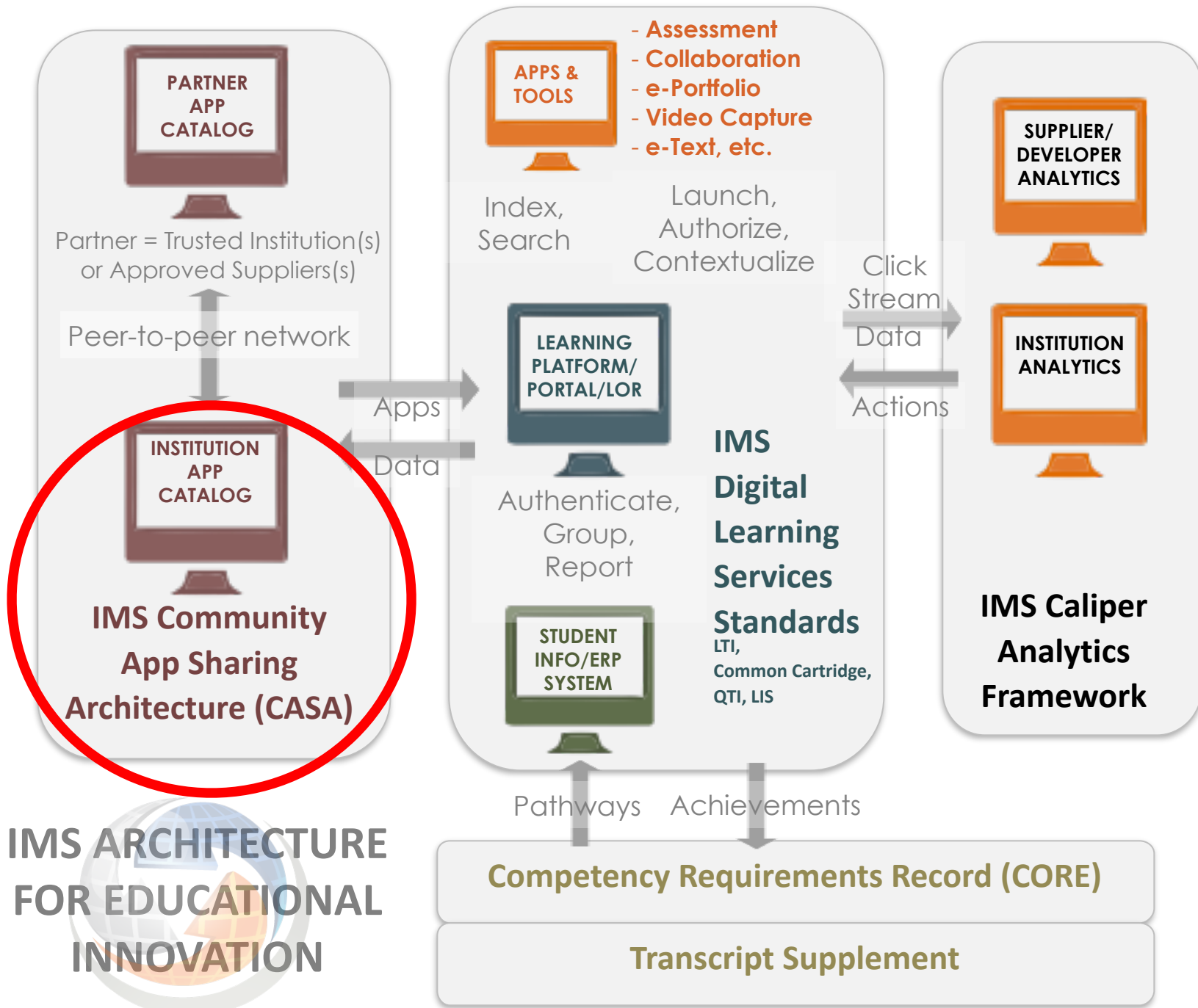


# Leveraging **LTI** and **CASA** to expand the **value** of your LMS Environment

Given by: Hap Aziz (IMS Global),  
Rose Rocchio (UCLA)

