



Salesforce integration: strategy, types, approaches, and tools

Render Salesforce a natural part of
your business's success ecosystem



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Preamble

Avenga is a global digital enablement, IT engineering and consulting platform driving value to our clients with custom software solutions. Offering end-to-end digital services across business domains, our team focuses on delivering tangible value and ROI to our clients, and Salesforce solutions are among the major enablers we use for growth of their businesses.

Salesforce is the world’s top Customer Relationship Management (CRM) platform that has been revolutionizing businesses since the dawn of the millennium and its massive capabilities are continuously growing. Salesforce integration opens a vast number of new possibilities for businesses by providing them with superior operational visibility and control.

The mesmerizingly vast capabilities of Salesforce integration will help you to automate processes, increase ROI, accelerate lead to revenue, improve Know Your Customer (KYC) best practices, and much more. Avenga is a reliable partner for Salesforce integration as we apply robust development practices, business strategies, tools, and knowledge to achieve your business goals.

Your Salesforce team

520+

Salesforce certifications

130+

Certified engineers

110+

Successful projects

10+

Years of experience with Salesforce

45+

Salesforce and consulting certifications

Product expertise



Service expertise



Industry expertise



Introduction

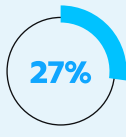


Customer-centric experience defines every business interaction in 2023 and companies that manage to deliver such experiences have been seeing a considerable financial performance boost.

Both large and small companies across all industries using Sales Cloud show a:



Increase in lead volume



Boost in win rate



Rise in sales revenues

CRM software is a critical factor that defines the success of businesses in the modern markets and the advantages of Salesforce integration are crystal clear. Proper CRM software helps keep historical data in one place, eases customer interactions, improves the quality of communication, and increases revenue. Thanks to Salesforce, the capabilities of CRM can be amplified to empower connections between teams, direct your marketing efforts, collect and analyze vast amounts of data, and give you a 360-degree customer view. According to the information on the Salesforce website:

- Salesforce is a #1 CRM and automation solution.
- 150,000 businesses worldwide picked Salesforce to run their operations.
- Sales productivity increases by up to 44% thanks to real-time performance monitoring, custom reports and dashboards.
- 73% of marketers agree that Salesforce Marketing Cloud provides a better view of the customer for more effective communication.

- Salesforce allows you to reach over 70% of the Internet population via social networks and analyze the performance of your campaigns.
- Salesforce Analytics Cloud allows you to collect, see, and understand data, and 74% of sales professionals and 54% of marketers consider Analytics essential for running their campaigns.

Companies that embrace CRM see tangible improvements in their business performance, sustain and up their sales quotas, enhance internal processes, and upgrade team performance. Salesforce, as the world's top CRM, ups the average numbers and continuously sets up the CRM industry trends.

Your business can benefit from Salesforce integration too. According to AppExchange, 100% of Fortune 100 companies have at least one of Salesforce's apps installed, and the global economic impact is expected to reach \$1.2 trillion by 2025. To get your piece of that pie, you will need a reliable partner who can assist with a Salesforce integration, guide you through the technology bottlenecks, get you an app that ensures secure and stable performance, and provide end-to-end development services.

Avenga is the partner that combines unparalleled technical expertise and rich Salesforce development experience together in order to fuel your ROI potential and help you take full advantage of the capabilities offered by Salesforce.



Part 1

Salesforce integration decision tree



What is Salesforce integration?

Salesforce integration is the process of merging the functionality and capabilities of Salesforce with other systems or databases to provide users with a unified and comprehensive experience. It gives your team a perfect mix of features pertaining to both Salesforce and the other platforms you may use.

The integration establishes a connection between the Salesforce instance and other systems. This connection can be inbound, outbound, or a combination of the two. You can connect to another Salesforce instance, another database, and another cloud-based data stream. Integrations can serve various purposes: focusing on business process automation, connecting one system to another, or sharing data between the systems.

Why do you need it?

Salesforce is a powerful enabler of business growth as it allows companies to create a 360-degree overview of both their customers and the business itself. Salesforce integration experts can help you bring external data into Salesforce, transform and enrich data, reference external data inside of Salesforce, help you extract valuable insights from external data sources, and much more. Integrations with other databases can deliver even more value bringing more profitable data to your Salesforce environment.

Salesforce helps businesses to access, collect, analyze, and understand relevant data and review the data's performance over time. According to Salesforce, Wave Analytics (Analytics Cloud) is being used by 54% of

marketing specialists and 74% of sales representatives. Thanks to comprehensive data dashboards, custom reports, and advanced monitoring, sales teams can increase their productivity by up to 44%.

How can it help you?

