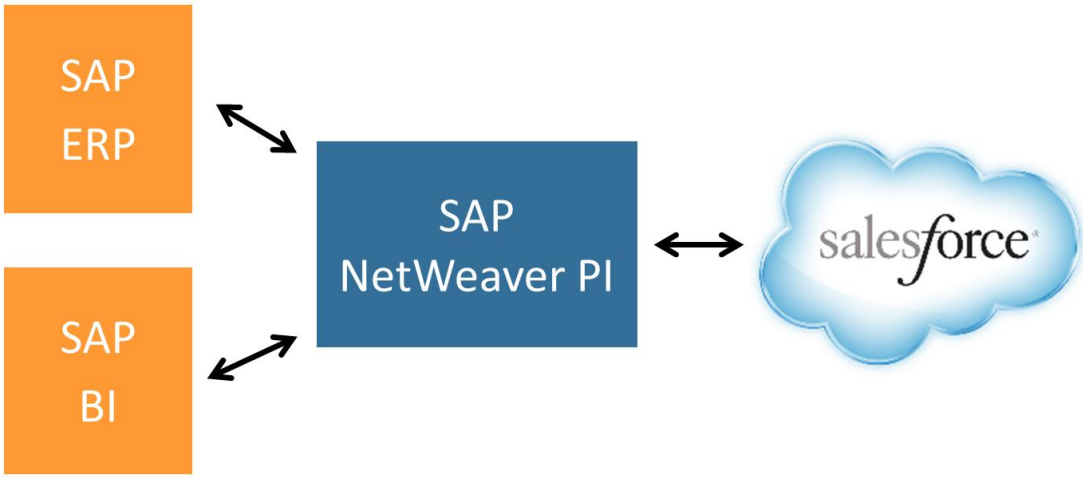
salesforce Integration with SAP NetWeaver PI/PO

Scenario

More and more companies are opting for software-as-a-service (SaaS) and managing a subset of their business processes and applications in the cloud. One common use is in the area of Customer Relationship Management (CRM), in which salesforce.com has established itself as a market leader.



Basic architecture

The processes and data of the cloud application must be integrated with the existing SAP system landscape to harmonize the affected business processes and bridge the technical gap between SAP and salesforce. The salesforce application has specific technical requirements in this respect. To automate these processes and implement the technical requirements in a reusable way, salesforce must be integrated using an integration platform. In a SAP-centric system landscape, the preferred solution is usually SAP NetWeaver Process Integration (PI) or its successor SAP NetWeaver Process Orchestration (PO). Implementations in reference projects have demonstrated that connections from cloud-based solutions can be implemented and operated efficiently using SAP PI/PO when the architecture and implementation are planned appropriately. With an incorrect approach, however, the integration can result in considerable risk and cost during the project implementation and subsequent operation.

Integration Methods

The salesforce platform offers different integration methods. In addition to the classic method whereby data is uploaded manually via files, other methods, in the form of salesforce APIs, are available for automating the integration process. Web-based integration is the preferred method for most use cases, particularly when integrating data with other business applications in real time.

Other technical options are the generic data transfer and mass data processing. The generic method is suitable for data migration. Since this method does not include a defined interface structure (therefore "generic"), it is less appropriate for integrating business processes. The interface for mass data, on the other hand, can be used to initially or regularly upload large data volumes during an initial data load or on regular basis. Since processing is decoupled and takes place asynchronously as background processing, this method is not suitable for process-oriented real-time integration.

