

Migration Guide

Teradata to Yellowbrick Hybrid Data Warehouse

Developed by Next Pathway and Yellowbrick Data

Document Purpose

Yellowbrick Data and **Next Pathway**, an industry leader in cloud migration, have partnered together on an end-to-end solution that streamlines your move from your legacy Teradata enterprise data warehouse platform to Yellowbrick's modern hybrid cloud data warehouse – alleviating the need for extensive manual development and migration efforts in order to benefit from the performance and business insight Yellowbrick provides to customers faster and more efficiently.

This document is intended for customers seeking a migration path from Teradata to Yellowbrick Hybrid Data Warehouse. This guide will provide customers with best practices and key considerations when planning and executing their migration.

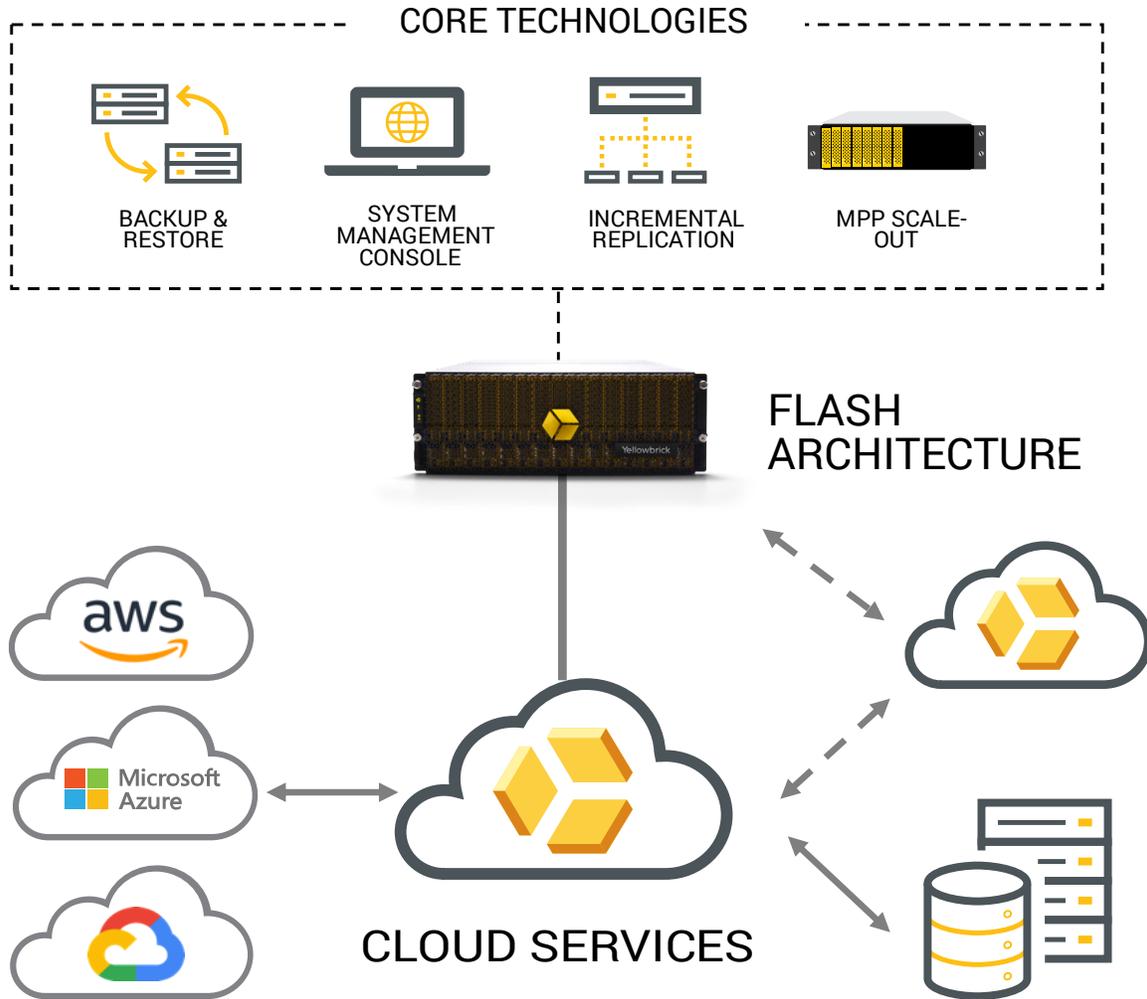
1. Yellowbrick Modern Data Warehouse for Hybrid Cloud

Deriving meaningful insights from data fast enough to make timely decisions and take appropriate actions requires a data warehouse optimized for the hybrid cloud.

