

Architecting Successful Integrations with Force.com

Developers

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Agenda

- Integration Basics
- User Interface Integration
- Business Logic Integration
- Data Integration
- Integration between Force.com Orgs
- The Community
- Resources



Welcome to Cloud²

Sales
Cloud²

Service
Cloud²

chatter
Collaboration Cloud

force.com
Custom Cloud²

chatter
platform



Profiles



Status Updates



Groups



Feeds



Content Sharing



App Updates



Security &
Sharing



Chatter API

Google

facebook
twitter

Force.com

development
platform



Elastic Database &
Stored Procedures



Programmable
User Interface



Programmable
Cloud Logic



Visual Process
Manager



Real-time
Websites



Real-time Mobile
Deployment



Integrated
Content Library



Real-time
Analytics



Integrated
Knowledge

appexchange²

800+ Integrated
Apps

cloud
infrastructure



ISO 27001
Certified Security

>99.9%

Proven
Reliability



Proven, Real-time
Scalability

<300ms

Real-time Query
Optimizer



Real-time
Transparent
Status



5 Minute
Upgrade



Proven, Real-time
Integration



Real-time
Sandbox
Environment



Salesforce to
Salesforce



3 Global Data
Centers &
Disaster Recovery



Multitenant Kernel



Integration Basics



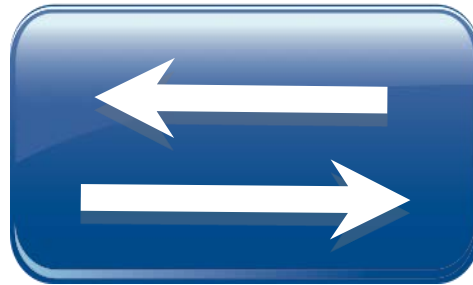
Integration Built In, Not Bolted On

200+ Million

API calls per day

> 50% of traffic:

API integration
transactions



SOAP Web Services API

Rest API **New!**

Interoperability with Leading
Cloud Platforms

Back-end and Desktop
Integration

Consume and Publish web
services

Over 40 Certified Integration
Middleware Partners



The Force.com Web Services API

The Foundation for Integrations with salesforce.com

- The Force.com Web Services API securely exposes data to other systems
 - Standard Salesforce objects
 - Custom objects
- The Force.com Web Services API is secure
 - Supports Secure Sockets Layer (**SSL**) protocol SSLv3
 - Username/Password **Credential Authentication**
 - Support for token authorization mechanisms
- All integrations are upgraded with zero customer effort



