Vernetzte Welten

Dokumentations- und Annotationswerkzeuge

WORKSHOP 3 - 14:30-18:00 – 25.2.2016

Walter Koch | Steinbeis Transferzentrum IMCHI, Graz

Gerda Koch | AIT Forschungsgesellschaft mbH, Graz

STRUKTUR DES WORKSHOPS

- Einführung
  - Annotation – Tagging - Background Linking – Connected Content – Web Annotation
- Projektbeispiele
  - Europeana Sounds >> Web Content
  - LoCloud >> Anreicherung v. Daten
  - MediaMixer >> Video Content
- Tools
  - Show Case, Praxisteil

ANNOTATIONEN - TRADITONELL

- Annotation bedeutet „Anmerkung“, „Beifügung“, „Hinzufügung“.
- Annotationen halten Dinge fest, die wichtige Zusatzinformationen darstellen.*
- Annotationen können öffentlich oder privat sein.
- Annotationen sind Zusätze zu einer (externen) Repräsentation.
  - Annotiert werden können Text, grafische Darstellungen, Videos, auditive Texte und sogar dingliche Objekte der Umwelt etc…
  - Annotiert werden kann sowohl visuell als auch auditiv...
- Traditional annotations are marginalia, errata, and highlights in printed books, maps, picture, and other physical media.**

*Vgl. https://de.wikipedia.org/wiki/Annotation
** Vgl. https://www.w3.org/annotation/

ANNOTATION ALS WERKZEUG

- Um zusätzliche Information einzugeben
- Um Bezug zu externen Quellen herzustellen
- Wissen zu strukturieren
- Um zukünftige Suche zu optimieren
- Strukturieren und Festhalten von Informationen
- Unterstützung einer tiefer gehenden Verarbeitung

Image Annotation

TAGGING - FOLKSONOMIES

- Ein **Tag** [tæg] (engl. Etikett, Mal, Auszeichner, Anhänger) ist eine Auszeichnung eines Datenbestandes mit zusätzlichen Informationen. Im Webdesign ist Tagging eine Technik, die es jedem Besucher erlaubt, an die besuchten Seiten **frei wählbare Begriffe** zu hängen (die Texte werden quasi etikettiert).
  *Vgl. https://de.wikipedia.org/wiki/Tag_%28Informatik%29
- Social Tagging ist eine **Form der freien Verschlagwortung** (Indexierung), bei der Nutzer von Inhalten die Deskriptoren (Schlagwörter) mit Hilfe verschiedener Arten von sozialer Software ohne Regeln zuordnen.
- Die bei diesem Prozess erstellten **Sammlungen von Schlagwörtern** werden Folksonomien genannt.
  *Vgl. https://de.wikipedia.org/wiki/Social_Tagging

TEI

```
<?xml version="1.0" encoding="UTF-8"?>
<TEI xmlns="http://www.tei-c.org/ns/1.0">
    <teiHeader>
        <fileDesc>
            <titleStmt>
                <title>Auf dem Brocken</title>
                <author>Heinrich Heine (1797-1856)</author>
                <respStmt>
                    <name>Wiki Autor</name>
                    <resp>Umwandlung in TEI-konformes XML</resp>
                </respStmt>
            </titleStmt>
            <publicationStmt>
                <p>aus Wikisource, der freien Quellensammlung
                    (<ptr target="http://de.wikisource.org/wiki/Auf_dem_Brocken"/>)</p>
            </publicationStmt>
```

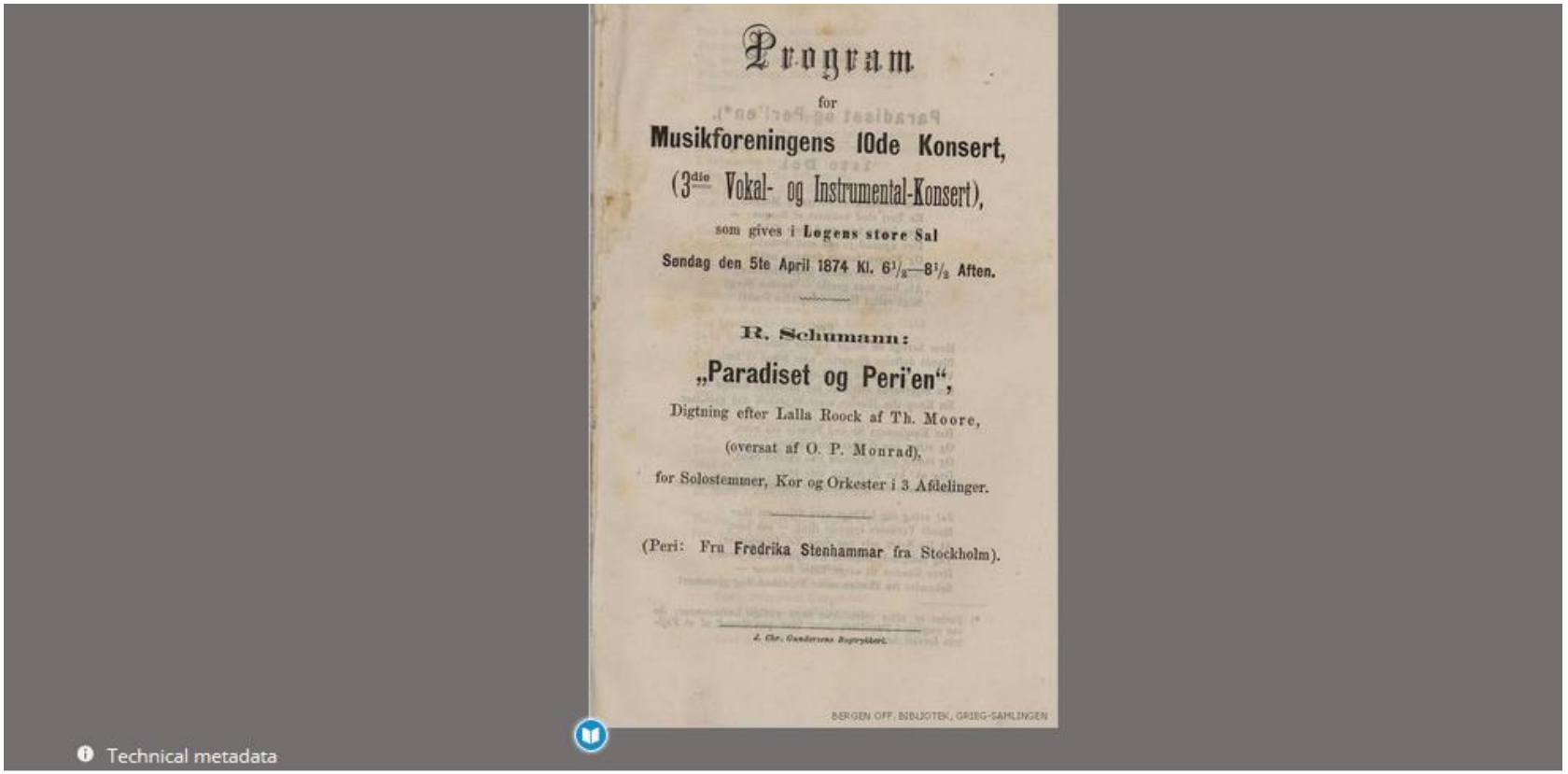
- Eine Form des Tagging von Texten ist das Hinzufügen von Mark ups (Markierungen) zur inhaltlichen Auszeichnung von Dokumenten.
- Die Text Encoding Initiative (TEI) ist eine 1987 gegründete Organisation und ein gleichnamiges Dokumentenformat zur Kodierung und zum Austausch von Texten, das diese entwickelt hat und weiterentwickelt.
- Die aktuelle Version P5 basiert auf dem XML Standard
- TEI hat sich zu einem De-facto-Standard innerhalb der Geisteswissenschaften entwickelt, wo es zum Beispiel zur Kodierung von gedruckten Werken (Editionswissenschaft) oder zur Auszeichnung von sprachlichen Informationen (Linguistik) in Texten verwendet wird.

*Vgl. https://de.wikipedia.org/wiki/Text_Encoding_Initiative

BACKGROUND LINKING

- Aktuelle Projekte kombinieren das gemeinschaftliche Indexieren mit lexikalischen oder semantischen Datenbanken, wie der **Wikipedia** oder der semantischen **DBpedia**, um eine spezielle Form eines kontrollierten Vokabulars anzubieten.

EINFÜHRUNG



Technical metadata

Title **Musikforeningens 10de Konsert (3dje Vokal- og Instrumental-Konsert), Konsertprogram - Kristiana 1874 04.05 | Robert Schumann**

Konsertprogram - Kristiana 1874 04.05

Description Op. 50 / Robert Schumann, Utøvere: Edvard Grieg, dirigent ; Fredrika Stenhammer ; orkester, Grieg

People **Creator:** Robert Schumann (1810-06-08 — 1856-07-29)
Contributor: Musikforeningen (Responsible party), Grieg, Edvard; dir., Schumann, Robert, Stenhammer, Fredrika; eks., http://dbpedia.org/resource/Robert_Schumann

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WEB ANNOTATIONS – CONNECTED CONTENT

- Web annotations are an attempt to recreate and extend the traditional annotation functionality as a new layer of **interactivity and linking** on top of the Web.
- It will allow anyone to **annotate anything anywhere**, be it a web page, an ebook, a video, an image, an audio stream, or data in raw or visualized form.
- Web annotations can be linked, shared between services, tracked back to their origins, searched and discovered, and stored wherever the author wishes; the vision is for a **decentralized and open annotation infrastructure**.*

* Vgl. https://www.w3.org/annotation/

STANDARDS & RECOMMENDATIONS

- Media Fragments URI 1.0
- W3C Web Annotation Working Group
- W3C Open Annotation
- W3C Digital Publishing Interest Group

- NB: The World Wide Web Consortium (W3C) is an international community where Member organizations, a full-time staff, and the public work together to develop Web standards. Led by Web inventor Tim Berners-Lee and CEO Jeffrey Jaffe, W3C's mission is to lead the Web to its full potential.

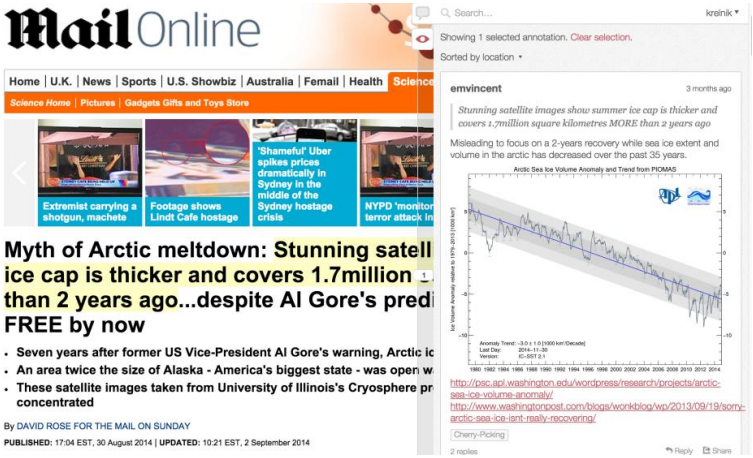
W3C Digital Publishing Interest Group Use Cases

- Annotation is a pervasive activity when reading or otherwise **engaging with publications**. In the physical world, highlighting and sticky notes are common paradigms for marking up and associating one's own content with the work being read, and many digital solutions exist in the same space. These digital solutions are, however, not interoperable between systems, even when there is only one user with multiple devices.

- Use cases are described for annotations on digital publications, as envisioned by the W3C Digital Publishing Interest Group, the W3C Open Annotation Community Group and the International Digital Publishing Forum.

W3C Digital Publishing Interest Group Use Cases

- The use cases are divided into five sections:
  - annotations that target only the entire publication
  - annotations that target a particular part of a publication
  - more complex annotations
  - the publication of annotations
  - use cases that are directly related to accessibility



W3C Web Annotation Working Group
Use Cases

- As a person viewing a resource, I want to discover annotations for it or parts of it, so that I can view them along side the resource.
- A portal providing cultural heritage resources wants to enrich the original metadata from web and social media resources in order to put their resources in context.
- A scientist using cultural heritage resources wants to connect different information she found about these resources and her own work.
- A user takes a photo of an insect, and uploads it to a site where contributors identify insects. Based in part on the geolocation info in the photo, other users identify the insect; One user selects the insect with a marquee, and creates an annotation on the selection naming the insect. Another user further identifies the plant that the insect is feeding on, and annotates the image to name the plant. The annotations include the geolocation information of the photo.
  Later an entomology student is researching the range and spread of that insect, and searches for annotations naming that insect; the student finds several images, including the above photo, and uses these images in a study.

