Best Practices: Integrating Veeva Vault with Other Systems

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Safe Harbor

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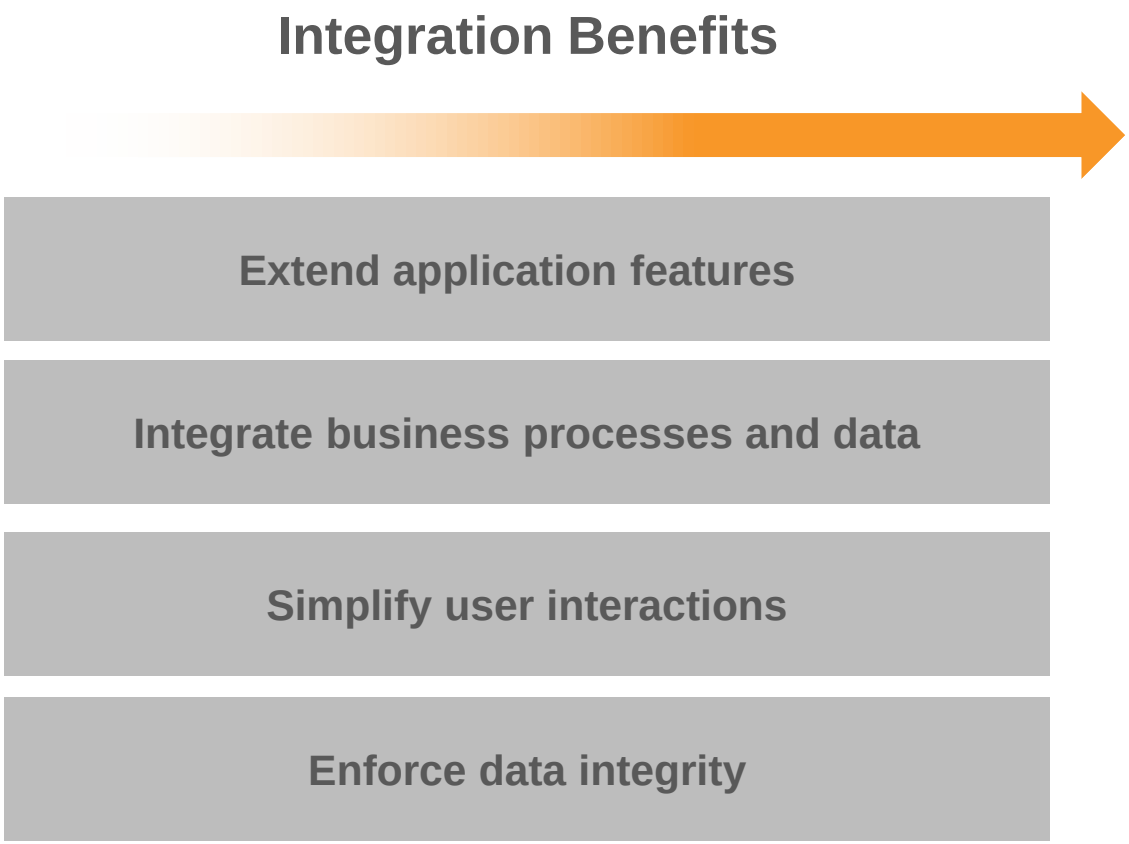
Today's Session

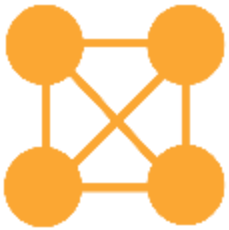
- **Learn what our APIs can do from a functional and business perspective**
- **Get a technical overview of how to use our APIs**
- **Discuss integration planning and strategies for successful and powerful integrations**

Why Integrate?



