



Everything E-Learning: Top Considerations for Migrating from SAP Learning Solution to SuccessFactors Learning

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In This Session

- Review the benefits and considerations of migrating to SuccessFactors Learning
- Understand how SCORM and AICC variations can influence the design and delivery of e-learning courses
- Examine the pros and cons of using iContent on the cloud versus an in-house content management system for hosting e-learning courses, how each is configured, and the various services each option offers
- Get lessons on how to effectively transfer SAP Learning Solution web-based trainings (WBTs) to SuccessFactors Learning, including tips to streamline content integration and avoid cross-domain restrictions using reverse proxy and SF Proxlet

What We'll Cover

- **SAP On-Premise or SuccessFactors On-Demand (Cloud) Learning Considerations**
- **AICC/SCORM and Moving to the Cloud**
- **SCORM Cross-Domain Issues and Potential Solutions**
- **Migration of Content from SAP LSO to SF LMS**
- **Wrap-up**

Moving from On-Premise LMS to the Cloud

- **Why are customers moving from on-premise SAP Learning Solution to cloud-based SuccessFactors Learning?**
 - ♦ **Seamless integration with SuccessFactors HCM suite and enablement of fully integrated Talent Management**
 - ♦ **Ability to leverage new functionality rapidly and easily (e.g., Mobile learning, MOOC integration, Task Checklist)**
 - ♦ **Reduced content burden (optional iContent)**
 - ♦ **Utilizing a more agile application (Quarterly releases of new functionality)**
 - ♦ **Reduced costs**



Moving from On-Premise LMS to the Cloud (cont.)

- **Why are customers choosing to stay on-premise?**
 - ◆ **Integration with existing ERP**
 - ▶ **Integration with SAP HCM, Planning, Financials is seamless**
 - ◆ **Extensibility**
 - ▶ **One size doesn't always fit all. Ability to customize.**
 - ▶ **SuccessFactors' best practices may not reflect your business needs**
 - ◆ **Reluctance to move to the Cloud**
 - ▶ **Resistance from IT (e.g., security concerns)**
 - ▶ **Compliance or regulatory concerns**
 - ▶ **Validation/Risk of Cloud-based LMS**

Key Migration Areas

- **Process and change management**
- **Data migration**
 - ♦ **User records**
 - ♦ **Course information**
 - ♦ **Learning history**
- **Content migration – Focus of this presentation**
 - ♦ **Course files**
 - ♦ **Quizzes and exams**



Process and Change Management Considerations

- **Process**

- ♦ Review of existing stakeholder processes and alignment is a best practice
- ♦ Management of workarounds/manual processes may be automated based on functionality of the new LMS (e.g., Assignment Profile)
- ♦ Understanding that different solutions may have different processes that optimize use of technology

- **Change management**

- ♦ Remember: an LMS may hit every employee and contractor – Preparation is key
- ♦ Business will own implementation (testing/rollout)
- ♦ Business will own ongoing quarterly enhancements

Data Migration Considerations

- Evaluate what user data is required to support system functionality (e.g., Assignment Profiles, Reporting)
- Rarely a one-to-one mapping of fields between LMS systems
 - ◆ Custom extraction of LSO data
 - ◆ SAP-Certified Learning Migration Rapid Deployment Solution (RDS)
- Customization of SAP LSO may increase the complexity of migration
- Course Program and Curriculum completions in SAP LSO do not have an equivalent in SuccessFactors LMS
- Retraining in SAP LSO (usually driven by qualifications) now is driven by retraining periods in SuccessFactors Curriculum
- May impact the way you structure your learning/training programs

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Content Standards AICC/SCORM

- **Two primary standards for e-learning course development and run-time communication**
 - ♦ **AICC (Aviation Industry CBT Committee)**
 - ♦ **SCORM (Sharable Content Object Reference Model)**
- **Migration considerations are focused on the following aspects of these two standards:**
 - ♦ **Content Packaging – structure of content and required metadata for an LMS to import the e-learning content**
 - ♦ **Content Communication – defined methods for passing data back and forth between content and LMS**



Note

The AICC Executive Committee was dissolved in 2014 and ADL has assumed the ownership of its work moving forward

AICC/SCORM Packaging

- Both AICC and SCORM have defined requirements to ensure interoperability and to be considered a conformant package
- **AICC Packaging**
 - ♦ The Course file (*.crs)
 - ♦ The Assignable Unit file (*.au)
 - ♦ The Descriptor file (*.des)
 - ♦ The Course Structure file (*.cst)
- **SCORM Packaging**
 - ♦ Course Manifest file (imsmanifest.xml)

AICC/SCORM Content to LMS Communication

- **AICC**

- **HACP (HTTP AICC Communication Protocol)**

- ▶ **Uses a direct HTTP post to pass information to and retrieve information from an LMS. In SuccessFactors, the HTTP requests are processed by a servlet running on the LMS server.**

- **SCORM**

- **Client-side API (provided by the LMS)**

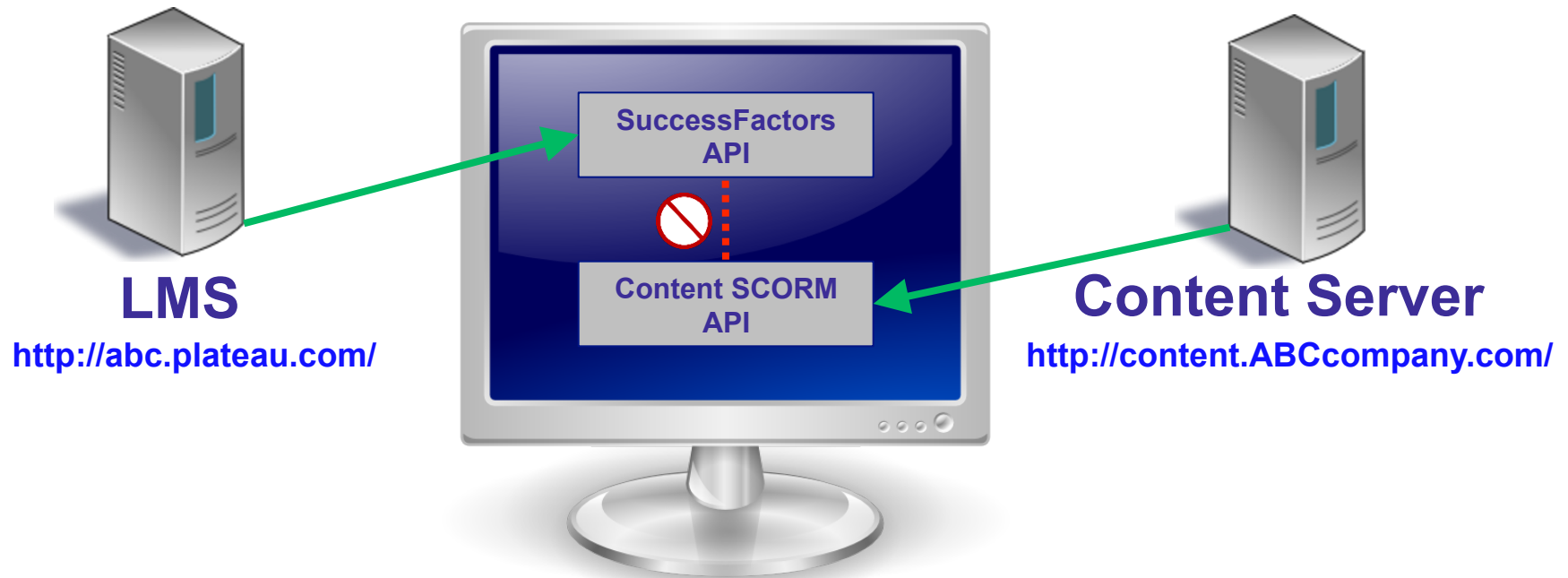
- ▶ **Uses a series of pre-defined JavaScript function calls to pass information to and retrieve information through the API**