EU Projekte

- Im Rahmen des Förderprogrammes zur Gestaltung der Europäischen Digitalen Bibliothek, Europeana, sind in verschiedene Projekten Annotationswerkzeuge entwickelt worden.
- Beispiele:
  - Europeana Sounds >> Web Content
  - LoCloud >> Anreicherung v. Daten
  - MediaMixer >> Video Content

Annotations Landscape within Europeana Network

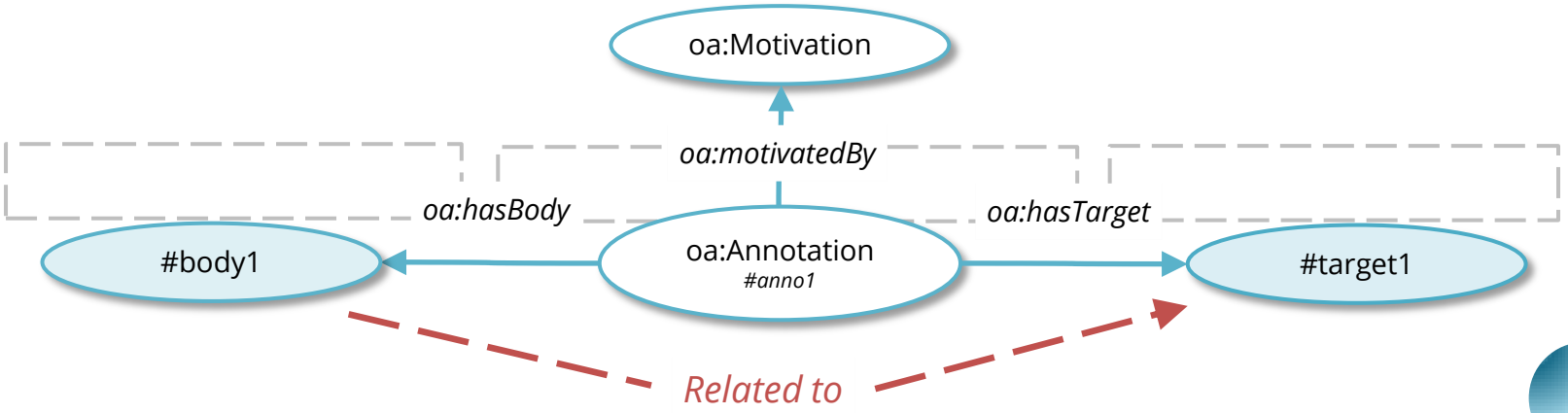
- **PATHS project**
  - Automatic semantic enrichments
- **DM2E**
  - Scholarly annotations
  - Using the Pundit toolset (http://thepund.it/)
- **SEALINCmedia**
  - Expert annotation "nichesourcing"
  - Developed the Accurator tool (http://rma-accurator.appspot.com/)
- **Europena Creative**
  - Pre-alpha version of the AnnotationsAPI
- **Europeana 1989**
  - Annotations in HistoryPin.org
- **Europeana V3**
  - Roundtripping of annotations with HistoryPin.org
- **Europeana Food&Drink**
  - Annotations in HistoryPin.org
  - Ongoing...
- **Europeana Sounds**
  - Wider range of user scenarios for annotations
  - Ongoing...

Modelling Annotations

Interoperability across platforms

- Europeana adopted the W3C Web Annotation Data Model (http://www.w3.org/TR/annotation-model/)
- Based on RDF and defines JSON-LD as default serialization format (JavaScript Object Notation for Linked Data)
- Offers a simple model for exchanging annotations across platforms

  … but flexible enough to support complex scenarios
- Still being worked on (for design and adoption)



Modelling Metadata Annotations
A proposal

- We consider metadata annotations as…
  - any annotation that refers to or asserts a statement to the information describing an object in order to complete or correct it
- Ideally, and like other annotations, they should be
  - agnostic to the way they are presented to the user in the interface
  - machine readable
- So that metadata annotations can
  - survive changes to the interface design;
  - allow them to be easily shared outside the interface they were originally created;
  - allow for other software applications to take further advantage of it

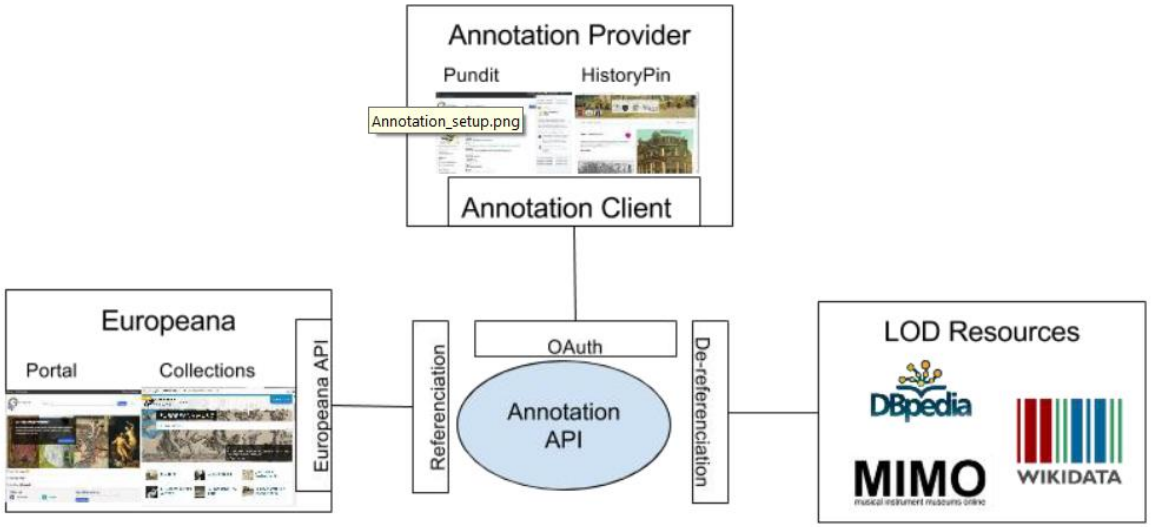
EUROPEANA SOUNDS

http://www.europeanasounds.eu/

- Europeana Sounds is a project co-funded by the European Commission
- Europeana Sounds **aims to double the number of audio items accessible through Europeana** to over 1 million and improve geographical and thematic coverage by aggregating items with widespread popular appeal such as contemporary and classical music, traditional and folk music, the natural world, oral memory and languages and dialects.
- Develop and validate audience specific sound channels and a distributed **crowd-sourcing infrastructure** for end-users that will improve Europeana's search facility, navigation and user experience. These can then be used for other communities and other media.

CROWDSOURCING INFRASTRUCTURE

Conceptual overview of crowdsourcing infrastructure*

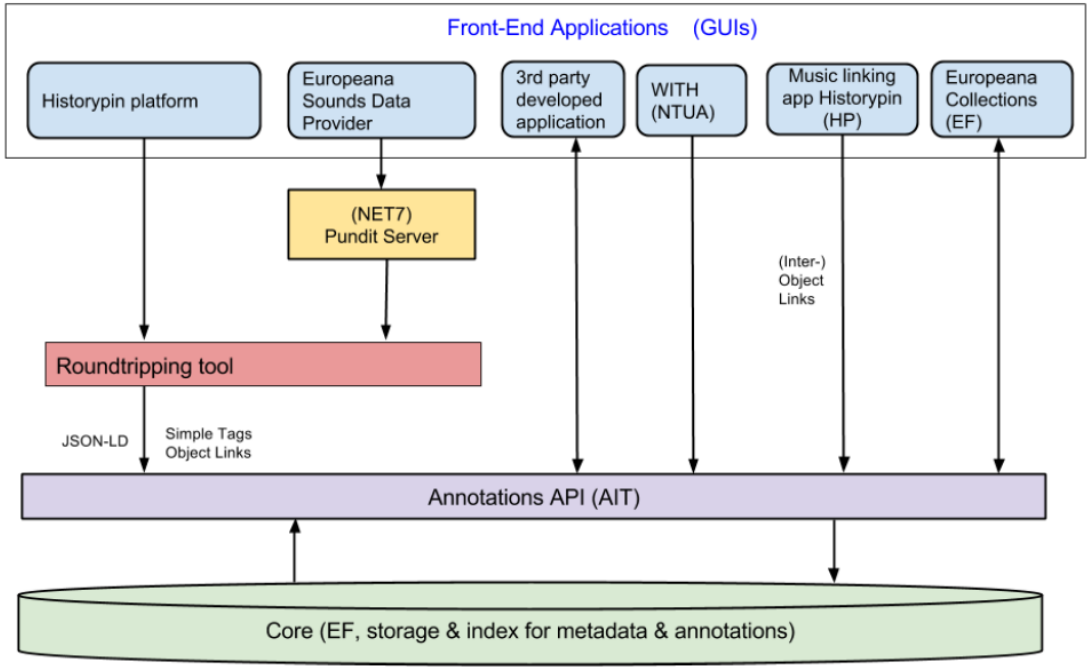


The main goal of the Europeana Sounds Crowdsourcing Infrastructure is to provide an appropriate environment for supporting users to easily **enrich Europeana items**. Consequently, the target part of the annotations always references one or more objects available in Europeana.

*Vgl. D2.10 Development of the crowdsourcing infrastructure, Europeana Sounds, 31.12.2015

CROWDSOURCING INFRASTRUCTURE

- Annotations API
- Tunepal
- WITH
- Pundit
- History Pin



Updated system architecture Europeana Sounds*

*Vgl. D2.10 Development of the crowdsourcing infrastructure, Europeana Sounds, 31.12.2015

ANNOTATIONS API

- The current implementation, as of December 2015, is able to create new (simple) tags for Europeana objects.
- Future features
  - Object linking (Europeana to Europeana) annotations - Semantic tagging annotations
  - Indexing/search of annotations
  - Basic moderation capabilities
  - Relevancy ranking (for sorting annotations, tags etc.)
  - Figure annotations
  - Time-based annotations
  - User sets
  - Rating
  - Geo-tagging
  - Metadata correction/completion

ANNOTATIONS API- MODERATION

- User Generated Annotations are always **stored separately** from the original metadata records in the Annotations API.
  - There they are related to the metadata object, as harvested by Europeana. This means enrichments resulting from crowdsourcing will never automatically alter the original metadata record as provided by the Data Provider.
- End-users of the various crowdsourcing platforms connected to the crowdsourcing infrastructure can only **create new annotations**, or **comment** on annotations from other end-users.
  - These new annotations are then stored in the Annotations API, in accordance with the first principle. Comments on annotations by others end-users are related to the original annotations in the Annotation API. End-users can select to make their annotations public, or keep them private. Editing or deleting annotations by other end-users is not possible as an end-user.
- Instead of supporting end-users with the editing or deleting of annotations by other end-users, we support the **evaluation** (e.g. 'flagging' and 'liking') of annotations from other end-users.
  - This aims to encourage crowd-moderation among the end-users. This will support users with the possibility to flag potentially offensive, libellous or spam enrichments. On the other hand it also aims at allowing users to express their explicit support for an already existing enrichment.

ANNOTATIONS API- MODERATION

- The target of semantic enrichments is restricted to resources from **trusted repositories**, in order to counter the spamming of links.

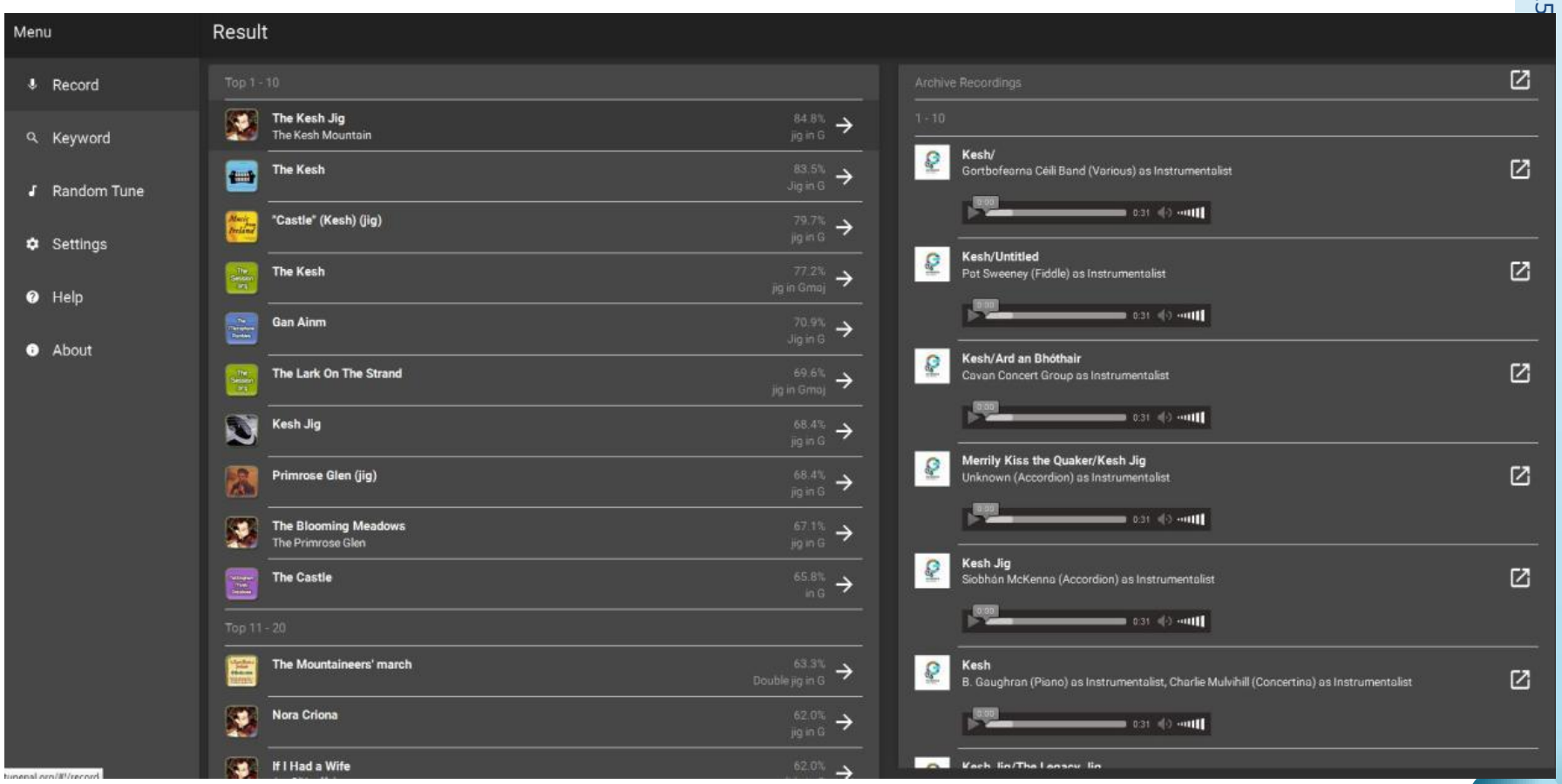
- Utilization of the annotations that can be retrieved from the Annotations API is left up to the **policy of the respective data re-users**.
  - For instance, these parties can choose to only display annotations that have been evaluated favorably by other users for a specific number of times or never display annotations that have been flagged as part of the crowd-moderation process.

