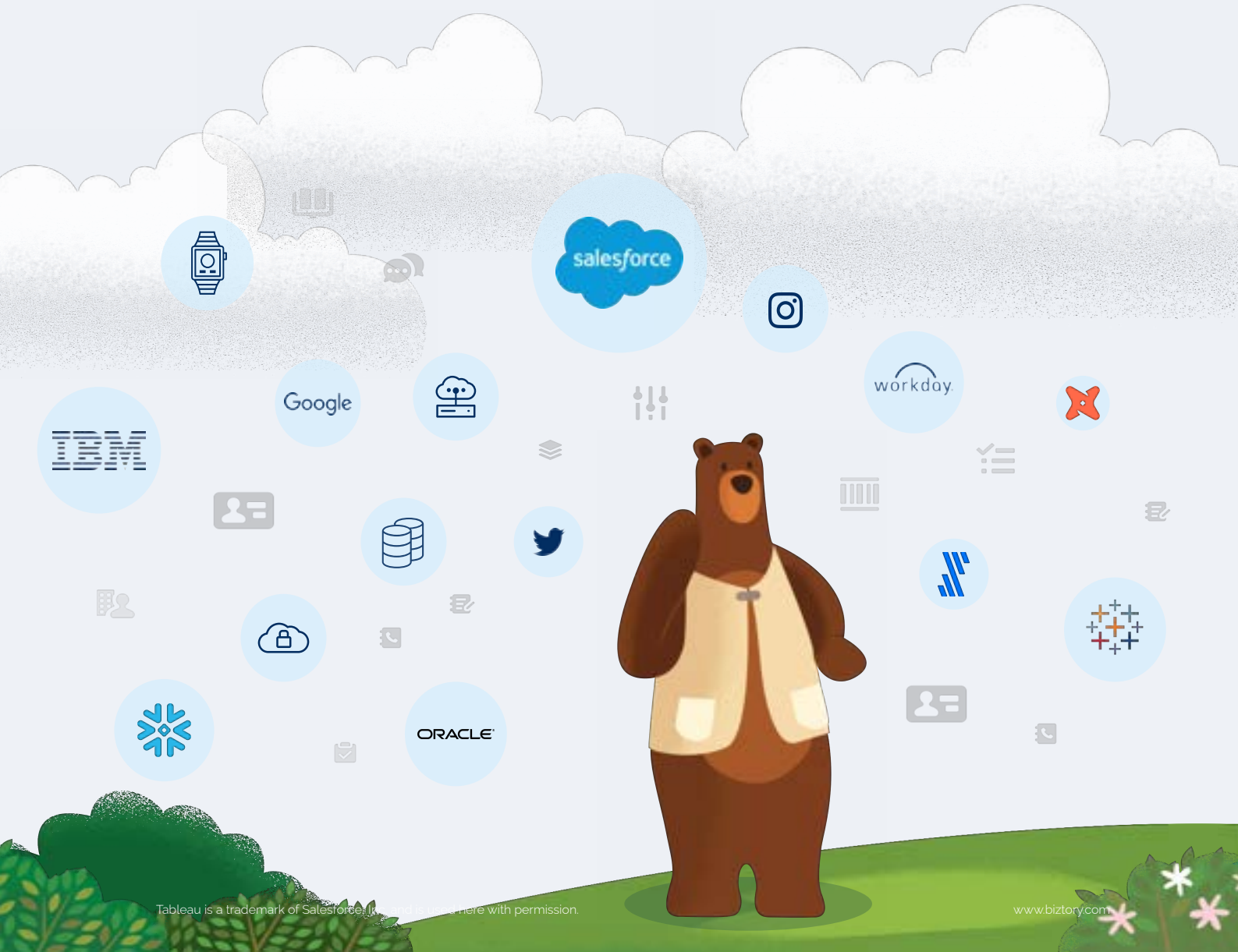
Ultimate Guide

What is the Modern Data Stack, Anyway?



A lot has been written and said about the "Modern Data Stack". But what is The Modern Data Stack, anyway? Buzzword bingo? Or actually worth investigating and implementing?

