Featured Customers

Next Steps

See Tricentis BI/ DW testing in action

watch the on-demand demonstration at

www.tricentis.com/bi

About Tricentis

With the industry's #1 Continuous Testing platform, Tricentis is recognized for reinventing software testing for DevOps. Through risk-based testing, scriptless end-to-end test automation, and the industry's most extensive technology support, Tricentis breaks through the barriers experienced with conventional software testing methods. Our innovative technologies simplify testing for even the most complex enterprise applications—transforming testing from a roadblock to a catalyst for innovation.

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Continuous Testing