- Only **administrators** of the Annotations API can **edit/delete** annotations.
  - This is meant to be a last resort, for instance to remove annotations of a discriminatory or defamatory nature or to delete spam. Flagged annotations, resulting from the crowd-moderation process mentioned above is one type of annotation that administrators will possibly select for deletion after review.

TUNEPAL

- Traditional music pilot for Irish & Scottish music – music identification
- The archiving records are linked to Tunepal via the Europeana API
- The widget supports:
  - Upload of 12 second piece of music
  - Connect to Tunepal that suggest possible tune names
  - Queries Europeana Search API to receive archive recordings
  - Lets the users listen to the audio candidates
  - Records the link between input and matched recording (not yet implemented)

TUNEPAL



Tunepal query-by-playing results

WITH

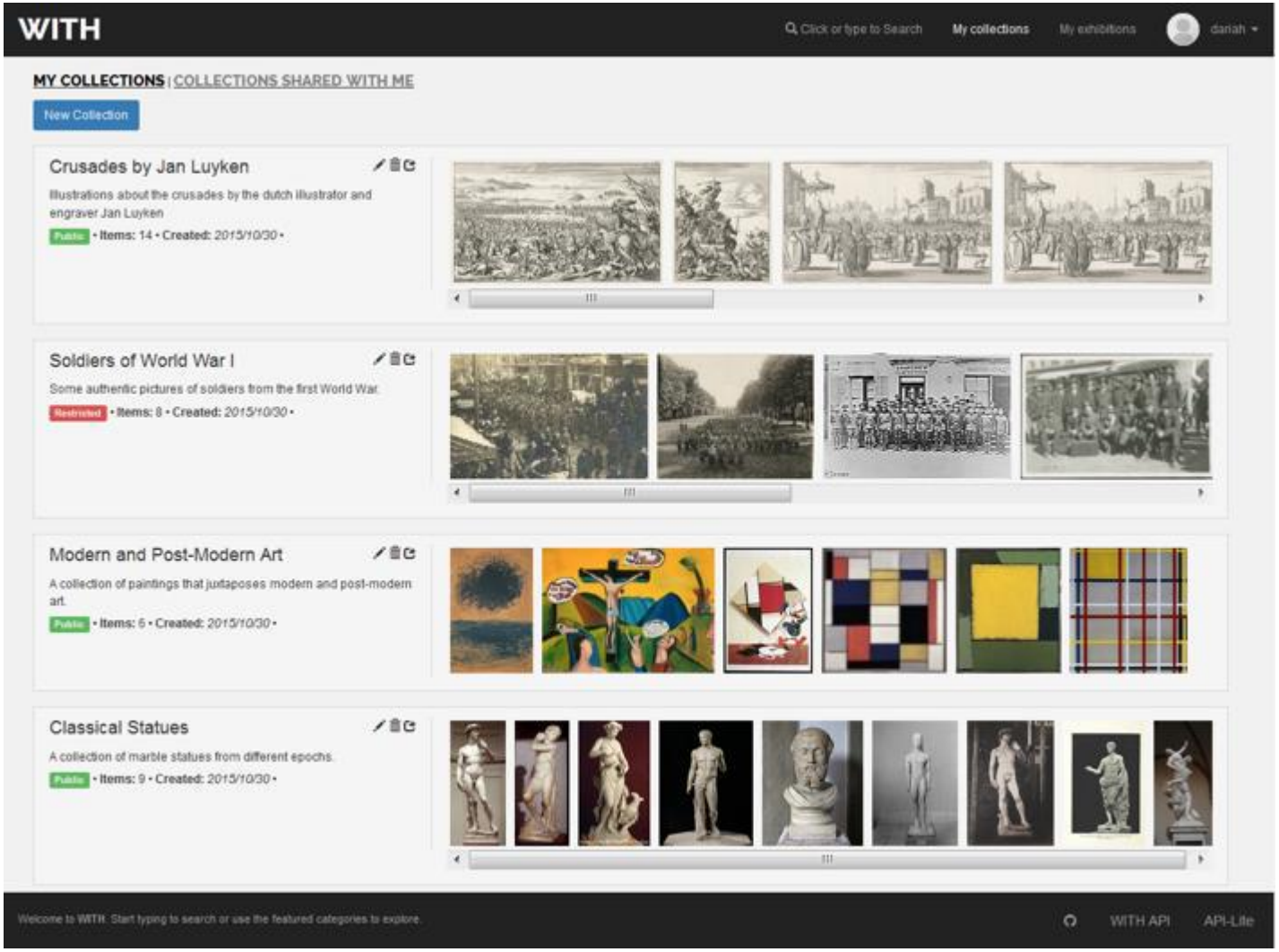
- WITH is a **culture-sharing crowdsourcing** platform that allows to easily search for cultural resources with the aim to collect, enrich, share and co-create with other users.
- WITH platform development is partially supported through Europeana Sounds, Europeana Space, EUscreenXL and Europeana Food and Drink.
- WITH is designed and developed in alignment with complementary services from the Europeana core infrastructure, and Europeana Labs, the Europeana Cloud and LoCloud.

WITH

- Everything users can do in WITH is saved as annotations, which could then later be synchronized to other applications such as the Annotations API.
- The current set of crowdsourcing functionalities of the WITH platform include the **creation of collections, exhibitions and spaces.**
- 2016: create and save annotation, add simple tags connecting objects related to a given thematic
- Annotate (link and enrich using SKOS thesauri and linked data repositories).

europeana sounds

WITH

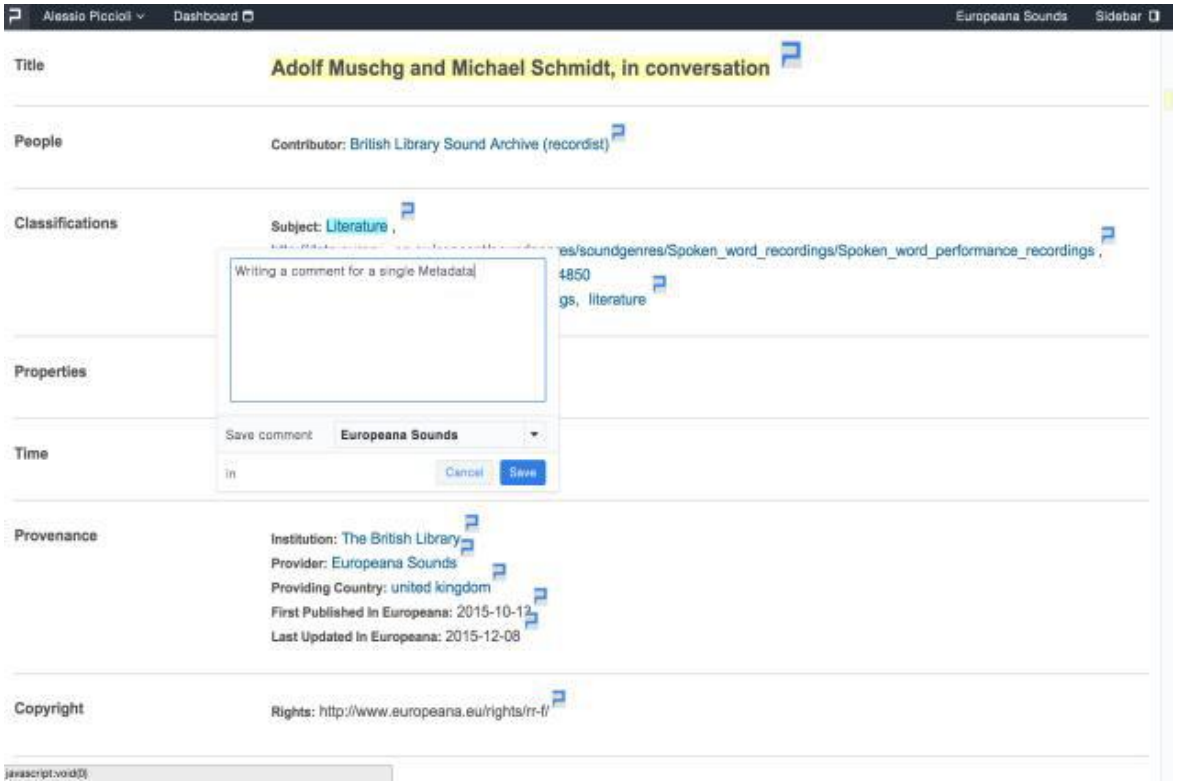


PUNDIT

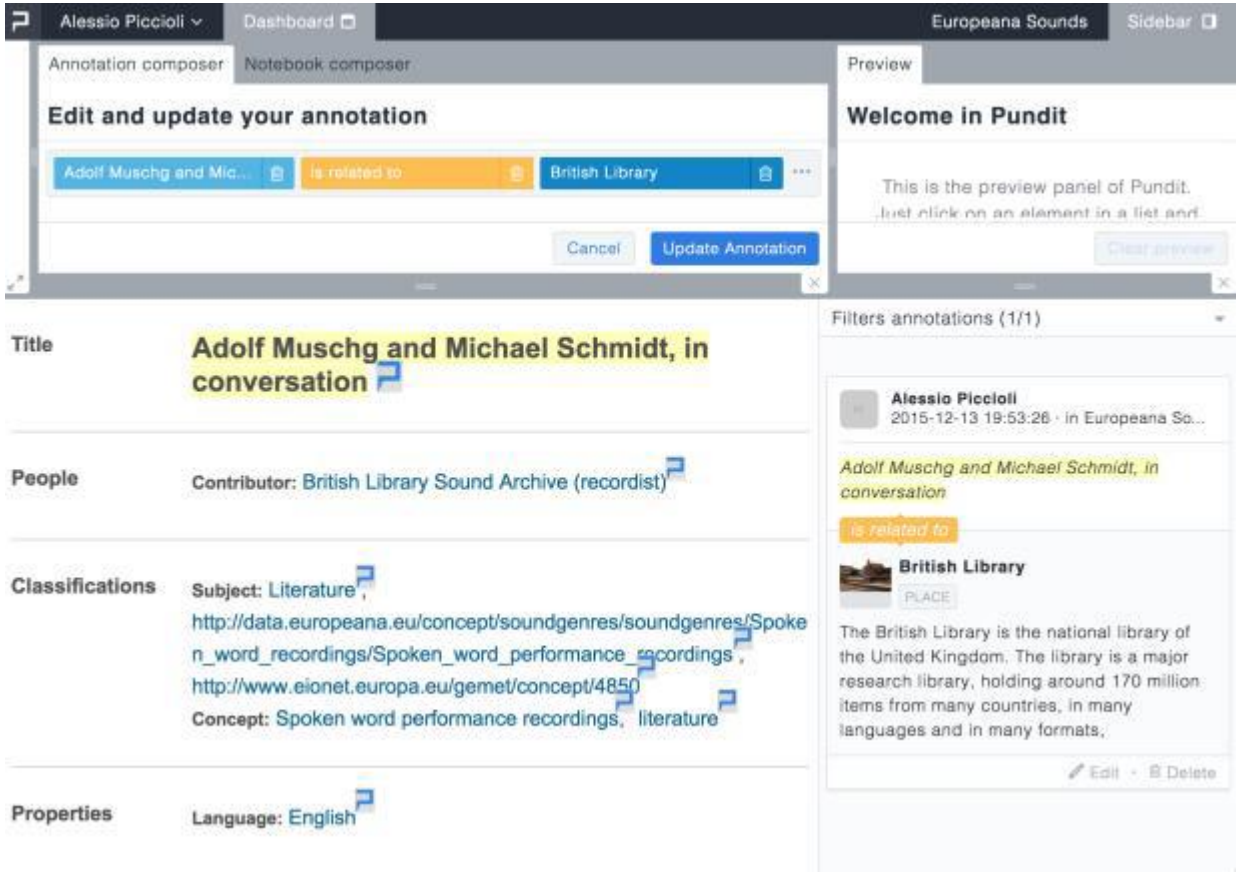
- This annotation client is released as a Chrome extension in 2 Versions
  - Annotator: with limited features (at the moment comment and highlight)
  - Annotator Pro: This version contains more features (semantic annotation, triple composer, etc.) revised with new graphics