As businesses strive to be more data-driven, efforts to share data and collaborate between various business divisions are increasing. A Modern Data Stack infrastructure can help you do just that.

So, what does a modern data stack infrastructure look like? And how can you get started implementing one in your organisation?

Grab yourself another cup of coffee. We're getting started...

What is the Modern Data Stack?

A Modern Data Stack is a collection of tools used for collecting, storing, processing, and analysing data. The aim of a Modern Data Stack is to help your organisation save time, effort, and money.

Modern Data Stack vs legacy tools

Prioritising flexible self-service analytics, governed data on trusted platforms, and speed to insight, the MDS enables businesses to integrate cloud-based data sources with legacy and on-premises solutions, empowering end users with data, with minimal configuration.

And while the tools and data sources within your tech stack will vary from business to business, the overall structure will remain the same. More on that later!

First, let's take a look at how the MDS differs from a legacy toolstack.

Traditional Data Warehouse	Modern Data Stack
1 Difficult & time consuming to create	1 Much easier implementation
2 Difficult to "untangle" issues in the data flow	2 Long-term commitments are replaced by plug-and-play flexibility
3 Slow response to new information	3 Moves from a niche IT project to a business-wide approach
4 Required highly specialised experts to extract valuable insights	4 Allows more teams to give greater consideration to the possibilities of data

The biggest difference between a legacy toolstack and the Modern Data Stack everyone agrees on, is that the Modern Data Stack is cloud-based and requires little technical configuration by users.

In a legacy data stack, systems were often designed for a specific purpose, such as a specific type of data or a specific use case, and were not as flexible or adaptable as modern systems.

In the end, it all comes down to the same promise; A Modern Data Stack lowers the technical barrier to data integration, transformation and visualisation for end users. It promises greater scalability, accessibility and best-of-breed capabilities - saving you time, money, and a whole lot of headaches.

What makes a data stack Modern?

The big question now is: what characteristics make your data stack… “Modern”?

Modern, of course, is a relative way of describing your data stack - given the speed at which these technologies evolve. But if there was a list of common characteristics, these ones would definitely make the list;

01 A Modern Data Stack is warehouse-centric

In a Modern Data Stack infrastructure, your **data warehouse** sits in a **central position**. Modern Data Stack tools operate directly on the data in your data warehouse or lakehouse. Your data warehouse often becomes your “**single source of truth**”, as it is the place where data silos are broken down, and there is maximised access, control, and governance.

02 The MDS has a cloud-based infrastructure

Most technologies of a Modern Data Stack are **cloud-based** and therefore SaaS offerings. They can be tested via free trials and require little to no knowledge of configuration.

All **underlying maintenance** is mostly **done by the technology** itself, allowing you to focus on outcomes, rather than fixing problems in the software.

03 High scalability & flexibility

Another aspect of the Modern Data Stack is that they’re highly scalable. Thanks to the fact that they’re often cloud-based, most of the tools within this tech stack are designed for horizontal scalability.

Scalability can refer to different dimensions such as data, users and use cases.

04 Modular & best of breed

You don't want to be locked-in with specific technologies or vendors. You want to find and use the **tools** that are best for your **specific needs** and **business environments**.

Modern Data Stack tools can therefore be **swapped** out for other tools that can **replace** the same or similar functionalities.

05 Easy to configure and learn

You don't need to know code to manage and use Modern Data Stack tools. The goal is to **enable all end users** to not only easily use these tools, but also manage them without in-depth technical knowledge or skills.

Why Modernise?

Knowing what makes a Modern Data Stack "modern" is one thing. Understanding the business value that comes with it, is another thing. Building a Modern Data Stack adds value to your business overall. If you're looking for reasons why you should act sooner rather than later, here are some main points to consider:

Work more efficiently

The Modern Data Stack promises to save you time, money, and effort by leveraging systems that are designed with a much better standard for usability, manageability, and general human efficiency.

