

Types of Integrations

Integrating with Clarity Connect™



3 Types of Integrations

Clarity, over the course of more than 15 years has completed over 3,000 integrations. Not all integrations are the same, and the same is true for projects. There are some that may have as many as 5 or 30 integrations in a single project. Before reading this document, you may want to read the Clarity Connect White Paper, which covers the basics of integrating with Clarity Connect, and describes the basics of each type or classification of integration (i.e. data warehousing, ETL, hub-and-spoke, bus). This document will talk specifically about the different classifications of integrations (API calls, single persistent, bi-directional persistent) and which applications / types fall into each class.

Most integrations consist of two main elements, the connection (physical integration and field mappings), which are used to access and exchange data between the two applications, and the business logic or workflows, which is actually done via the connection. The connection itself takes roughly 20% of the time and expense of the integration with the business logic and workflows making up the main portion of the integration.

Integrations will be rated on a 1 – 5 scale. 1 meaning the lowest effort, time and cost; A 5 taking the most effort, time and expense.

Cost of Integration vs. Business Logic

20% Cost of Integration



Connection Types

There are many considerations when designing the connection between the two applications. There can be security and performance criteria, as well as the physical access available to the applications. The two common connection types are SaaS and On Premises.

The Salesforce logo, which consists of the word "salesforce" in a white, lowercase, sans-serif font inside a blue cloud shape.The Zoho logo, featuring the word "ZOHO" in a colorful, blocky font where each letter is a different color (Z: red, O: green, H: blue, O: yellow).The Office 365 logo, which includes a red 3D square icon above the text "Office 365" in a red, sans-serif font.

SaaS or In-the-Cloud

SaaS-based integrations are very common. These are exclusively online and can be integrations to applications like Salesforce, Office365, USPS, UPS, 3PL, Authorize.net, Constant Contact, Avalara (Clarity is a certified Avalara partner) and any other application that is served up in the cloud. In any of these scenarios, the eCommerce storefront is hosted on a cloud-based server (usually at a provider like Amazon, Azure, Rack Space, Liquid Web, Managed.com, etc.), and Clarity Connect is installed on the same server (as the eCommerce site or portal) and then configured to communicate to the other online application across a secured Internet connection.

Connection Types



On Premises

Another common implementation is when a client has their ERP or CRM installed on premises, behind their corporate firewall. In this scenario, Clarity Connect is then installed on a server on premises at the client's facility and configured to communicate securely within their network to the back-office application(s). Then an IP exception, with specific port and public / private key combo is used so that Connect can securely communicate with the eCommerce storefront in the cloud, improving security and ensuring that the client's ERP / CRM are not exposed outside of their network.