PUNDIT ANNOTATOR

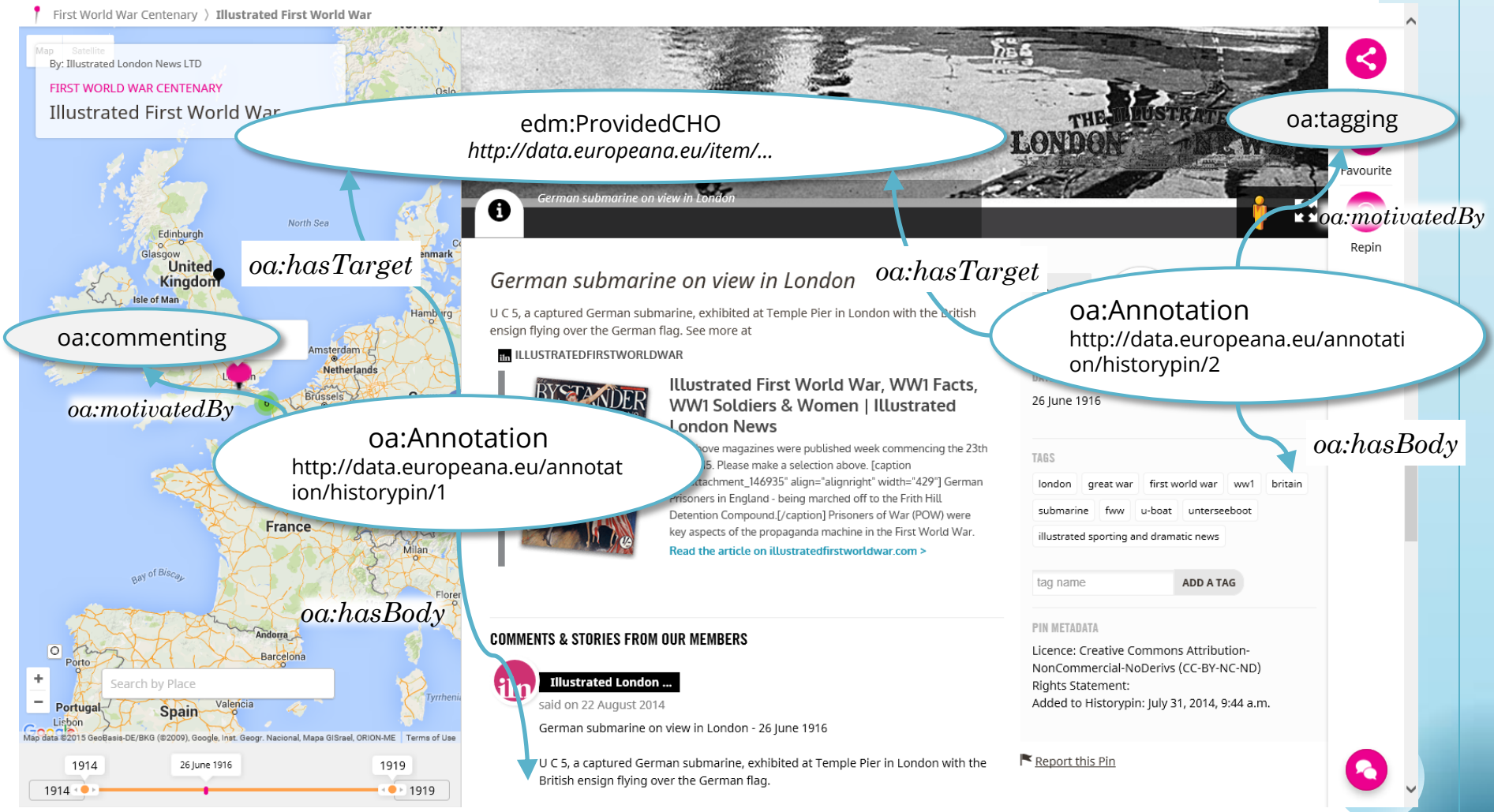
- The Europeana metadata is sent to the Pundit widget via the Europeana API



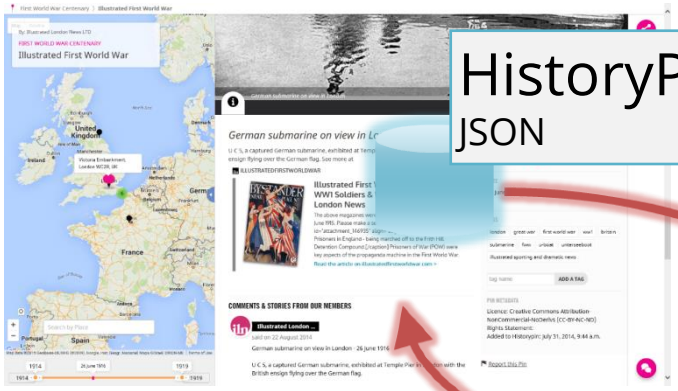
PUNDIT ANNOTATOR



COMMENTING AND TAGGING HISTORYPIN.ORG



EXCHANGING ANNOTATIONS WITH HISTORYPIN.ORG



HistoryPin API
JSON

Europeana Roundtripping PoC

Provider:
HistoryPin
From (datetime):
2015-11-20T10:14:44Z
Until (datetime):

Performs checks, normalization if needed, detects updates

http://www.historypin.org/map/#!/dialog:177232/

Webpage depicting the annotation

prov:wasDerivedFrom

Annotations API
Web Annotation Protocol

Annotation Server

An URI is generated reusing the local id from HistoryPin.org

oa:Annotation
http://data.europeana.eu/annotation/historypin/1234

LoCloud

http://www.locloud.eu/

- LoCloud is a Best **Practice Network** co-funded under the **CIP ICT-PSP** programme of the European Commission.
- LoCloud is supporting **small and medium-sized institutions** in making their content and metadata available to **Europeana**.
- A **cloud-based technology infrastructure** will enable the aggregation of local content, and
- a number of **microservices** will help to reduce technical, semantic and skills barriers and to render the content **more discoverable** and **interoperable**.

LoCloud

About: Microservice

Wikipedia: https://en.wikipedia.org/wiki/Microservices (2016-02-01)

[...] **microservices** is a

- **software architecture style** in which
- complex applications are composed of **small, independent processes**
- **communicating** with each other using **language-agnostic APIs**.
- These services are **small, highly decoupled** and focus on doing a **small task**,facilitating a modular approach to system-building.

LoCloud

Evolution of Architectures

pwc: Technology Forecast: Rethinking Integration, Issue 1, 2014, page 3

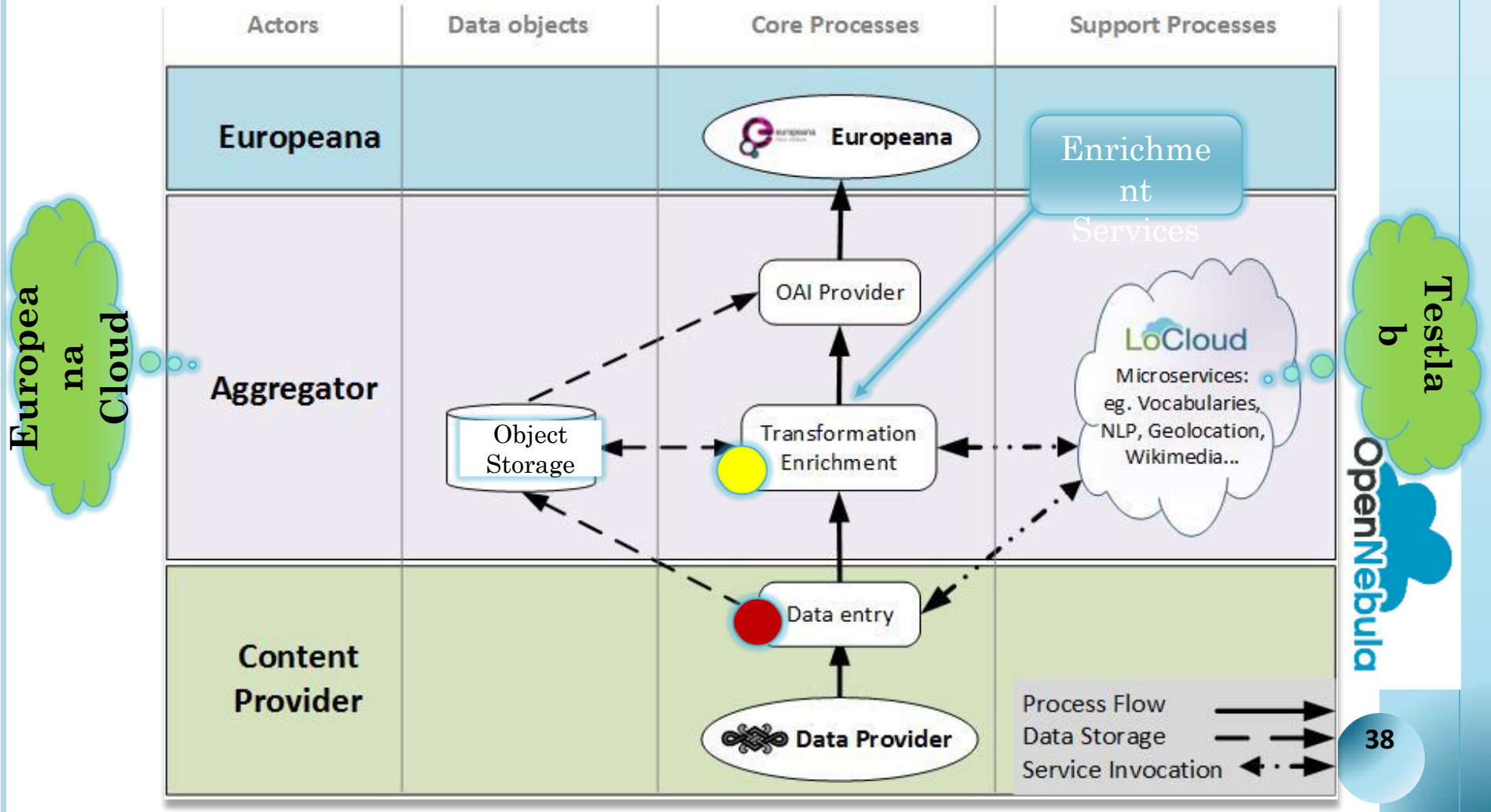
Evolution of services orientation

1990s and earlier	2000s	2010s
Coupling		
Pre-SOA (monolithic) Tight coupling	Traditional SOA Looser coupling	Microservices Decoupled

3 PwC *Technology Forecast*

Microservices: An alternative to the monolith

THE LOCLOUD AGGREGATION STRUCTURE



LoCloud

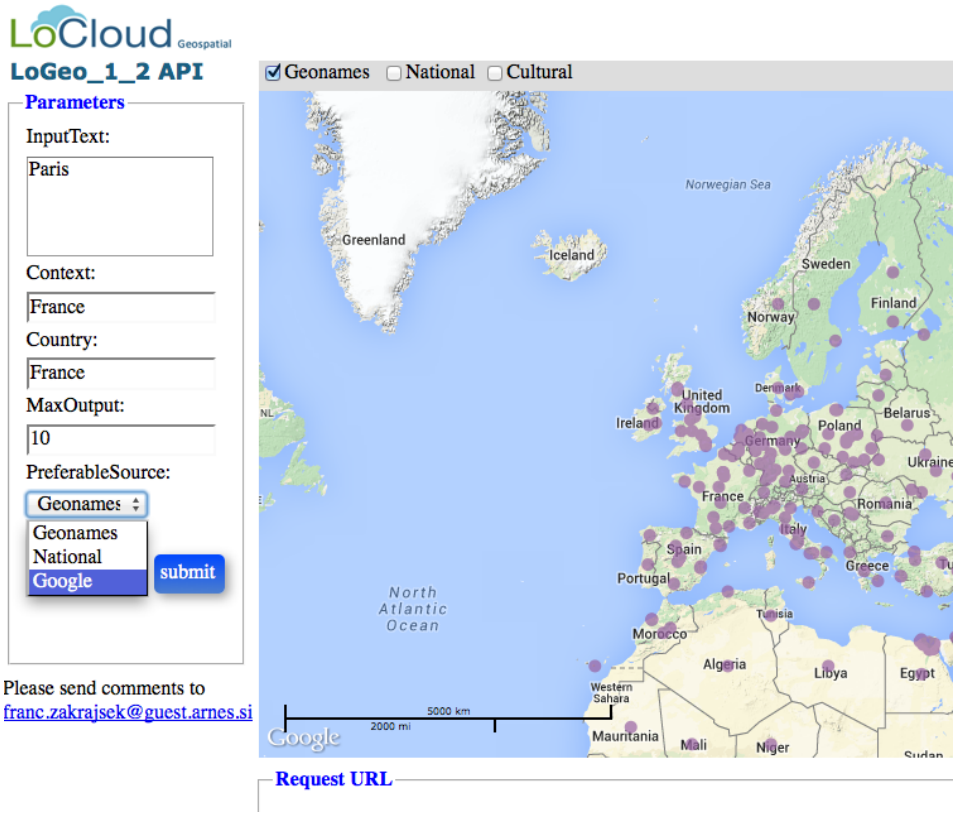
Cloud-based microservices for metadata enrichment and capture:

- Geo-location API
- Vocabulary service
- Historic Place Names service
- Geo-coding application
- Vocabulary matching service
- Background linking service
- Wikimedia application

http://support.locloud.eu/

LoCloud Microservices
LoGeo API

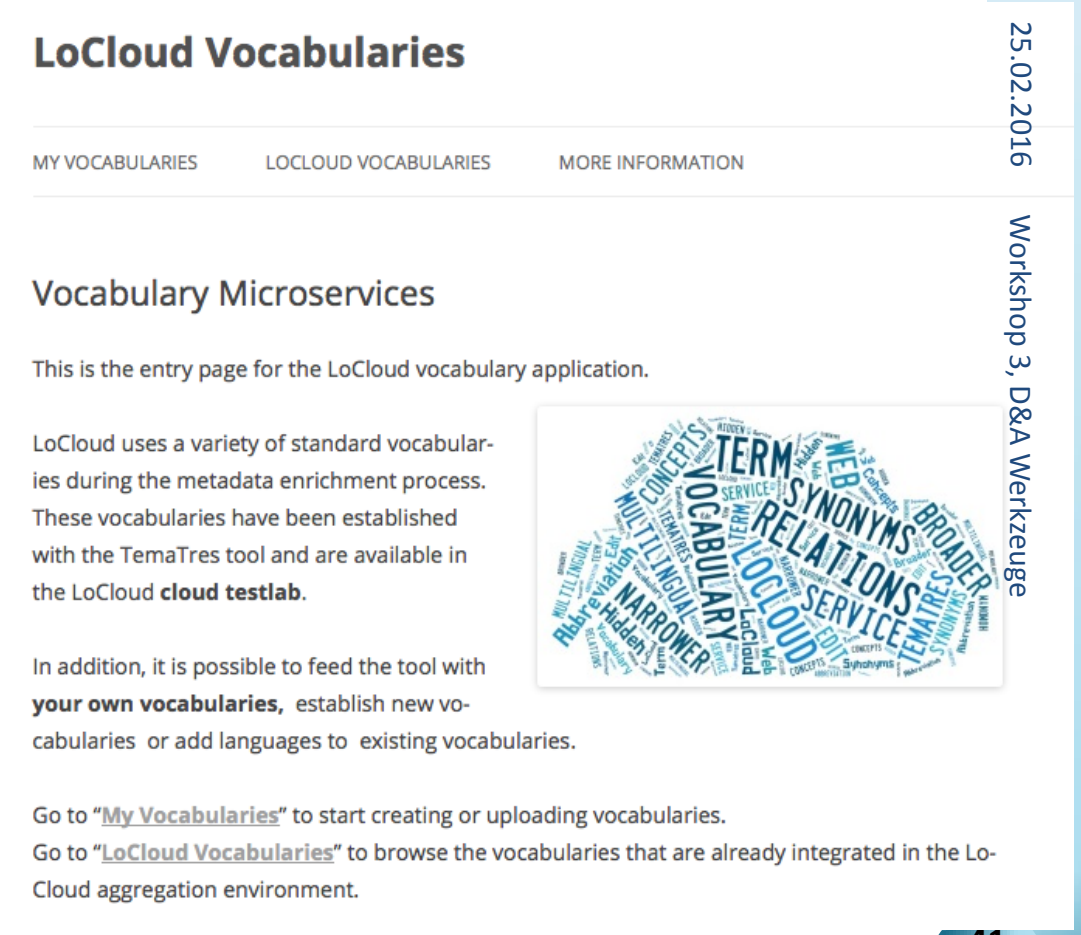
- Uses NER-Name Entity Recognition
- Recognizes and returns one or more place names candidates accompanied by geographical coordinates.