Issue: SCORM Move to the Cloud



- **JavaScript Cross-Domain Issue**
 - ♦ If SCORM content is not hosted under the same DNS (someserver.yourcompany.com) as the LMS, the browser will prevent the SCO from communicating with the API
 - ♦ Result of web browser security measures
 - ♦ Not specific to SAP LSO or SF LMS
- **Possible resolutions**
 - ♦ Republish/convert content to AICC if possible
 - ♦ Implement a cross-domain solution

Cross-Domain Issue Diagram



SuccessFactors Preferred Content Standard

- **AICC is the SuccessFactors recommended content standard for e-learning content**
 - ♦ **HACP communication does not have the same cross-domain restrictions as SCORM's JavaScript API**



Caution

Some AICC content may still be subject to cross-domain restriction

What We'll Cover

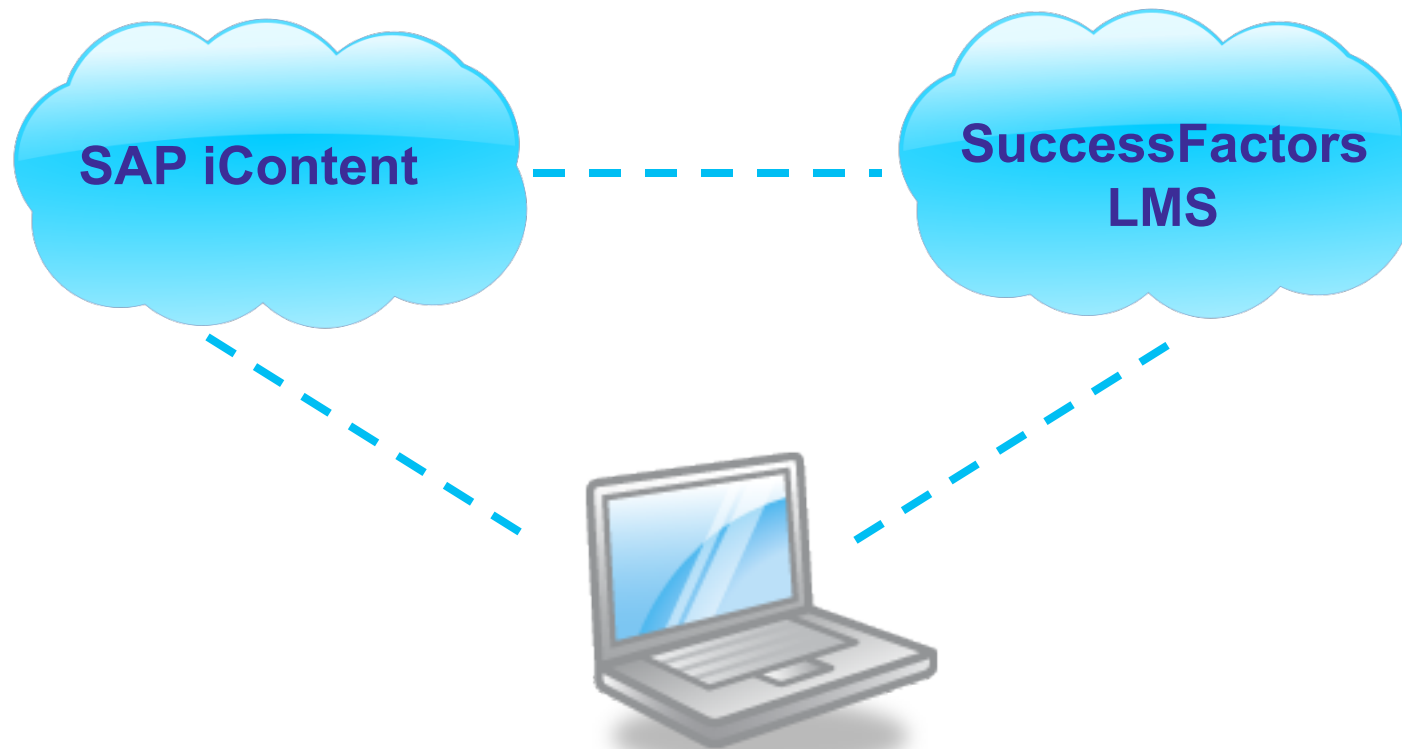
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JavaScript Cross-Domain Solutions

- **Three main methods for resolving SCORM cross-domain issues**
 - ♦ **SAP iContent**
 - ♦ **Reverse Proxy**
 - ♦ **SuccessFactors Cross-Domain Solution (CDS) Proxlet**

What Is SAP iContent?

- SAP iContent is a Content-as-a-Service (CaaS) solution provided by SAP for hosting and deploying web-based content



Types of iContent Offerings

- **Two types of offerings:**
 - ♦ **iContent Standard Service**
 - ▶ **Provides server space to host content**
 - ♦ **iContent Premium Service**
 - ▶ **Content checking/testing services and troubleshooting support**
 - ▶ **End-to-end content deployment services**
 - ▶ **Dedicated account specialist**
 - ▶ **24-hour turnaround for individual course deployment**
- **Both offerings are powered by Akamai Content Delivery Network (CDN)**

Advantages of Akamai CDN

- **Increased performance with global distribution and content caching**
 - ♦ **150,000+ servers**
 - ♦ **1,000+ locations globally**
- **Optimized availability with global load balancing and throughput monitoring**
- **Increased reliability and scalability**
- **Transparent to users and customers**



Advantages of Using SAP iContent

- **Reduces cost – Eliminates IT infrastructure and administration**
- **Faster content delivery – Content is delivered via Akamai Content Distribution Network (CDN)**
- **Single portal for administrators – Manage your content in a central location**
- **Secure – SuccessFactors iContent can be configured so that content can only be accessed via SuccessFactors LMS**