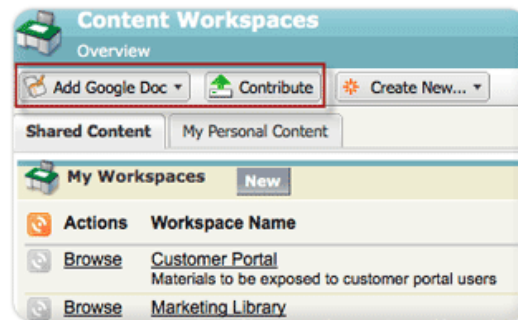
Sub APIS

Specialized Areas

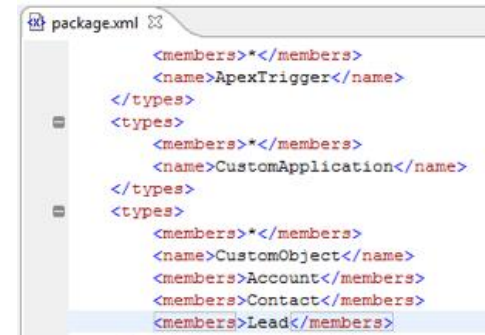


Chatter API

Content API

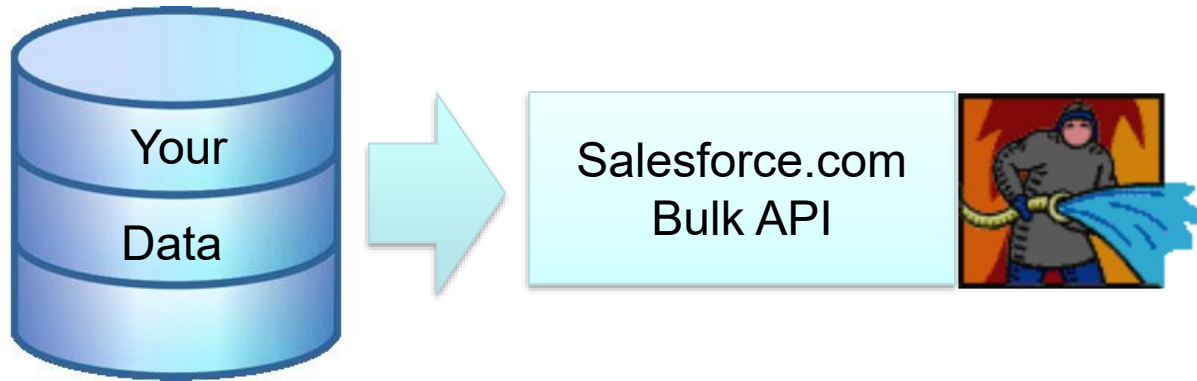


Metadata API



Bulk API

Turn on the fire hose



- Asynchronous
- No client-side batching
- Can be set up to run in batch mode



The Force.com REST API

In Developer Preview

- Ubiquitous Access
- Standards-Based Security
- Same Data Model as the Soap-based Web Services API

```
027 public class DemoREST extends HttpServlet {
028     private static final long serialVersionUID = 1L;
029     private static final String ACCESS_TOKEN = "ACCESS_TOKEN";
030     private static final String INSTANCE_URL = "INSTANCE_URL";
031
032     private void showAccounts(String instanceUrl, String accessToken,
033                             PrintWriter writer) throws ServletException, IOException {
034         HttpClient httpClient = new HttpClient();
035         GetMethod get = new GetMethod(instanceUrl
036                                     + "/services/data/v20.0/query");
037
038         // set the token in the header
039         get.setRequestHeader("Authorization", "OAuth " + accessToken);
040
041         // set the SOQL as a query param
042         NameValuePair[] params = new NameValuePair[1];
043
044         params[0] = new NameValuePair("q",
045                                     "SELECT Name, Id from Account LIMIT 100");
046         get.setQueryString(params);
047     }
048 }
```



WSDL Flavors

Enterprise WSDL

- Specific to your Salesforce org
- Strongly typed
- Contains objects specific to your Salesforce org



Partner WSDL

- Generic, can be used against any org
- Meta-data driven and dynamic
- Programmer must use introspection





WSDL Wisdom

Use the Partner WSDL Whenever You Can



Why?

- With the Enterprise WSDL, if you change your objects, you must pull the WSDL down again and reconsume it
- Import limitations of some WSDL2xxx tools



