Unlock the power of your data

FOUR STEPS TO CHOOSING A DATA INTEGRATION TOOL

salesforce cloud services

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Find the right tool to unlock the power of your data.

Data can help you achieve your most ambitious business goals. The right data tells you how much inventory to ship to stores or the perfect offer to email to new customers.

But getting the right information at the right time is a challenge. Data is typically stored in a variety of systems, formats, and locations, making it difficult to access and use.

Data integration moves, combines, and transforms information. Integrating data from customer relationship management (CRM) applications like Salesforce and other systems can help you make better decisions.

Modern tools eliminate inefficient and error-prone manual integration work. With a variety of sophisticated tools available, choosing the right one isn't easy. A tool without features you need could go unused, wasting money and effort.

To help you unlock the power of your data, experts from Salesforce Advisory Services will guide you through four key steps to selecting the right data integration tool.

1 \ Examine how your organization uses data.

Does your business want to archive data to reduce storage costs? Perhaps you'd like to mine data to get better insights into your customers. Or maybe you want to automatically generate new contracts based on information entered into your CRM.
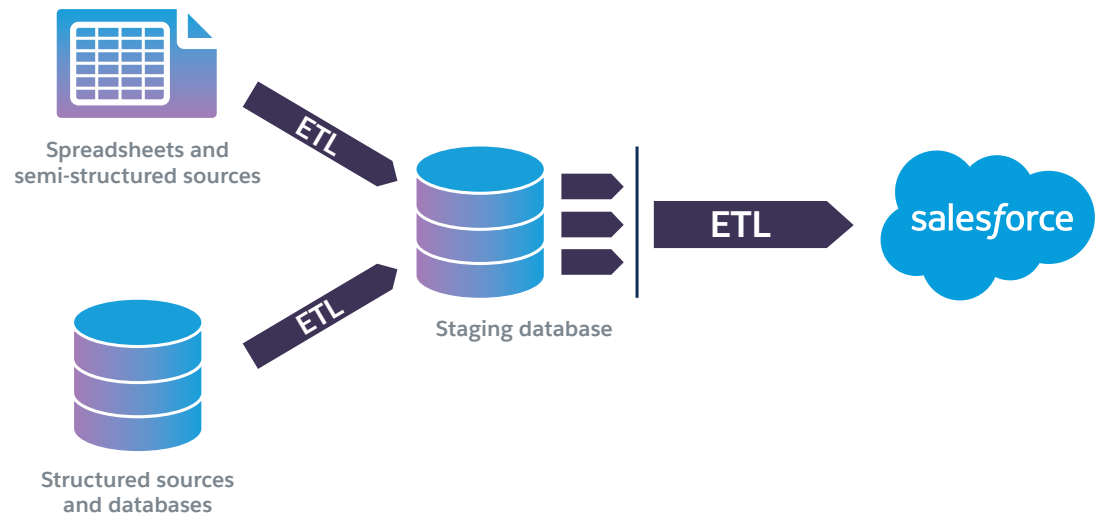
Before you can find the right data integration tool, you need to understand how your organization wants to use its data and the integration patterns needed to support those goals. Most of your use cases for data integration will fit into the following categories: data migration, data archival, data synchronization, and business intelligence.

Data migration

If you want to move data from a legacy CRM to Salesforce, or if you want to split or merge Salesforce organizations, you'll need data migration capabilities. Data migration moves data from one system to another. Migration typically involves extracting data from a source system, transforming it, then loading it into a new system, a process referred to as "ETL."

Data migration reference architecture

Your data integration solution will need an ETL tool to migrate data. The ETL tool transports data from a source system to a staging database, where it cleans and converts the data to the right format before transporting it to the final destination.

Spreadsheets and semi-structured sources

ETL

Staging database

ETL

salesforce

Structured sources and databases

Data migration process

We recommend configuring your data integration tool to follow the data migration process described below:

STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
ETL tool reads data directly from sources and moves data to staging area	Data migration architect uses ETL tool to map data from source entity model to target entity model	Architect uses ETL tool to translate data to meet target system requirements	Architect performs referential integrity checks	Architect uses ETL tool to invoke necessary APIs to move data to the target system

Data archival

In recent years, many organizations have begun generating so much data they need to archive information that's not in use. Data archival moves data from an active system, such as Salesforce, into storage. Archiving data improves search performance and reduces the costs of storing data in cloud systems. Some businesses might need to archive data to comply with data retention policies.

Data archival reference architecture

Data archival requires an ETL tool to move records into storage. During archival, the tool might need to transform data to meet storage system requirements.

