サイバー大学におけるLTIの導入と活用

田中 頼人
サイバー大学 IT総合学部
Cloud Campus（教育機関向け）
日本の教育にもっとICTを。教育機関がeラーニングを活用するにあたっての幅広いニーズにお応えします。

日本初のインターネット大学が開発した、eラーニングプラットフォーム。カンタン操作で充実した機能を使いこなせます。

> 「大学の反転授業を、Cloud Campusで実現！」ストーリー仕立てのムービーでご紹介

1. コースの設計
2. コンテンツの内製
Cloud Campus

Organization: Cyber University
Registration Number: IMSB2C20CY2017W1
Product Version: v2.0
Compliance Category: Learning Platform
Audience: All Grade Levels
           Corporate Education

Description:
Cloud Campus is easy-to-use fully integrated online education platform for academic and enterprise users. Cloud based suite of applications enable them to design, produce multi-media course materials and deliver to targeted audiences. The produced course content can be shared and integrated with other institutions’ LMS by means of LTI® Tool Provider feature.
LTI

IMS GLOBAL CERTIFIED

An integrated online education platform for cloud-based suite of applications enable them to share and deliver course materials and deliver to targeted content can be shared and integrated with use of LTI® Tool Provider feature.
3つの問い

問1）なぜ LTI に着目したのか
問2）どのように実装を進めたのか
問3）LTI という標準規格を活用し、どのような利点があったか
問1）なぜ LTI に着目したのか
「ある種の偶然でした」
サイバー大学は開学10周年を迎えました
CULTURAL UNIVERSITY OF THE WORLD ANNIVERSARY
大学間連携
大学間連携
大学間連携

A大学とB大学が関連を結び、Cloud Campusを活用してオンライン教育を実施しています。
連携の技術的枠組み
連携の技術的枠組み

・SCORM がよいのでは
連携の技術的枠組み

・SCORM がよいのでは
  → （特に講義内容が更新された場合）運用が大変
連携の技術的枠組み

• SCORM がよいのでは
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• 独自 API を作ろう
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• 独自 API を作ろう
  → いくつもの大学の様々な LMS が独自 API を実装するのは、まず無理
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  → いくつもの大学の様々な LMS が独自 API を実装するのは、まず無理

・やはり、SCORM でよいのでは
  → 連携先の LMS の制約があった
WATCH IT

Give us a minute and a half of your life and we'll show what Canvas can do to help make teaching and learning easier for you. (And the soundtrack is super peppy.)
クラウドサービス版とオープンソース版
答）「ある種の偶然でした」
問2）どのように実装を進めたのか
答）「多くの公開情報やサービスを活用しました。後述の3点セットが特に役に立ちました。」
IMS Global Learning Tools Interoperability™ Implementation Guide

Final Version 1.1

Date Issued: 13 March 2012
Latest version: http://www ims global org/rti/

IPR and Distribution Notices

Recipients of this document are requested to submit, with their comments, notification of any relevant patent claims or other intellectual property rights of which they may be aware that might be infringed by any implementation of the specification set forth in this document, and to provide supporting documentation.

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OAuth学内勉強会

権限の認可を行うための技術標準（認証ではない）

OAuth 1.0 は RFC 5849
"Since we are using OAuth in a signing-only scenario (i.e., we are not using OAuth to transfer third-party identity), there is no need for an oauth token."

【出典】https://www.imsglobal.org/specs/v1p1/imlsmlv1p1-implementation-guide
実装に便利な3点セット（1）LTIエミュレータ

IMS LTI tool provider emulator

This is a very simple emulator of an IMS Learning Tools Interoperability (LTI) 1.1.1 tool provider (TP, e.g. a learning appl.
support for the LTI 1.1 Outcomes service and the unofficial extensions for memberships, outcomes and setting services
are also supported. The shared secret is assumed to be "secret" for the value of the custom parameter named "secret"

Have you tried the new version of this test tool? If not, please give it a go and send your feedback.

Consumer
Outcomes extension
Memberships extension
Tool Settings extension
Outcomes
Tool Settings
Outcomes

Tool Consumer

Credentials
Key: secret
Secret: secret
Signature method: HMAC-SHA1

Registration settings
Launch URL: http://pfe.p.cyer-u.ac.jp/LTI
Consumer key: jisc.ac.uk
Shared secret: secret

Message data
Message type: basic-lti-launch-request
LTI version: LTI-1p0
Target: frame
Width: [r]
Height: [r]
Return URL: http://ltiapps.net/test/tc-return.php

Enable Caliper support? Signature method: HMAC-SHA1

https://lti.tools/test/tp.php
https://lti.tools/test/tc.php
Draft HTTP POST request