Salesforce offers a number of benefits thanks to its robust toolkit and powerful Application Programming Interfaces (APIs) that reduce the integration timeline and modernize your back-office. Furthermore, Salesforce integration helps you improve productivity, access data from various sources, automate workflows, make better informed decisions, and modernize your data infrastructure. CRM brings together data from a multitude of sources, automates your business process, and optimizes your business performance.

Salesforce offers an average revenue gain of 20% and an average ROI increase of 50% within one year. These are impressive stats for any business, especially for the large businesses that usually see a considerable slowdown in growth rates. Adding that to the 52% rise in lead volume, a 27% boost in lead win rates, and a 34% increase in sales revenue, you can take your business to another level.



Integration types

There are different types of integrations that suit different use cases. The most common types are data integration and service integration.

Data integration

Salesforce data integration is the process of combining and merging the data and features offered by Salesforce with another application, which allows for a unified and homogenous experience. It allows businesses to provide users with a perfect mix of features offered by both systems. One of the best examples of this is a Salesforce integration with a System Applications and Products in Data Processing (SAP) enterprise resource planning (ERP) solution.

SAP ERP plays a vital role in a number of critical business processes across industries and companies. To automate and optimize operations, companies often integrate the SAP ERP with other applications. Integration between CRM and SAP ERP is one of the most common scenarios.

Prior to Salesforce becoming prevalent, ERP and CRM integration usually meant connecting on-premise applications to one another. A Salesforce and SAP integration is different as it needs to account for technological discrepancies between Salesforce's cloud-based delivery model and SAP's on-premise solution approach.

Integration between Salesforce and SAP is used for data synchronization between the two systems. For instance, whenever new information is entered into Salesforce, it is essential that this data is immediately available

to all the related departments whose functions are managed by SAP. When Salesforce and SAP are integrated and synchronized, companies can streamline and automate their business processes and gain further benefits from the integration:

- Synchronize a master product list between Salesforce and SAP
- Send data for won opportunities in Salesforce to SAP for automatic invoice creation
- No redundant data entry which saves time and costs
- Reduce manual data management and human error
- Enhance the agility of the business and react to new information quickly

Integration with SAP showcases how these two powerful tools can be combined into a unified system that can truly take a business a set further. Data integration between CRM and ERP allows for a much more precise and clearer overview of the enterprise.

Service integration

Salesforce can be integrated with third-party software and services to boost the productivity of your business. Different types of services can be integrated into your Salesforce ecosystem providing you with the advantages of both platforms and creating a custom ecosystem that specifically suits the needs of your organization.

One of the main goals of a Salesforce integration is to provide your clients with a personalized experience, which is also the goal of other platforms like Twilio. Twilio is a cloud-based software that was designed specifically for ensuring effective communication between the business and the client. It works across numerous communication channels while catering to the needs of different audiences and providing them with a personalized experience. Twilio allows the business to communicate via SMS, WhatsApp, Voice, Video, Emails, and other means of communication.

Integration with Salesforce allows you to take advantage of the already impressive capabilities of Twilio and take them even farther. A Twilio Salesforce integration helps you identify the core audience you need to be talking to. This will increase the number of your closed deals and aid you in creating persuasive and effective messages, and calls to action.

Another example is integration with Slack, a communication platform designed specifically for business communication. Slack can be used for both internal and external business cooperation and most of its functionality is free. Integration with Salesforce allows a business to increase the efficiency of collaboration between different departments and partners.

This integration process is simple and straightforward, and can be done via native or third-party integration tools like Workato and Zapier. As a result, your teams will be able to search through the Salesforce instances straight from the Slack app and share the search results with other teams. They will also be able to share messages between Slack and Salesforce Chatter.

These are just a couple of examples of Salesforce empowering the capabilities of other services. Depending on the needs of your organization and the services you already use, you can integrate Salesforce with other solutions and achieve tangible improvements in your business performance. Your targets and requirements will define your architecture drivers, help choose the tools, and select the right tech stack to achieve your objectives.



Understanding your architecture drivers

Your goals and needs, quality metrics, time and budget constraints, required third-party integrations, intended features, and other architecture drivers will define the overall direction of your integration.

Attributes for integrating Salesforce with another system

The table below lists the integration patterns and their key aspects to help businesses better understand and determine which pattern fits their requirements when integrating Salesforce with another system:

Type	Timing	Pattern to consider
Service Integration	Synchronous	Request-and-Reply
Service Integration	Asynchronous	Fire-and-Forget
Data Integration	Synchronous	Request-and-Reply
Data Integration	Asynchronous	UI update based on data changes

We will discuss these different integration patterns later in this whitepaper and demonstrate how each pattern has its uses in a variety of unique business scenarios.