Production storage　　　　　　　　Archival storage

Data archival process

As part of your data archival process, your business needs to identify criteria or "filters" to determine which data should be archived, whether to delete original data, and whether to record information about errors that occur during archival.
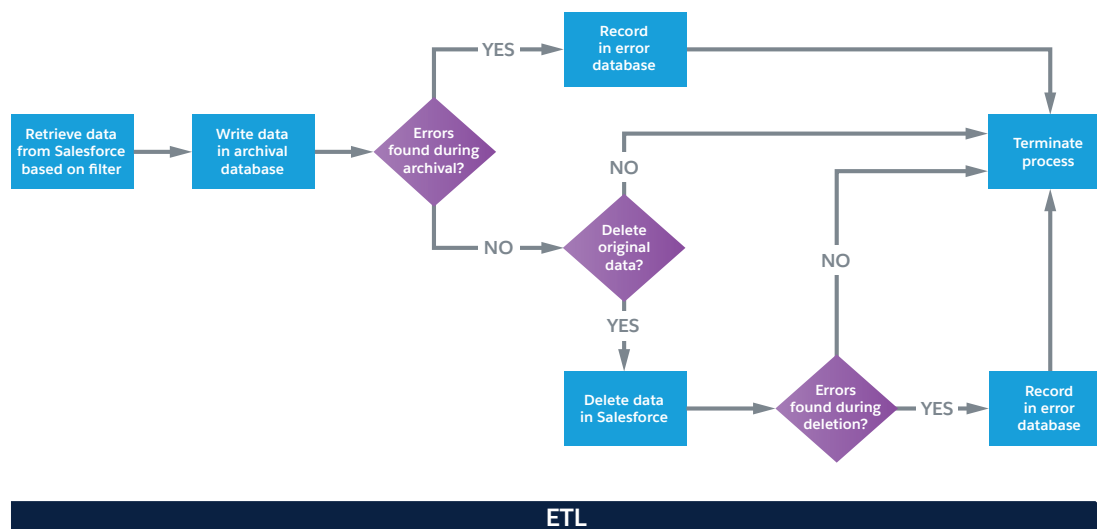
Data synchronization

Data synchronization communicates data entered in one system with another system, within a certain time frame. For example, synchronization would be used to automatically generate a new contract in a contract management system within an hour of a sales rep closing a deal in Salesforce.

How quickly data needs to be synched – within a day or a second–dictates the process used for synchronization. ETL processes can be used to sync data within an hour or a day, a process also called "eventual synchronization." Real-time, or near-real-time, synchronization requires an Enterprise Service Bus (ESB) architecture model.
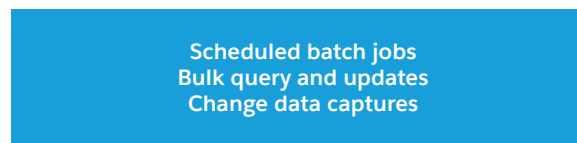
Although this e-book focuses on ETL processes, if your business requires real-time synchronization, you'll want to look for data integration tools that support ESB architecture.

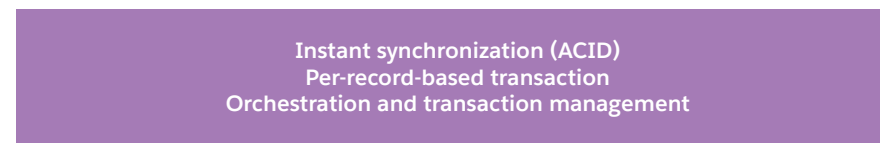## Data synchronization processes based on timing

FREQUENCY OF DATA UPDATES
EVENTUAL

DAYS	HOURS
Sales monitoring	Inventory management

ETL Process

CHARACTERISTICS

Scheduled batch jobs
Bulk query and updates
Change data captures

FREQUENCY OF DATA UPDATES
REAL TIME / NEAR REAL TIME

MINUTES	SECONDS	INSTANTLY
Order confirmation	Call center analytics	Securities exchange updates