Integration Strategies

Backend-to-Backend



Application-to-Application

Connector-Based

Vault API

API Features

search

study

relationships

roles

users

binders

query

documents

site

country

product

workflows

custom objects

picklists

renditions

versions

groups

Pragmatic Design Principles

Learnable

- Intuitive and easy to learn
- It incorporates elements of REST principles, making access to actions consistent and intuitive

Secure

- Access is secured by SSL
- In compliance with the access permissions of the authenticated user

Efficient

- Efficient request processing
- Supports single object processing as well as maximizes efficiency for large data processing

Aligned

- Leverages the Vault Platform
- The new API versions consistently reflect new capabilities introduced in new versions of Vault

Authentication / Authorization

- **Vault session ID which is required on each API request**
  - Request: `Authorization` Header

1. **Standard Authentication**
   - Utilizes Vault username and password
2. **Security Assertion Markup Language (SAML)**
   - Exchanges SAML Response for a Vault Session ID
3. **Salesforce Delegated Authentication**
   - Consumes Salesforce.com session

Request / Response

Request

- **RESTfull Endpoints**
- **Secured over HTTPS**
- **Session ID passed in `Authorization` Header**
- **Response format requested through `Accept` Header**
  - XML: `application/xml`
  - JSON: `application/json`

Response

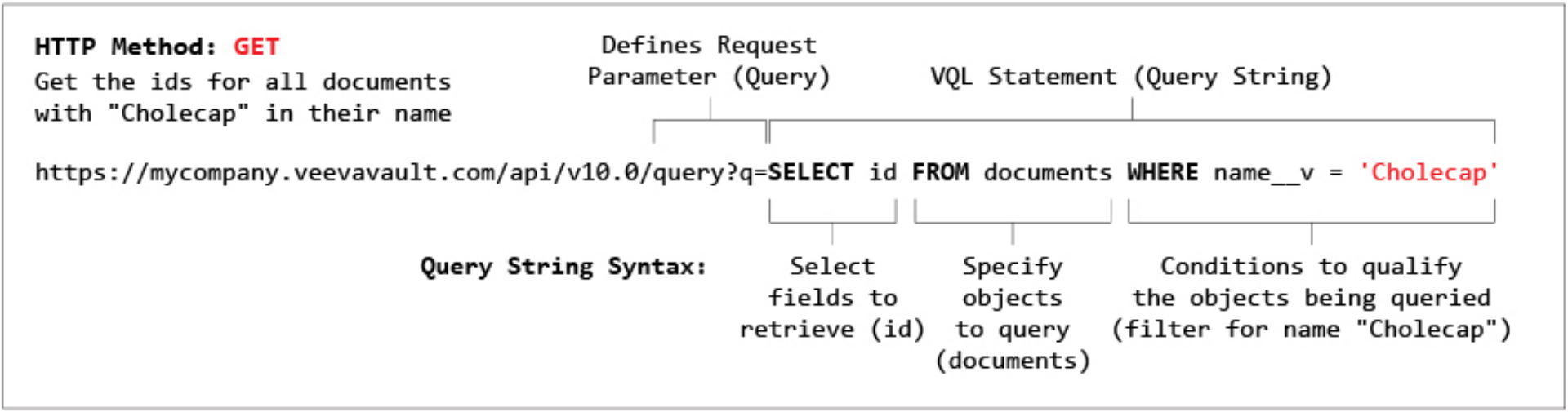
- **200 OK**
- **Either valid data or an error**
- **Error contains error type and message**

Metadata

- **Each Vault could have different configuration: document types, document fields, custom objects, etc.**
- **The Metadata APIs allow you to interrogate the Vault to understand what metadata is available to use on a given object**
- **The Metadata APIs allow you to Build dynamic integrations which adapt to configuration changes**

Vault Query Language

- **Vault Query Language (VQL) – an SQL-like language**
- **Simple but powerful queries to retrieve Vault data**
- **Joins: Document-to-Object, Object-to-Object**



Keyword Searching

- **Keyword searching is enabled by VQL FIND operator**
- **Able to search through content and/or metadata**
- **Able to use search through current, latest or all versions of documents**
- **Able to utilize Boolean operators for fine-tuned searches**

```
SELECT id FROM documents FIND (’indication AND oncology’
scope all)
```