GPL

LoCloud Microservices
Vocabulary service

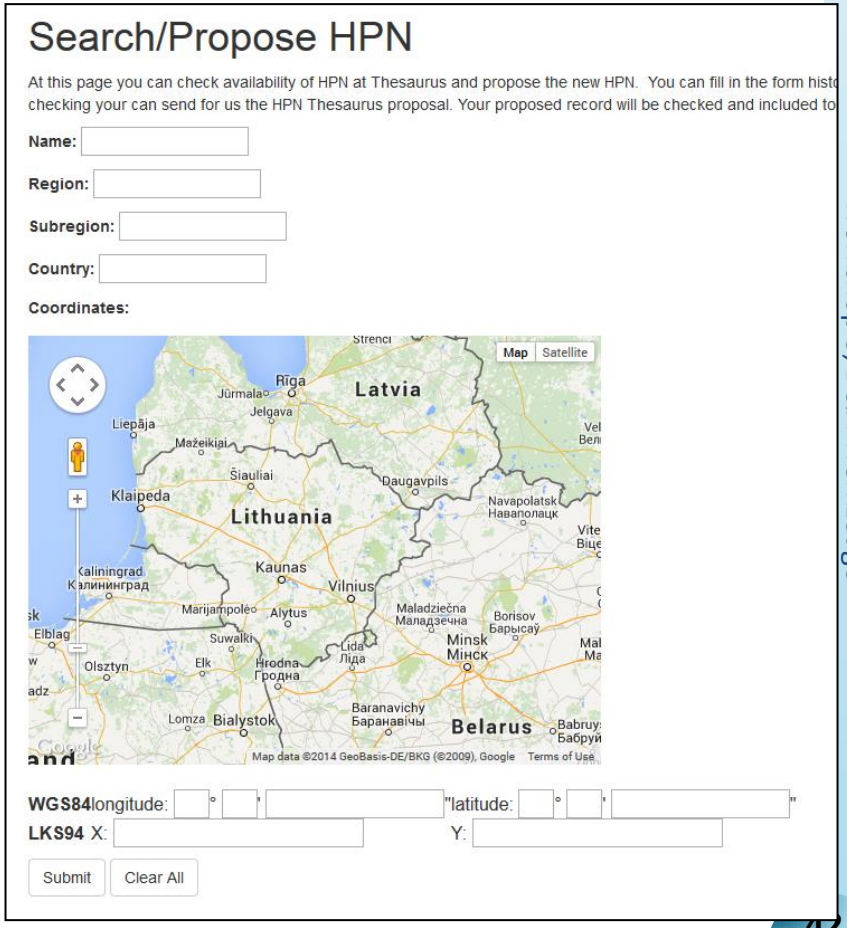
- Based on “TemaTres”
- Incorporates 29 standard thesauri
- Supports collaborative thesaurus management
- Integrated in MORE > add thesauri terms to all items of a metadata package
- Exploited by the LoCloud vocabulary matching microservice via its API



GPL

LoCloud Microservices
Historic Place Names service

- A **semi-automatic** historical geo-information management function and web service.
- Enables local cultural institutions to **collaborate in developing** the Thesaurus of HPN and enriching ingested metadata.
- Enables **export** of selected LoCloud HPN Thesaurus data sets.

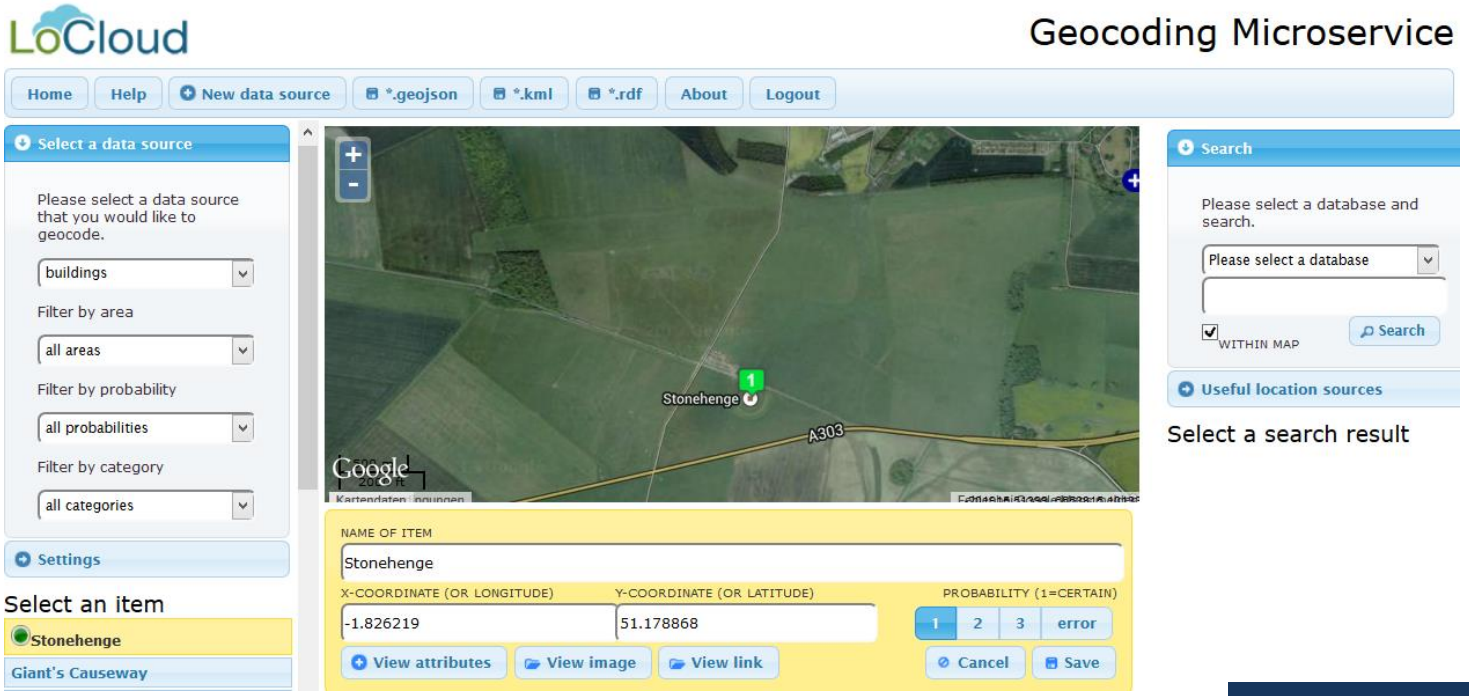


GPL

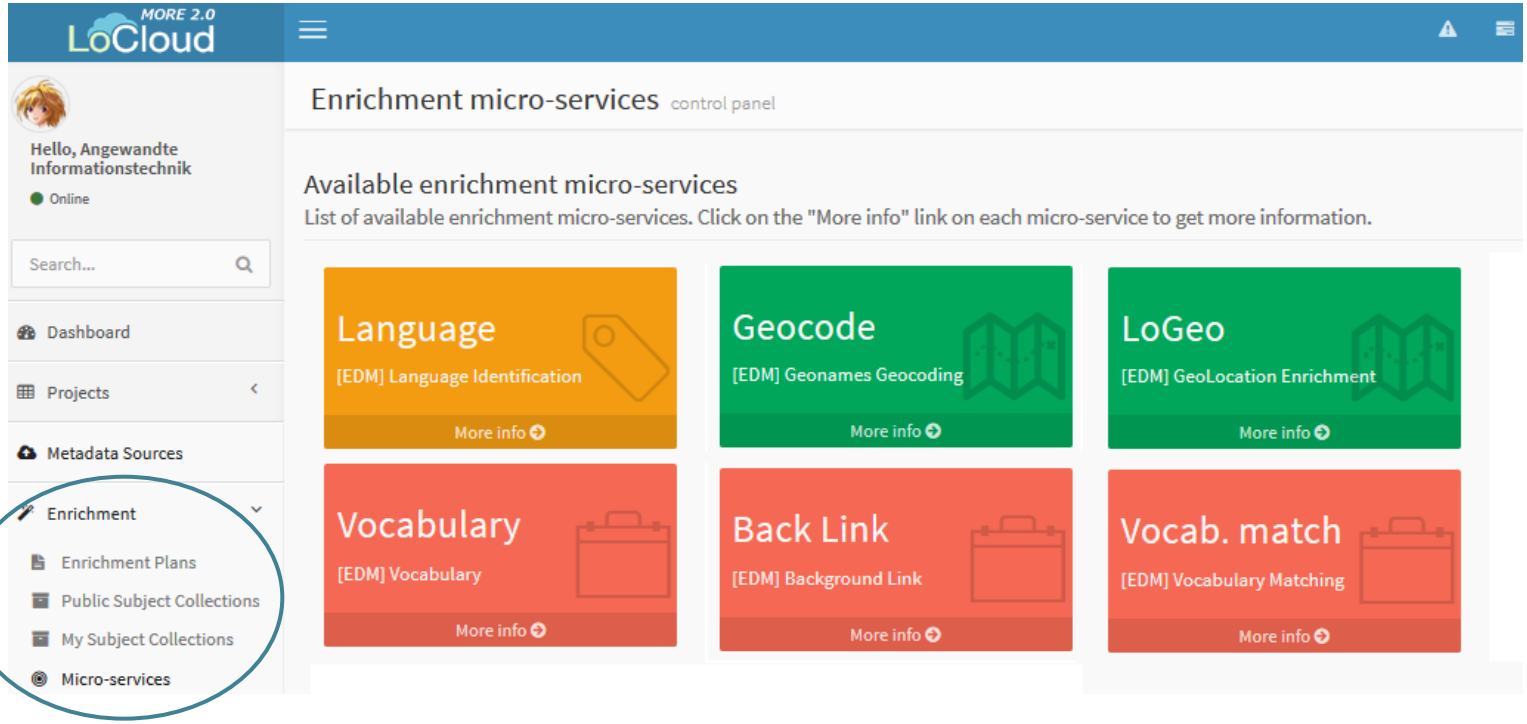
LoCloud Microservices

Geo-coding application

- End-user oriented application
- allows institutions to add geographical locations to existing content in a controlled crowd-sourcing environment and then
- load the augmented data back into their original production databases.



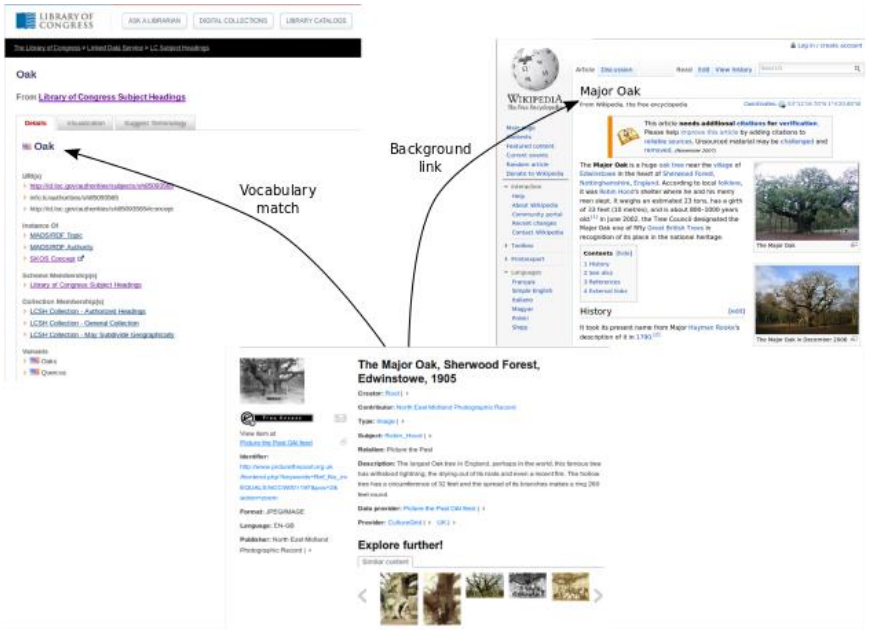
LoCloud Microservices
Vocabulary matching service



- Builds on work in the PATHS project (FP7)
- Automatically assigns relevant concepts and terms to item records
- Retrieves terms from the Vocabulary service

LoCloud Microservices
Background linking service

- Based on work in PATHS
- Follows the Named Entity Disambiguation approach
- Enriches items with links to external contextual information in DBpedia and Wikipedia



LoCloud Microservices Wikimedia application

- A web service that uses a REST interface to communicate with Wikimedia commons
- The main functionalities are **harvesting content from Wikimedia**, **parsing** the harvested content, and **identifying useful entities** that can be **mapped** to the ESE or EDM metadata schemas.
- The mapped ESE / EDM records are then sent to **MORe** to be delivered to Europeana.

HTTP://VOCABULARY.LOCLOUD.EU/

Vocabulary Microservices

- LoCloud uses a variety of standard vocabularies during the metadata enrichment process.
  These vocabularies have been established with the TemaTres tool and are available in the **LoCloud testlab**.
- In addition, you can add **your own vocabularies,** establish new vocabularies or add languages to existing vocabularies.

