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## Highlights

- Calculates exact functional coverage and test data requirements
  - Matches the data in your test environment to your specific test cases
  - Integrates with other tools in the test data management suite to identify gaps in your test data and then automates the fabrication of synthetic data to fill the gaps
  - Creates test environments that contain the precise data necessary for high-impact testing
  - Shifts your testing left while helping reduce risk and maintain quality.
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# IBM InfoSphere Optim Test Data Orchestrator

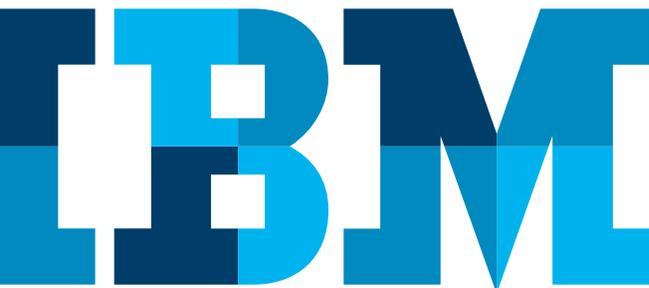
*Continuous data for continuous testing*

## Continuous testing requires continuous data

Leading organizations are modernizing their software development strategies to be more agile in a quest to improve project success, increase software quality and reduce time to market. Better software capabilities that are delivered more rapidly, with improved quality help companies gain a competitive advantage.

Continuous testing is a cornerstone to achieving continuous delivery and realizing the benefits of agile development. Testing earlier and more often—without interruption—throughout the software development lifecycle enables faster feedback on the impact of changes and is a key to delivering higher quality software more rapidly. A central requirement to testing continuously is the availability of the right test data, delivered at the right time, which exactly matches the needs of test cases.

Experienced testers know that creating, maintaining and refreshing the right test data can easily consume 50 percent of the overall time necessary to adequately test new software functionality. It can be difficult and labor intensive to find (in production data sources) or create (synthesize) the right combination of test data that exactly meets the ideal cross-section of data values required for fast and effective defect detection during testing.



## Agile test environments

Test data environments should be lean and agile, containing only the exact data necessary for effective testing—and no more. Testers often use a scatter-shot approach to test data creation—copying mass amounts of data from production sources in hopes of covering all the possible test case permutations. However, bulky test data environments, which eat up vital storage resources and significantly elongate agile testing cycles, may not actually even contain the optimal mix of data values (coverage) necessary to ensure effective testing. In fact, because they contain so much data, often they simply create a false sense of security that everything has been tested—when there is no way to know whether it has. Instead, these bulky environments simply take longer to provision and refresh—and put extra strain on testing teams to deal with longer running test cycles, which don't necessarily provide the desired results.

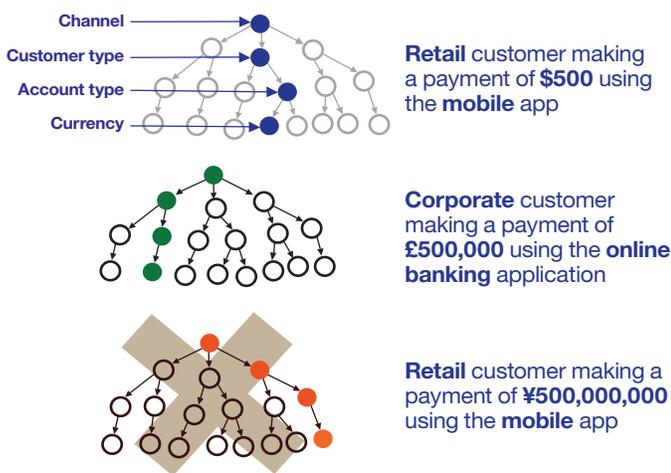


Figure 1: InfoSphere Optim Test Data Orchestrator calculates precise test coverage requirements and helps eliminate unreal test cases.

In an agile, continuous delivery approach, the need to create, maintain and refresh only the right test data at the right time to facilitate continuous testing is fundamental. However, until now, test data was either cloned or extracted from obfuscated production gold copies using custom SQL queries or created from scratch by hand or with rudimentary data generation tools.

IBM® InfoSphere® Optim™ Test Data Orchestrator introduces a breakthrough in test data provisioning automation to help you more rapidly create the leanest test data environments possible, containing only the exact data that you need for effective execution of your test cases.

## Rapidly deploy lean test environments

InfoSphere Optim Test Data Orchestrator is a purpose-built solution that enables agile developers and testers to rapidly build test data environments to help meet continuous testing requirements. It transforms simple designer input into dynamic, extensible coverage intelligence so you can quickly create test data environments—testing everything that matters, without overloading them with irrelevant data that slows you down.