UI Integration

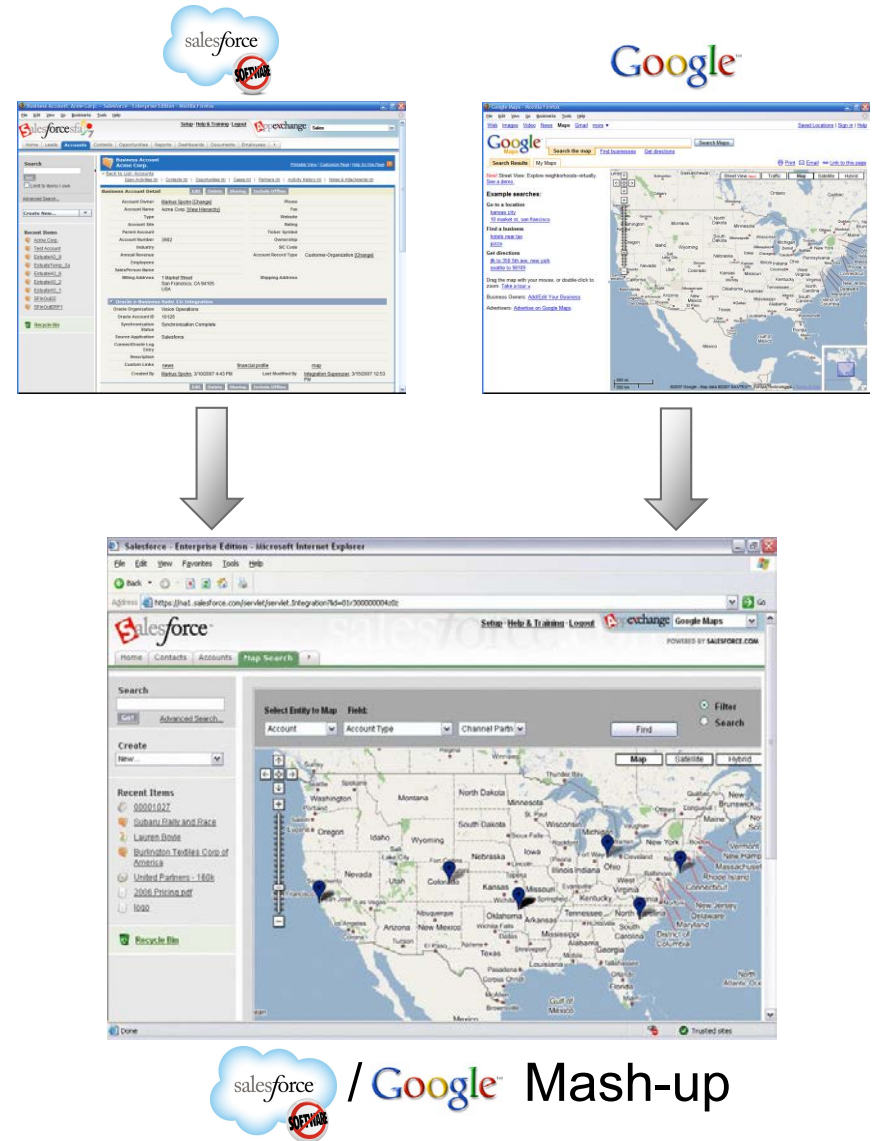


Visualforce/Mash-ups

Overview

- Visualforce lets you build and host your own custom web pages inside Salesforce
- Visualforce enables you to build Mash-ups*

* ***Mash-up** (web application hybrid), a website or web application that combines content from more than one source (Source: Wikipedia.com)*



Visualforce/Mash-ups

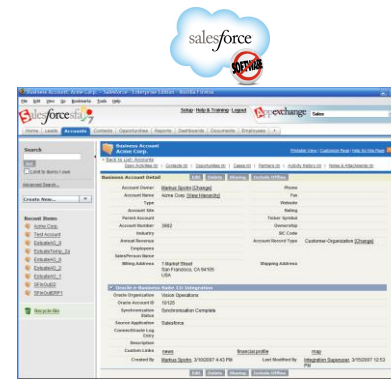
Overview

- Visualforce enables you to build Business Mash-ups, e.g. exposing back office data like

- Order History
- Pending Invoices
- Payment History

along with Account Data in Salesforce

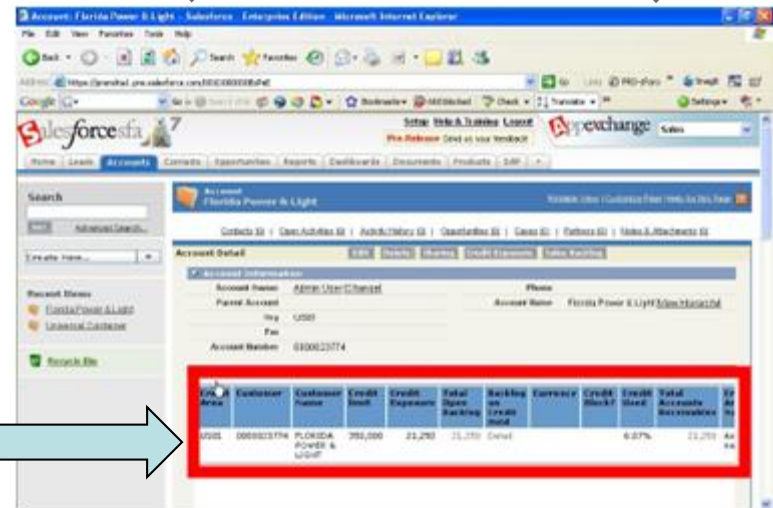
VisualForce
page



Account,
Opportunity data



Order Management
data



Account/Open Orders Mash-up



Mashup Wisdom

- In many cases a Custom Link to a VisualForce page will be better



Account

Grand Hotels & Resorts Ltd

[Contacts \[2\]](#) | [Opportunities \[5\]](#) | [Cases \[4\]](#) | [Open Activities \[1\]](#)

Account Detail

Edit

Delete

Account Owner [Test User \[Change\]](#)

Account Name Grand Hotels & Resorts Ltd [\[View Hierarchy\]](#)