Versioning and Compatibility

- **Each new Vault release consists of two components:**
  - A new release of the Vault Platform and Applications
  - A new version of the Vault API
- **Version support is maintained for each API version across releases of Vault.**
- **The API is backward compatible in that an application created to work with a given API version will continue to work with that same API version in future Vault releases.**
- **Vault supports older versions of the API until they are no longer in use by production customers.**

Integration Examples and Approach

Single Sign-on and User Provisioning

Very Different Beasts!

Single Sign-on (SAML v2.0)
(Enabled via Configuration)

- User remember only one set of credentials (corporate)
- Identity Provider (IdP) is used to verify a user's identity
- Assumes that the user exists in Vault
- Supports SP-Initiated and IdP Initiated flows

User Provisioning
(Custom Integration)

- Reduces burden on admins to keep users up to date
- Users are sourced from a corporate LDAP or other user directory and pushed into Vault using the Vault API

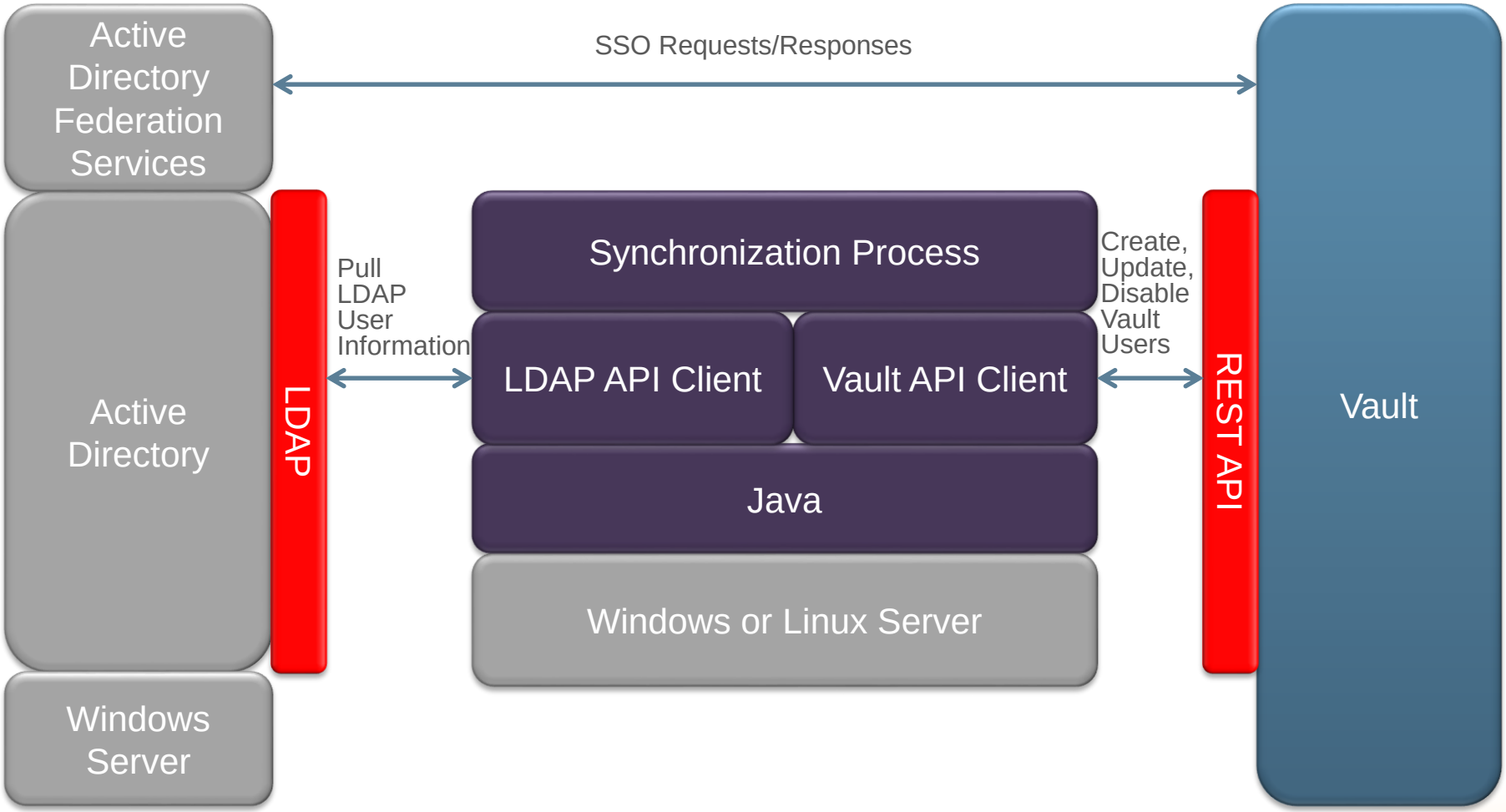
User Synchronization

- **Periodic extract of users from an external user directory**
- **A unique ID from the source (employee ID, email) used as federated ID in Vault**
- **Features**
  - Create/disable users according to group membership or properties in source
  - Set user type by group membership
  - Set Vault group membership by source group membership