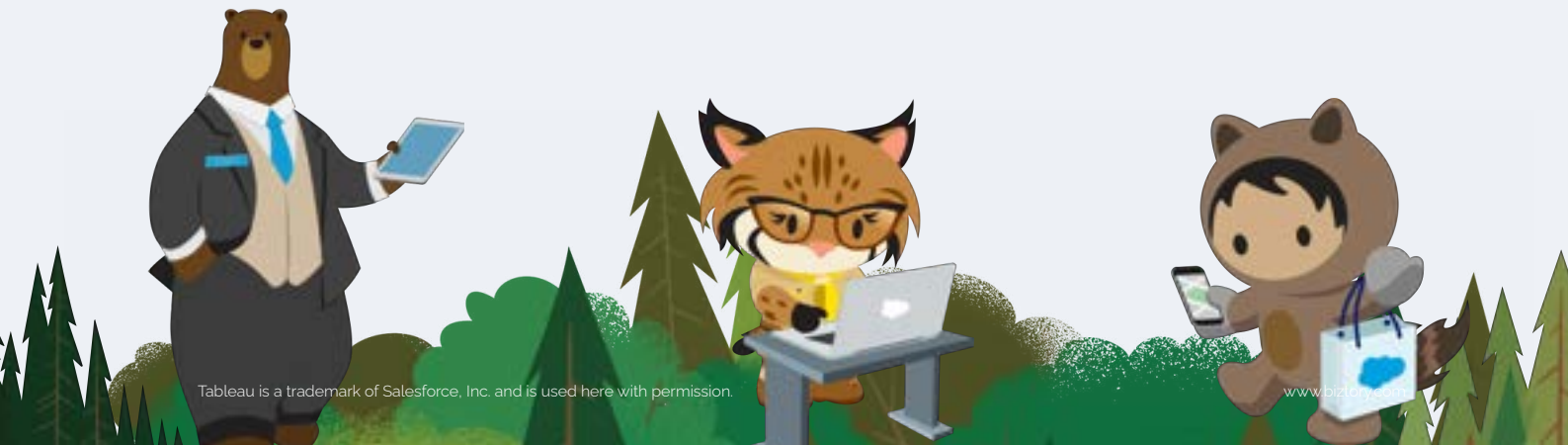
Whether it is managing databases in your cloud warehouse, or building reports and dashboards in your data visualisation tool, with Modern Data Stack technologies it takes significantly less time to get the job done.

Automation & re-usability

Your data sources can change, disrupting your analytics workflows. A Modern Data Stack allows you to automate data replication more easily. Other than that, in today's world, no tool exists on its own.

Move to operational analytics

As a MDS can integrate with a wide variety of first and third party data sources, you're able to start generating actionable insights in a matter of days, rather than weeks or months.

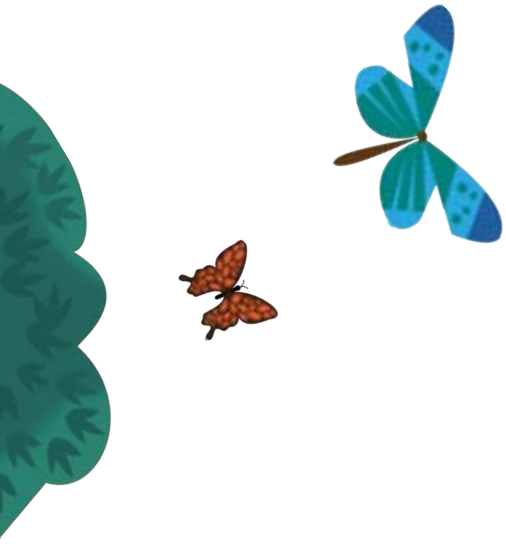


How to build a Modern Data Stack?

Let's start off with an important note: there's no such thing as a one-size-fits all approach here. It's important to assess your own situation, business needs and requirements first.

Based on that, you're better able to select the right technology for the job. Nonetheless, here are some steps you can consider when building your own Modern Analytics stack...