LoCloud

Technical Insights

- Vocabulary WebService; 20+ Functions, **REST-API**
  http://test113.ait.co.at/tematres/vocab/services.php
- **REST-API-Example**: Search; UNESCO-Thesaurus
  http://test113.ait.co.at/tematres/unesco/services.php?task=search&arg=peace
- **SPARQL-Example**; DISMARC-Genres
  http://test113.ait.co.at/tematres/vocab/sparql.php (SPARQL Endpoint)

```
SELECT ?term WHERE {
?concept skos:prefLabel "Acid Jazz"
?concept skos:broader
?broader . ?broader skos:prefLabel ?term . }
```

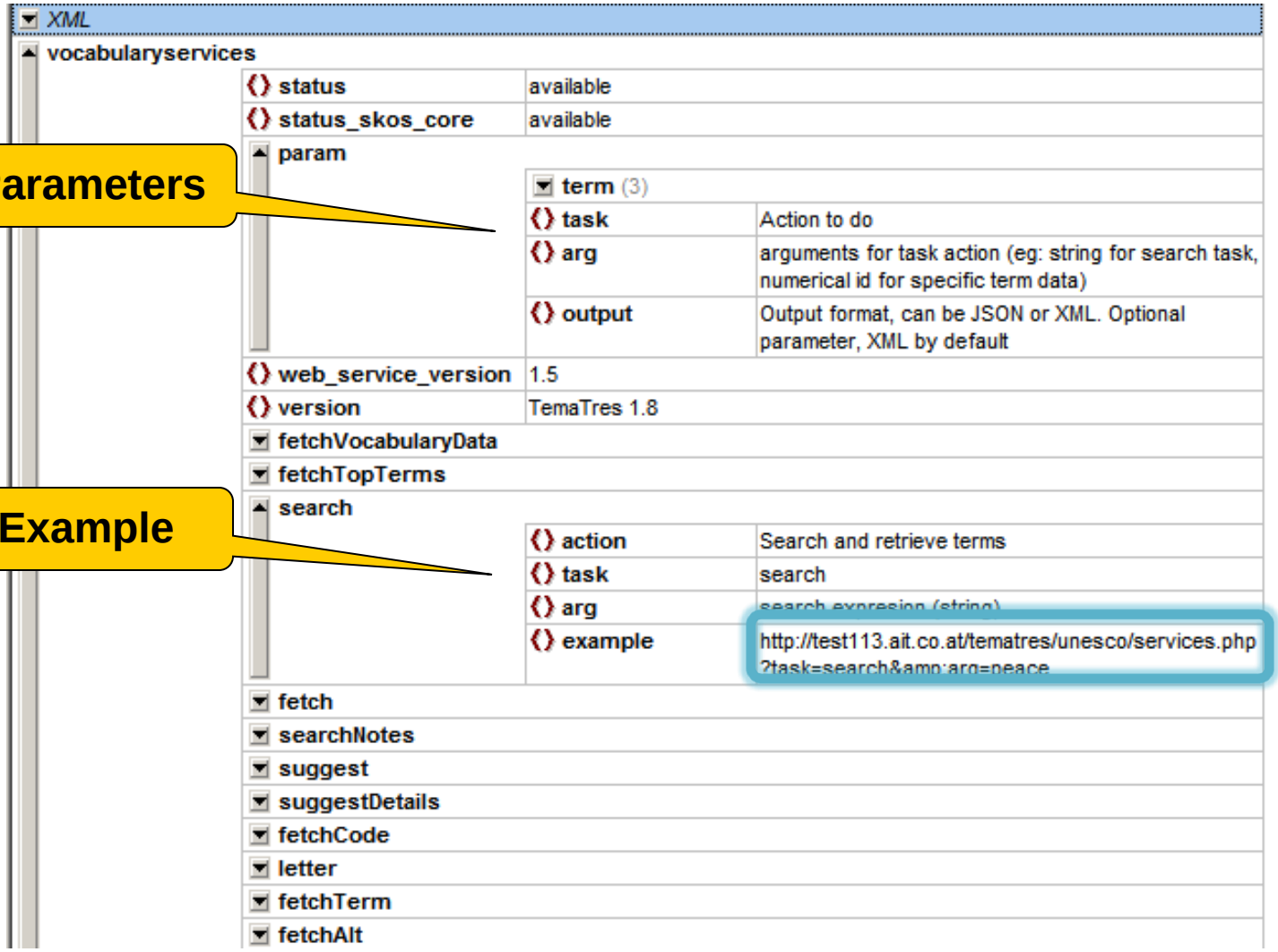
- Service Call („fetchTopTerms“); embedded in a test application (⇨ „**Vocabulary Microservice**“)
- Test **Application Development**; Designer View
- The Test Application; **Part of Data Entry**
  http://dmdap.ait.co.at/index.php/vocabulary-test/

VOCABULARY WEBSERVICE
20+ FUNCTIONS, REST-API

LoCloud

Parameters

Example



XML

- vocabularyservices
  - status: available
  - status_skos_core: available
  - param
    - term (3)
      - task: Action to do
      - arg: arguments for task action (eg: string for search task, numerical id for specific term data)
      - output: Output format, can be JSON or XML. Optional parameter, XML by default
  - web_service_version: 1.5
  - version: TemaTres 1.8
  - fetchVocabularyData
  - fetchTopTerms
  - search
    - action: Search and retrieve terms
    - task: search
    - arg: search expression (string)
    - example: http://test113.ait.co.at/tematres/unesco/services.php?task=search&arg=peace
  - fetch
  - searchNotes
  - suggest
  - suggestDetails
  - fetchCode
  - letter
  - fetchTerm
  - fetchAlt

REST-API-EXAMPLE: SEARCH UNESCO-THESAURUS

LoCloud

http://test113.ait.co.at/tematres/unesco/services.php?task=search&arg=peace

XML

vocabularyservices

result

term (9)

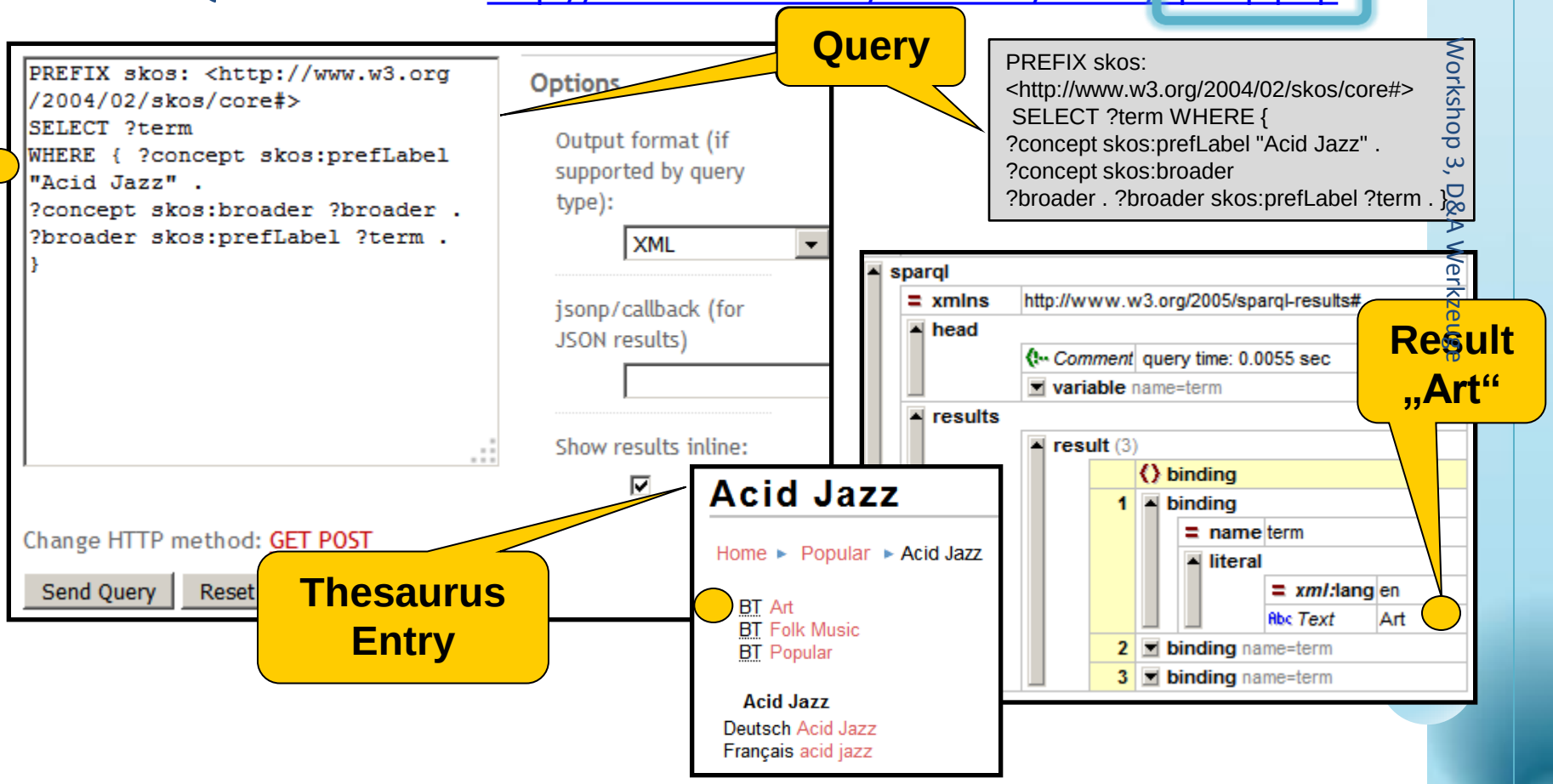
	term_id	string	index	order
1	580	PEACE	|32|581|580	1
2	1849	CULTURE OF PEACE	|25|153|165|1849	2
3	1846	PEACE EDUCATION	|119|118|1842|1841|1846	3
4	2625	PEACE RESEARCH	|32|581|580|2625	4
5	1851	PEACEBUILDING	|32|581|580|1851	5
6	841	PEACEFUL COEXISTENCE	|32|581|580|841	6
7	1857	PEACEKEEPING	|32|581|580|1857	7
8	1856	PEACEMAKING	|32|581|580|1856	8
9	1858	RIGHT TO LIVE IN PEACE	|32|142|817|1858	9

resume

SPARQL-EXAMPLE DISMARC-GENRES

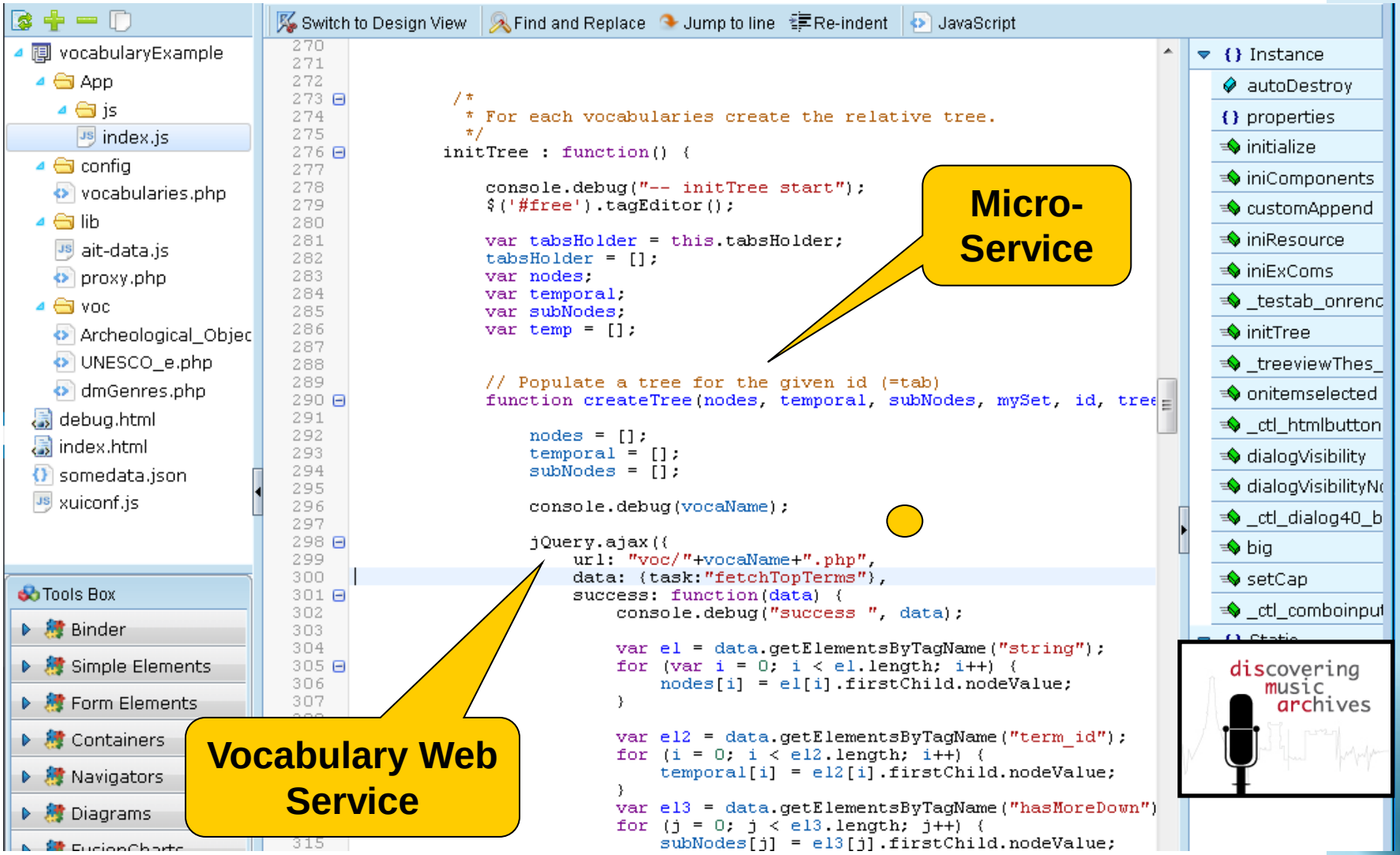
LoCloud

- Query: "Find all Broader Terms for ‚Acid Jazz‘ “
- SPARQL End Point: http://test113.ait.co.at/tematres/vocab/sparql.php