Attributes for integrating another system with Salesforce

The following table lists integration patterns and their key aspects to help businesses determine the pattern that best fits their requirements when integrating another system with Salesforce:

Type	Timing	Pattern to consider
Service Integration	Synchronous	Remote Call-In
Service Integration	Asynchronous	Remote Call-In
Data Integration	Synchronous	Remote Call-In
Data Integration	Asynchronous	Batch data synchronization

Time constraints

Depending upon when the integration needs to go live, you will need to come up with a set of optimal solutions that meet the time-to-market requirements. For instance, if the integration has to be complete in 3 months, you will have to select an out-of-the-box solution. If you have more time, it is reasonable to opt for a custom solution that matches the unique needs of your business.



Business goals and business needs

Based on the architecture drives and constraints, we will choose the best set of tools and solutions. There are several routes we can choose from to deliver optimal solutions:

- a. Select the fitting solution on AppExchange, a Salesforce enterprise cloud marketplace that offers thousands of services and solutions that extend the capabilities of Salesforce. The main advantage of AppExchange is that it offers ready solutions that are accessible for use almost immediately.

Pros	Cons
Fast market-launch	Limited functionality
Flexible and reusable solutions	Solutions are not customized
Multiple tools can be bought and used together	Underutilization leads to cost overheads

- b. Select third-party integrations like MuleSoft, Heroku, DellBoomi or others. As with the AppExchange solutions, these are ready-to-use systems that can be configured according to the needs of a business. However, one of the downsides of third-party integrations is they can be quite costly.

Pros	Cons
Shortened time-to-market	Subscription-based payments
Regular updates	Dependency on a provider
Less development and maintenance effort	Less flexibility



c. Point-to-point integration relies on middleware to enable data-sharing between two systems. It facilitates data transformation as well as the mechanics of transporting the data from system A to system B. The number of point-to-point connections can grow exponentially to the number of connected systems, which can make this type of integration a bit messy:

Pros	Cons
Scalable ecosystem that can be expanded	Number of connections can expand rapidly
Ecosystem can be created quickly	Security risks expand with the number of systems
Only one integration facilitates business growth	Keeping the connectors updated can become too expensive

d. Middleware is a separate custom service that is written in some other programming language and orchestrates the integration between two systems. It requires from-scratch development, but it is also possible to buy a specific integration middleware.

Pros	Cons
Cost-efficient as custom middleware is cheaper	Requires time to develop
Facilitates simpler integration	Most middleware lacks proper security
Customizable middleware suits the business' needs	Middleware might jeopardize real-time performance

e. Salesforce out-of-the-box features give you product capabilities that are distributed in packages, and Salesforce provides a wide number of features that are available straight away. These packages also include Salesforce standard integrations such as an integration with Outlook or Gmail. They offer limited functionality, but they are readily available once the business connects to the Salesforce ecosystem.

Architecture patterns and architecture tactics

Regardless of the industry or type of business, the workflows often rely on a distributed and integrated system. That is why it is vital to establish proper interoperability between these systems. Many applications, thus, are built on an event-based architecture since it enables streamlined and real-time communication between the components of the system.

Reaching the intended quality attributes would depend upon choosing the right architecture patterns and tactics. Event-driven architecture, for instance, makes it possible to exchange information in real-time. Publisher/subscriber is another flexible pattern that allows different systems to interact and communicate asynchronously.



These patterns are most commonly used in such domains as IoT, e-commerce, health-care, fintech, and others. Every business needs a unique approach to selecting architecture patterns and tactics.

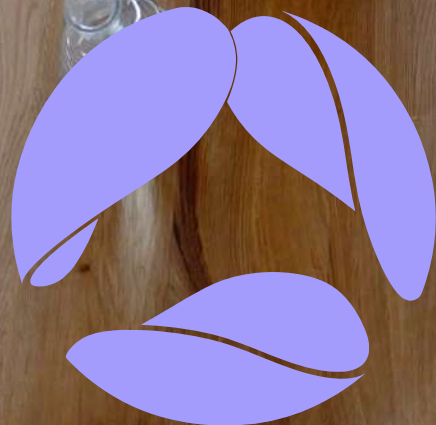
Avenga can help you understand the architecture drivers that are relevant to your business, help select patterns and tactics that will benefit your organization, and then implement the right solutions fast and without overheads.





Part 2

Salesforce integration guide



1 Guide overview

In this Salesforce integration guide, you will learn how the Avenga team approaches integration. It is a complex and multilayered process that starts with making the essential considerations and defining the goals of the integration. We will discuss how a business can approach this process, the most popular integration strategies, different integration types, use cases of Salesforce integration, diverse tools, and the patterns that define the success of each integration project.



2 Common considerations

In this Salesforce integration guide, you will learn how the Avenga team approaches integration. It is a complex and multilayered process that starts with making the essential considerations and defining the goals of the integration. We will discuss how a business can approach this process, the most popular integration strategies, different integration types, use cases of Salesforce integration, diverse tools, and the patterns that define the success of each integration project.