**To:** http://ltiapps.net/test/tp.php

**Content-Type:** application/x-www-form-urlencoded

**Parameters:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>context_id</td>
<td>S3294476</td>
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<tr>
<td>context_label</td>
<td>ST101</td>
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<td>context_title</td>
<td>Telecommunications 101</td>
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<tr>
<td>context_type</td>
<td>CourseSection</td>
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<tr>
<td>custom_context_memberships_url</td>
<td><a href="http://ltiapps.net/test/tc-memberships.php/context/0f2a470f/1a628c01/630103b8">http://ltiapps.net/test/tc-memberships.php/context/0f2a470f/1a628c01/630103b8</a></td>
</tr>
<tr>
<td>custom_context_setting_url</td>
<td><a href="http://ltiapps.net/test/tc-settings.php/context/0f2a470f/1a628c01/630103b8">http://ltiapps.net/test/tc-settings.php/context/0f2a470f/1a628c01/630103b8</a></td>
</tr>
<tr>
<td>custom_lineitem_url</td>
<td><a href="http://ltiapps.net/test/tc-outcomes2.php/c0f2a470f/lineitems/dyJ86SiwwA9">http://ltiapps.net/test/tc-outcomes2.php/c0f2a470f/lineitems/dyJ86SiwwA9</a></td>
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<td>custom_link_setting_url</td>
<td><a href="http://ltiapps.net/test/tc-settings.php/link/c0f2a470f">http://ltiapps.net/test/tc-settings.php/link/c0f2a470f</a></td>
</tr>
</tbody>
</table>

IMS LTI Tool Consumer emulator
This is a very simple emulator of an IMS Learning Tools Interoperability (LTI) 1.1.1 tool consumer (TC, e.g., a VLE) launch of a tool provider (TP, e.g., a blog or premium content). It includes support for the LTI 1.1 Basic Outcomes service and the unofficial extensions for memberships, outcomes and selling services. The Tool Settings service (defined in LTI 2.0) and the Content-item message are also supported. Beta versions of the Outcomes Management 2, Memberships and Caliper Profile services have also been added.

Key: [R] = required; [r] = recommended; all other parameters are optional.
実装に便利な3点セット (2) LTI ライブラリ

Using an LTI Class Library

The sample code included with steps 1 to 5 show how simple the processing of an LTI launch message is; the code should be relatively easy to translate into other programming languages, as required. However, there are also some class libraries available which provide additional benefits to developers; for example:

- combined handling of LTI 1 and 2 launch messages;
- support for new message types as they are released;
- automatic checks on license periods for consumer keys (i.e. only accept requests between specified dates);
- easy mechanism for disabling/enabling individual consumer keys;
- automated checking for required message parameters;
- checks to make sure parameters are within limits dictated by database tables;
- automatically captures the data required to utilize services offered by the tool consumer.

Contents

- Step 1: Is this an LTI launch request?
- Step 2: Is this a valid LTI launch request?
- Step 3: Are all the required parameters present?
- Step 4: Establish a user session
- Step 5: Redirect the user
- Using an LTI Class Library
Welcome to the LTI Tool Provider developer workshop

This resource is designed to be used as part of a hands-on workshop, but is being developed for independent use as well. It comprises a set of simple examples of how to interact with an LTI tool consumer, including handling launch requests as well as using the outcomes, memberships, and setting services.

Some basic definitions

- **Tool consumer** - the system which "consumes" the tool, typically this is a virtual learning environment (VLE).
- **Tool provider** - the system providing the additional functionality which is to be integrated with the tool consumer.
- **Context** - the area of the tool consumer from which the launch request has been made; this is typically a course.
- **Resource link** - the link within the context which was followed to perform the launch.

**PHP Classes for LTI Tool Providers**

This workshop uses a PHP environment for the tool provider, but the specification can be used with any development environment for web-based applications. The PHP classes used in this workshop provide a level of abstraction from the details of the LTI specification and greatly simplify the development process. A [Java version of the classes](#) is also available and translations for other programming languages are planned.
開発者向けワークショップ

Welcome to the LTI Tool Provider developer workshop

This resource is designed to be used as part of a course or independent use as well. It comprises a set of tutorials for the consumer, including handling launch requests and consuming LTI services.

Some basic definitions

- **Tool consumer**: the system which consumes content from the tool environment (VLE).
- **Tool provider**: the system providing the tool consumer.
- **Context**: the area of the tool consumer from which the launch request has been made; this is typically a course.
- **Resource link**: the link within the context which was followed to perform the launch.

**PHP Classes for LTI Tool Providers**

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A Java version of the classes is also available and translations for other programming languages are planned.
実装に便利な3点セット（3）Bitnami
実装に便利な3点セット (3) Bitnami

様々なサーバプログラムをお試しで
実装に便利な3点セット（3）Bitnami
実装に便利な3点セット（3）Bitnami
実装が終わったら

Learning Tools Interoperability® Certification Suite

Welcome to IMS LTI® Certification Testing system.
The goal of the IMS LTI Certification is to encourage interoperable implementations of both systems such as LMSs and portals (LTI Tool Consumers) and External Tools/Content (LTI Tool Providers).

IMS LTI certification demands features and capabilities beyond those which are strictly required by the specification. The specification is intentionally left very flexible to allow it to be used for many purposes. This certification is particularly aimed at maximizing interoperability between Tool Consumer systems and their External Tools so it requires much more than the specification. Gaining this certification is expected to be more difficult than simply meeting the minimal requirements of the LTI launch protocol.