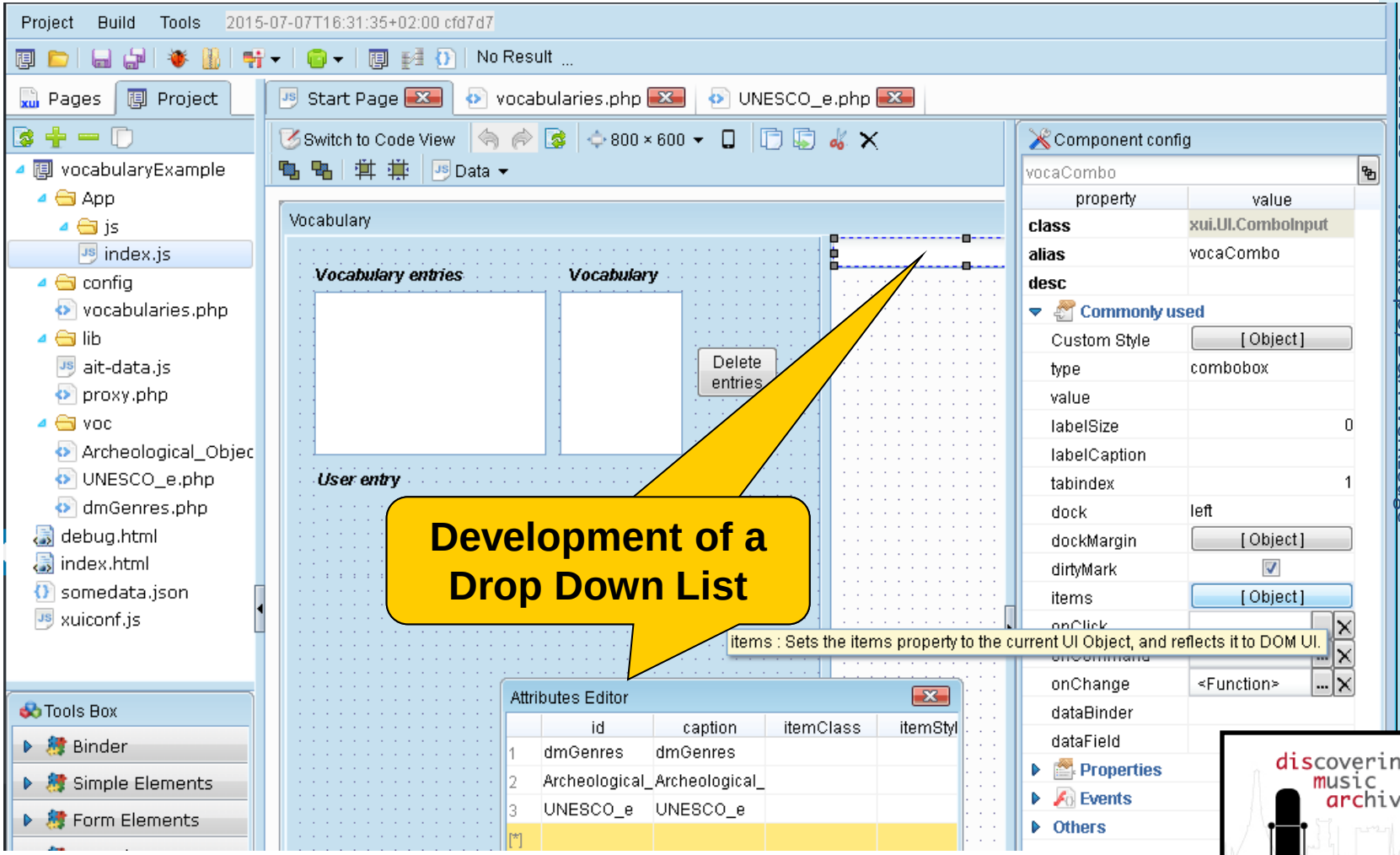


SERVICE CALL („FETCHTOPTERMS“) EMBEDDED IN A TEST APPLICATION

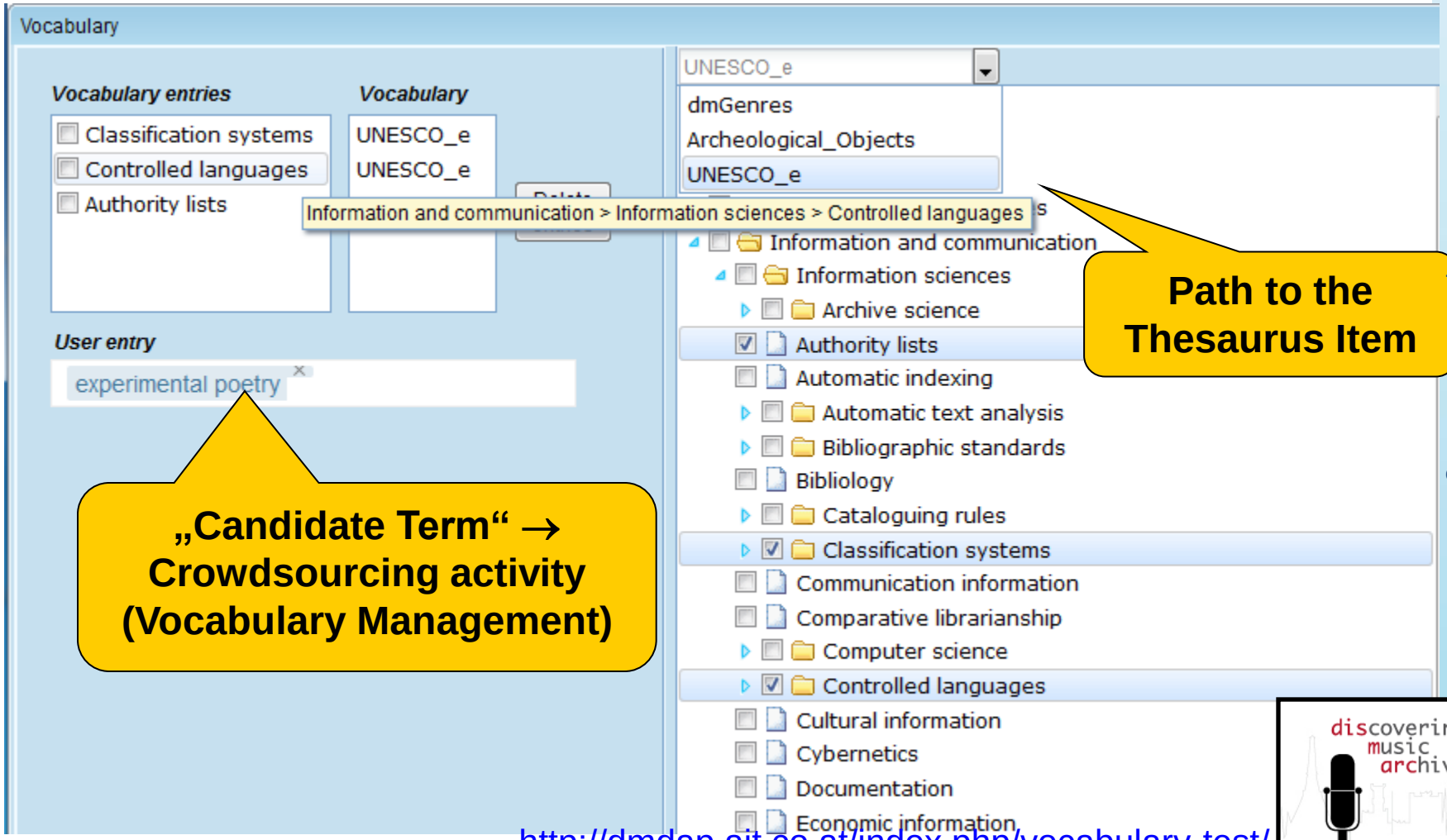
LoCloud



Test Application Development Designer View

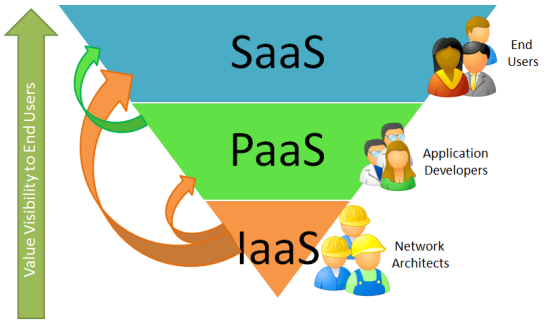


The Test Application
Part of Data Entry



http://dmdap.ait.co.at/index.php/vocabulary-test/

Deployment of Microservices



LoCloud:

- Each LoCloud microservice is contained in a virtual engine (**IaaS**)

Post LoCloud (AIT):

- Packaging (some) microservices [1)] inside docker-containers (**PaaS**)
- Microservices are available via a private **Docker Hub**
- Management of microservices using **Docker Swarm** or **Kubernetes**
- Applications: **OpenStack Swift** for object storage

1) dotCloud, Inc. -http://www.docker.io/static/img/docker-top-logo.png, Apache License 2.0

MARKETPLACE FOR MICROSERVICES

http://dmdap.ait.co.at/index.php/sandbox/

Data Management

Data Presentation

Data Entry (SPECTRUM)

Media Selection

http://dmdap.ait.co.at/index.php/Media-selection/

Vocabulary (LoCloud)

http://dmdap.ait.co.at/index.php/vocabulary-test/

Annotate Content

http://dmdap.ait.co.at/index.php/Content-annotation/

Search (EuSounds)

http://dmdap.ait.co.at/index.php/showcase/

Connect Content

http://kochw.webmaker.ait.co.at/popcorn/d

Navigation (EuSounds)

http://dmdap.ait.co.at/index.php/showcase/

Data Exchange

MEDIAMIXER

http://www.mediamixer.eu/

- EU FP7, Intelligent Information Management
- Community set-up and networking for the reMIXing of online MEDIA fragments
- The objective of MediaMixer is to set up and sustain a **community** of **video** producers, hosters, and redistributors who will be supported in the adoption of **semantic multimedia technology** in their systems and workflows to build a European market for **media fragment re-purposing and reselling**
  - promote innovative multimedia technology (centred around media fragments and semantics)
  - domains of e-learning (media distributors), copyright management (media owners), media archives and broadcasters (media producers)

MEDIAMIXER

- Media mixing is a term for the process by which self – contained parts of media (called: media fragments) are identified and exposed via media repository interfaces, so that consumers can access and re-use only the parts they are interested in.

MEDIA FRAGMENTS

- in order to make video clips accessible in a transparent way, it needs to be as easily linkable as a simple HTML page
- In order to share or bookmark only the interesting parts of a video, we should be able to link into or link out of this time-linear media resource
- The mission of the W3C Media Fragments Working Group, which is part of W3C's Video in the Web activity, is to provide a mechanism to address media fragments on the Web using Uniform Resource Identifiers (URIs).

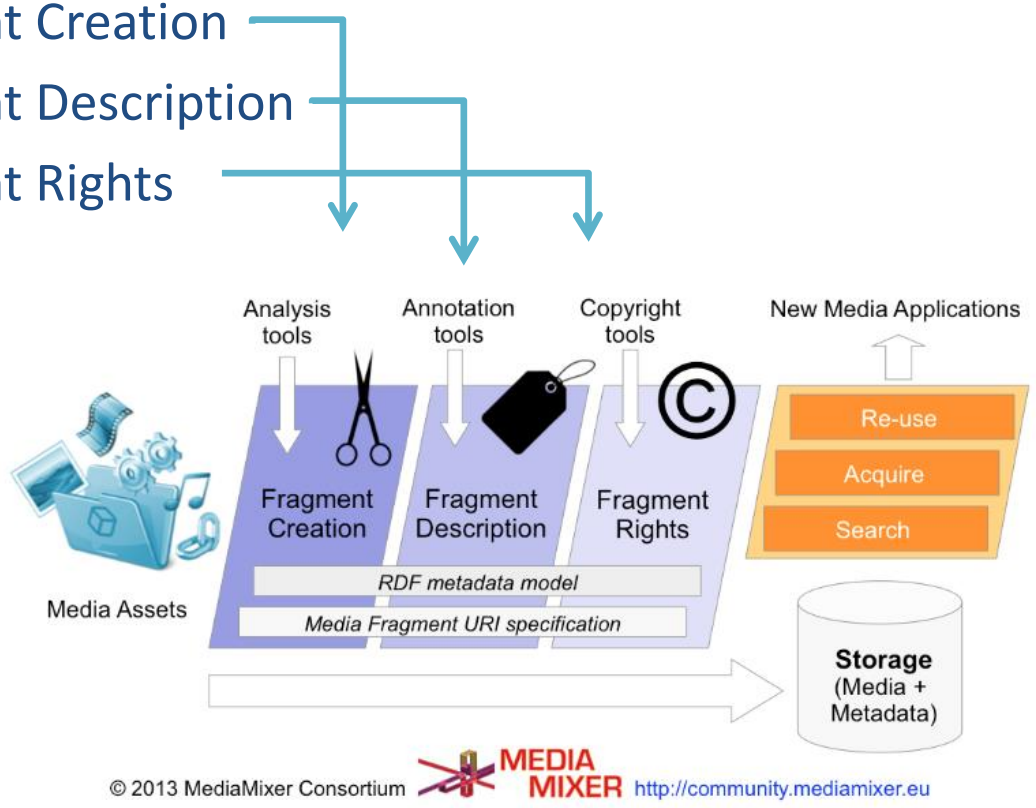
USE CASES

- Example use cases are the
  - bookmarking or sharing of excerpts of video clips with friends in social networks,
  - the automated creation of fragment URIs in search engine interfaces by having selective previews, or
  - the annotation of media fragments when tagging audio and video spatially and/or temporally.