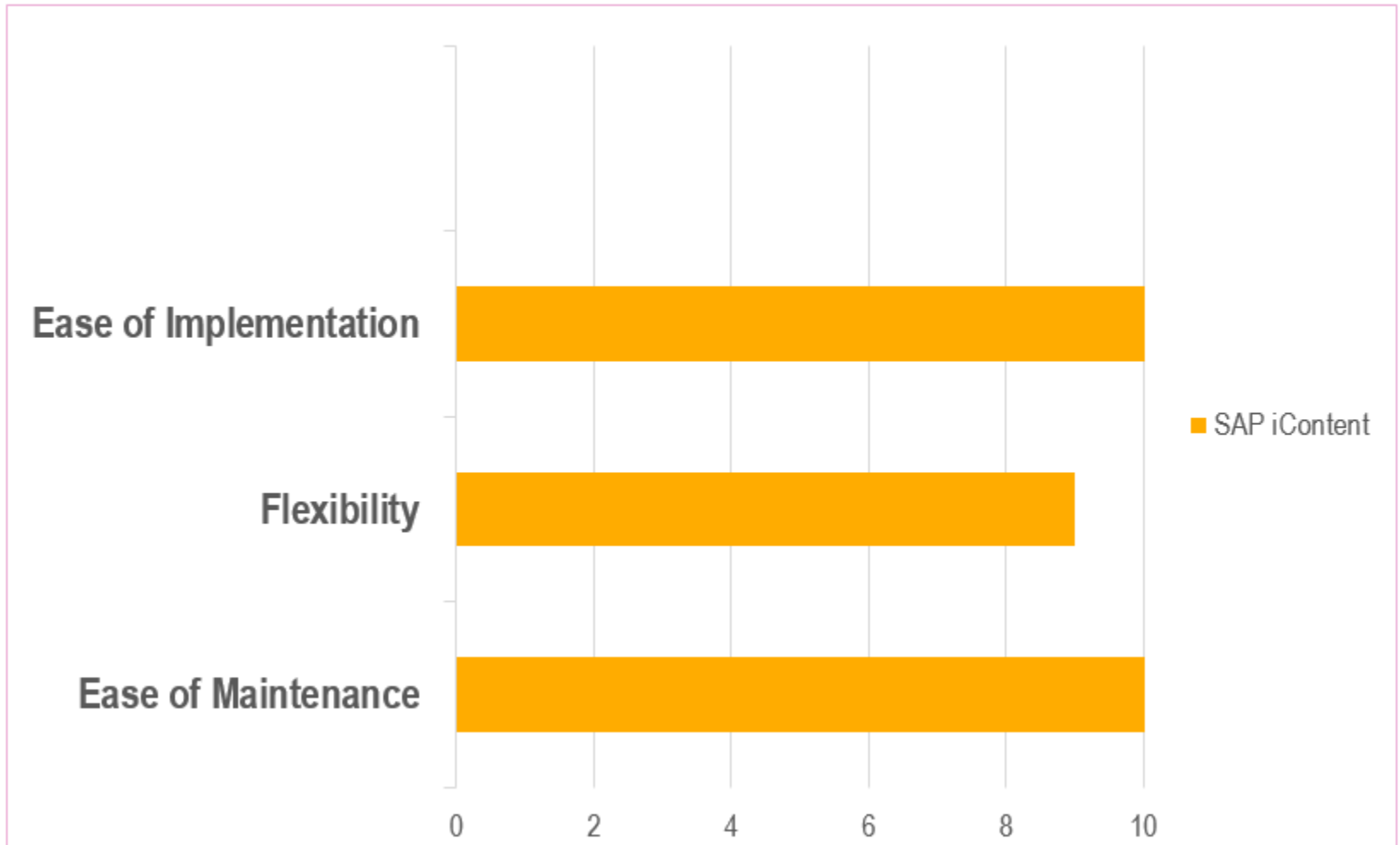


Considerations When Using SAP iContent

- Content can take up to 24 hours to replicate
- iContent is a subscription-based service – ongoing costs



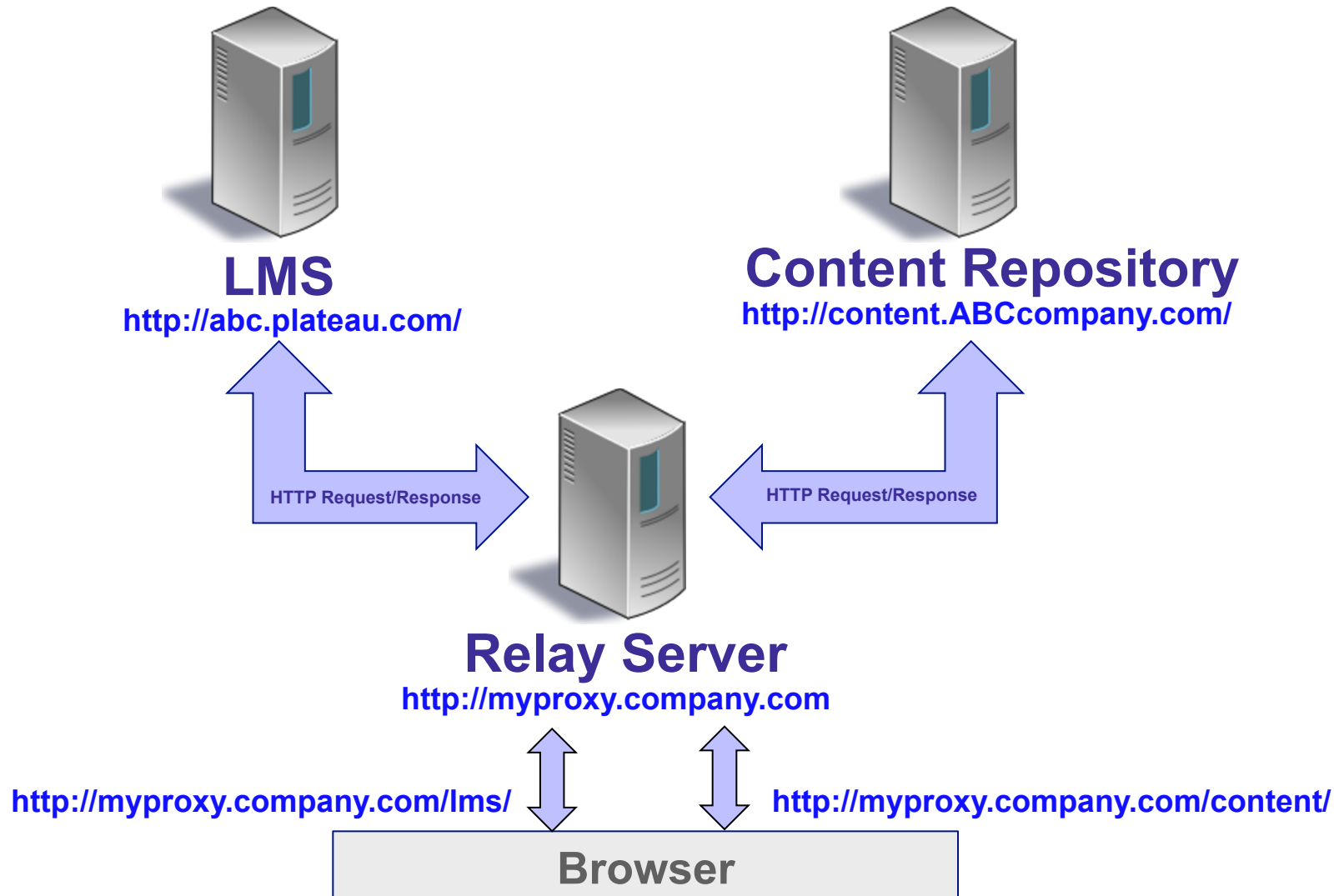
SAP iContent



What Is a Reverse Proxy?

- Reverse proxy is used to provide access to one or more origin servers, but make them look like the same server
- Where SCORM is concerned, a reverse proxy allows the client web browser to see both the LMS and the content as coming from the same server
 - ◆ There is no browser cross-scripting issue and therefore no browser security issue
- Adding a remote repository to an LMS requires the intervention of the reverse proxy administrator
 - ◆ Typically, a network administrator rather than an LMS or content management administrator

Sample Reverse Proxy Diagram



Why Would I Choose to Use a Reverse Proxy?

- **Allows customer full control over content**
- **Situations where customer policy does not allow the replication of content to outside servers (e.g., Department of Defense)**
- **Content requires a specific configuration of a web server, which is not cost-effective or practical to replicate on a hosted server**

Advantages of Using a Reverse Proxy

- No special modification to the content or special content object setup in SuccessFactors LMS required
- Flexibility – adding content servers or third-party hosted servers to the reverse proxy can be a simple process
- Landscape can be designed and scaled to meet your company's specific needs (e.g., Different network topologies, load balancing)



Considerations When Using a Reverse Proxy

- **Additional infrastructure may need to be utilized (e.g., Proxy server). Some customers can utilize existing infrastructure/proxy servers.**
- **IT team needs to support and be able to troubleshoot issues**
- **May experience performance issues due to traffic through the proxy server**
- **Firewalls and other security measures may make this solution challenging**