Understand the landscape

In today's world, it is rare to see Salesforce completely isolated from other applications, and in most cases, it plays a central role in an enterprise's transformation process while working in conjunction with other applications. Figuring out the right integration architecture requires a firm understanding of the integration landscape, as an enterprise grows more sophisticated and their digital landscape expands.

To support the vast functionalities of a modern business, all the integrations need to occur as part of a coherent business process to ensure the continuous efficiency, scalability, and security of the business. Understanding the integration landscape usually takes the following steps:

- **Get the right information:** To fully understand the whole scope of integration, it is vital to have a precise and structured knowledge of the enterprise, as well as its needs and goals.
- **Transmit the information to the right place:** The right mechanisms for handling the information transactions across the ecosystem will be scheduled. Different technology stacks and tools, such as data lakes, warehouses, servers, and operating systems will play a critical role in this process.
- **Get the information on time:** Real-time data transactions will help reflect the actual state of a particular data entry or process.
- **Be flexible at embracing the change:** External factors such as shifts in customer behavior, market trends, social shifts, and new legislation need to be taken into account. The business has to be prepared for the change and adapt the new practices in order to address the new challenges.
- **Coordinate business processes:** This requires the ability to model the business processes and understand the connection between these processes, and the factors that drive them.

Identify the existing toolset

Modern enterprises tend to have dozens of websites, numerous ERPs, many department-specific applications, and several data lakes or warehouses. All of that requires numerous applications to run smoothly as it is nearly impossible to handle such an amount of data on a single application. Avenga helps the business pick and implement the best tool sets that suit their needs and goals for optimal performance and continuous growth.

Determine teams for implementation and maintenance

Selecting the right teams for the right task is essential for the continuous performance of the entire ecosystem. Having the right people for the job is the key to a successful integration of Salesforce capabilities into your ecosystem. More so, a professional team of Salesforce integration experts can help in designing a scalable and secure architecture that takes all the peculiarities of your integration landscape into consideration.

The right skill set is required in order to maintain the proper functioning of the Salesforce-based ecosystem, and so businesses rely on strong support and maintenance teams for the continuous functioning of their CRM systems.

Analyze limitations

Understanding the limitations of the system is yet another important step in figuring out the scope of Salesforce integration efforts. Each application has its limitations and businesses need to select their integrations based upon their functionality, benefits they offer, and limitations they have. Evaluation of the project risks and proper risk mitigation strategies, as well as a strong understanding of the platform's capabilities and limitations, are critical for extracting value from the continuous integration.

Align with time to market and budget

An enterprise should always take the optimal route to achieve its goals while keeping time and budget constraints in check. Selecting sub-optimal solutions because of budgeting challenges already decreases the chances for successful integration. That is why a business has to consider their budget and time constraints, and align them with their objectives.

3 Integration strategy

The possibilities of a Salesforce integration are exciting and the decision to embark on that journey is a powerful transformative step for any business. Choosing the right strategy for that transformation is just as important. There are three strategies most businesses adopt:

Cloud to cloud

Cloud to cloud integration allows the users to connect separate cloud platforms and bring two or more cloud environments together so that they can function as a cohesive and unified infrastructure. This is a complex and multilayered concept that requires a profound expertise on the developers' part. The process of cloud integration requires a strong understanding of the integration landscape, functionality goals and concerns, and the workflows the architecture is going to support.

The demand for cloud integration platforms is expected to see a 14% growth by 2023 as some businesses are looking for opportunities to use integrated resources for real-time applications and services. Other businesses are keeping their eyes open for automation capabilities for back-offices and KYC platforms. Cloud architecture offers scalability, security, and flexibility as it meets the growing market and relevant regulations. The benefits of cloud integration include:

- Enhanced operational efficiency
- Improved customer service, retention, and support
- Faster time-to-market
- Reduced operational expenses
- Increased scalability and flexibility

Cloud to cloud integration improves the visibility and connectivity of data, ultimately increasing the efficiency of data-heavy business processes.

Cloud to on-premise

On-premise data integrations happen and are maintained locally, within an on-premise network. Most organizations now opt for cloud architecture, but on-premise data integrations have their benefits:

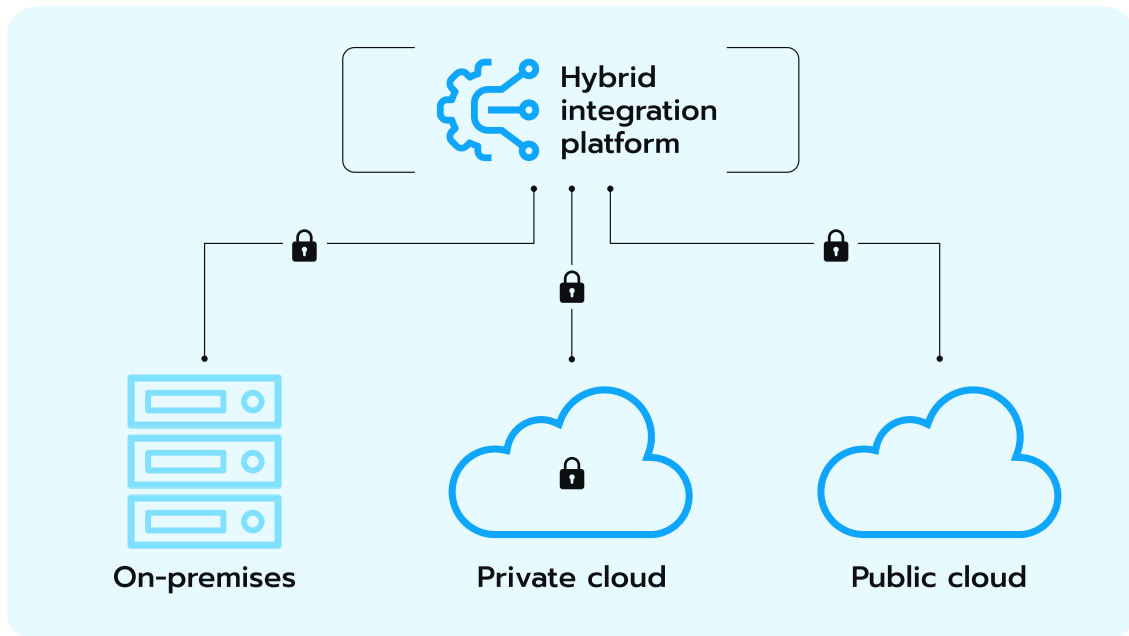
- **Integration cost:** On-premise integrations are paid once you install the solution. Though the installation cost might be a bit higher than for a cloud solution, the business does not have to pay for the continuous functioning of the infrastructure.
- **Data security:** All the data is stored on-premise, which means that it is secure within the organization. Naturally, hackers can breach any system that lacks the proper security measures, but on-premise infrastructures are more secure by nature.
- **Compliance:** There are specific international regulations pertaining to the security of data and applications. All the regulatory requirements are easier to meet when building on-premise applications just because the business keeps all of its data in-house.

One of the main benefits of on-premise data integrations is that the business has full control over its data and integration software and applications. The business does not have to deal with third-party cloud services and remains the sole entity responsible for the security of the data.



Combine both

There's a hybrid option that allows you to build integrations between cloud and on-premise enterprise apps. However, this is a major undertaking as it requires a connection between one or more in-house applications with cloud-based SaaS apps. Implementing a hybrid integration platform to maintain the pervasive integration between cloud and on-premise applications is a complex task that involves a large number of data nodes.



Hybrid platforms are now prevalent across organizations as around 65% of large enterprises use hybrid integration platforms (HIP) for their digital transformation. Such platforms offer numerous benefits to a business:

- A simplified development thanks to in-built capabilities of the HIP
- Secure connectivity between on-premise and cloud apps
- Reusable integration templates and pre-built SaaS app connectors
- Seamless integration of on-premise systems with third-party systems, mobile apps, SaaS apps, IoT devices, and more
- The managed cloud has offers that suit the needs and requirements of a unique business

The business can improve the quality of service, expand its adoption of SaaS apps, comply with data regulations, and mitigate the downtimes associated with data migration.

4 Integration use cases involving Salesforce

Salesforce is invaluable for businesses and teams working with high loads of customer data. With its feature-richness, it allows a business to monitor, analyze, and control each and every aspect of their customer interaction. Yet, it does not mean that the functionality of Salesforce cannot be further improved by third-party integrations.

Salesforce to third-party systems

Specialized applications contain numerous features that help businesses better understand their customers, manage their teams, study the market trends, and generally optimize their performance. The efficiency of these applications can be further boosted by the capabilities of Salesforce.



Salesforce is most commonly used by sales teams, but third-party applications can be integrated into its ecosystem to connect to other platforms. One of the widespread use cases of Salesforce to a third-party system is integration with Jira.

Integration with Jira is especially useful for businesses that have diverse teams in different locations. The managers can integrate their data to allow the team members to exchange data and tickets. For instance, one team might acquire a customer that requires a specific kind of service that only another team can provide. That team can then place a ticket on Jira to the other team and Salesforce will automatically share all the details about the customer that the other team would need.

Third-party systems to Salesforce

The capabilities of third-party integrations can augment Salesforce as well. The business can enable two-way synchronization between multiple tools like Salesforce and Jira, Zendesk, GitHub, Azure DevOps, HP ALM, ServiceNow, and more.