Building your Modern Data Stack infrastructure



Step 1: Data Collection & Ingestion

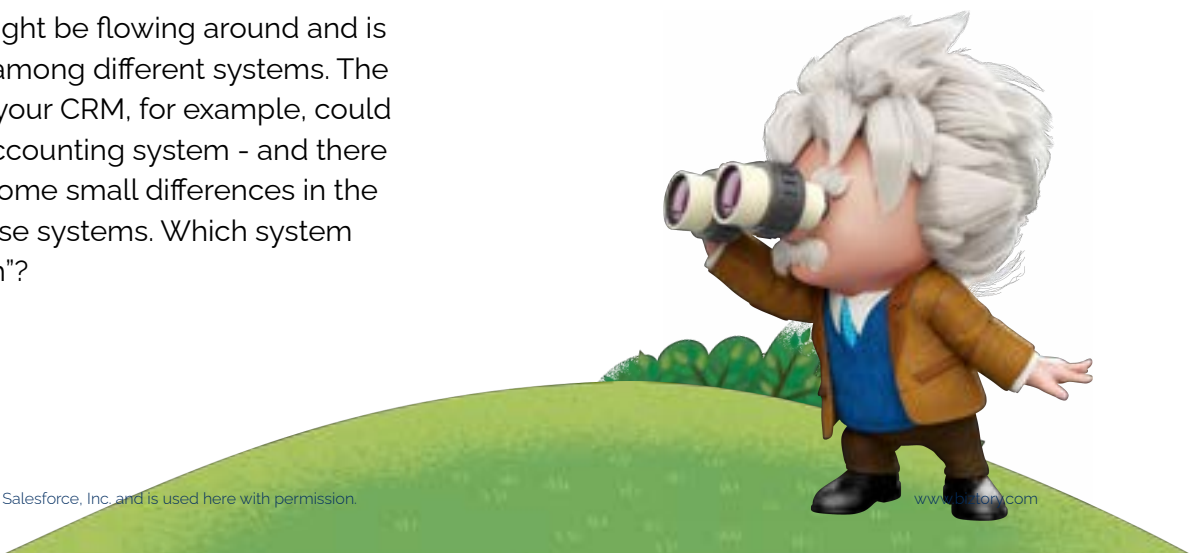
You want all your data centralised in one place. A modern cloud-based data warehouse like Snowflake or Google BigQuery should be able to store an accurate, up-to-date replica of all the data in your business systems.

To move data from the source to your data warehouse, you need data pipelines. Building a data pipeline can be pretty complex and requires both knowledge of the data source and some engineering skills.

Step 2: Data Preparation & Cleaning

This is an important step. Here, you will determine how you will clean and transform raw data to prepare it for analysis. Whether we like it or not, your data is probably a bit messy.

The same data might be flowing around and is often duplicated among different systems. The customer data in your CRM, for example, could also live in your accounting system - and there will probably be some small differences in the data between these systems. Which system contains "the truth"?



Step 3: Data Storage

Before you can start with data visualisations and analysis - you need to store your data safely in a single location like a data warehouse, or a data lake for unstructured data.

The way data is stored and organised significantly affects data access and influences how easily different departments can share the data in a governed and secure way.

Step 4: Data visualisation

Once your data is collected, stored securely in a warehouse, and prepared for analysis - it's time to start visualising your data. There are numerous ways of visualising your data for analysis and providing decision support for your managers and leaders.

The main goal of a data viz is to present insights and other useful information about data in a way that is easy to understand. How to do that? Read our top 10 tips on how to make your dashboards look great here.

One of the leading tools for Data Visualization is Tableau (Salesforce).

Tableau: The World's #1 Analytics Platform

Tableau helps people transform data into actionable insights that make an impact. Easily connect to data stored anywhere, in any format. Quickly perform ad-hoc analyses that reveal hidden opportunities. Drag and drop to create interactive dashboards with advanced visual analytics. Then share across your organization and empower teammates to explore their perspective on data. From global enterprises to early-stage startups and small businesses, people everywhere use Tableau's analytics platform to see and understand their data.