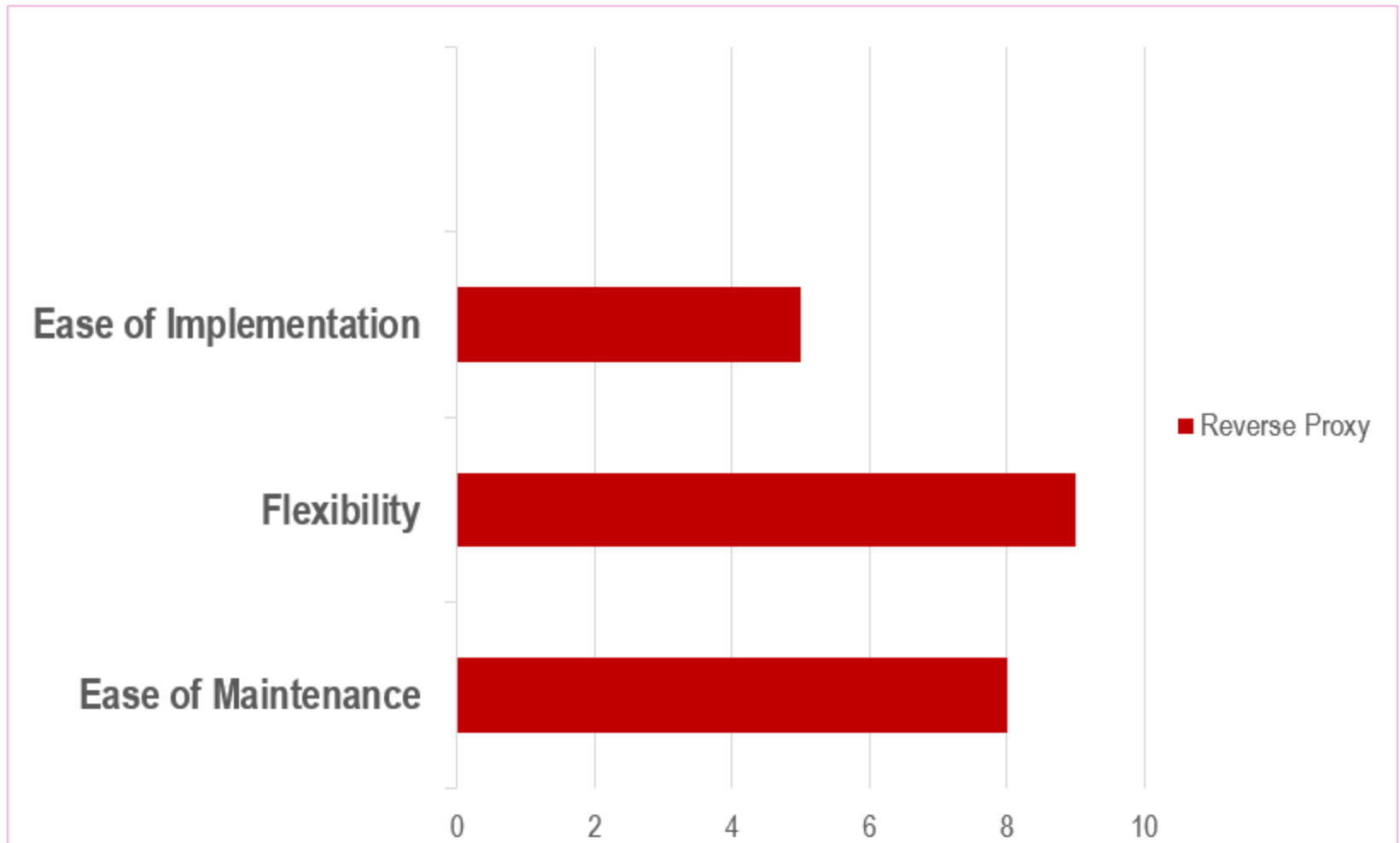
Apache Reverse Proxy Sample

- Using `mod_proxy` module
- URL of Content: http://content.ABCcompany.com/safety/index_lms.html
- URL of LMS Sever: <http://abc.plateau.com/login.jsp>
- URL of Proxy Server: <http://myproxy.company.com>

- `proxyPass /lms/ http://abc.plateau.com`
- `proxyPassReverse /lms/ http://abc.plateau.com`
- `proxyPass /content/ http://content.ABCcompany.com`
- `proxyPassReverse /content/ http://content.ABCcompany.com`

- Resulting URL for Content Object: <http://myproxy.company.com/content/safety/index.html>
- Resulting URL for LMS: <http://myproxy.company.com/lms/login.jsp>

Reverse Proxy



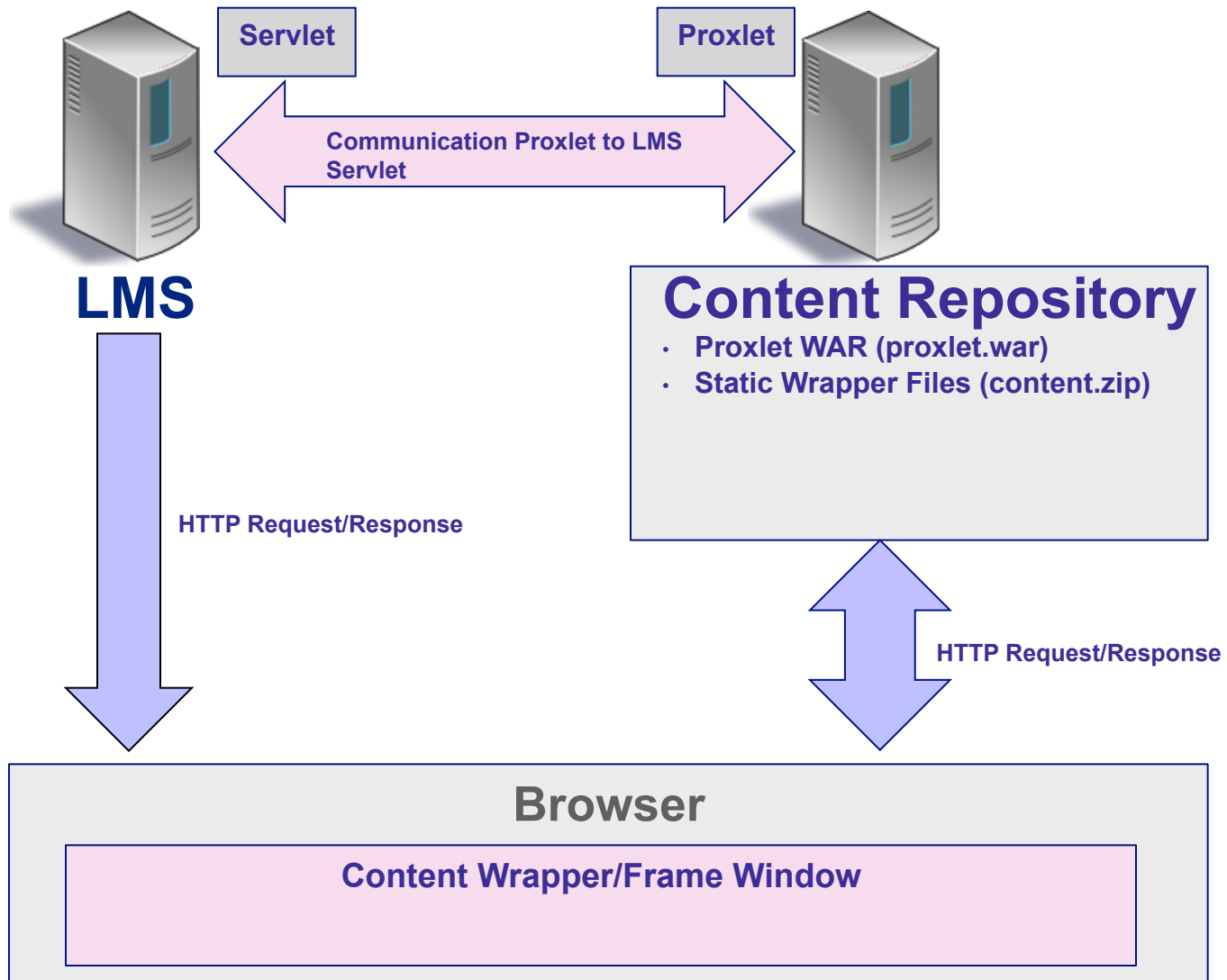
What Is the SuccessFactors Proxlet?

