

What is data synchronization and why is it important?

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With the cloud quickly becoming a conduit for an unprecedented supply of data, the importance of data accuracy, consistency, and privacy is growing. Things that may seem like a minor data error or glitch can have a major negative impact on sales, decision-making, and customer retention. However, sorting through data and syncing it with existing databases, then parsing it out on a regular basis — all while maintaining [data integrity](#) — can be tedious and costly. That's why data synchronization has become one of the most valuable tools to manage data.

Data synchronization is the ongoing process of synchronizing data between two or more devices and updating changes automatically between them to maintain consistency within systems.

While the sheer quantity of data afforded by the cloud presents challenges, it also provides the perfect solution for big data. Today's data solutions offer quick and easy tools to bypass monotonous tasks, resulting in data in harmony throughout the system.

What is data synchronization?

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Data must always be consistent throughout the data record. If data is modified in any way, changes must upgrade through every system in real-time to avoid mistakes, prevent privacy breaches, and ensure that the most up-to-date data is the only information available. Data synchronization ensures that all records are consistent, all the time.

Data synchronization: The key to trusted data

The importance of data synchronization grows in step with [increased accessibility to cloud-based data](#) as well as access to mobile devices. Mobile devices use data for basic operation as well as personal information for apps, websites, and email. Updates to information generated by the user as well as the end target must be constant and secure. This synchronization process requires clean, consistent data for product and service competence, but also for [data governance](#) issues like security and regulatory compliance.

Data conflicts can result in errors and low [data quality](#), which consequently leads to a lack of trusted data down the line. With data synchronization properly implemented throughout a system, a business will see performance improvement in many areas, including:

- Logistics and transportation
- Sales team productivity
- Order management
- Invoice accuracy
- Business systems
- Cost efficiency
- Reputation management

Data accessibility and error resolution afford time savings, allowing emphasis to be put on important business development processes like marketing, new product development, and strategic decision-making. Virtually everyone benefits from clean, synced data.

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- Stockholders can easily stay on top of their business interests
- Manufacturers access the most recent updates or changes for accurate design and production
- Distributors have access to the most recent product and marketing information

Exploring data synchronization methods

There are a few types of data synchronization methods. Version control and file synchronization tools can make changes to more than one copy of a file at a time. The other two, distributed and mirror, have more specific uses.

- **File Synchronization:** Faster and more error-proof than a manual copy technique, this method is most used for home backups, external hard drives, or updating portable data via flash drive. File synchronization ensures that two or more locations share the same data, occurs automatically, and prevents duplication of identical files.
- **Version Control:** This technique aims to provide synchronizing solutions for files that can be altered by more than one user at the same time.
- **Distributed File Systems:** When multiple file versions must be synced at the same time on different devices, those devices must always be connected for the distributed file system to work. A few of these systems allow devices to disconnect for short periods of time, as long as data reconciliation is implemented before synchronization.
- **Mirror Computing:** Mirror computing is used to provide different sources with an exact copy of a data set. Especially useful for backup, mirror computing provides an exact copy to just one other location — source to target.



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become a time and cost burden at best, a nightmare at its worst. What kinds of challenges are associated with data synchronization?

Security

Security and confidentiality are **two non-negotiable governance issues** that businesses must carefully manage. How data moves through your system needs to meet certain regulatory standards as they relate to specific industries as well as to privacy laws. Unique systems have different policies and access requirements. Your data encryption methods must be compliant and consistent within each system. A synchronization tool ensures that changes made to your data are updated in a manner that meets the standards set by your specific security needs. Data breach or leaks, problems with trade licenses or government regulations, and reputation loss are just a few of the negative consequences of a system that doesn't work. All of these effects typically lead to a loss of customers and revenue.

Data quality

Multiple systems used by multiple business users mean that data is structured differently throughout its lifecycle. Ongoing updates and constant validation must be integrated and synchronized from all sources while maintaining strict integrity

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Management

Data organization has to be **managed and integrated in real-time** to ensure Skip to main content, prevent errors like rejected records or data that is in an incorrect format. For example, manufacturing needs updates on time to assure product



Performance

In order to successfully synchronize your data it must pass through **five phases**:

- Extraction from the source
- Transfer
- Transformation
- Transfer
- Load to target

If any of these steps are missed or incomplete, it can impact the end result. Especially as the cloud produces a large volume of data, synchronization must be a priority to keep performance at its peak.

Data complexity

Data formats must change and grow with the addition of new vendors and customers, as well as to meet the needs of continuous technological advances. The more data the more complexity becomes an issue to appropriately interface data in new situations, while enabling it to continue to work with the old systems. Further, as technology changes, data that is updated to a new system must be consistent with its original source and target. Data synchronization stabilizes the incoming and outgoing data making sure it is updated and compliant across the board.

Easy data synchronization with Talend

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successful endeavor — locally, globally, and in the cloud. The easiest way to conduct real-time data synchronization is with a solution designed specifically to ensure data quality. Once set up to the specifications of your business, it runs automatically, day and night.

Talend Data Fabric is a comprehensive suite of apps specializing in data integration and data integrity. By providing services for every aspect of your data's synchronous journey — collect, transform, govern, and share — Talend Data Fabric ensures data quality while delivering real-time results.

Try Talend Data Fabric today to begin your data synchronization journey.

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