A Tale of Two Cities:
JD Edwards ERP Integration and Interoperability with Salesforce.com CRM

Interface Touchpoints between the Cloud and the Ground

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These words may resonate with the business analyst tasked to integrate JD Edwards with Salesforce.com.

On the one hand, both JD Edwards and Salesforce.com were designed with a certain amount of openness and loose coupling to allow for integration and interoperability. This is wisdom, this is light, this is hope. On the other hand, completely divergent table structures and lack of any direct integration means that most organizations seeking that integration plunge headfirst into deep technical programming efforts. This is foolishness, this is darkness, this is despair.

Fortunately, a solution exists that allows you to automate the design of business processes that span the chasm between JD Edwards ERP which is usually running in a data center and Salesforce.com CRM which runs in the cloud. It is not a small chasm. JD Edwards World is very down-to-earth based on the green screen world of the IBM i and RPG code. Even EnterpriseOne takes us into the jungle of Java programming and C# programming. On the other hand, Salesforce.com integration requires programming to complex Web Services involving SOAP and WSDL.

In this White Paper, we introduce iBOLT for JD Edwards and Salesforce.com as a business process orchestration solution for ERP and CRM integration that requires no manual programming. We examine the four pillars of CRM and consider common touchpoints for either JD Edwards World or EnterpriseOne integration including

"It was the best of times, it was the worst of times; it was the age of wisdom, it was the age of foolishness; it was the epoch of belief, it was the epoch of incredulity; it was the season of Light, it was the season of Darkness; it was the spring of hope, it was the winter of despair; we had everything before us, we had nothing before us; we were all going directly to Heaven, we were all going the other way."

– Charles Dickens, A Tale of Two Cities
transaction tables processing and Master Business Functions where available. It also discusses the importance of five key integration capabilities for Salesforce.com business process orchestration. Finally, it describes briefly the business process design, monitoring and execution capabilities of iBOLT.

Work In Any of the Four Pillars of ERP.

JD Edwards World and JD Edwards EnterpriseOne users are familiar with the four pillars of ERP: Financial Management, Human Capital Management, Manufacturing Management and Distribution Management. Like most ERP systems, JD Edwards tends to view the enterprise as a value chain defined by its financial transactions. Over the past decade, CRM systems have arisen within the enterprise to present a different view of the enterprise as a relational entity defined by its customer interactions. Both approaches provide a partial view, reminding one of the story of the blind men and the elephant. Neither view is incorrect but neither view is complete.

The four pillars of ERP each present a unique but sometimes interrelated data set as well as a set of business functions. Only when viewed together with related CRM business functions, one begins to capture a complete view of the enterprise business process. Many business analysts want to use iBOLT for JD Edwards to automate the interoperability between JD Edwards ERP and Salesforce.com.

One of the most common approaches to JD Edwards interoperability involves transaction tables processing, commonly called Z-processes in the JD Edwards community. Keep in mind, iBOLT processes can be put in place for event driven and scheduled business process orchestration on both a synchronous and asynchronous basis. These iBOLT processes can validate and cleanse data, resolving ambiguities before the Z-process is run. This reduces or eliminates exceptions file records resulting from the transaction tables processing. With current Z-file processing approaches dealing with the exceptions is a manual and tedious process. Furthermore, an iBOLT process can be created to deal with the exceptions file, parsing it and routing its exceptions separately for appropriate resolution. Let’s take an ERP functional view and review many of the most likely touchpoints where iBOLT can automate the interactions needed for JD Edwards interoperability in two common systems: JD Edwards World A7.3
and JD Edwards EnterpriseOne 8.12. It should be emphasized that iBOLT can automate integration for any version of JD Edwards including OneWorld, XE, ERP 8.0 and of course all current versions despite the considerable differences in integration approaches supported by these different versions.

**ERP / CRM Touchpoints: ERP Functional View**

1. **Financial Management.**

   *Accounts receivable integration* with CRM is certainly one of the “hot button” needs in many organizations seeking ERP and CRM integration. The need for AR integration primarily relates to providing the sales team with an accurate current view of receivables.

   To get to the invoice, of course, you have to first create a sales order. iBOLT enables a variety of automated processes including opportunity-to-order conversion. *JD Edwards World* is great at processing orders, but it has no functionality related to opportunity management and sales leads. JD Edwards World tables impacted in sales order management will be the F4201 and F4211 via the P42011Z batch transaction process. CRM systems also inter-relate with the JD Edwards *address book* and the F0101Z transaction tables. Address book integration is facilitated with the use of a Z process, P0101Z and impacts the files F0101, F0301 and F0401.