Unfortunately, the flexibility of a cloud architecture also can be its Achilles heel. Having the ability to rapidly spin up high-performance processing and storage instances does not immediately result in increased performance. The extra layers and network hops – or the extra cache interactions required to provide the illusion of performance – in cloud environments can result in data bottlenecks. Many operational aspects (like processing speed and data protection and recoverability) of a cloud database may not scale as easily or may require vast resources to manage.

Overcoming such potential obstacles requires different thinking – that of the hybrid cloud. An application built on the hybrid cloud needs reliable and fast ingestion and analysis of the large data volumes typically used in today's critical business applications. Expensive CPUs and GPUs must be satiated to get the greatest return on investment and the fastest time to insights. An ideal solution must be cost-effective, easily scale to support huge data volumes, simplify management issues, and run on-premises or on any cloud of choice.

The Yellowbrick architecture offers both significant performance improvement and scalability. Specifically, Yellowbrick delivers predictable performance while scaling to accommodate datasets that range from tens of terabytes (TBs) to over five petabytes (PBs). And Yellowbrick is 10x to 140x faster than other leading data warehouses. That translates into faster analytics job executions and speedier time to insights.



2. End-to-End Migration Approach, Powered by Next Pathway

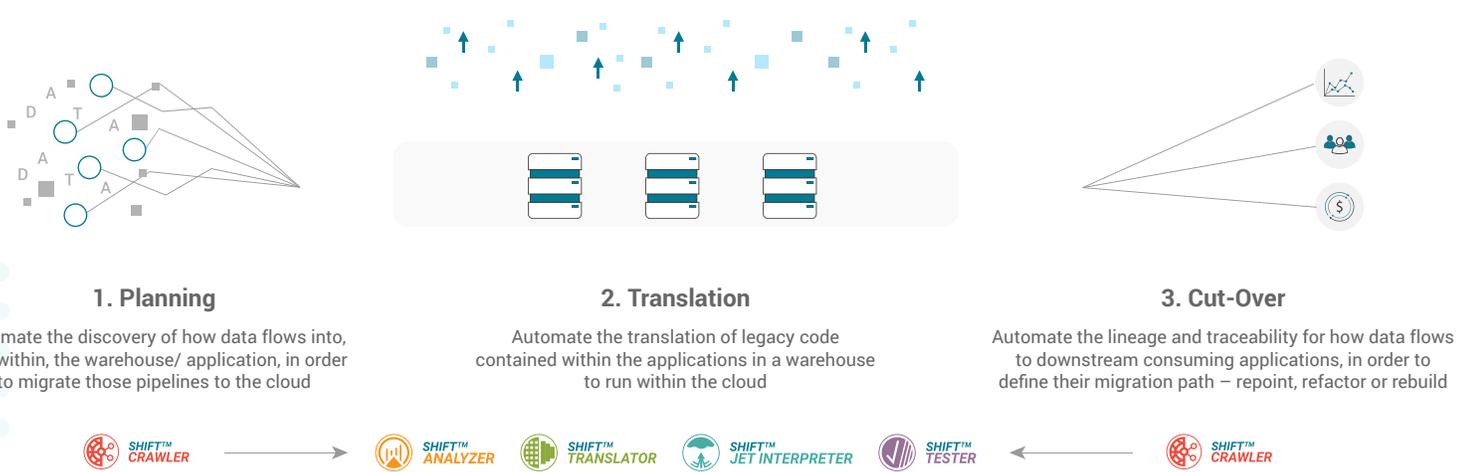
Once pioneers in the Relational Database Management System (RDBMS) space, Teradata is now deemed as legacy. Organizations with ambitions of moving to cloud-native environments for data warehouse and advanced analytic capabilities are shackled to the legacy Teradata world, including high licensing costs, inability to perform advanced analytics, and their complex library of functions and commands. These include BTEQ, FastLoad, MultiLoad, TPT, and various others.

Simply put, migration from Teradata is not a trivial task for customers today.

Thankfully, Next Pathway designed the **SHIFT™ Migration Suite** with Teradata specifically in mind and have solved for the end-to-end challenges customers experience when moving from Teradata to the Yellowbrick Hybrid Data Warehouse.

Next Pathway’s migration methodology focuses on the three core steps of migration:

- a. Plan Effectively
- b. Automate Code Conversion and Data Migration
- c. Prioritize Validation and Testing



Key Features of Next Pathway's SHIFT Migration Suite



SHIFT™ CRAWLER scans and catalogs legacy data sources, including ETL pipelines, scheduler jobs, and downstream consuming applications, to uncover actionable insights to plan your migration efficiently.



