The Leading Member-based Learning Technology Standard in Action to Improve Learning at Higher Educational Institutions: Overview and Two Hackathons

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Abstract

IMS Global has been creating and maintaining standards that define data interoperability between learning systems, tools and applications for nearly 20 years. A key aspect of the IMS work is the focus on making the standards easy to adopt. The end goal is to improve learning impact and not just standards development. Apart for the normal standards documentation, IMS produce a number of software tools to support adoption. The IMS Learning Tools Interoperability (LTI) and IMS Caliper, two of the more recent standards released b IMS, hackathons will provide an opportunity to work with some of these tools so that delegates will acquire hands-on experience.

Using IMS Global Learning Standards

IMS Global is a non-profit member collaborative creating and maintain a wide range of standards to enable information interoperability between educational and learning technology. IMS enables a plug-and-play architecture and ecosystem that provides a foundation on which innovative products can be rapidly deployed and work together.

The first IMS standard, Metadata, was released in mid-1999. Over the past 17 years more than 20 IMS standards have been released. The current IMS standards activity is undertaken under five categories:

- Digital Curriculum;
- E-Assessment;
- Learning Platform, Apps and Tools;
- Learning Data and Analytics;
- Digital Credentialing.

A number of key principles guide IMS's standards development work:

- Only create a standard when there is no other open alternative;
- Focus on technical simplicity and establish market acceptance, through conformance, before adding complexity;
- Create workflows that use many IMS and non-IMS standards to improve learning impact.

The set of formal documents that define the standard are not the only outputs from a standards development activity. IMS also produces reference implementations, instance validators and conformance test systems. This presentation will provide an overview of the IMS standards suite and will explain how IMS makes adoption as simple.

IMS Caliper Hackathon

IMS's newest standard is Caliper 1.0 and it was published in October 2015. The IMS Caliper Analytics Framework defines an ecosystem for the creation of analytics for learning systems. A key aspect of the

framework is the introduction of Metric Profiles. These define the event vocabulary to be used for a specific learning activity: the subsequent analytics are derived by correlating the data for the relevant Metric Profiles, reflecting the various learning activities undertaken by the learners.

The Sensor API forms the part of the Caliper Framework that enables the collection of the data from the systems, tools and applications being used to support learning activities. The Sensor API is the mechanism by which the data for the Metric Profiles is sent from the source systems to the analytics repository.

In the hackathon we will work with the PHP version of the Sensor API and walk through examples of how the API is used to report learning activity. We will also look at the conformance test suite and use some examples to demonstrate how the conformance test system is used. The three-hour hackathon will consist of a one hour overview of the IMS Caliper specification followed by 2 hours of participants working with the Caliper PHP code library and the conformance test system.

IMS LTI Hackathon

The IMS Learning Tools Interoperability (LTI) standard is the most widely adopted standard published by IMS. The principal concept of LTI is to establish a standard way of integrating rich learning applications (often remotely hosted and provided through third-party services) with platforms like learning management systems, portals, learning object repositories, or other educational environments. In LTI these learning applications are called Tools (delivered by Tool Providers) and the LMS, or platforms, are called Tool Consumers. LTI 1.0 was published in May 2010 with LTI 2.0 published in January 2014.

In the hackathon we will work with the PHP version of the LTI API and walk through the code for both tool consumers and providers. We will also look at the conformance test suite and use some examples to demonstrate how the conformance test system is used. The three-hour hackathon will consist of a one hour overview of the LTI specification followed by 2 hours of the participants working with the LTI PHP code library and the conformance test system.

Biography

Colin has a degree in Applied Physics (1979) and was awarded a PhD for his work on spread spectrum local area networks (1985); both degrees were from the University of Durham, UK. During the past 35 years he has worked in both the academic and the industrial world. He was a lecturer at the Universities of Durham and Surrey, was the founder and CEO of the systems consultancy Hyperion Systems. Currently he is a Director and Principal Consultant at Dunelm Services Limited. From 1992-1999 he was a member of the Department of Computer Science at the University of Sheffield, UK where he was Head of Department and Chair of Computer Science.

Since October 1999 Colin has been consulting for the IMS Global Learning Consortium Inc. He is currently the IMS Chief Architect and is responsible for overseeing the technical consistency of the full suite of IMS specifications and the IMS modeling framework under which the IMS standards are created. Colin has supported the development of many of the IMS standards including Question & Test Interoperability (QTI), Learning Information Services (LIS), Accessible Portable Item Protocol (APIP), Content Packaging and ePortfolio. Currently is working on: aQTI, OneRoster, OpenVideo Metadata and Competency Services.