Parent Account

Account Number CD439877

Account Site

Type Customer - Direct

Industry Hospitality

Annual Revenue \$500,000,000

Custom Link [Show Map](#)



Business Logic Integration



Apex Web Services

Publishing Salesforce logic as an external web service



- An Apex Code Class can be exposed as a Web Service by annotating the methods of the class are annotated as a “webService”
- The webService Apex Code Class becomes an Apex Web Service that can be invoked by any external or internal application



Email2Apex

Pretty Simple



Apex Email Services



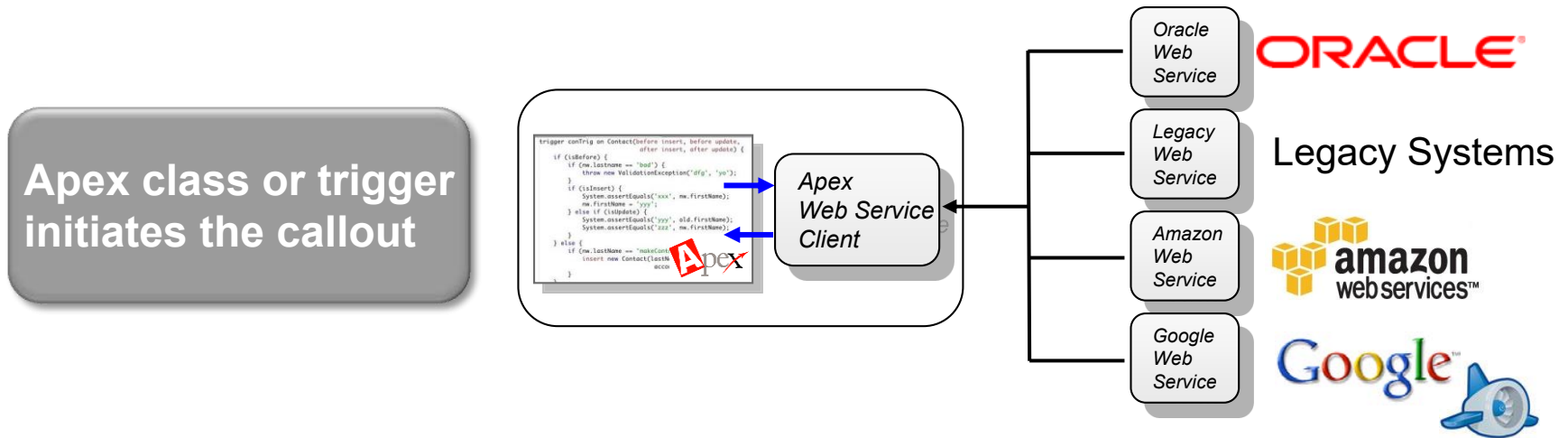
Email Service Information	
Email Service Name	Email Leads
Apex Class	myHandler
Accept Attachments	All
Advanced Email Security Settings	<input type="checkbox"/> i
Accept Email From	

```
global class myHandler implements Messaging.InboundEmailHandler {  
    global Messaging.InboundEmailResult handleInboundEmail(Messaging.InboundEmail email, Messaging.InboundEnvelope envelope) {  
        Messaging.InboundEmailResult result = new Messaging.InboundEmailresult();  
        return result;  
    }  
}
```