SHIFT™ ANALYZER assesses various legacy application code types to create inventories of all objects, define complexity, and provide automation rates in order to right-size your migration.



SHIFT™ TRANSLATOR automates the translation of complex workloads, including SQL, Stored Procedures, ETL, and various other code types for various source and target platforms.



SHIFT™ JET INTERPRETER serves as a migration accelerator to get customers off of Teradata by eliminating the need to re-write Teradata utilities like BTEQ and FLOAD, and thus, move these utilities off of the migration critical path.



SHIFT™ TESTER automates key tasks in the testing life-cycle when executing and optimizing workloads within the cloud.

3. Migration Planning

Migration planning is incredibly important to justify the migration and define the most efficient migration approach. Without defining the right migration strategy and plan upfront, customers often hit major migration bottlenecks during later phases of the migration project, which either stall or derail the migration project entirely.

An effective migration strategy in plan helps answer questions including:

1. How long will the migration project take, and how much will it cost?
2. What type of migration strategy should I employ?
3. What are the 'x-factors' in Teradata that I need to plan for?
4. What workloads should be prioritized as migration candidates?

To answer these, and many other, questions that often come up during early parts of migration planning, we encourage customers to employ a data-driven and automated planning process.

Next Pathway's **SHIFT™ CRAWLER** and **SHIFT™ ANALYZER** are automated tools to accelerate this process and help quickly define answers to these, and many other, questions to define the right migration plan.

SHIFT™ CRAWLER is used to identify the workloads within the Teradata environment that are migration candidates, in order to define the appropriate migration approach. Further, **SHIFT™ CRAWLER** will provide a lineage view for the data pipelines feeding Teradata, to develop the migration plan for repointing those pipelines to Yellowbrick.

SHIFT™ ANALYZER is then used to scan the Teradata applications to identify the complete code inventory, complexity of objects (including DDL, DML, Stored Procedures, Functions, among others), and “x-factors” that will require custom solutions when moving to Yellowbrick.



Both **SHIFT™ CRAWLER** and **SHIFT™ ANALYZER** are important utilities to help define the appropriate migration strategy, project timeline, as well as help to define the right size of Yellowbrick environment required to replace Teradata.

For example – a 40 node Teradata environment is typically equivalent to a 16 node Yellowbrick environment.

4. Automate Code Translation and Data Migration

Code translation and data migration are two steps that often go hand in hand in this phase of the Teradata migration project.

There are two core data migration steps: historical data migration, and on-going data ingestion.

Historical data migration refers to the one-time load of historical data from the legacy

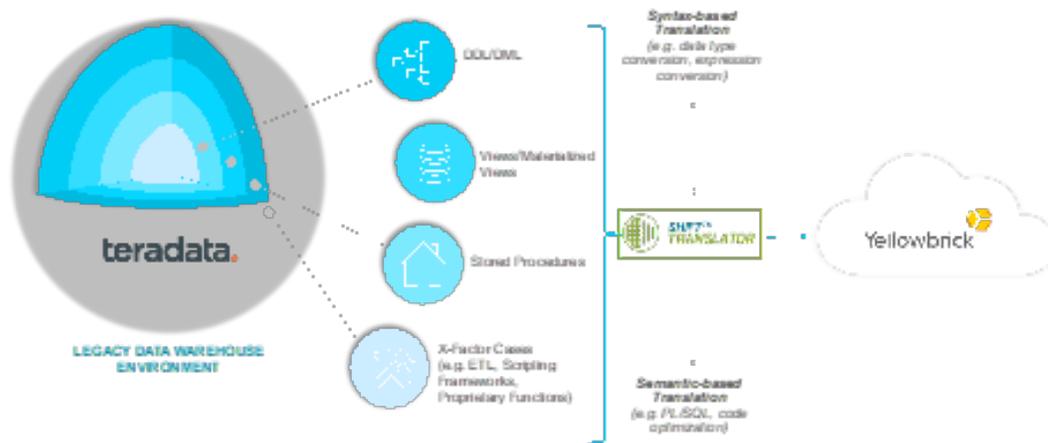
Teradata environment, at a point in time, while on-going data ingestion refers to the delta, or incremental, data loads, once all of the source system data feeds are repointed to the target platform.