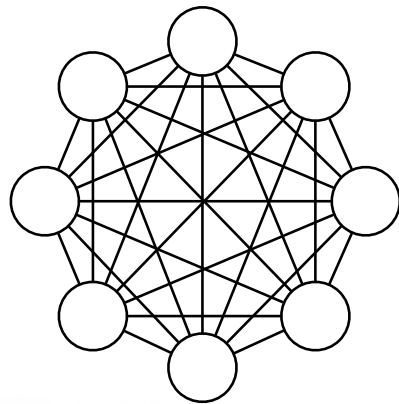




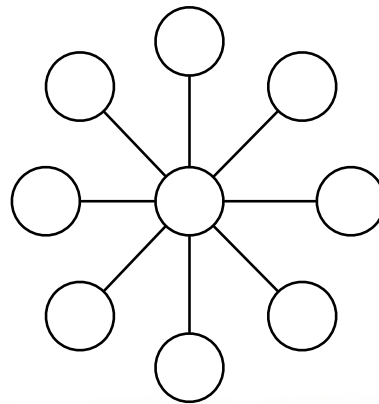
**IMS ARCHITECTURE FOR EDUCATIONAL INNOVATION**

# Evolution of LTI App Sharing

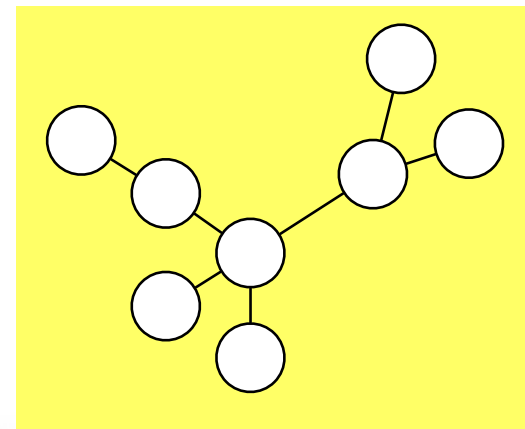
Inefficient Integration



Authoritative Integration



Peer to Peer App Ecosystem



# What can CASA do?

- **Publish, share & connect**
- **Curate & filter the network**

# Why is CASA Useful ?

- Provides Discovery and local ratings of apps
- Curation of Apps with regard to our own
  - Policys:
    - Mobile Friendly
    - Ads
    - Privacy
    - Accessibility
    - Standards

# How does this work?



Where does all the meta data  
come from?

# App Meta Data & Policies

# Filter based on Privacy...

**UCLA APP STORE** [BROWSE](#) [CATEGORIES](#) [SUBMIT AN APP](#) [YOUR SUBMISSIONS](#) [ADMIN](#) [LOGOUT](#)

Search

## Submit App

[General](#) [Browser Features](#) [Native Installs](#) [Interoperability](#) [Privacy](#) [Accessibility](#)

### Privacy

[Privacy Policy URL](#)

[Privacy Matrix \(?\)](#)

Type	System (?)	Research (?)	Profiling (?)	Marketing (?)	Context (?)	Others (?)	Public (?)
<a href="#">Session (?)</a>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
<a href="#">Context (?)</a>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
<a href="#">Name</a>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
<a href="#">Contact (?)</a>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
<a href="#">Preferences (?)</a>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
<a href="#">Activity (?)</a>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
<a href="#">Assessment (?)</a>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
<a href="#">Location (?)</a>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>
<a href="#">Demographic (?)</a>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>	<input type="text" value="No"/>



# Filter on Interoperability

## Submit App

General

Browser Features

Native Installs

Interoperability

Privacy

Accessibility

### Interoperability

#### LTI

IMS Global's [Learning Tools Interoperability \(LTI\)](#) standard allows for interoperability between applications and consumers such as learning management systems. These properties allow the app store to push an app back to a learning management system with all the information necessary to set up the app as an LTI tool.

#### Supports LTI

#### Launch URL

#### Configuration URL

#### Registration URL

#### Versions Supported

1.0  
1.1  
1.2  
2.0

#### Outcomes

No

Submit App

# Filter on Accessibility

**UCLA** APP STORE

[BROWSE](#) [CATEGORIES](#) [SUBMIT AN APP](#) [YOUR SUBMISSIONS](#) [ADMIN](#) [LOGOUT](#)



## Submit App

[General](#)

[Browser Features](#)

[Native Installs](#)

[Interoperability](#)

[Privacy](#)

[Accessibility](#)

### Accessibility

[Accessibility Policy URL \(?\)](#)

[VPAT URL \(?\)](#)

[Submit App](#)

# Launch Web & Native Apps if exist

## Submit App

General

Browser Features

Native Installs

Interoperability

Privacy

Accessibility

### Native Installs

#### iOS Native App

*If an application has an associated iOS native app, these attributes can be used to advise the dashboard on how to install the app natively.*

ID

Scheme

Path

Affiliate Data

#### Android Native App

*If an application has an associated Android native app, these attributes can be used to advise the dashboard on how to install the app natively.*

Package

Scheme

Action

# What else can CASA do?

- **Discover, review & rate**
- **Collect, analyze & explore**

# App Discovery in an LMS



# Use Case:

Connecting to a new LTI app in  
Moodle Today...  
takes about 300 clicks



# The problem:

Instructors, do not have a good mechanism to **discover**, find and review **ratings** of **LTI enabled tools** so that they can quickly and expediently figure out which ones will enhance their courses.