- **The SuccessFactors Cross-Domain Solution (CDS) Proxlet is an application on your Content Server that relays tracking data back to SuccessFactors LMS**
 - ♦ **Can be thought of as placing a piece of the LMS, needed by the content for communication, onto the Content Server**
 - ♦ **Proxlet relays information back to LMS server**

SuccessFactors Cross-Domain Proxlet Components

- **Comprised of two components:**
 - ♦ **Static Wrapper files (content.zip)**
 - ♦ **Proxlet Web Archive (WAR) file (proxlet.war)**
- **Both can be deployed on your Content Server**
- **Proxlet WAR file is typically deployed on Apache Tomcat**

SuccessFactors Cross-Domain Proxlet Diagram



Configuring Proxlet in SF LMS

- Log in as LMS Administrator and go to System Admin → Configuration → System Configuration → LMS_ADMIN
 - ♦ Set CommunicationCrossDomainSupport enabled to “true”
 - ♦ Add the address of the static wrapper files under DefaultContentServerPath. This should be the path to the folder containing the main_content_wrapper.html file.
 - ♦ Add the address to proxlet under DefaultProxletPath. You must use the same server name, IP, or DNS you used under “DefaultContentServerPath.”

Sample Proxlet Configuration

Communication Cross-domain support is used to support launching and tracking courseware from a different domain than the LMS

```
communicationCrossDomainSupportEnabled=true
```

The DefaultContentServerPath specifies the URI path where the TMS support files required by content reside on the content server

Absolute URL can be specified, or else a URI path that is relative to the TMS base URL (must start with a slash)

```
defaultContentServerPath=http://myContentServer.com/crossdomain/content/
```

```
contentWrapperPageName=main_content_wrapper.html
```

```
scorm2004ContentWrapperPageName=scorm_2004_content_wrapper.html
```

```
externalURLQuestionWrapperPageName=main_question_wrapper.html
```

```
contentOpenerPageName=main_content_opener.html
```

The defaultProxletPath specifies the URI Path to Cross-Domain Proxlet. This path does not include the Servlet mapping

Absolute URL can be specified, or else a URI path that is relative to the TMS base URL (must start with a slash)

```
defaultProxletPath=http://myContentServer.com:8080/proxlet
```

```
lmsSessionId=JSESSIONID
```

Configuring Content Objects for Use with Proxlet

- Your LMS Administrator must take specific steps when setting up a Content Object that is used with the SuccessFactors CDS Proxlet

Content Object ID: MM-SCORM-2004
Title: MM SCORM 2004

Edit the Cross Domain Support for the Content Object

Apply Changes Reset

Enable Communication Cross Domain through Proxy

Cross Domain Settings

Content Server Wrapper Page Path:

Use Frameset:

Communication Proxy Path:

Apply Changes Reset

Advantages of Using SF CDS Proxlet

- No modification to content files required
- Resolves Cross-Domain issue by placing proxlet on Content Server