Force.com Callouts

Calling out to logic and data in external services



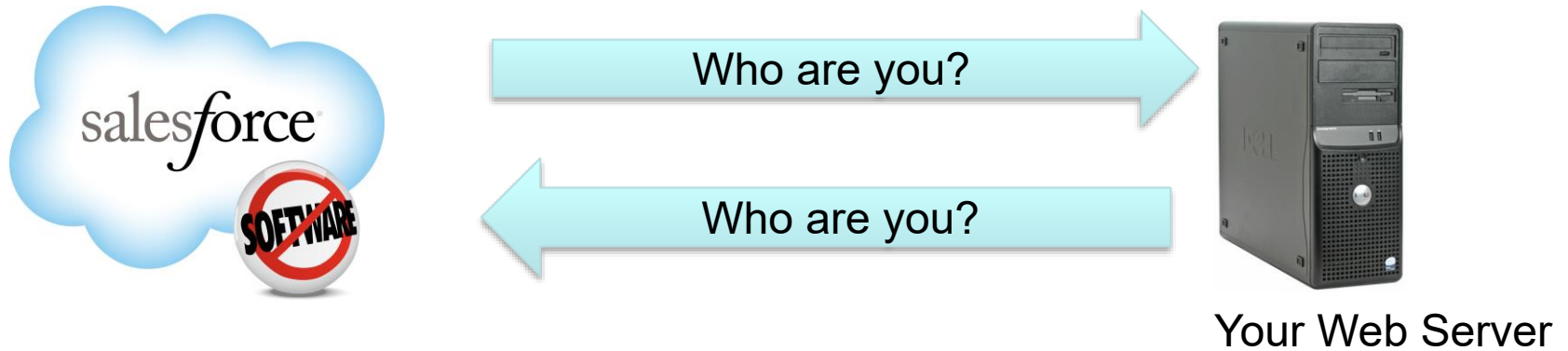
- Force.com Callouts is a powerful capability of the Apex programming language.
- With Force.com Callouts, developers can leverage Web services from anywhere, and build them into their cloud applications.





Callout Wisdom: Use 2-Way SSL

Securing Your Web Services



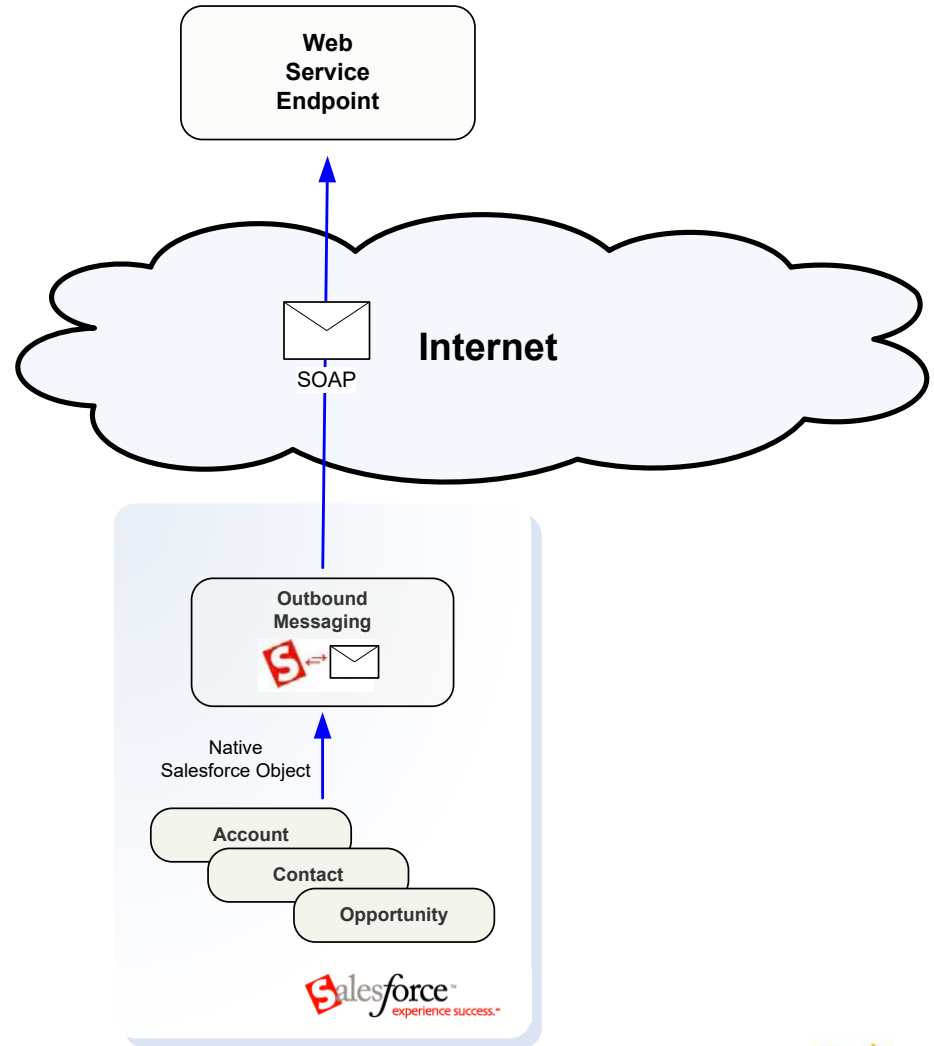
- Ensure the identities of both sides of the web service
- Provides transport layer encryption



Outbound Messaging

Overview

- Outbound Messaging enables real-time integration by sending Outbound Messages from Salesforce to any Web Service endpoint exposed on the Internet based on triggered Workflow Rules.