Using connector tools, a team of developers can establish integration between third-party services and Salesforce. Usually, the connection can be established from either side of the integration, allowing the developers to safely and quickly begin the integration process. The rules of connection can be configured according to the business' needs. Automated data exchange can then be triggered and the process of synchronization between the third-party solution and Salesforce can be initiated.

Project managers can take advantage of Azure DevOps integrations so as to share targets with sales teams. Sales teams can then share that data with all the involved departments, and that data will be automatically synchronized with all the information other departments and teams have. Basically, the possibilities of such integrations are limited only by imagination as there are countless ways to integrate Salesforce into third-party solutions to boost their potential value.





Salesforce to Salesforce

In the modern business environment, CRM and Salesforce are basically synonyms, as both are tightly bonded to each other and nearly inseparable. The capabilities of Salesforce and the benefits it offers to CRM are immense, and Salesforce to Salesforce integration between different departments or business partners can make a positive impact on the growth of an enterprise.

Department integration

Salesforce to Salesforce integration provides benefits like automated, reliable, secure, and real-time bi-directional data exchange. There are several ways such integration can boost business productivity. For one, sales and marketing are the two departments that use Salesforce on a daily basis, but often they feel disjointed and lack a collaborative effort on customer enhancement goals. An integration would help sales and marketing teams share customer data in the form of information on leads, opportunities, accounts, and more.

Partner integration

Integrating multiple Salesforce organizations allows businesses to expand their partnerships through new and expanded business interests. It can also help vendors to diversify and expand their business operations delivering a more comprehensive service package to their clients.

5 Integration type

As we have discussed above, there are different types of integration that suit different business cases with data integration and service integration being the most common. It all boils down to the particular needs of your business. At this point, you will need to choose the right type of integration that matches your needs and corresponds to your strategic vision for the further development of your business.

6 Timing

The timing of the integration also matters as it can influence the ongoing performance of the system resulting in downtimes. This effect can be mitigated and accounted for by using different types of integration:

Synchronous integration

Synchronous integration, also known as Request-Reply, requires interaction with the external system in order to occur. Developers use this type of integration to pre-process the data upfront before it gets to the user. There can be direct requests or integration layer requests and the choice between the two is always case-specific. For the integration to occur, the system that receives the requests must be up and running.

Asynchronous integration

Asynchronous integration is when one system sends a request to another system and does not wait for the receiving system to respond. This means that the system that sends a request for integration does not have to wait for a response and can start the data transaction right away. This type of integration is preferred when it comes to large volumes of data or when an immediate response is not mandatory.

7 Integration patterns

Different integration patterns can be used to address the unique needs of a business. They are meant to adapt the process of integration into the working schedules and inner practices of a business to avoid downtimes.

Request and reply

The request and reply pattern facilitates communication between the data sender and receiver making sure that the sender will only be able to initiate data integration after the receiver allows it. The receiving system must be up and running for that integration pattern to work.

Fire and forget

Also known as an asynchronous pattern, fire and forget allows for data integration without a response from the receiver. Basically, the integration experts can initiate the process of data transfer whenever they need and the integration will occur once the receiving system is on.

Batch data synchronization

A batch data synchronization pattern involves storing data in a batch that can be moved at scheduled periods once the needed amount of data is collected. This approach is useful if time constraints allow waiting for the data to come and when a business needs to receive complete packages of data.

Remote call-in

Salesforce is not intended for processing customer orders, but businesses can integrate solutions that process orders into their Salesforce infrastructure. The developers will integrate an external (remote) system that can manage the orders and send call-ins with updates on an order status to Salesforce.

UI update based on data changes

Each customer interaction with the service can be visually represented within Salesforce thanks to integrations. For instance, when a customer makes a payment, the sales rep will see the status of the order updated on the screen and know that the payment was successful. UI updates based on data changes are integral for efficient interaction between the customers and the sales reps.

Data visualization

Data can be visualized for more comfortable analysis and presentation. Simply put, Salesforce can give you visually appealing and comprehensive data charts. There are visualization APIs that have numerous types of visualization to produce exciting, easy to read, and appealing data charts.



8 Overview of Salesforce integration technologies

Different integration patterns can be used to address the unique needs of a business. They are meant to adapt the process of integration into the working schedules and inner practices of a business to avoid downtimes. A variety of technologies and techniques are used in the integration process to accomplish certain goals, invoke actions, or perform tasks. Any number of those technologies can be used throughout the integration to improve the speed and quality of the process.