   Many organizations running *EnterpriseOne* choose to use a third party CRM solution rather than the somewhat limited CRM capabilities of JD Edwards EnterpriseOne. To facilitate this integration, iBOLT works with either the Master Business Functions
or the Universal Batch Engine (UBE) Z file process depending on the situation. With the EnterpriseOne Sales Order Master Business Functions, iBOLT automates the interactions with F4211FSBeginDoc, F4211FSEditLine, and F4211FSEndDoc. If the UBE is preferred, it runs R40211Z to access tables F4201 and F4211. These are just examples of course, as iBOLT can interface with any JDE business function or UBE.


JD Edwards payroll features do not do a good job of dealing with sales commissions. You can create pay types when you set up the system. So make sure you have a type for commissions. Pulling the data from the CRM system you will then be able to apply your business rules for commission calculations. For JD Edwards World systems, iBOLT will use P06110Z to bring in sales commission on a batch basis to the F06116 timecard management table, thereby facilitating payment processing. For EnterpriseOne, iBOLT can orchestrate the R05116Z11 UBE to integrate access and manipulate the F06116Z1 table. iBOLT can also orchestrate interactions via the EnterpriseOne Time Entry Master Business Function.


In this pillar, of course, we find the gem of product data management and one of my favorite subjects: Master Item Data. When running the P4101 process the F4101 can be involved, of course. But that is just the tip of the iceberg. For example, if you are running P4101 processing option 7, UDC 40/IC there are more than 50 tables impacted. So obviously, as a business analyst getting into this area of integration, you need to be very cautious. I recommend pulling only a limited set of information from ERP to CRM and not even considering the reverse. I can’t really think of business reasons to pull data from CRM into a Master Item table or tables in ERP. And overloading the CRM system with all of the detail available in an ERP system seems unnecessary. But to be sure, some of the master item data can be a key to competitive advantage by providing the agility needed for smooth running business processes whereby CRM interactions get down to the product level detail needed. Automated integration and synchronization of this data is essential because a mismatch in data will lead to business process errors and exceptions. When triggering a JD Edwards EnterpriseOne Master Business
Function such as a Sales Order based on an event in Salesforce.com, keep in mind that there are interdependent data relationships to corresponding Work Orders, for example. An EnterpriseOne business analyst is needed to guide you through these details.

4. Distribution Management.

Three key areas of distribution management are likely targets for CRM integration relationships as well: sales order, inventory and warehouse management. One of the important touchpoints will be found in the area of inventory management. Item availability is obviously a key concern and can be addressed by the **P41201** process / **F41201** table. Putting an iBOLT process in place that makes available inventory data visible to a salesperson using a CRM system can provide a novel advantage to your sales team – a unique competitive advantage. As mentioned, sales orders are going to be a common touchpoint as well. For JD Edwards World, you will be using the JD Edwards World **P42011Z** batch transaction process to populate the **F4201** and **F4211** tables. In EnterpriseOne, the corresponding batch process is **R40211Z** and the same tables are used. As mentioned before iBOLT automates the EnterpriseOne Sales Order Master Business Functions interactions with **F4211FSBeginDoc**, **F4211FSEditLine**, and **F4211FSEndDoc**. Creating sales order entry integration between CRM and ERP will reduce the need for sales administrators to spend time manually entering sales orders for which the CRM system already has all the required details.
A number of business rules need to be considered before automating the opportunity to order conversion process that spans the chasm between CRM and ERP, but it can be done.

**Controlling Five Fundamentals of Salesforce.com CRM Integration.**

When integrating JD Edwards with Salesforce.com CRM – and orchestrating affected business processes – you need to be able to control five fundamentals of Salesforce.com business processes: **objects, metadata, bulk jobs, replication and lead conversion.**

1. **Objects.**

   A business process integration solution like iBOLT allows you to perform all the required functions with objects. When working with Salesforce.com objects, you will want to be able to get the timestamp of any object, get the **objects list**, update the **object structure** and perhaps even **merge objects**. It is important to be able to dynamically get the objects list because of the ability of users and administrators to personalize the implementation.

2. **Metadata.**

   When working with Salesforce.com **metadata**, you will want to check the status of any metadata operation at any time. Obviously you will need basic **CRUD** operations (Create, Read, Update and
Delete). And you will need to be able to **retrieve** and **deploy** metadata.