# Adding External Tools w/o CASA

Editing External Tool - Mozilla Firefox

File Edit View History Bookmarks Tools Help

14 EduSoCal'14 | Wedne... x Complete Receipt x CCLC Grants: Discuss... x DE Which App Stores Sh... x app stores more pop... x App Library · Digital P... x Add itunes as a defau... x Editing External Tool x

https://ccle.ucla.edu/course/modedit.php?add=lti&type=&course=24&section=1&return=0&sr=1

Most Visited Getting Started Suggested Sites Web Slice Gallery

Edit settings  
Course completion  
Users  
Filters  
Reports  
Grades  
Backup  
Restore  
Import  
Question bank  
Repositories

Switch role  
My  
Add a

Activity Name\* Online Polling Tool


Activity Description\* Show editing tools

Display description on course page

Display activity name when launched

Display activity description when launched

External tool type\* Automatic, based on Launch URL

Launch URL\* http://onlinepoll.ucla.edu  Tool configuration not found for this URL.

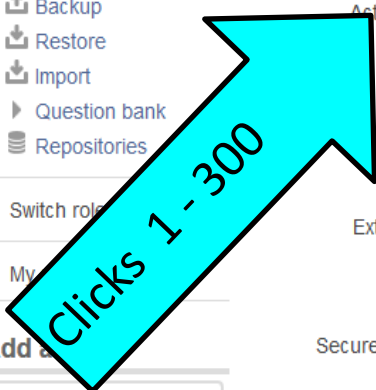
Secure Launch URL\*

Launch Container\* Embed

Consumer Key\*

Shared Secret\*  Unmask


Custom parameters\*



4:21 PM  
4/28/2014



# LTI App store inside Moodle

CASA Admin User 

## Learning Impact Demo Course

Home ▶ My courses ▶ Demo Courses ▶ Learning Impact


### NAVIGATION

- Home
  - My home
  - Site pages
  - My profile
- Current course
  - Learning Impact**
    - Participants
    - Badges
    - General
    - 4 May - 10 May
    - 11 May - 17 May
    - 18 May - 24 May
    - 25 May - 31 May
    - 1 June - 7 June
    - 8 June - 14 June
    - 15 June - 21 June
    - 22 June - 28 June
    - 29 June - 5 July
    - 6 July - 12 July
  - My courses


Search

### NEWS & EVENTS


See More →



**UCLA Newsroom**  
This App displays News and special communications from the university.  
☆☆☆☆☆



**Happenings**  
Featured Events at UCLA  
☆☆☆☆☆




**MMWCON**  
The Mobility and Modern Web Conference will take place September  
☆☆☆☆☆

### CAMPUS LIFE


See More →

### EDUCATION


See More →



**CCLE**  
Common Collaboration and Learning Environment  
☆☆☆☆☆




**Anderson**  
This is the Anderson School dashboard  
☆☆☆☆☆




**Online Polls**  
OPT-in for a FREE Online Polling Tool for UCLA with class roster support!  
☆☆☆☆☆

### RESEARCH


See More →




**Research**  
Get the latest UCLA Research information  
☆☆☆☆☆




**Aegaron**  
Browse ancient Egyptian architecture and drawings of historical sites  
☆☆☆☆☆



**UCLA News & Public Affairs**  
NAPA consists of over 100,000 news programs and broadcasts taped off the  
☆☆☆☆☆




**UCLA Motion Picture Collections**  
Containing material dating back to the 1890s, the Archive's motion picture  
☆☆☆☆☆



**CA Cultures**  
California Cultures documents California's rich history of diversity and  
☆☆☆☆☆

# Review App & Add it

CASA Admin User 

## Learning Impact Demo Course


[Home](#) ▶ [My courses](#) ▶ [Demo Courses](#) ▶ [Learning Impact](#)