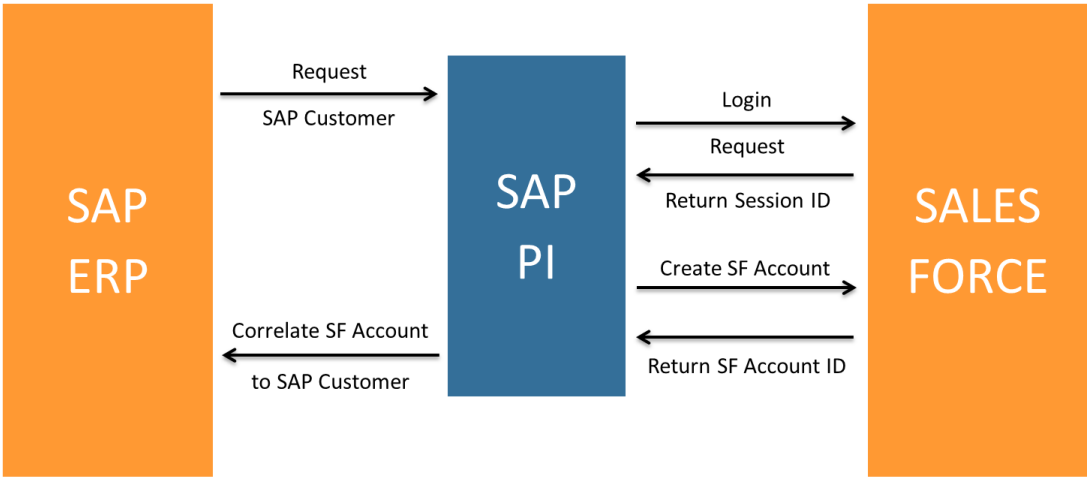
When the Web-service-based method is the chosen approach to salesforce integration, a technical design concept must be created that incorporates the salesforce-specific integration requirements.

Specific Integration Requirements

Specific requirements must be taken into account during the technical integration of salesforce. The technical features of the interface implementation are salesforce-specific but are not specific to the integration platform used. Important considerations include:

- Authentication in the salesforce application is based on session handling, whereby a login request must be executed before the Web service request with the actual business data.
  The login data must be persisted in the integration layer so that the session information can be reused for multiple salesforce calls.
- The Web service structure description provided by salesforce, the so called WSDL definition, is also problematic. It cannot be imported directly into the integration platform due to some specific XML language structures used by salesforce – which means that manual adjustments are required.
- To fulfill additional technical requirements and depending on the customer's needs, it may be necessary to orchestrate processes using BPM (using ccBPM or NetWeaver BPM depending on the PI/PO release). BPM functions are used, for example, to bridge asynchronous, outgoing SAP messages (such as IDoc and ABAP proxy) for the synchronous Web service call.

- Since the Web service interfaces are not designed for mass data (see alternative approaches above), salesforce permits a maximum of 200 datasets (for example, 200 customers)
  in a single call. This is a good way to avoid mass data and to bundle data into smaller packages. It prevents performance problems and long response times with salesforce. On the other hand, it also allows large volumes of data to be transferred using the Web service technology. This can be done via the interface by packaging data records accordingly. This bundling should ideally take place in the SAP source system, but could also be handled in PI/PO.
- The interface design must define how to proceed in the event of errors. In this context, it must be noted that salesforce error messages normally refer to the salesforce ID of the corresponding object, and an appropriate correlation to the SAP object must also be identified within the integration logic.