  - Synchronize user properties
  - Handle name updates

Planning for User Synchronizing

- **What will be the federated ID of each user?**
- **What user type will new, incoming users be?**
- **Do all users get added into Vault? Only some?**
- **Into which Vault will they go?**
  - For multi-Vault implementations
- **Field level data mappings between source system and Vault**
- **Into which security groups will users be added?**
  - How does the integration know?

Example LDAP Synchronization Architecture



Master Data Integrations

- **Vault objects allow you to model the data that provides business context for your applications**
  - E.g., Product, Study, Site, Department
  - Object to object relationships provide additional context
- **Vault Objects and picklist values frequently sourced from external systems**
  - Master Data Hub
  - Data warehouse
  - CTMS systems
- **Typically a one way push of data from the source into Vault**

Planning the Master Data Integration

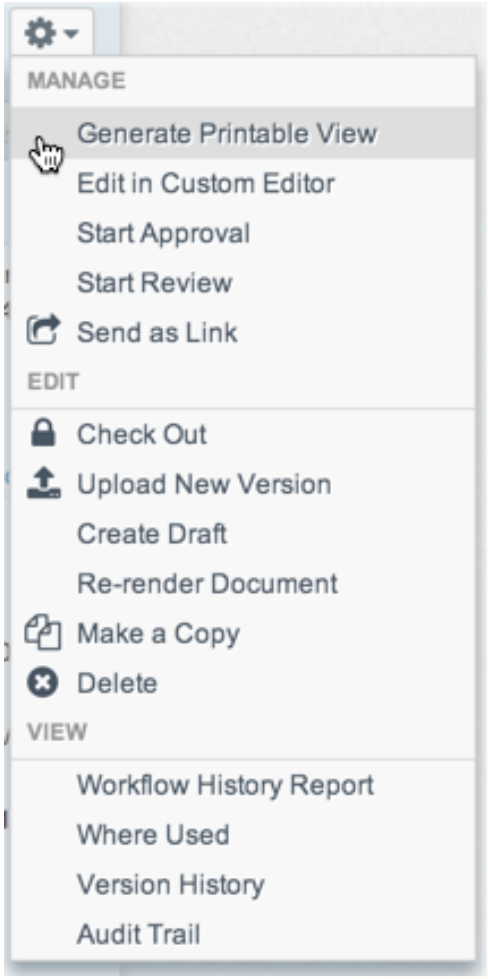
- **Mapping from source to VOF objects and picklists**
- **Define transformations where source values do not match Vault values**
- **External ID is used to link to the primary key of source data**
- **Can end up with very complex behavior where objects have relationships (e.g. Product, Study, Study-Country and Site in eTMF)**
  - Make sure you fully understand the relationships (Parent-Child vs. reference relationships) and implement accordingly