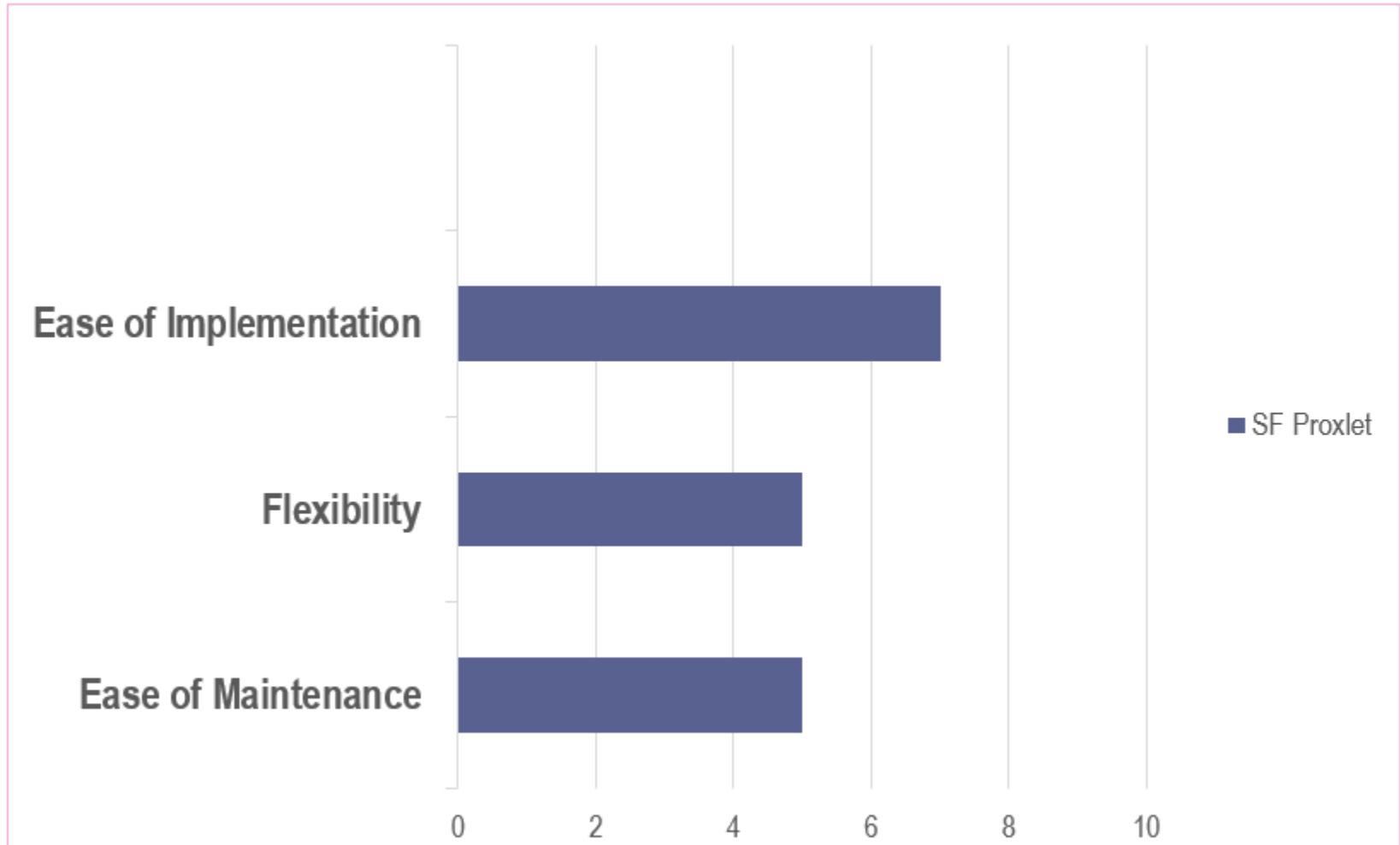


Considerations When Using SF CDS Proxlet

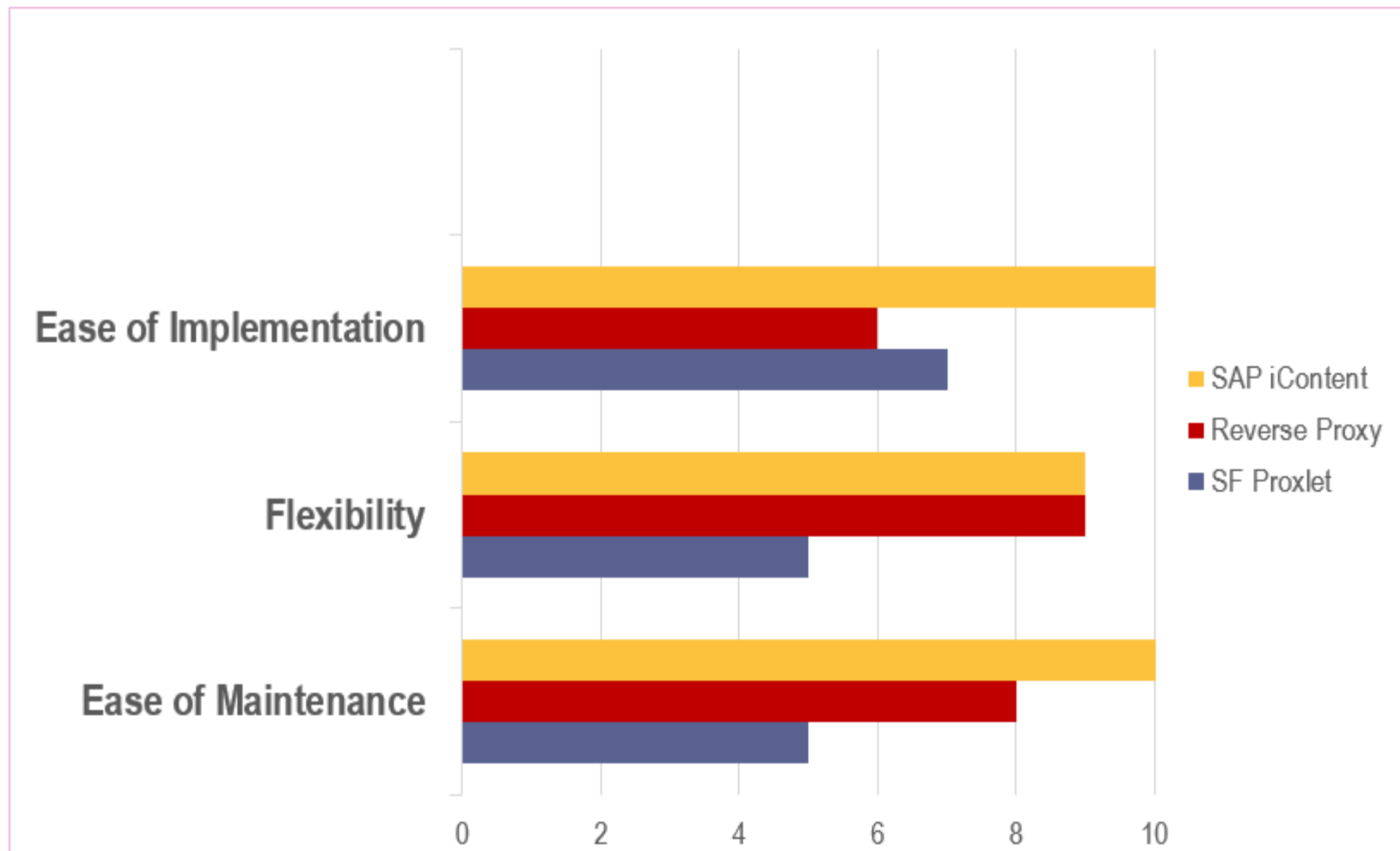
- When the CDS solution is not working, learners are still able to launch the course, but Completions may not be sent back to the LMS
- Requires additional setup when creating Content Objects in the LMS
- Additional support for software and testing when new proxlet releases are deployed



SF Proxlet



Cross-Domain Solution Comparison



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Analyze Your Content

- **Perform a comprehensive content inventory**
 - ◆ **Catalog all content that will be migrated**
 - ◆ **Identify content owners and determine obsolete content**
 - ◆ **Locate content source files if possible**
 - ◆ **Useful tool to systematically track your content migration**
- **Locating online exam and embedded quiz answers ahead of time will aid in content testing**



Note

Start early! Analyzing large e-learning catalogs will be time-intensive.

Content Inventory

- Your Content Inventory can involve collecting the following information:
 - Course code and title
 - Course Source
 - Creation Method/Application
 - Content Type (AICC, SCORM, other)
 - Current location and storage size

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Course Source	Legacy Course ID	LSO Course Type ID	Content / Course Name	Owner	Language	Online Class (WBT)	Online Test	Job Aid	Instructor Led Course Material	Virtual Classroom Training	Original Materials	Creation Mechanism	Current Location
Allen Communication	132456		Ex: Fire Safety	John Doe	Multiple	X	X				MS PowerPoint	Adobe Presenter	SAP LSO
			Ex: Code of Conduct	Jane Doe	EN	X	X				Adobe Captivate	Adobe Captivate	SAP LSO
			Ex: Code of Conduct Managers	Mike Smith	EN	X	X				Adobe Captivate	Adobe Captivate	SAP LSO
			Ex: Packaging Safety	Mary Smith	EN	X	X				MS Word	Articulate Quizmaker	SAP LSO
			Ex: Drivers Education	Mary Smith	Multiple				X		MS Word, MS PPT	MS OFFICE	Network Drive (\\serv1\contentFolder)
			Ex: Salesforce.com Training	Mary Smith	EN						N/A	3rd Party: Pedagogue	3rd Party: Pedagogue
			Ex: Job Placement	Jane Doe	EN	X					MS Word	SAP Authoring Tool	SAP LSO
			Ex: Machine Operation	Jane Doe	EN			X			MS PPT	MS OFFICE	Network Drive (\\serv1\contentFolder)

Establish Your New Content Repository

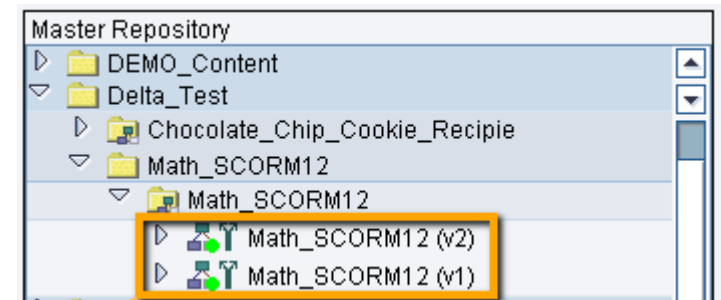
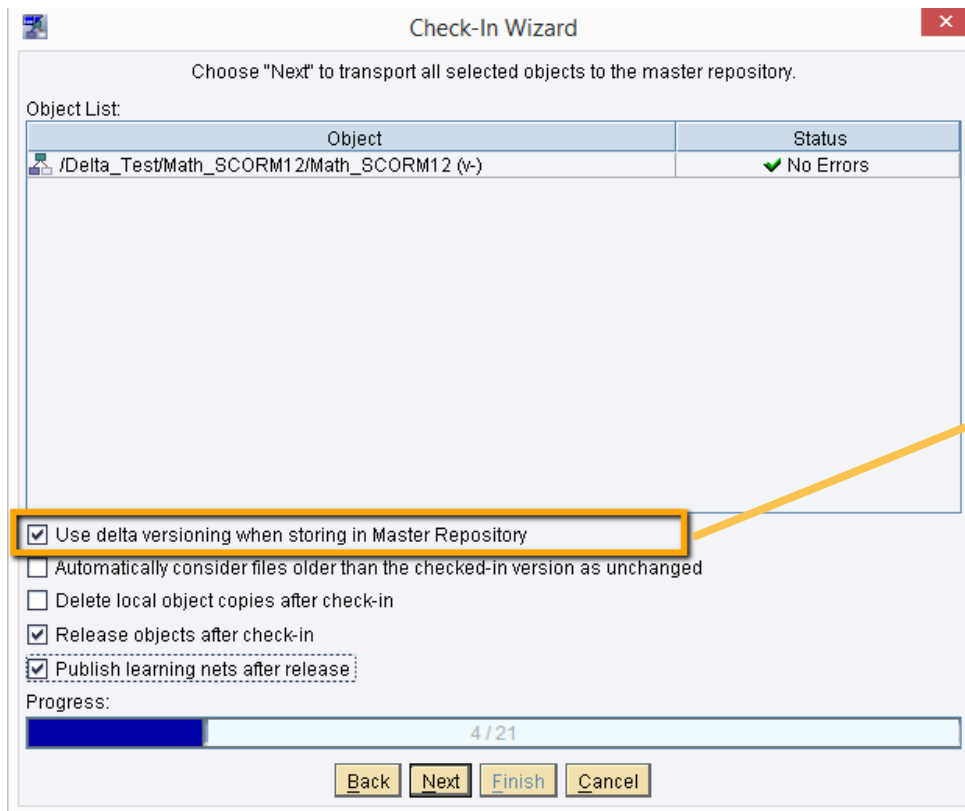
- **Internally hosted content server**
 - ♦ Determine necessary storage (estimate can be determined from content inventory)
 - ♦ Procure and deploy required infrastructure (e.g., virtual servers, load balancing, DNS, etc.)
 - ♦ If utilizing SCORM content, implement the selected cross-domain solution
- **iContent**
 - ♦ Coordinate with SuccessFactors to set up iContent