Local Caching

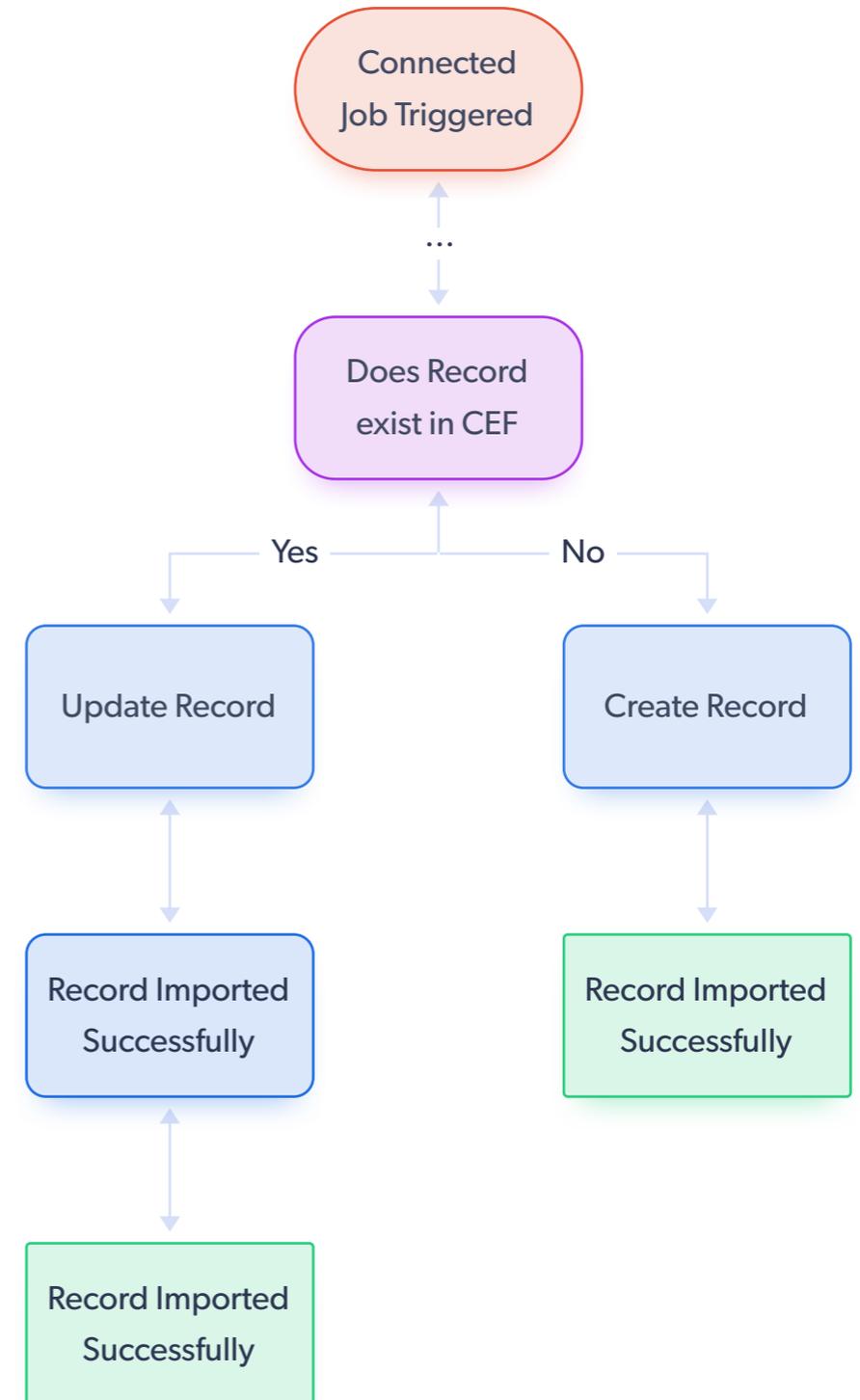
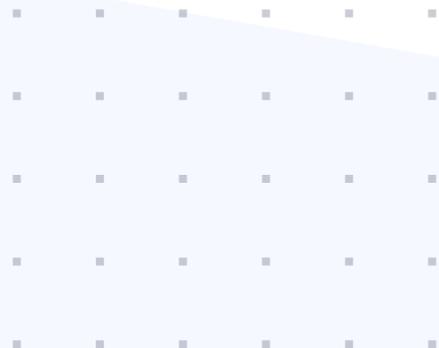
With both connection types above, Clarity Connect provides a fail-safe queuing and caching platform, which can provide asynchronous UX (user experience) and orders processing for visitors to the site, in the case where the back-office application is offline (maintenance, crash, time-outs, etc.). Connect caches relevant data in its own retry queue, with orders and inventory updates held locally, until the back-office application is back online and the data can be "synced up." Connect, on a timer, will automatically make attempts to communicate with the application until it replies, or you can launch the Connect dashboard and manually invoke the sync process in the retry job queue.

Business Logic & Workflow

Business workflows are the real meat and potatoes of the integration. It's where all the logic happens. It is made up of events, triggers, logic, rules, and more. It's what allows all of the real-time or batched communication and automation of the front-end website with data and logic from the back-office applications.

This is what extracts and exposes all of the value of your website / marketplace integration. The workflows can be very simple, such as checking a product's in-stock inventory count, to something much more complex, such as illustrated in the examples below.

Common workflows include pushing sales orders from the store into the ERP for fulfillment, pulling customer-specific pricing to the store for resellers and partners, pulling invoices from the ERP into the user's dashboard for payment, just to name a few.



Examples of Complex Workflows



Login Authentication

When a user logs into your store, go to the integrated CRM, look up the user, see what account they belong to, is the account status on hold, does the user have permissions to purchase on account, what pricing table does the account get assigned, which products should be made visible to the user, etc.



Checking Out

When an order is being placed, check the CRM / ERP and pull in the account billing address, pull the available Ship To addresses, push the PO to the ERP and create the sales order pulling back an invoice so the user can view and print in real time, submit the order for fulfillment, update the in-stock quantity, etc.



Viewing the Product Catalog

When a user clicks on a product category, go to ERP in real-time and check to validate their (the account's) pricing, inventory stock quantity, whether the product allows back orders, if it requires any additional certification or documentation to purchase, etc.



EDI (Electronic Data Interchange)

EDI integrations are used mostly for the Supply Chain. When a company doesn't have a publically exposed API to share or retrieve data within their supply chain, they will commonly use EDI. EDI exchanges files, which are placed, scanned for and parsed from a drop-off directory, normally via secure FTP. When a supplier wants to "share" their product list (products, quantities, pricing), they can send an XML file to a directory or provide a feed, which can be parsed and imported into your database.

Conversely, when your site has an order to place for drop-shipping, your solution can post an XML file to their system which will then pick up and process the order. The status message could be sent back to your system and so forth.

Clarity has done dozens of EDI integrations, although they are not as popular now as they were a few years ago. EDI integrations are usually pretty straight forward and on scale are a 2 or 3 (on a scale of 1 – 5), depending on the number of files and features.