### NAVIGATION

- Home
  - My home
  - Site pages
  - My profile
- Current course
  - Learning Impact**
    - Participants
    - Badges
    - General
    - 4 May - 10 May
    - 11 May - 17 May
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    - 25 May - 31 May
    - 1 June - 7 June
    - 8 June - 14 June
    - 15 June - 21 June
    - 22 June - 28 June
    - 29 June - 5 July
    - 6 July - 12 July
  - My courses

## UCLA APP STORE

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[Add](#)

**URL**  
<http://dai.aegaron.ucla.edu/>

**Categories**  
[Research](#)

**Tags**  
Egypt, archaeology, history

**Primary Contact**

**Author**


## Aegaron

Ancient Egyptian Architecture Online provides vetted and standardized architectural drawings of a selection of ancient Egyptian buildings. These represent architecture from modest workmen's houses to temple complexes, dating from the Old Kingdom through Late Antiquity. Aegaron considers architectural drawings as historic sources: each plan is accompanied by a critical apparatus. The plans can be downloaded freely for private and research purposes (terms of use). They come in various types and formats, on which you can learn more on the about page.

**Mobile-Ready**

### Reviews

[Submit a Review](#)



# Tool Added into Course

CASA

## Learning Impact Demo Course


Home ▶ My courses ▶ Demo Courses ▶ Learning Impact

NAVIGATION

- Home
  - My home
  - Site pages
  - My profile
  - Current course
    - Learning Impact**
      - Participants
      - Badges
      - General
        - 4 May - 10 May
        - 11 May - 17 May
        - 18 May - 24 May
        - 25 May - 31 May

News forum

Aegaron



# Great, Lots of new tools, but...

- The institution has no idea...
  - Which content is being added to which courses
  - How content is being used
- The publisher has no idea...
  - How their content is propagating through the network
  - If and why their content is being rejected by other nodes
  - How effectively users are finding their content

# Content Discovery Metric Profile

- Create sensors that report on...
  - How apps spread through the network
  - How apps are found and viewed
  - When apps are added to storefronts and courses
- Actors mirror CASA modules, but not CASA-specific
- Events (or some of them) could be applied to other stores, even if they don't have peering functionality

# Events Captured by CASA Caliper Sensors

## CASA Centric Environment Sensors

- nodeShared (publisher)
- nodeRejected (receiver)
- nodeAccepted (receiver)

## LMS Embedded Environmental Sensors

- userFound (storefront)
- userViewed (storefront)
- userAdded (consumer)

# 3 Demos

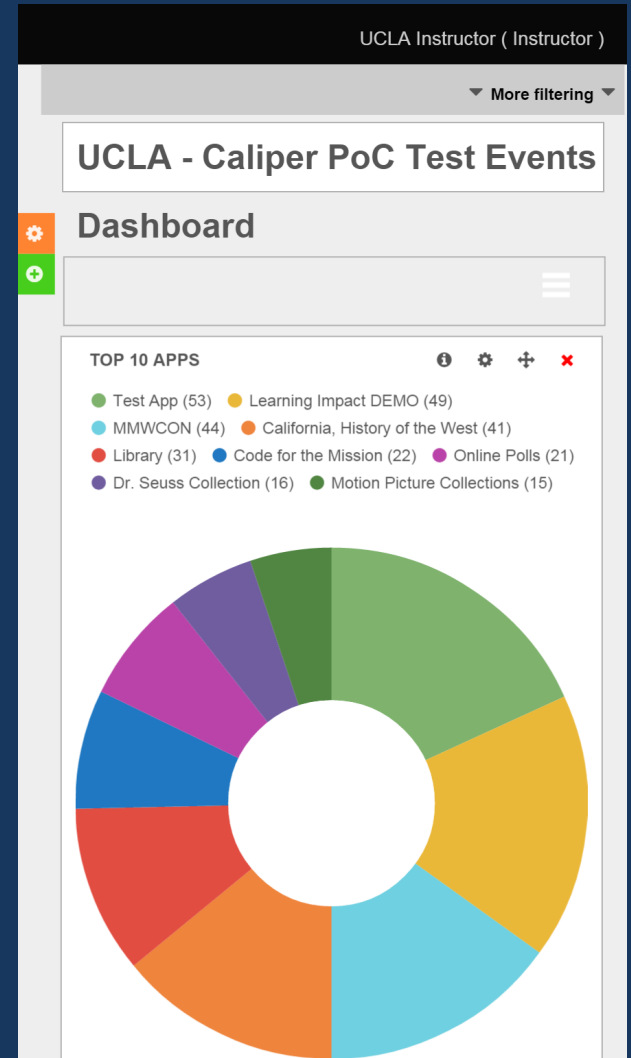
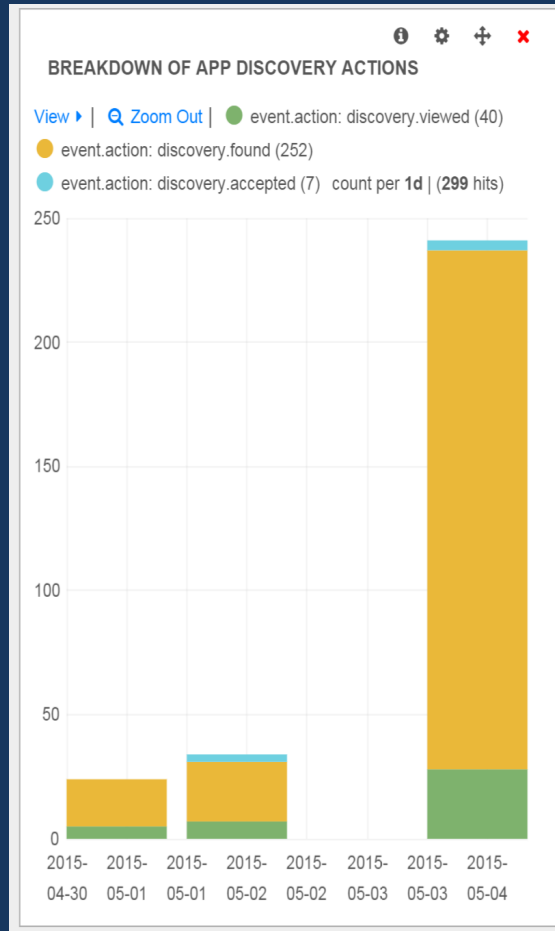