3. **Bulk Jobs.**

Going beyond these basics, a sophisticated solution like iBOLT will give you the capability to orchestrate **bulk jobs**. These powerful batch operations are key to efficiency across multiple users. You will want to be able to **check** the status of bulk jobs, **retrieve** bulk job results and even **abort** bulk jobs.

4. **Replication.**

Another key requirement for many organizations is the ability to selectively **replicate** their Salesforce.com data from the cloud to a secure enterprise storage server. With the iBOLT integration suite, you can **replicate data locally** from your salesforce.com implementation. You can replicate all data or simply **last updates** and **last deletes** as part of a particular iBOLT business process flow.

5. **Lead Conversion.**

In Salesforce.com terminology, a **lead** is a potential customer that you do not yet want to add to your account list. Once a lead is ready to become an account the user can **convert the lead** which
automatically creates an **account** (the organization or company record), a **contact** (the individual person record) and optionally as an **opportunity** (the specific potential deal being tracked).

**Bringing IT All Together.**

To build on this last example, with a business process integration solution like iBOLT, you can automate lead conversion in Salesforce.com. You may want to first use iBOLT to check for the existence of similar accounts and contacts in JD Edwards and apply business rules for validation, disambiguation and deduplication of data.

When checking JD Edwards, iBOLT can query **F0101** and related tables for matching records. If you are also running SAP, iBOLT can check things like **ADCP** and **ADRP** for address information inside of this other ERP system as well.

The five fundamental capabilities for Salesforce.com integration described here are the building blocks of business process orchestration between Salesforce.com and your ERP system. iBOLT makes it easy to design these business processes through a drag, drop and configure approach that lets you control the settings for these fundamentals rather than having to write cumbersome Java, C# or APEX code.

While many organizations have fallen into the trap of manual programming, high priority should be given to implementing automated solutions like iBOLT for seamless background processing. Having an AppXchange Certified solution for automated JD Edwards and Salesforce.com integration that utilizes approved methods for processing transaction tables (Z-files) and using Master Business Functions makes sense. With iBOLT for JD Edwards, you will be able to orchestrate business processes that connect ERP and CRM in ways that lead to efficiency, accuracy and competitive advantage. But what is the basis for iBOLT’s efficiency? Why is it better than traditional programming of integration interfaces?
To make all of this possible, iBOLT has **pre-designed** building blocks of integration that handle:

- process automation
- composite processes
- Web interfaces
- data transformation
- message queue interactions
- security procedures
- specialized requirements
- email routing
- content management workflow
- social media connections
- application integration.

Using a visual **“drag, drop and configure”** approach to integration, the **iBOLT Integration Suite** allows you to design business processes in the **iBOLT Studio**. From within the iBOLT Studio, you can document your topology and model business processes. From a major step in the business process model, you can **drill down** to specific flows. Your custom business process flows are configured using various **methods, wizards** and **components**. The approach is both **dynamic** and **stateless** thereby reducing the design effort considerably. Flows are stored in secure **XML** formats similar to **BPEL4WS** although it is not strictly limited by the boundaries of traditional **BPEL** approaches.
The iBOLT Server orchestrates business processes based on a highly optimized server engine that has been proven to a very high degree of security, transactional integrity, operational reliability and scalable performance. Operations on the iBOLT Server can be observed using the iBOLT Monitor which mimics the visual design flows of the iBOLT Studio. Business analysts can customize their dashboard views of a business process and control the logging of business process metadata.

Businesses running the iBOLT Integration Suite have reported considerable process improvements as a result of overcoming the traditional inefficiencies and costs associated with a non-integrated approach or manual integration. Customers for iBOLT for JD Edwards include Sony, Borg Warner, Mizuno, Fiskars, Harsco, Rexall and Regis Corporation.

About the iBOLT Business Integration Suite

iBOLT is a metadata platform for business and process integration. It enables organizations to synchronize data within diverse applications and provides enhanced workflows, automation of manual processes, and a real-time view of business activity.

iBOLT simplifies the design and integration process by separating business logic from integration technology. iBOLT makes changes to prototype business models without affecting actual business or technical layers.

iBOLT features user-friendly, code-free tools such as wizards, drag-and-drop options and tables, creating straightforward connections with enterprise applications deployed on any hardware, operating system, or database.

iBOLT Special Editions

iBOLT integrates a wide range of IT business applications including SAP Business One, SAP R/3, Salesforce.com, Oracle JD Edwards, Lotus Notes, Microsoft CRM Dynamics, IBM i (AS/400), HL7 applications and Google Apps.
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