Challenges of Content Migration from SAP LSO

- SAP LSO Delta versioning of content
- SAP AE consumes AICC packaging files
- SAP authoring environment exams/quizzes

SAP Authoring Environment Delta Versioning

- SAP AE allows for Delta versioning of content where only the changed files are uploaded
- Reduces time to upload and server storage capacity



Challenge of Delta Versioning



Problem

Cannot link directly to content on SAP LSO repository since files are stored in different version folders

Version 1

Name	Size
lms	
mobile	
quiz_content	
IsodeltaverinfoXQ7_gz	2.3 KB
adlcp_rootv1p2.xsd	4.4 KB
ims_xml.xsd	1.2 KB
imscp_rootv1p1p2.xsd	14.6 KB
imsmanifest.xml	5.1 KB
imsmd_rootv1p2p1.xsd	22.2 KB
index_lms_html5.html	6.2 KB
index_lms.html	2 KB
ioslaunch.html	4.7 KB
locMappingXQ7.txt	34 Bytes
Math_SCORM12_ORG.crs	4.2 KB
Math_SCORM12_SCO.ide	4.2 KB

Name	Size
offlinePackets	
v1	
v1_-7853806865255286014	
_groupManProps.txt	106 Bytes

Version 2

Name	Size
lms	
mobile	
quiz_content	
IsodeltaverinfoXQ7_gz	2.6 KB
locMappingXQ7.txt	276 Bytes
Math_SCORM12_ORG.crs	4.2 KB

Challenge of Delta Versioning (cont.)



Problem

Cannot directly download content folder from SAP KM (LSO CMS) due to content files being distributed across multiple folders

Name	Size	Rating
lms		
mobile		
quiz_content		
IsodeltaverinfoXQ7 .gz	2.3 KB	
adlcp_rootv1p2.xsd	4.4 KB	
ims_xml.xsd	1.2 KB	
imscp_rootv1p1p2.xsd	14.6 KB	
imsmanifest.xml	5.1 KB	
imsmd_rootv1p2p1.xsd	22.2 KB	
index_lms_html5.html	6.2 KB	
index_lms.html	2 KB	
ioslaunch.html	4.7 KB	
locMappingXQ7.txt	234 Bytes	
Math_SCORM12_ORG.crs	4.2 KB	
Math_SCORM12_SCO.ide	4.2 KB	

VS.

Name	Size	Rating
lms		
mobile		
quiz_content		
IsodeltaverinfoXQ7 .gz	2.6 KB	
locMappingXQ7.txt	276 Bytes	
Math_SCORM12_ORG.crs	4.2 KB	

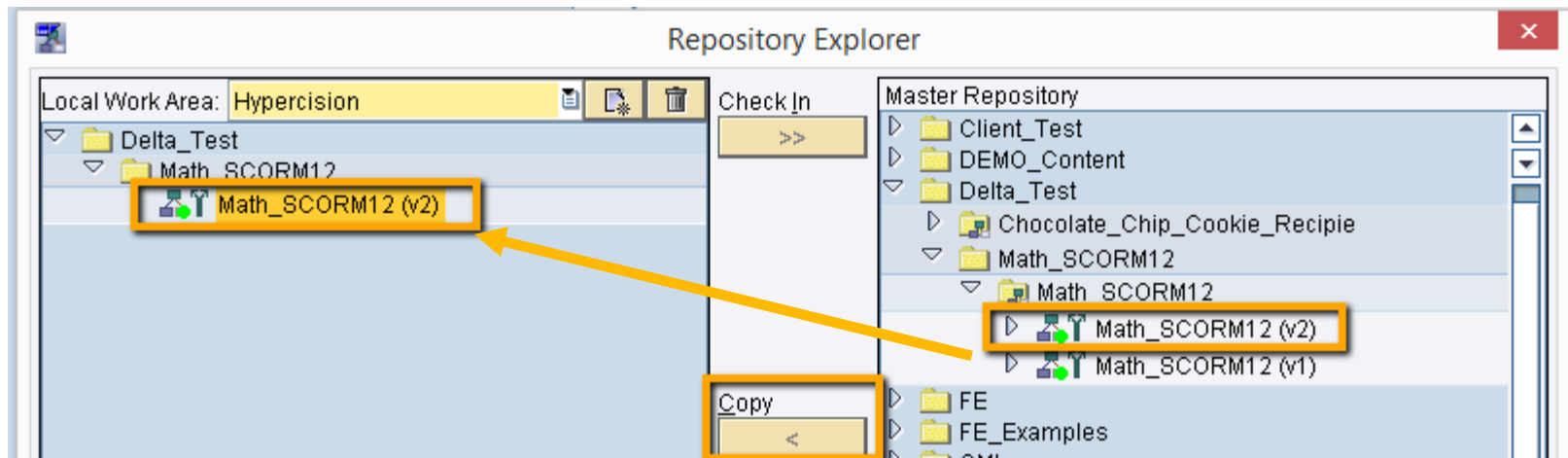
Extracting Content Files from SAP LSO's CMS

- Copying delta-versioned content to your Local Repository using SAP Repository Explorer will transfer all content files
- Manual process and may be time-intensive for larger e-learning catalogs



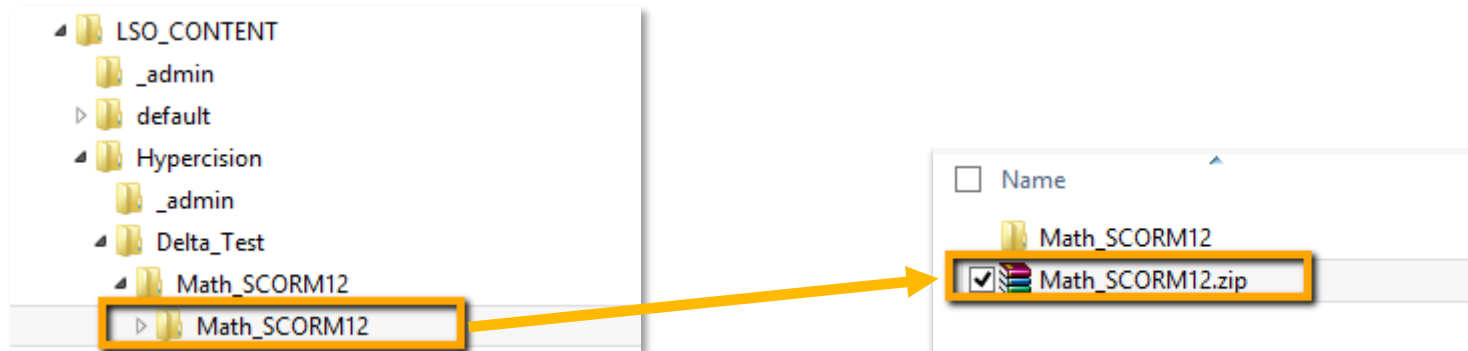
Method to Migrate Content Files (SCORM)

1. Use SAP Authoring Environment to copy the most recent learning net version down with the Repository Explorer



Method to Migrate Content Files (SCORM) (cont.)