Scenario: Create account in salesforce

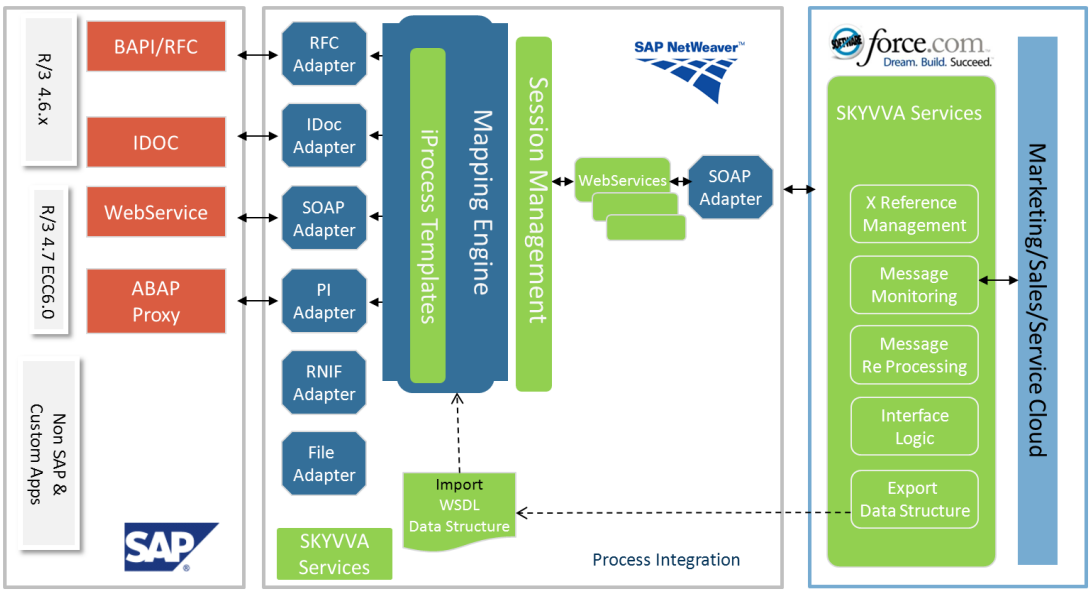
To meet these and other requirements, a design concept should be created and the integration development should take place within a template approach to ensure a high reusability of the implementation.

Transferring Data Changes from salesforce to SAP

A Web service provides functionality that is encapsulated in a well-defined interface structure. Therefore Web services are always called by external sender systems which want to execute a specific function. All of the integration methods mentioned in the previous sections are based on a trigger from the SAP application. If data (such as an account) is changed in salesforce, this information needs to be sent back to the SAP system. For this purpose salesforce offers a Web service for data extraction, but this must be explicitly triggered from the SAP system. With this method, changes made in salesforce are not transferred immediately. This approach for transferring data from salesforce to SAP could

also require appropriate BPM logic in PI/PO due to the specific requirements as previously indicated.

An alternative option is to send outbound messages from salesforce. From an integration point of view, this approach states a cleaner integration design and reduces the complexity of the interfaces. But this method requires a customer-specific enhancement in the salesforce application. Especially in the case of close bidirectional integration between salesforce and SAP, the solution offered by cbs partner SKYVVA provides an elegant and cost-effective implementation method. SKYVVA enhances the salesforce.com platform with additional functions for automatically sending messages to SAP NetWeaver PI/PO, a message monitor, predefined integration scenarios, and a simplified enhancement of interface structures on the salesforce side.



SKYVVA integration architecture

Project Approach and Result

Based on the business processes defined, it is imperative that the leading system for each business object is defined in terms of object creation, updates and deletions. Taking into account the real-time integration requirement and the anticipated data volume, the overall architecture and design approach must be considered and decided upon at interface level before technical integration begins. During implementation, it is recommended that the first interfaces are designed as a reusable template solution. This generic template approach allows the technical challenges posed by salesforce integration to be addressed early on in the project and provides a uniform basis for implementing further interface requirements.

About cbs

cbs Corporate Business Solutions Unternehmensberatung GmbH is an international company that provides high-quality management and SAP consulting services for global SAP change projects. Its customers include globally-active large and medium-sized companies in the manufacturing industry as well as major corporations in various industries. Thanks to its expertise gathered over many years and its broad customer base, cbs is among the leading German consulting firms in the field of SAP integration, SAP NetWeaver Process Integration, and SAP NetWeaver Process Orchestration. In the field of salesforce integration, cbs advises various customers in the mechanical and plant engineering, high-tech, and chemical/pharmaceutical industries with regard to architecture, design, and implementation based on SAP NetWeaver PI and SAP NetWeaver PO.

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