EDI integrations must have an associated DTD (document type definition) file that maps the field names between the supplier and platform (i.e. first name maps to given name, last name maps to family name, etc.). CXML is a mapping standard that is commonly used so that many EDI connections can use the same directory and DTD, which can dramatically reduce the cost of integrating with many suppliers or vendors.

1-5 Scale for Estimating Integrations

- Time, Cost & Complexity are directly related & proportional
- The higher the number, the more time consuming, complex and expensive the integration



Simple Integrations

Simple API Call

These integrations are usually the easiest and least expensive, as well as the most common. These integrations are used for simple API calls, like calling out to UPS, FedEx, USPS, or DHL during checkout to calculate shipping costs. These are all core (out-of-the box) integrations within the Clarity platform, save for a couple of hours to configure your account credentials and time to perform some testing and validation. The eCommerce solution gathers some basic information needed, such as the dimensional size and weight of the item to be shipped and the desired shipping time (Overnight Express, Ground, etc.) and makes a service call to the online API, passing the data, and during that session, receives some information back for posting (shipping cost).

These web service calls are quick and usually real-time and are typically a 1 (on a 1-5 scale). For clarification, this is an outbound call from your service for real-time shipping costs, and not an inbound call with an order tracking code. The shipping carriers provide that information from a completely different application, which takes more time and a unique integration to capture.

Clarity has done hundreds of these types of integrations, from UPS, DHL, FedEx, USPS to dozens of LTL Regional Carriers, as well as emailing applications like Constant Contact, Mail Chimp, Infusionsoft and tax software like Avalara. Many Vendors that have an exposed API instead of an EDI feed will have this type of integration, where an API call can easily pull product availability and pricing.

1-5 Scale for Estimating Integrations

- Simple Integrations rate a 1-2 on the scale. Relatively quick to do, simple to develop and inexpensive.

Single Persistent

Medium Effort

These types of integrations usually require some custom coding and commonly have a single-directional communication workflows. Common applications that fall into this category would be a data source for product information or a logistics 3PL, which is a custom shipping logistics provider, where during checkout, the solution can get multiple shipping quotes from different providers to compare rates, retrieve shipping tracking status codes, process orders and shipping labels and much more.

Clarity has done dozens of these types of integrations. The most common of which would be to the shipping applications for UPS, FedEx, USPS, and logistics companies. Once done, the solution now has real-time shipping quotes from the above simple API call, and now can pull back tracking statuses for customer deliveries from the additional work.

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Another common Omni-channel solution is the Amazon integration. This integration can be very basic, like our out-of-the box Amazon API integration to push/list products from your store to your Amazon store, or much more complex, adding in any of the 100 different API exposed features, where you can pull sales reports, update and edit products, change pricing, availability and more. Most, if not all of these features are made via API calls to Amazon in a single direction, so this integration is listed in the Medium Effort category.

1-5 Scale for Estimating Integrations

- Medium Integrations rate a 2-3 on the scale. They require some development, time and expense.

Bi-directional Persistent

Complex Integrations

Since roughly 80% of all Clarity projects fall into the “custom B2B eCommerce with back-office integration” type, the most difficult and bi-directional integrations with many custom workflows are complex in nature, we actually call these “standard” integrations. Applications that fall into this category are all of the ERP, CRM, Inventory Management, Fulfillment, EHR/EMR, Marketing Automation solutions and other custom integrations.

Clarity has done hundreds of these types of integrations and roughly 20% of all new projects bring a new application or at least a new version of an application to integrate with. Clarity has done many Microsoft Dynamics integrations such as integrations with GP (Great Plains), CRM, CRM365, AX, NAV, Office365, and more. Clarity is a Microsoft Dynamics, Sage and SAP partner. Many others that they’ve integrated with include Salesforce, Infor, Quickbooks Enterprise, Epicor, Syspro, Sage, SAP, Oracle, Zoho CRM, NetSuite, Marketo, Act On, Tims, EPIC, eClinicalWorks and dozens more.

These integrations normally require the most effort, custom coding and testing, and typically rate a 4 or 5 (on a 1-5 scale). There are however, numerous integrations of this type that Clarity does so often, the time and cost can be reduced significantly. Those are Microsoft Dynamics CRM, Microsoft Dynamics AX, Microsoft Dynamics GP, Quickbooks Enterprise, Salesforce CRM, Sage 100 and Sage X3.

1-5 Scale for Estimating Integrations

- Standard Integrations rate a 4-5 on the scale. They require custom development, significant time and expense.



Get in Touch with Clarity

If you are a business, ready to move forward with your project,
please give us a call or visit our website.

 +1 (800) 928 - 8160

 clarity-ventures.com



Ron Halversen

VP Sales & Marketing

 ron.halversen@claritymis.com



Philip Ganoë

Executive Account Manager

 philip.ganoë@claritymis.com