Key considerations for data migration that will vary from project to project may include:

- › Determining how much historical data is required to migrate, which will be dictated by migration approach defined during planning
- › Employing the appropriate historical migration tool and method, that gets data migrated as quickly and efficiently as possible
- › Determining if a new on-going data ingestion tool is required, depending on whether the legacy Teradata environment is reliant on Teradata utilities like FLOAD and MLOAD for data import, or a third-party ETL tool like Informatica that are still within the migration strategy

Code translation involves automating the process to alleviate manual development efforts to write table, queries, and other transformations happening within the Teradata environment.

This step involves employing **SHIFT™ TRANSLATOR**, which will automatically translate all Teradata SQL and Stored Procedure objects to Yellowbrick syntax, with accuracy of at least 95% out of the box. Further, our Professional Services team leverages a vast knowledge base of solutions to help address common Teradata implementation scenarios.



For Teradata specifically, an approach must also be taken for Teradata’s vast library of proprietary utilities that handle data movement within the EDW. For these utilities, the **SHIFT™ JET INTERPRETER** will handle the interpretation and execution of these Teradata utilities like BTEQ and TPT with precision and speed, matching or exceeding existing business SLAs, in order to remove these discrepancies from the migration critical path.

Lastly, for Teradata environments dependant on third-party ETL tools like Informatica or DataStage, **SHIFT™ TRANSLATOR** can be employed to automatically translate and repoint the legacy data pipelines (that are moving data from source systems into Teradata) to now point against the Yellowbrick environment. This task cannot be underestimated. Traditionally ETL repointing involves complicated manual refactoring efforts to unpack each pipeline, convert legacy data transformation logic to Yellowbrick syntax, as well as update source and target connectors. **SHIFT™ TRANSLATOR** handles all aspects of this conversion process automatically, thus alleviating this typical migration bottleneck from the migration timeline.

5. Validation, Testing and Cut-Over

Once data and code has been migrated, organizations must prioritize testing and validation, as well as cut-over tasks to ensure the legacy Teradata environment can be decommissioned.

Testing focuses primarily on evaluating or assessing the quality and completeness of the various data and code elements migrated in the earlier phases. This should be an iterative process aligned with the prior phases to deliver a complete and validated migration solution according to a defined migration schedule outlined in a Migration Plan for the engagement.

The key objectives of the Testing phase should include:

1. To find and document defects and problems in the migrated application
2. Validate that requirements are implemented properly and the solution works as intended
3. Ensure existing business SLAs are either met or exceeded between Teradata and Yellowbrick

The **SHIFT™ TESTER** helps accelerate this phase by automating data validation and hash-level attribute comparison between the Teradata and Yellowbrick environments. By automating this process, this helps organizations get to later phases of testing faster, including systems integration and business acceptance testing.

The key consideration to remember at this phase is to budget as much time as possible for testing and validation to ensure your business partners are happy.

Naturally, as testing is accelerated and performance/validation are accounted for, organizations can then decide on their 'parallel run' strategy to determine the length of time required to keep an active-active set-up between Teradata and Yellowbrick, before fully decommissioning the Teradata environment.

Summary

Together, Next Pathway and Yellowbrick are providing Teradata customers with the industry's fastest and more effective migration path off of their legacy Teradata EDW to Yellowbrick's industry leading hybrid data warehouse. By leveraging the **SHIFT™ Migration Suite**, customers can benefit from automation at every phase of their migration, including planning, code translation and testing/validation to accelerate the time to cut-over.

To learn more about Yellowbrick Data, call us at 877.492.3282 or visit yellowbrick.com to book a demo today.

To learn more about how the **SHIFT™ Migration Suite** can help your organization migrate from Teradata, visit nextpathway.com/teradata-migration/



Benefits of **SHIFT™ Migration Suite** offers over manual migration

Through the use of SHIFT™ Migration Suite, code translation happens in minutes and not years



PLANNING

Whether you're translating complex workloads, or testing, **SHIFT™**'s automation parallelizes development efforts to deliver faster, more efficiently and in a truly agile model

TESTING

By applying automation to the migration life-cycle and removing manual efforts, human error is eliminated, and standardization is enforced to respect and enforce various governance and security controls for your organization

TRANSLATION

SHIFT™'s automation brings HUGE benefits over manual efforts, in order for your business to focus their time on downstream tasks that matter most

END-TO-END APPROACH

SHIFT™ automates key parts of the end-to-end migration life cycle to get you to cut-over faster, including ETL and BI conversion, in addition to code translation and testing

SCALABILITY

SHIFT™'s unique architecture enables it to support any custom requirement or edge-cases with the simple addition of new rules, and thus avoid typical project bottlenecks