ESB Process

CHARACTERISTICS

Instant synchronization (ACID)
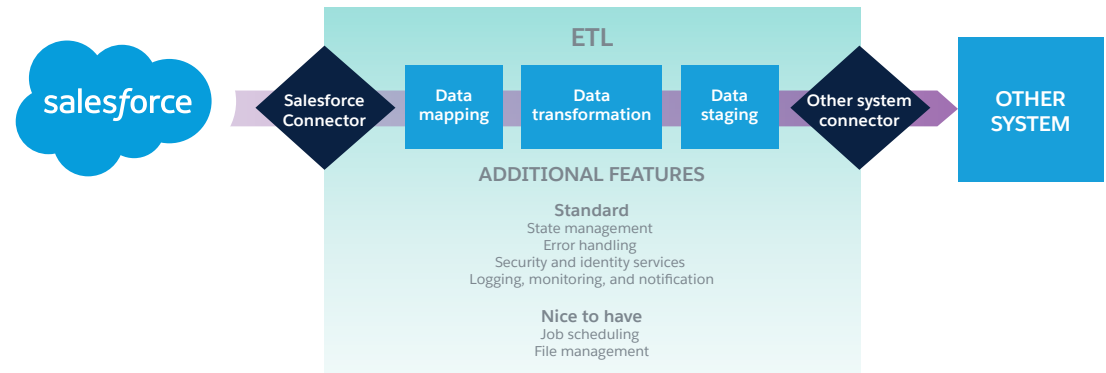Per-record-based transaction
Orchestration and transaction management

Data synchronization continued

Tool capabilities and features

To sync data in Salesforce with another system, you'll need a tool with connectors for Salesforce and the second system. Your tool must also have data mapping, staging, and transformation capabilities. Other features, such as job scheduling, are nice to have, but not necessary.

ETL

salesforce → Salesforce Connector → Data mapping → Data transformation → Data staging → Other system connector → OTHER SYSTEM

ADDITIONAL FEATURES

Standard
State management
Error handling
Security and identity services
Logging, monitoring, and notification

Nice to have
Job scheduling
File management

Data synchronization continued

A change data capture pattern is used for daily or hourly synchronization. This pattern finds changes in the master source of data, then synchronizes that information with another system. Scenarios that use this pattern include:
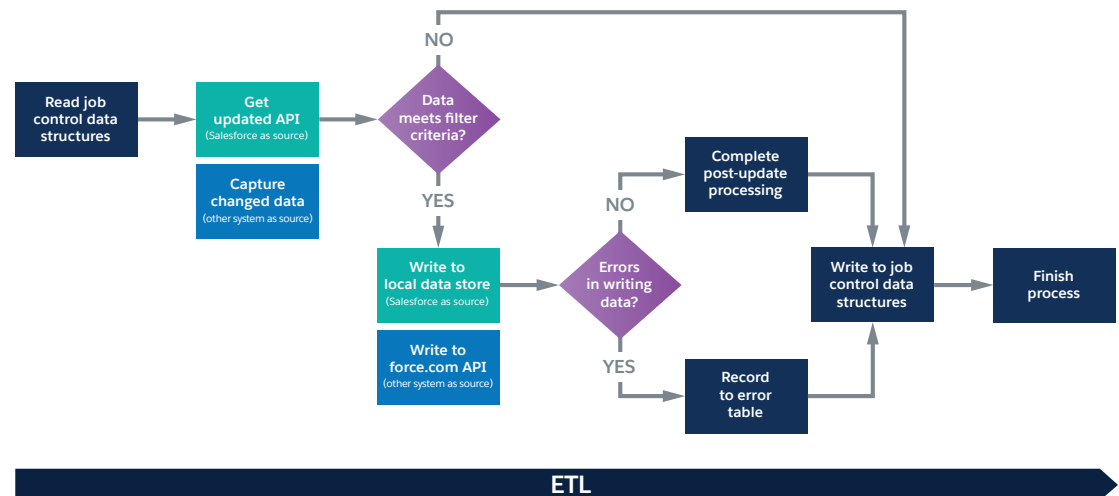
- Updating addresses in Salesforce based on order information in an ERP system
- Automatically closing service cases in Salesforce 24 hours after closing an associated work order in an ERP

Data synchronization process

You'll need to set up your data integration tool to follow one of the patterns shown here, based on the source of data.

Change data capture pattern
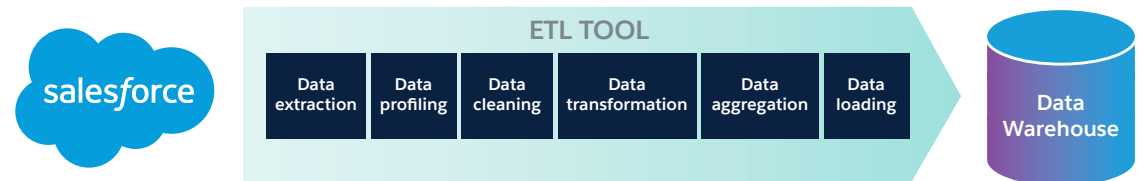
Business intelligence

Business intelligence allows organizations to analyze data to make better decisions and improve operations. If your organization wants to use data from Salesforce and your ERP system to determine how much inventory to ship to stores next month, you need business intelligence capabilities.