2. Navigate to the downloaded version in your local repository folder
3. ZIP the content folder
4. Content is ready to publish into the new content server



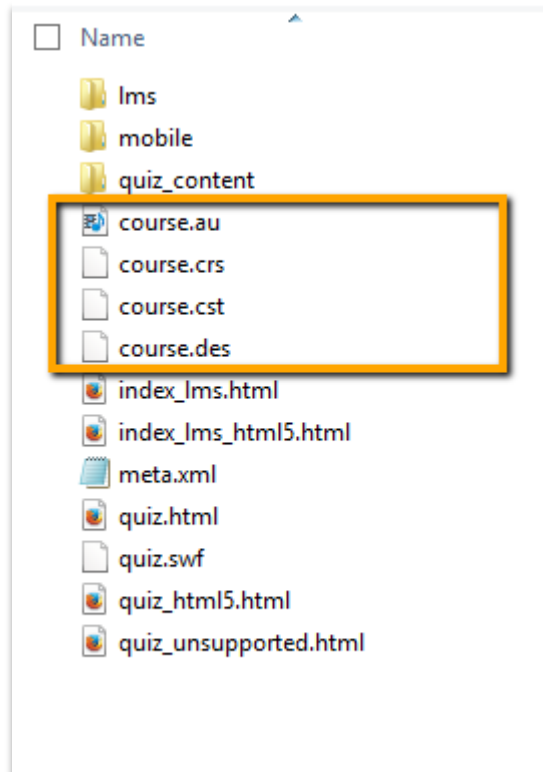
Method to Migrate Content Files (AICC)



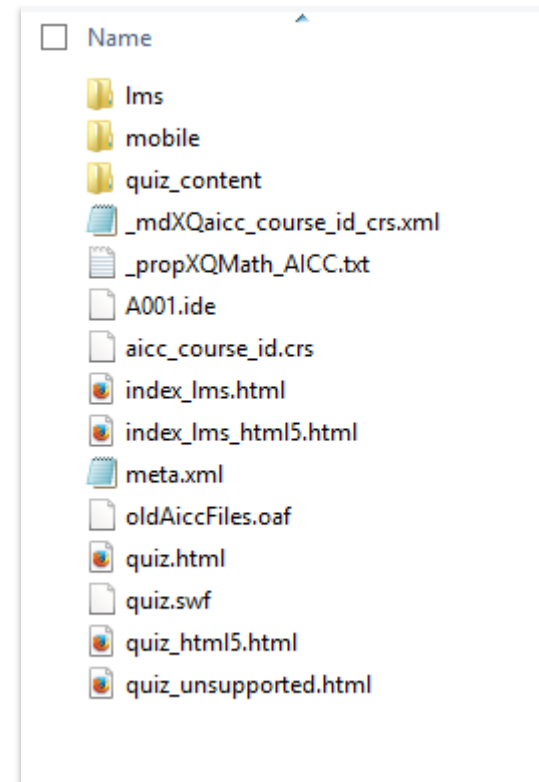
Problem

Copying AICC courses from Master Repository to Local Repository results in missing AICC files and a non-conformant package

Original



SAP AE



Method to Migrate Content Files (AICC) (cont.)

- SuccessFactors Import Tool cannot be used due to the non-conformant AICC Package
- Internally hosted AICC content can still play without the missing AICC files



Caution

Externally hosted AICC content will require the import of the original vendor-delivered AICC content package

Method to Migrate Content Files (AICC) (cont.)

- Move files to the new content server and manually create the SF LMS Content Object by adding the URL

Content Objects | Search | Add New |

> Search > Search Results > Edit Launch Method

Content Object ID: AICCMODULE1
Title: Math_AICC

Edit the Launch Method for the Content Object

Apply Changes | Reset

Content Player Document Type AICC Browser SCORM 1.2 SCORM 2004 SCORM 2004 4Ed.

Content Parameters

Note: The parameters need to be URL encoded when containing foreign and special characters.

Content Player (For Content Player Launch Method Only):

Use AICC Wrapper:

Filename:

Offline Filename:

Parameters:

Enable Mobile Access:

Mobile Filename:

Apply Changes | Reset

SAP AE Quizzes/Exams



Problem

No way to extract or convert SAP AE authored quizzes/exams

- SAP AE Exams and Quizzes are created in a proprietary format and can only be read and played by the SAP Content Player
- Manual migration required
 - ♦ Recreate quiz/exam in another SCORM or AICC conformant content creation tool
 - ♦ Recreate quiz/exam in SuccessFactors LMS

Migrating Content to SuccessFactors

- **Three methods available:**
 - ◆ **SuccessFactors Import Tool**
 - ◆ **Mass import Content Object data and Item data utilizing SuccessFactors standard Item Connector**
 - ◆ **Manually creating Content Object and corresponding Items**



Decision Point

Your Content Migration effort may involve one or more of the above described methods

SuccessFactors Import Tool

- **SuccessFactors Import Tool (Content → Tools → Import Tool)**
 - ♦ **Deploy content files to content server (SFTP access required)**
 - ♦ **Automatically create Content Objects and Items (optional)**
 - ♦ **SCORM or AICC packages must be in .zip format**
 - ♦ **Other file formats accepted: *.zip, *.pdf, *.doc; *.docx, *.rtf, *.html, *.htm, *.xls, *.xlsx, *.ppt, *.pptx**



Note

The Import Tool imports new content packages and content objects each time you use it. It does not update content packages, updated Content Objects, or Items.

Item Connector

- Mass create Content Objects, Items, and Content Object to Item associations using SuccessFactors standard Item Connector
- Comprised of 3 files:
 - ◆ Item Connector file (item_data.txt)
 - ◆ Content Object file (content_module_data.txt)
 - ◆ Content Object to Item file (item_module_data.txt)
- SuccessFactors delivers a single Item Connector and ALL three files must be completed and processed simultaneously



Note

The Item Connector does not publish course content to the content server. Content files must be placed on the content server using other methods.

Migrating Content to SuccessFactors

- **Manually publish content files, create Content Object, and associate with Items**
 - ♦ **Customers with a smaller number of Content Objects may benefit**
 - ♦ **Required if you are migrating the content from SAP LSO's content repository and the original AICC package is not available**

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Where to Find More Information

- SF LMS Content Integration Guide
 - ♦ https://help.successfactors.com/3Knowledge_Base/Learning/Content_Integration_Guide
- “Advanced Distributed Learning (ADL) Cross-Domain Scripting Document Version: 2.0” (ADL, June 2005).
 - ♦ http://content.plateausystems.com/ContentIntegration/content/support_files/ADL_CrossDomainScripting.pdf
- Claude Ostyn, “Using a Reverse Proxy for SCORM Delivery from Separate Servers” (ADL, September 2004).
 - ♦ http://content.plateausystems.com/ContentIntegration/content/support_files/SCORM%20Cross%20Server%20solution%20by%20proxy-v0%206.pdf
- SAP Certified Learning Migration Rapid Deployment Solution (RDS)
 - ♦ https://store.sap.com/sap/cpa/ui/resources/store/html/SolutionDetails.html?pid=0000011393&catID=&pcntry=US&sap-language=EN&_cp_id=id-1422283945763-0

7 Key Points to Take Home

- **Take into consideration SCORM's cross-domain restriction when planning your migration to a cloud LMS**
- **SuccessFactors recommend customers utilize AICC content**
- **Three primary solutions exist for resolving SCORM cross-domain restriction (iContent, Reverse-Proxy, SF Proxlet)**
- **Best practice is to conduct a comprehensive content inventory as part of your content migration strategy**
- **Locating online exam and embedded quiz answers ahead of time will aid in content testing**
- **Utilize SAP Repository Explorer to copy your content to your Local Repository for repackaging**
- **Content migration from SAP LSO's CMS is time-intensive. Start early and plan accordingly.**

Your Turn!



Questions?

How to contact me:
Alan Yang
AYang@hypercision.com

Please remember to complete your session evaluation

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