- **Apex Actions** – as a language, Apex is strongly typed and object-oriented allowing developers to execute transaction control and flow statements on the force.com platform server. This can be done along with calls to the Force API. Apex Actions allow developers to invoke Apex methods and include custom integration parameters.
- **Change Data Capture** – is a tool that allows for data replication without having to type a custom code. It allows the user to keep external systems synchronized when Salesforce data changes in real-time.
- **Custom Apex** – a business can choose different methods to invoke data services. SOAP (Simple Object Access Protocol) is a standard communication protocol for the XML (eXtensible Markup Language) message exchange. REST (REpresentational State Transfer) is a set of architectural principles by which the data can be sent over such standardized interfaces as HTTP. Businesses can use Custom Apex for web services to facilitate communication between apps or devices via the web.
- **External Services** – it allows the users to connect Salesforce to external APIs with no code. It creates invocable actions within Salesforce to create a flow for outbound interactions. This is a process-based integration that enables functional flow between applications.

- **Generic Event** – can be used to send custom notifications that are not related to the data changes within Salesforce. Generic events are used to:
 - a. Receive and send arbitrary payloads in JSON without relying on a predefined event schema
 - b. Broadcast notifications to select users
 - c. Send notifications to the events outside Salesforce

- **Heroku Connect** – Heroku is a robust AWS-based management tool that suits app development projects using any language. It is rather accessible and has a push-button connection with Salesforce. Heroku Postgres is a scalable database that can be easily deployed and managed to avoid significant overheads. It allows for data synchronization and transformations. It does not feature the prebuilt connectors and integration/API management capabilities found on MuleSoft.

- **MuleSoft Anypoint Platform** – MuleSoft is widely regarded as the most advanced enterprise platform for integration/API design, management, and development. The platform utilizes the API-Led Connectivity (ALC) approach for communication between devices, applications, and data. It breaks down the isolated data that hinders a connected customer's experience.
 - a. Unlock, unify, and secure data from anywhere: connect data from any system or external data source – no matter where it resides – to deliver critical time-sensitive projects.
 - b. Ensure business continuity: scale quickly to meet the surge in digital demand and solve operational gaps.
 - c. Transform to increase speed and agility: deliver integrated experiences, products, and services faster – from anywhere – with a marketplace of reusable APIs.

- **Mulesoft Composer** – is used for simple and accessible process automation for data that can be done with clicks rather than coding. It allows the user to create a real-time and integrated view of the business and the customers by enabling a secure connection between information stored in different systems.
- **Salesforce APIs** – Salesforce provides businesses with programmatic access to the organization's information using Application Programming Interfaces. The APIs serve different purposes from access to certain objects and building custom development tools to custom web services and real-time data integration solutions.
- **OmniStudio Integration Procedure** – these are applications used to exchange (read and write) data from external systems and Salesforce.
- **Outbound Message** – is a kind of action that streamlines the flow of information to an end-point or external service in the form of Extensible Markup Language (EML). It is used to send data to the third-party app to invoke a specific action or perform a required task.
- **Platform Events** – these are Salesforce's response to actions that occur in the organization's data and metadata and to report errors.
- **PushTopic** – this type of event gives a secure and scalable way to get a notification on any changes within Salesforce data that match a predefined SOQL query.
- **Salesforce Connect/External Objects** – these map the data stored outside Salesforce in a third-party data source.
- **Dell Boomi, Informatica Cloud, Jitterbit and others** – these integration platforms help businesses automate their workflows and connect their applications. Each has its benefits, so it is a matter of business need and choice.

9 Integration approaches

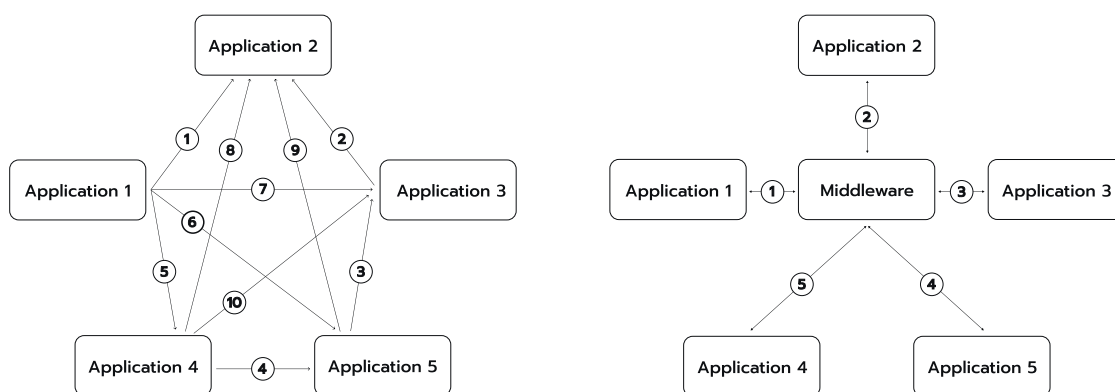
There are several ways to integrate two applications and Salesforce integration architects will choose the optimal approach to tackle the needs of a particular enterprise.