A successful business intelligence program hinges on getting data from the right sources at the right time, which requires ETL tools.

There are two ways Salesforce is typically used for business intelligence. Salesforce can be used as a source of data for business intelligence generated within an existing business intelligence ecosystem, which includes business intelligence tools and a data warehouse. Or, Wave Analytics can be connected to a data warehouse to derive and visualize business intelligence.

Salesforce as a data source

When Salesforce is a source of data for business intelligence, an ETL tool transports and transforms data as it moves from Salesforce to a data warehouse.

Wave Analytics as a generator

If you use Wave Analytics for business intelligence, you'll need an ETL tool that moves data from source systems into an enterprise data warehouse, and connects various data sources to load data into Wave Analytics.
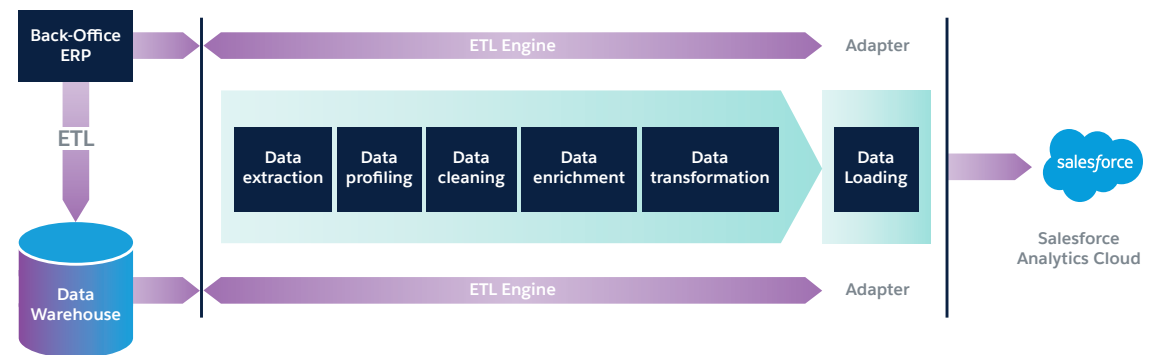
2 \ Compare tool capabilities with your needs.

After you've identified how your business plans to integrate data, you'll want to compare your needs with the capabilities of specific tools.

The following matrix helps you identify the key capabilities your data integration tool should have, based on how your organization wants to use its data. For example, if you need to archive data from a cloud system to less expensive storage, you'll want to make sure your tool has all of the features listed in the Data Archival column.

Make a list of all of the capabilities indicated for every category of data integration relevant to your business. Most data integration tools will support the four major categories, but some tools might lack specific capabilities that are important to your business. Generating a list will help you find a solution that meets the unique needs of your business. You can also include your list of required capabilities in a request for proposal to data integration vendors, or use your list to evaluate the strength of a proposed solution.

Data integration tool capabilities required		Data integration category			
Category	Tool capabilities	Data migration	Data archival	Data synchronization	Business Intelligence
Adapter ecosystem: Data integration tool has adapters or connectors to provide a cost-effective mechanism to interact with various enterprise data sources	Application, cloud, and premise	•	•	•	•
	Database and data warehouse	•	•	•	•
	Protocol – lightweight directory access protocol (LDAP), hypertext transfer protocol (HTTP), file transfer protocol (FTP)	•	•	•	•
	Messaging queue			•	•
	Restful application programming interface (API), simple object access protocol (SOAP), BULK	•	•	•	•
	Big data platform	•	•		
	Social, email	•	•	•	•
	Data Format – comma-separated value (CSV), extensible mark-up language (XML), JavaScript Object Notification (JSON), Excel	•	•	•	•
	Mainframe	•	•	•	•
Data movement: Data integration tool delivers data across different systems in a timely fashion to support architecture	Batch data movement (one-time or batch data movements)	•	•		•
	Real-time data replication			•	
	Event-driven data delivery: periodic time interval, data trigger, and publisher/subscriber mechanisms			•	
Transformation: Data integration tool has the ability to complete simple-to-complex data transformations	String manipulation, string concatenation, look-ups, aggregation, and calculations.	•		•	•
Data profiling: Data integration tool has ability examine source data and provide information to database	Data quality check	•		•	•
	Data cleansing capability	•		•	•
	Provide matrix on data quality	•		•	•

3 \ Five more questions to ask.

Is the data integration tool you're considering easy to use? Does it have an intuitive interface? Does the vendor provide enough support? The subjective aspects of a data integration tool will affect how well it will work for your organization.