Implementation Approaches

- **Almost all integrations are**
  - Run as scheduled tasks
  - On a customer server inside any firewall
  - Access to local applications and the internet (Vault)
- **Less ideal approaches**
  - Hosted externally
    - If the source system is inside the firewall, can lead to access problems unless carefully managed
  - Hosted as a job in another system (e.g. Documentum)
    - Only advantages are single location for admin and password-less admin session.
    - Loading of libraries is very proprietary
    - Log files generally accessible by administrators – very slow debugging

Custom Actions

- **Custom mash-up style integrations**
  - Generate formatted printable views of document fields
  - 3rd party reporting / analytics / data visualization
- **Hook for custom UI**
  - Invoke a custom page displayed within Vault UI from action menu



Lessons Learned — Plan for Success!

- **Unusual environments cause problems**
  - Documentum Java Method Server
  - SAP Business Integration Suite
- **Communication and internal IT take time**
  - Firewall
  - Email server
  - Local application access
- **Development and test approach are key**
  - Access to development/test instances of local application
  - Access to log files by developers, without intermediary

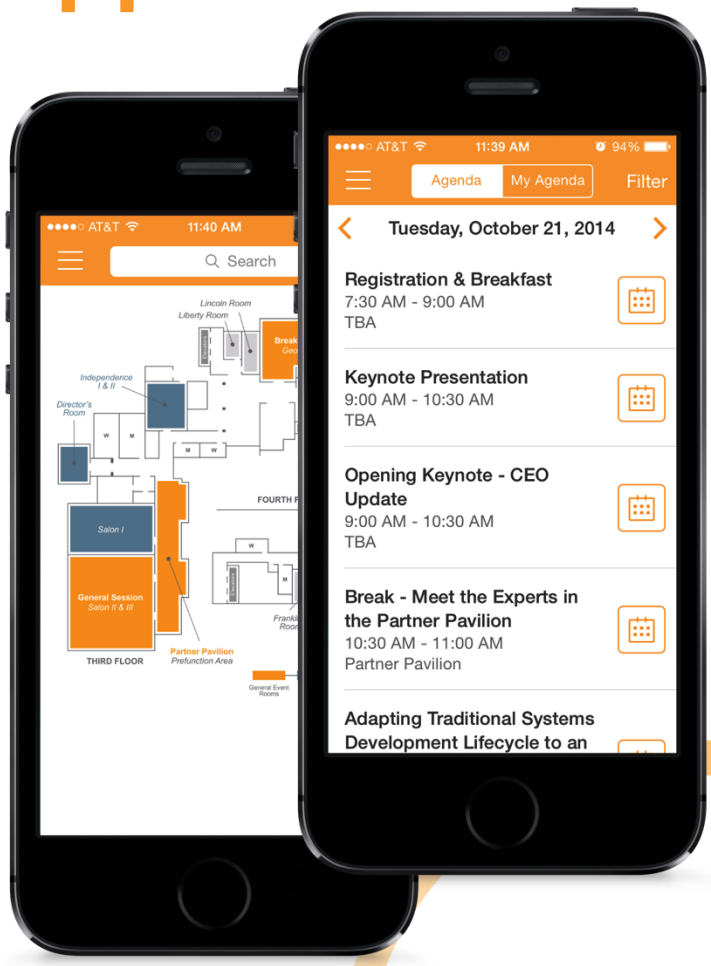
Lessons Learned — Plan for Success!

- **Account for UTF character encoding**
  - Specific test cases to include foreign characters, commas, apostrophes, etc.
- **Realistic test data, even in development**
- **Make this a close match to production in terms of content and volume**
  - Dirty or unexpected data are an overwhelming cause of errors and delays

Questions

Complete the session survey with the Veeva app

Thank you



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Thank You

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