Point-to-point integration (P2P)

Historically, direct integration of two applications without any mediators or third-party apps is the most common approach that has become known as point-to-point integration. Of course, mediation tools or middleware will be incorporated into the integration process. In many cases, the unique channel establishment is the most common approach to the P2P integration in which a unique channel is used between each pair of applications to establish continuous interaction.

The connections between points and the number of unique channels required to connect all the systems can grow fast. The more applications you need to connect, the more channels you are going to require. That is where you will need a precise understanding of your integration landscape, because the more connections and channels there are, the more expensive the integration is going to be. Moreover, each channel has to be developed, tested, documented, and maintained separately, which will influence the development timeline and budget.

Additionally, further expansions of the ecosystem and new integrations will add more channels, which makes the definitive cost of integration nearly impossible to predict. The hub-and-spoke approach cuts the number of channels connecting all applications to a single hub for any given transaction. This approach creates a more flexible landscape making the number of channels more predictable whenever a new system needs to be connected.



Point-to-point connections

Hub-and-spoke connections

Each integration channel, in either approach, allows the system to handle any data transformations. This requires a strong knowledge of each integrated application by the developers, and the business will need to rely on expert teams of integration developers who can create all the connection channels for the system.

Pros	Cons
Allows for custom integrations between systems	Is brittle and might require a lot of fixing over time
Easy to define, scope, and develop	Can be expensive to build and manage
Allows for manual and automated testing	Keeping the connectors updated can become too expensive
Reduced time to market	Is hard to change and evolve

Extract, transform, and load (ETL)

This method of integration calls for copying data from one or more sources into a destination data store that might not share the same structure as the data source. As the name suggests, the method involves three stages:

- **Data extraction:** access to data from one or more sources and further extraction of data from the source.
- **Data transformation:** any activity pertaining to the data before it is delivered to the destination datastore. This may include data cleansing, formatting, enrichment, validation, and/or augmentation.
- **Data loading:** access to the destination datastore and loading of extracted data into it.

All interactions with the data may occur at the staging area where developers can run any kind of complex transformations, like data enrichment, deduplication, custom logic, and more. It is also common to run the three stages of ETL in an asynchronous fashion as each stage can take a considerable amount of time. Modern ETL tools allow businesses to run particular types of integrations every few minutes.

ETL tools can be used for data replication operations as they are designed to deliver scalable services to deal with billions of records. These tools are very flexible and easy to work with. Some of the most popular ETL tools used with Salesforce are MuleSoft, Talend, Jitterbit, and Informatica Cloud. However, every Salesforce architect and business owner needs to understand the limitations of the out-of-the-box tools that can be used for integration. Understanding these limitations is critical to picking the right tool for the right situation.

Pros	Cons
Good for bulk data integrations with complex rules	Requires a strong team of data engineers and database analysts
Development and maintenance are simplified	Not ideal for real-time and on-demand data access where a fast response is vital
Suits a data warehouse environment	Takes time to put together and lacks flexibility in the changing environment



Enterprise service bus (ESB)

The Enterprise Service Bus is the data integration method in which different applications are integrated via the communication bus. Each application communicates with the bus only when reducing dependencies and decoupling the applications. The ESB toolsets support different architectural concepts, such as event-based architecture, API-led connectivity, and microservices.

ESB supports synchronous and asynchronous communications allowing integrations to operate on the business logic layer. It also supports complex data orchestrations where one app sends customer info to the ESB, which can then communicate that info to multiple external apps. This allows for real-time information checks, followed by the callout to the CRM to start the onboarding process of a customer's journey. A customer will then get a unique ID that will be returned to the starting application confirming a successful transaction.

ESB also handles data formatting, cleansing, enrichment, validation, augmentation, and transformation. The most common ESB tools used with Salesforce are MuleSoft webMethods Integration Server, WSO2 Enterprise Integrator, TIBCO ActiveMatrix Service Bus, and IBM Integration Bus.

Pros	Cons
Flexible integration and customizable connections	Bottlenecks can occur because the teams might lack freedom of movement
Centralized management, so teams can solve their challenges easier	Need for experienced developers
Connectivity without custom coding for simpler integration	Risk of regression and inflexible deployment

Conclusion

Salesforce integration results in tangible improvements in efficiency, productivity, and profitability of businesses across industries. As more than 150,000 businesses worldwide have already adopted it in their daily operations, Salesforce has proven its value by delivering a tangible increase in the number of leads and sales. With its exclusive features, diverse integration patterns, comprehensive toolkits, and immense functionality, Salesforce actively reshapes businesses for the better.

Almost any type of business can benefit from Salesforce integrations, one way or another. If you are ready to embark on that journey, Avenga is the Salesforce partner you need in order to make it fast and smooth. Our team will run your project from the discovery phase, up to market launch, and post-launch maintenance and support. Together, we can refine your business processes, accelerate time to market, and achieve impressive ROI using the combination of Salesforce's expertise and mesmerizing capabilities.





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