# CASA-Caliper Sensor Visualization

UCLA - CALIPER POC RAW EVENTS

200 to 300 of 300 available for paging

timestamp	event.startedAtTime	event.actor.@id
2015-05-04T08:44:09.084-07:00	2015-05-04T08:48:03-07:00	
2015-05-04T01:06:54.970-07:00	2015-05-04T01:10:47-07:00	
2015-05-04T01:06:54.772-07:00	2015-05-04T01:10:46-07:00	
2015-05-04T01:06:54.471-07:00	2015-05-04T01:10:46-07:00	
2015-05-04T01:06:54.280-07:00	2015-05-04T01:10:46-07:00	
2015-05-04T01:06:54.074-07:00	2015-05-04T01:10:46-07:00	
2015-05-04T01:06:49.744-07:00	2015-05-04T01:10:41-07:00	
2015-05-04T01:06:16.768-07:00	2015-05-04T01:10:08-07:00	





# What's Next for CASA?

- **Caliper Attribute**
  - This will allow filtering of tools that provide DATA back to the institution
- **Potential to add more LTI 2.0 details**
- **Competency attribute (s)**

# Discussion – How do we share this message about CASA?

- How do we get the awareness we need?
- Ideas?
- Thoughts?
- Brainstorm?

# How to get involved:

- Join the IMS Global CASA Taskforce
- Launch your own CASA App Store
- Or make your existing App Store speak CASA
- Join biweekly meeting discussions
- Develop attribute schemas
- Share how you implement CASA

# Links

- CASA Mailing list link: <http://www.imslobal.org/casa/>
- Current Protocol Link:  
<http://imslobal.github.io/casa-protocol>
- CASA on Rails (available **FREE** – AGPL):
  - <https://github.com/ucla/casa-on-rails>
  - CHEF : <https://github.com/ucla/chef-casa-on-rails-cookbook>

# Questions



Feel free to drop us a note @

–Hap Aziz: [haziz@imsglobal.org](mailto:haziz@imsglobal.org)

–Rose Rocchio: [rrocchio@ucla.edu](mailto:rrocchio@ucla.edu)

# Appendix

# Browser features

## Browser Features

*This metadata can be used to determine if a user's browser is capable of supporting the app. A feature may use the settings "Required" if the application cannot be used without the feature, as well as "Optional" in the event that the app works best with it but will degrade gracefully if the browser does not support it.*

### Application Cache

Not Used

### Canvas Element

Not Used

### CSS Animations

Not Used

### CSS Flexbox

Not Used

### CSS Multi-column Layout

Not Used

### CSS Transformations

Not Used

### CSS Transformations (3D)

Not Used

### CSS @font-face

Not Used

### CSS :before and :after

Not Used

### Drag-and-Drop

Not Used