Outbound Integration Wisdom

Outbound Messaging

- Simple
- Uses Clicks Not Code
- Easy to Import WSDL
- Salesforce certificate for sender verification

Apex Callouts

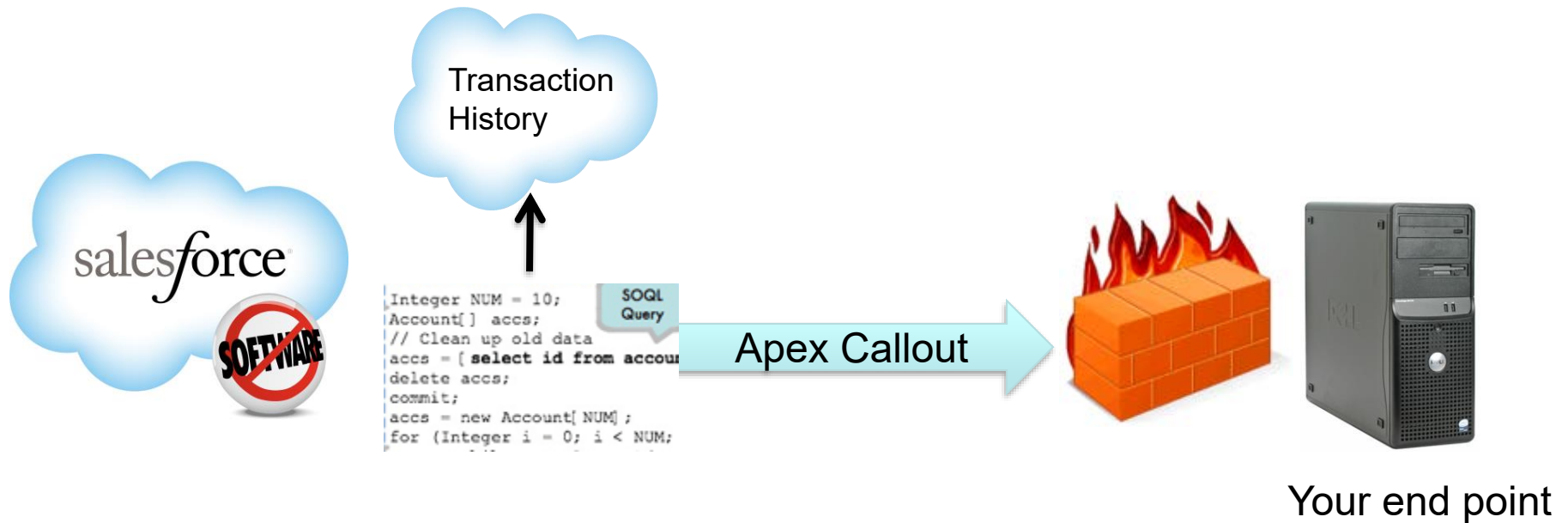
- More complex
- Code intensive
- Use your existing web services
- Can secure with 2-way SSL