If you want to see more details of the tests involved in the certification process, follow one of the links at the bottom of this page for either Tool Consumer or Tool Provider tests. A link is provided on each of these pages to access a detailed list of the tests, as well as a link to report changes in the tests made over time.

The certification is for a particular version of a Tool Consumer or Tool Provider and the certification must be re-done for each new release of the software.

To pass certification, you must take the following steps:

- You must be an IMS Learning Tools and Content Alliance Member, an IMS Affiliate Member or an IMS Contributing Member
- You must pass the tests using the certification suite hosted on the IMS web site.
- The tests must be completed by a designated representative of the IMS member and you must agree that there is no mis-representation or manipulation of the results in the submitted report.
- You must submit your report via this site to conformance@imsglobal.org.
- The submission process allows you to report explanations of any anomalies you encountered during the testing process.
実装が終わったら
素直にライブラリを使って実装すること
実装が終わったら

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問3）
LTI という標準規格を活用し、どのような利点があったか
答）
「様々な利点がありました」
教育機関向け機能

Cloud Campus

価格表

<table>
<thead>
<tr>
<th>Entry</th>
<th>Department</th>
<th>Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>初期費用</td>
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<td>200,000円</td>
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<tr>
<td>月額利用料</td>
<td>70,000円</td>
<td>200,000円</td>
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</table>

推奨環境

ご利用環境（デバイス）

Windows PC

OUX

Chrome, Edge, Internet Explorer11

<table>
<thead>
<tr>
<th>Mac</th>
<th>iOS</th>
<th>Safari, Chrome</th>
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<tbody>
<tr>
<td>iPad</td>
<td>iOS 10.14</td>
<td>Safari</td>
</tr>
<tr>
<td>Android</td>
<td>Android 4.4</td>
<td>Chrome</td>
</tr>
</tbody>
</table>

お問い合わせ先

サイバーユニバーシティ株式会社
TEL 03-6895-0436
el-service@jcei.co.jp

〒105-0011 東京都港区北麻布1-6-8 東芝公園ビル4F

http://biz.cyber-u.ac.jp/
Cloud Campus

LTI®連携

Moodle
Sakai
BlackBoard
Canvas

LTI®連携

Cloud Campusで制作したコンテンツを現在のLMSでシームレスにご利用いただけます。
大学間連携
大学間連携

A大学

B大学

LTI
教育研究ネットワーク・シンポジウム

2018年7月7日（土）
開場：13:00 開演：13:30
閉会：16:00（予定）

場所
東京大学 ダイワユビキタス学術研究館3階ホール

対象
大学教職員、eーラーニング研究者

1. 基調

1. オンライン教育の課題と実践的解決（30分）
川原 洋（サイバー大学 学長）

2. LTIによる他大学LMSとの連携～機能概要と運用モデル（10分）
田中 誠人（サイバー大学 IT総合学部 准教授）

2. 研究発表

1. 「共同研究の概要・大学間連携による教育コンテンツ共有の実証実験報告」（20分）
金川 純（東京大学 大学総合教育研究センター 特任教授・MIT教授）
藤本 敬（東京大学 大学総合教育研究センター 特任講師）

2. 「アクティブラーニング授業への導入」（15分）
吉田 藤（東京大学 教養学部 附属実験教育学部 許任助教）

3. 「Cloud Campusによる反転授業、その効果と課題そして今後の展望」（15分）
小川 理（成城大学 理工学部 教授）

4. 「大学間授業交流への適用」（15分）
小林 智子（国際基督教大学 学舎・教育センター部長）

3. パネルディスカッション

1. 「大学間教育ネットワークへの期待」（30分）
ファシリテーター：川原 洋
パネリスト：研究発表者

●お申込み方法
名前、QRコードを読み込み、下記URLよりお申し込みください。
https://goo.gl/forms/E9iEatuzeA1WMXgq2
joei-koho@joei.co.jp（サイバー大学 広報部）

●アクセス
駅前：渋谷駅東口
東京メトロ・丸ノ内線

●お問い合わせ先
03-5935-3142（受付時間）
藤本, 田中: “クラウド型eラーニングプラットフォームを利用した教育コンテンツの大学間相互配信”
2018 PCカンファレンス
@熊本大学
[プレスリリース] 「Cloud Campus」が「第2回IMS Japan賞」で最優秀賞を受賞

2017年10月25日
サイバーユニバーシティ株式会社

ソフトバンクグループのサイバー大学（所在地：福岡市東区、学長：川原 洋）を運営するサイバーユニバーシティ株式会社（所在地：東京都港区、代表取締役社長：緒方 恵一郎）が、学外に提供する統合型eラーニング・クラウドサービス「Cloud Campus（クラウドキャンパス）」は、「第2回IMS Japan賞」において最優秀賞を受賞しました。
答)
「様々な利点がありました」
3つの問い

問1）なぜ LTI に着目したのか
問2）どのように実装を進めたのか
問3）LTI という標準規格を活用し、どのような利点があったか
Learning Impact Award
@ボルチモア
How Does IMS Enable Better Digital Learning Experiences?