InfoSphere Optim Test Data Orchestrator uses easy-to-define determining attributes, determining values and filter rules to calculate a comprehensive test data coverage matrix. These are translated into test data requests which can be processed by InfoSphere Optim Test Data Management to extract matching data from production data sources or obfuscated gold copy environments and inserted directly into your test data environment. Those attributes then become parameters to automatically select your test data and calculate your expected test results based on business rules, which you store in the Test Data Warehouse.

## Test Data Warehouse

When the correct test data has been created, InfoSphere Optim Test Data Orchestrator stores a copy in its Test Data Warehouse. Here developers and testers can create, maintain and refresh multiple versions of their test data. These versions allow them to more easily support the various releases of their code base with matching test data environments. And, because they are automatically assembled to exactly meet your test cases, you can be certain the data accurately matches the attributes and conditions required for high-impact testing.

## Automate your data and test assembly conveyor belts

Using InfoSphere Optim Test Data Orchestrator means that you can automatically select the right data for every test case based on thorough coverage analysis. It calculates expected results based on business rules and stores these in its repository. InfoSphere Optim Test Data Orchestrator easily interfaces with other solutions in your DevOps toolkit, like IBM Rational® Integration Tester and IBM Rational Test Virtualization Server. This helps make it simpler for you to generate automated tests and refresh test data on demand to help keep your continuous integration pipeline running efficiently. InfoSphere Optim Test Data Orchestrator can load matching test data to your virtual services solution to ensure your test environment is in-synch and fully integrated.

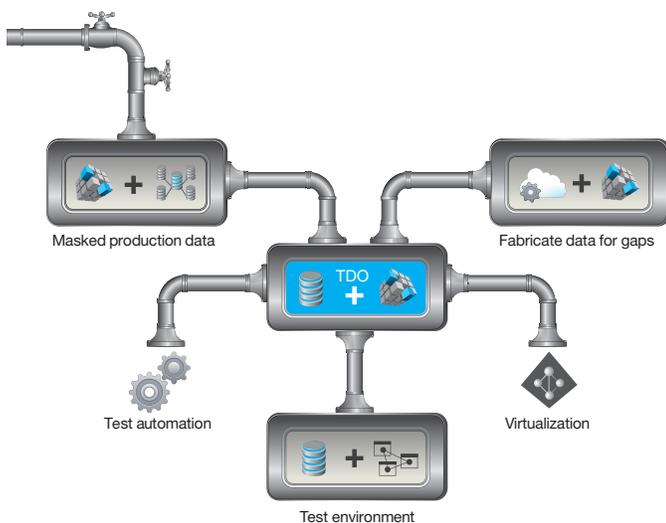


Figure 2: The Orchestrated data pipeline

## Bringing test data management to continuous delivery

InfoSphere Optim Test Data Orchestrator is an open REST-based microservices platform. That means that anything you do in the solution can also be done using the powerful underlying API. Whatever other tools you may be using, the API lets you integrate automated data management into your continuous delivery pipeline.

## Filling data gaps with synthetic data fabrication

InfoSphere Optim Test Data Orchestrator analyzes the data made available from production data sources and obfuscated gold copies and matches it to your coverage matrix. Any missing data elements are identified, and synthetic data is fabricated to fill in the gaps.

## Shift Left at every step

InfoSphere Optim Test Data Orchestrator decouples and automates every step of the test data management process. Data elements and the rules which manage them are easy to visualize and validate so you catch errors earlier before writing a single test case. By shifting validation to the left, changing data requirements or the calculation of an expected result can be done at any time—and new test data can be assembled at the push of a button.

## Support your enterprise environments

InfoSphere Optim solutions provide an essential data lifecycle management approach that scales to meet enterprise needs. In addition to supporting your custom and packaged applications, InfoSphere Optim solutions provide a consistent data archiving, test data management and data privacy strategy across leading enterprise resource planning and customer relationship management applications: Oracle E-Business Suite, PeopleSoft Enterprise, JD Edwards EnterpriseOne and Siebel CRM. Plus, it supports all major enterprise databases, data warehouses and operating systems: IBM DB2®, Oracle, Sybase, Microsoft SQL Server, IBM Informix®, IBM IMS™, IBM Virtual Sequential Access Method (VSAM), IBM PureData™ for Analytics (formerly Netezza®), Teradata, Microsoft Windows, UNIX, Linux and IBM z/OS®.

## For more information

IBM InfoSphere Optim Test Data Orchestrator integrates with the portfolio of IBM Optim solutions, which are designed to help manage data from requirements to retirement. To learn more about IBM Optim solutions, visit:

[ibm.com/analytics/us/en/technology/optim](http://ibm.com/analytics/us/en/technology/optim)

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