Integration Wisdom: Transaction History

For real-time integration, use a transaction history store



Data Integration

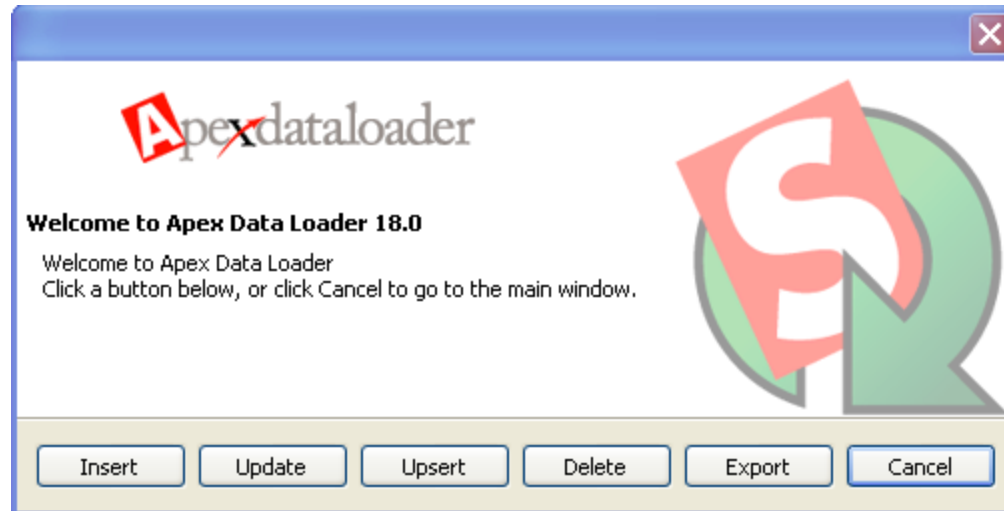


Data Integration In the Cloud



Apex Data Loader

Tried and true



- Free
- Fully-supported by salesforce.com
- Can be set-up to run in batch mode





Data Wisdom: Informatica Data Loader

Because You Can't Get Cheaper Than Free



Source: Contact.csv		
Edit Types		
Status	Name	
✓	ACCOUNT_EXTERNAL_ID__C	⬆
✓	ASSISTANTNAME	
✓	ASSISTANTPHONE	
✓	BIRTHDATE	

Target: Contact			
Clear Mapping Automatch Validate Mapping Related Objects			
Status	Name	Actions	Expression/Lookup
✓	AccountId		ACCOUNT_EXTERNAL_ID__C
✓	AssistantName		ASSISTANTNAME
✓	AssistantPhone		ASSISTANTPHONE
✓	Birthdate		BIRTHDATE

- Free
- Fully Graphical
- Built-in Scheduler
- GUI Embedded Salesforce.com
- Scales Up at Low Cost

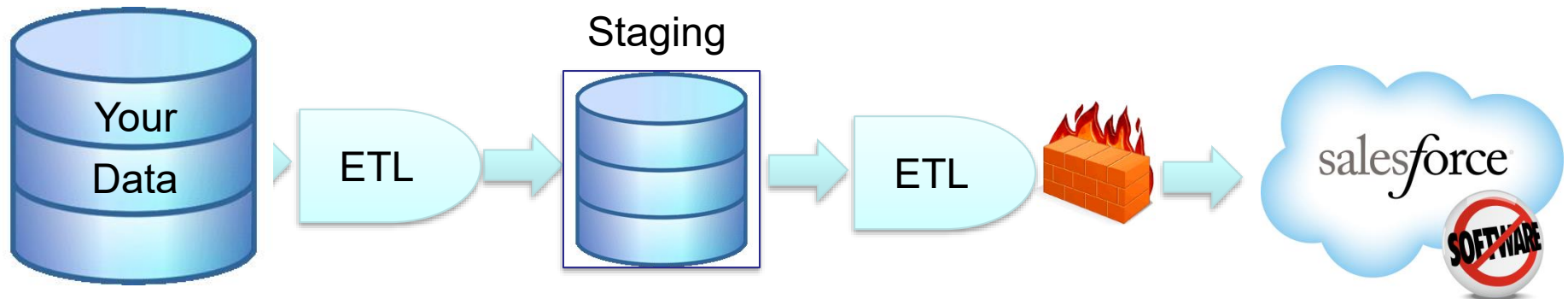
<http://sites.force.com/appexchange/listingDetail?listingId=a0N300000016cUTEAY>