After you've found a tool that has all of the capabilities your business requires, consider these five additional questions.

1. **Is the tool easy to deploy and administer?**

   Does it have an intuitive user interface?

2. **Does the vendor offer the support you need?**

   Is help available by phone, email, or a website? Will you have a designated support contact, or will you be left to find answers on your own? Can you get support 24/7? Are blogs, forums, tutorials, and developer communities available?

3. **Will the tool work with your data sources and applications?**

   Does the tool connect to the data sources your organization uses today, or might use in the future? If not, is it easy to build a custom adapter to connect to those sources? Keep in mind that customization might add time and expense to your overall costs.

4. **Where is the tool hosted?**

   Do you want a data integration solution that is hosted on premises, or within a cloud infrastructure? You might also consider an Integration Platform as a Service (iPaaS) solution, a suite of cloud services that connects on-premises and cloud-based services, which outsources responsibility for uptime and maintenance to a vendor.

5. **What is the real cost?**

   In addition to the cost of the tool, factor in additional expenses you might incur. How much will you need to spend on maintenance and custom adapters? If you are considering a cloud-based service, does it include usage fees? If licenses

4 \ Consider whether to build or buy.

As you shop for data integration tools, you might consider building your own solution. If your organization has unique or complex data integration requirements, building a tool might be the best option. However, building your own solution requires more time and skill than buying a product off the shelf.

Our grid identifies scenarios in which it's more advantageous to buy a data integration tool and those in which it's better to build your own.

Your situation	Build	Buy
You want to minimize coding time.		●
You want to implement a solution fast.		●
Your organization requires standard data integration functionality.		●
Your organization wants to standardize data integration architecture at the enterprise level.		●
Skilled programmers and architects are available to build a solution.	●	
Your organization requires unique or complex data integration functionality.	●	

Conclusion

To unlock the full potential of your Salesforce data, your business needs a strong data integration tool. However, the tool with the most features isn't necessarily the right solution for your business. To find a data integration solution that works for your organization, consider how your business wants to use data, and how well a tool's capabilities and features meet your needs.

Additionally, business and technology leaders should think about their long-term goals. Do you want to use business intelligence to make more decisions in the future? Do you plan to grow your organization significantly in the coming years? What new technologies will your business be using soon? Keep your immediate and long-term needs in mind so you can select a tool that allows you to get the most value out of your data.
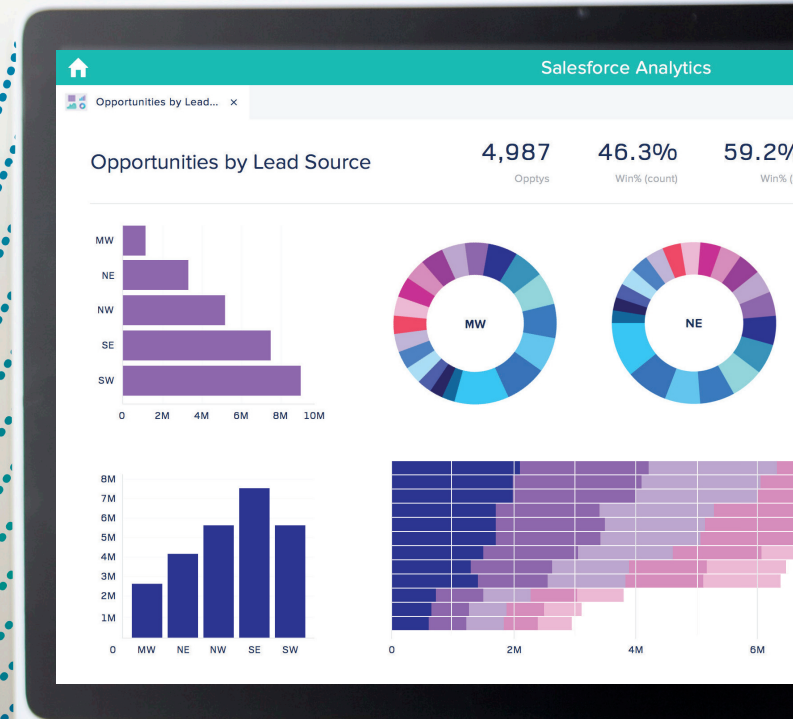
About Salesforce Advisory Services

Salesforce Advisory Services provides strategic and technical advice to transform businesses. Our architects have decades of industry experience and certification from our best-in-class training programs. We help organizations integrate new and legacy systems, improve ROI, streamline processes, and deliver on other top objectives.

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