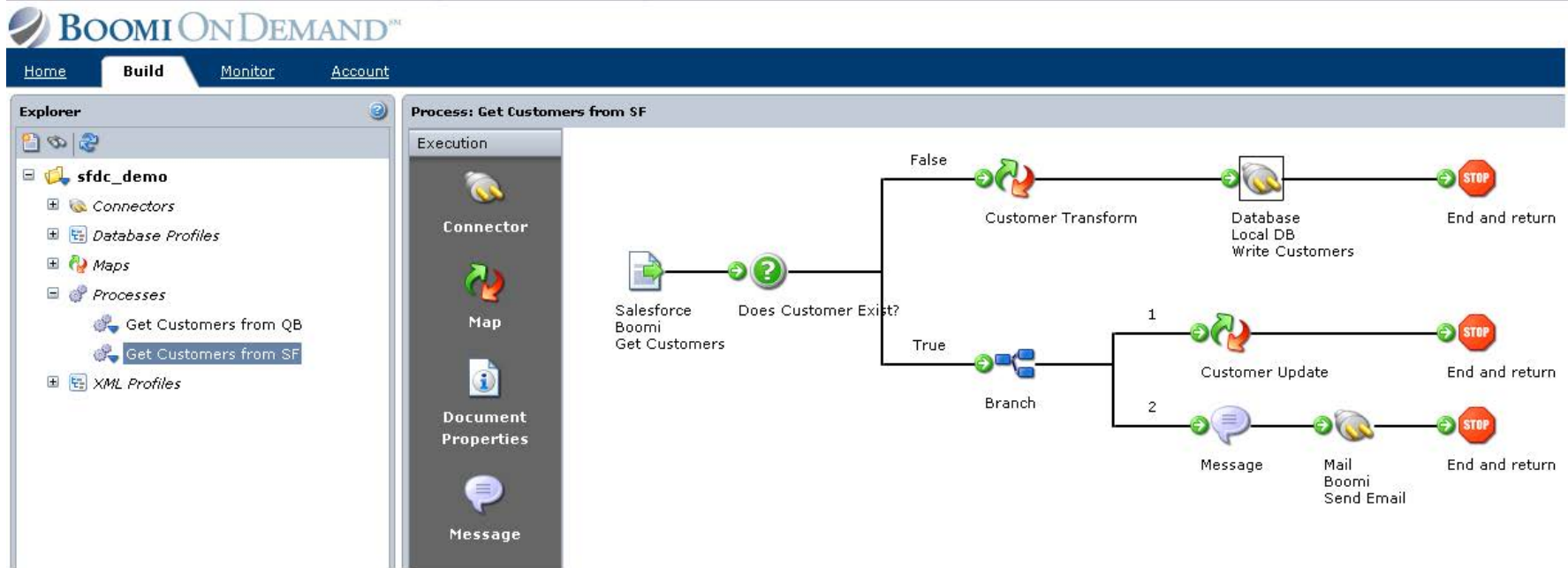
Data Integration Wisdom – Staging Data

For on-premise integration, use a staging database





Integration Wisdom: Why Build It Yourself?



- AppExchange Partners have already built it
- Built-in Connectors
- Support for Complex Orchestrations

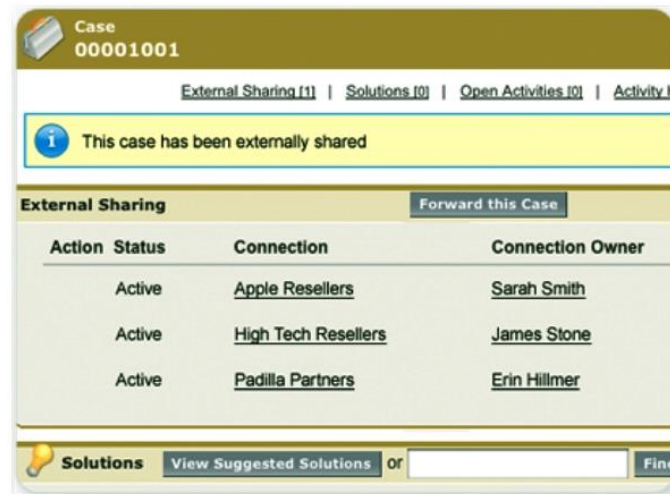


Integration Between Force.com orgs



salesforce-to-salesforce

Keeping it in the family



- Easily integrate your data between orgs
- Uses a publish/subscribe mechanism
- Can use workflow, assignment rules, and reports to monitor



The Community



The Cloud Community



- Don't Go It Alone
- Partner with Us
- Partner with Our Partners
- Use salesforce.com Expert Services
- Use the Developer Boards

<http://www.salesforce.com/services-training/professional-services/expert-services/>
<http://boards.developerforce.com/sforce/?category.id=developers>



Resources



Next Steps: Resources

- Integration Developers:
http://wiki.developerforce.com/index.php/Web_Services_API#Integration
- Integration Recipes:
<http://developer.force.com/cookbook/category/integration/recent>
- Integration on the AppExchange:
<http://sites.force.com/appexchange/results?type=Apps&filter=a0L30000001Qp7TEAS&sort=6>



Question and Answer



Architecting Successful Integrations on Force.com

*Wayne Abbott
Global Technology Services
salesforce.com*



[Request a Consultation](#)



THE CUSTOMER SUCCESS PLATFORM