MEDIA MIXER

DEVELOPMENTS

- Four key technologies of the Media Mixing process:
  - Media Fragment Specification and Tools
  - Media Fragment Creation
  - Media Fragment Description
  - Media Fragment Rights



ANFORDERUNGEN AN WERKZEUGE FÜR CONNECTED CONTENT

- Datenbestand vorhanden
- Verlinkung mit anderen Daten erwünscht
- Verschiedene Wege der Anreicherung erwünscht
- Die Anreicherung selbst wird zum Objekt
- Dieses Objekt soll ein suchbarer Datensatz werden

MOTIVATION

FI-Content Proposal (2014):
„Connected Content“

The Proposed Project has been elaborated around the following use case:

- ***A user consumes a broadcast and is interested in additional information, to be shown either***
  1. ***on his/her TV-Screen or***
  2. ***on a second screen device.***

SCENARIO

Step 1: The Red Button Studio

Broadcaster prepares a ***broadcast*** and identifies **Moments of Interest (MoI)**. In connection with these **MoI**s, the b***roadcaster*** prepares **links to additional relevant information**. The links (in a resulting link list) are **connected with a time stamp identifying the moment in the time line of the *broadcast*.**

Links are included in the Red Button in the final transport stream. The link in the Red Button points to a carousel which is displayed on the TV screen. The carousel presents MoIs in thumbnails (scenes of the broadcast) which are clickable and lead to the connected content.

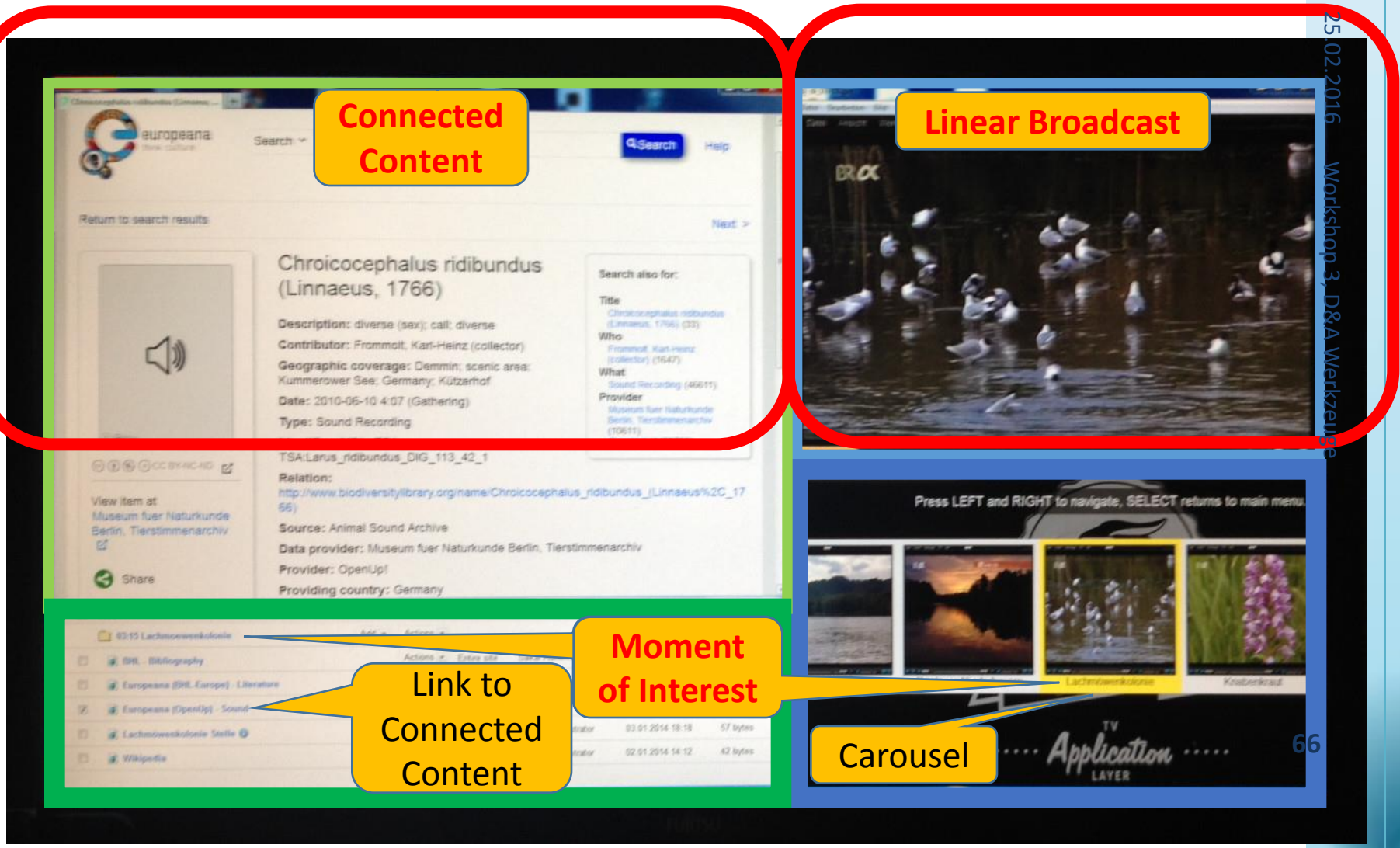
SCENARIO

Step 2: User Experience

On **viewing** the ***linear broadcast***, the **user sees a signal** which announces the **availability of connected content**, presses the ***red button*** and (1) receives **additional information** ([**MoI**]identified by the **link** and **time stamp**) on the ***TV-screen*** (i.e. **using split screen**)

or (2) if the user uses a second screen, he/she logs into the broadcaster's server using an app on the mobile device. Through this connection the app shows the connected content on the second screen. Additionally, during a session where the user does not change his/her network access (i.e. for the duration of a broadcast), the broadcaster can identify the user by the IP-address of the STB/smart TV and the logged-in second device; this enables tailored information to be added by the broadcaster when the user profile is recognized.

THE USER EXPERIENCE



WORKFLOW

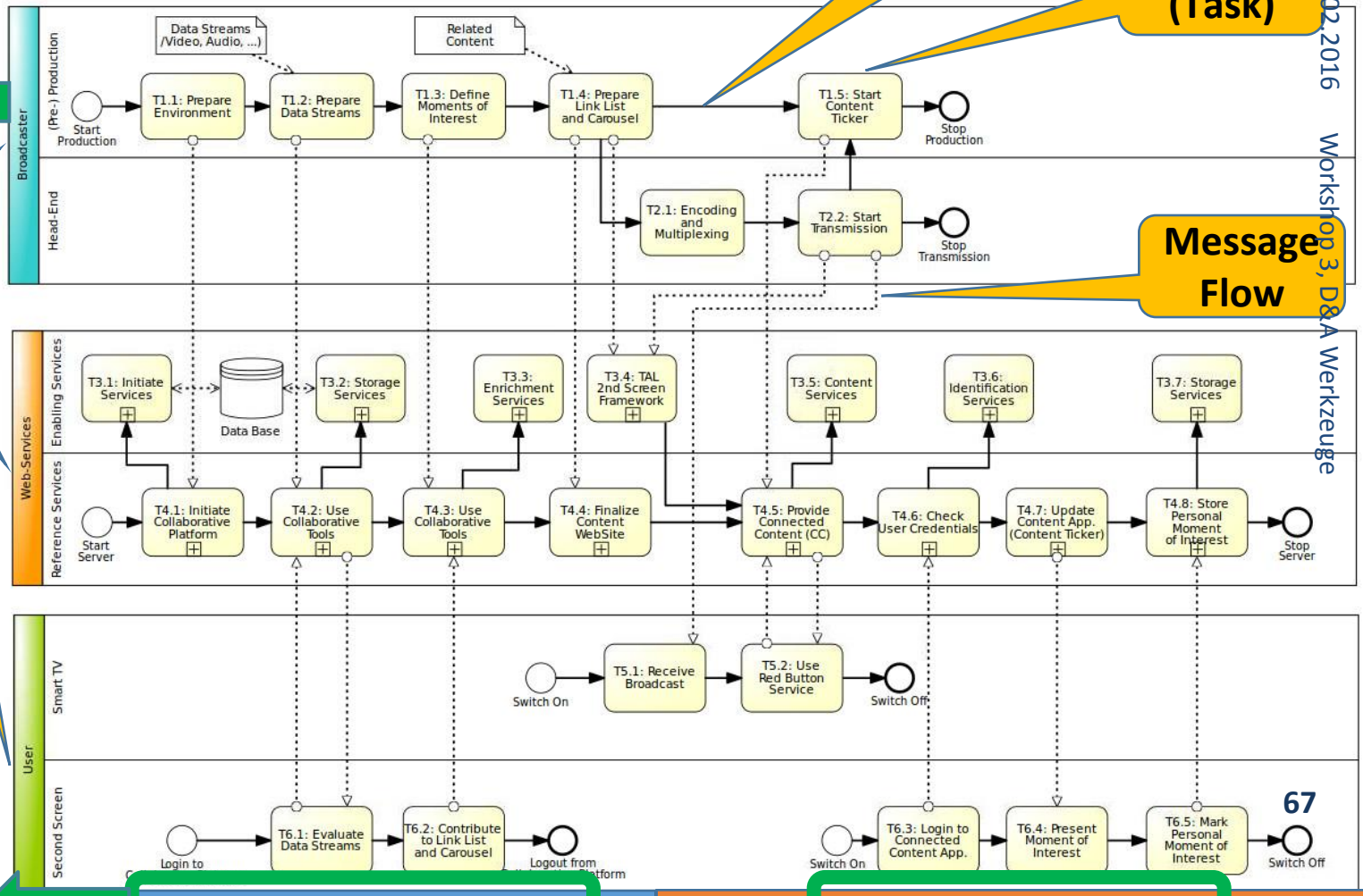
Data Provider

Process Flow

Activity (Task)

Roles

Message Flow

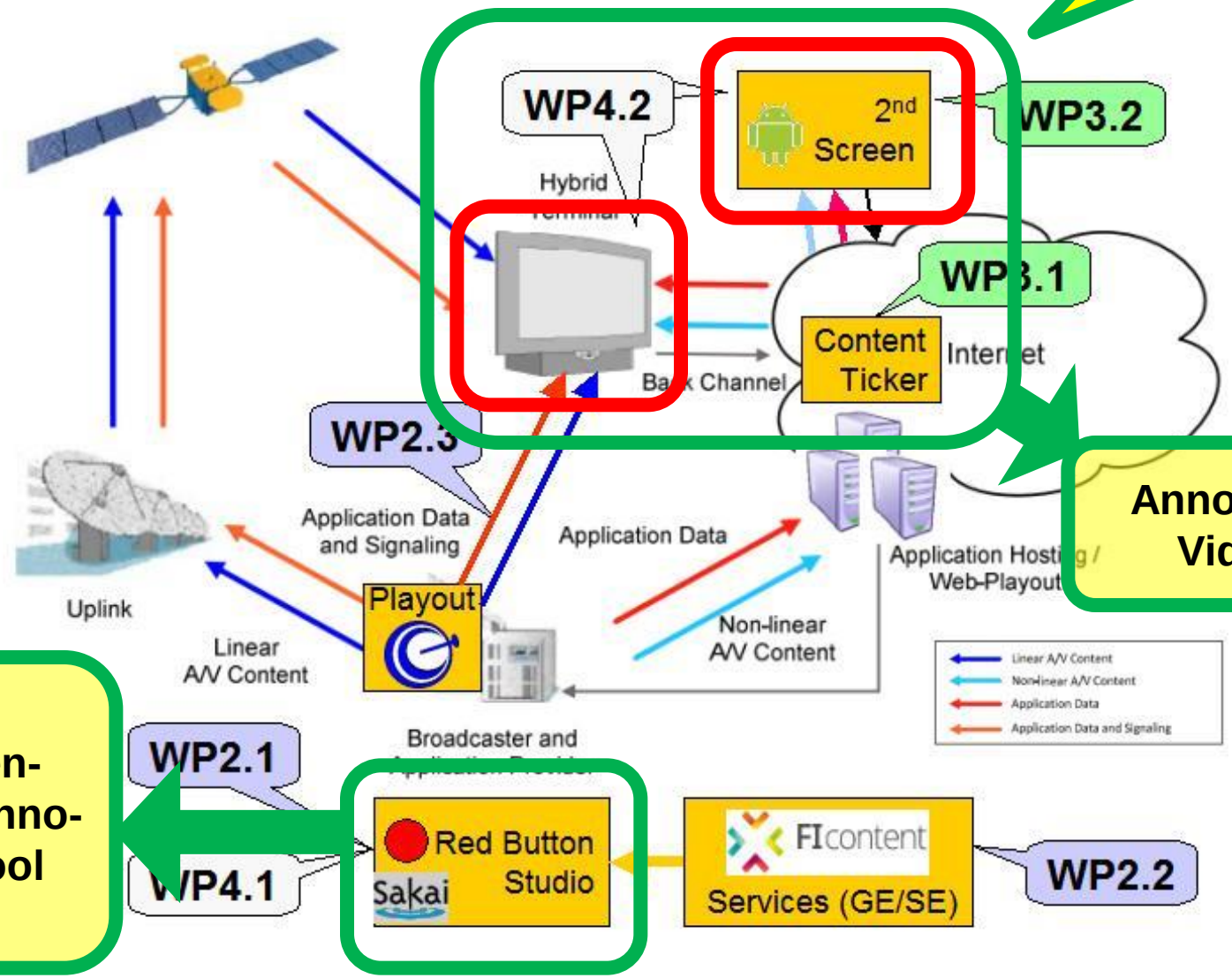


Crowd

A: RED BUTTON STUDIO

B: USER EXPERIENCE

THE ARCHITECTURE



1. SIMPLIFICATION AND CHANGES

User Experience is based on an

„**Annotated Video**“ (Broadcast ➡ Broadband)

Two „Standards“:

1 Open Annotation Data Model
http://www.openannotation.org/spec/core/20130208/

2 Media Fragments (Use cases & Requirements)
https://www.w3.org/TR/media-frags-reqs/

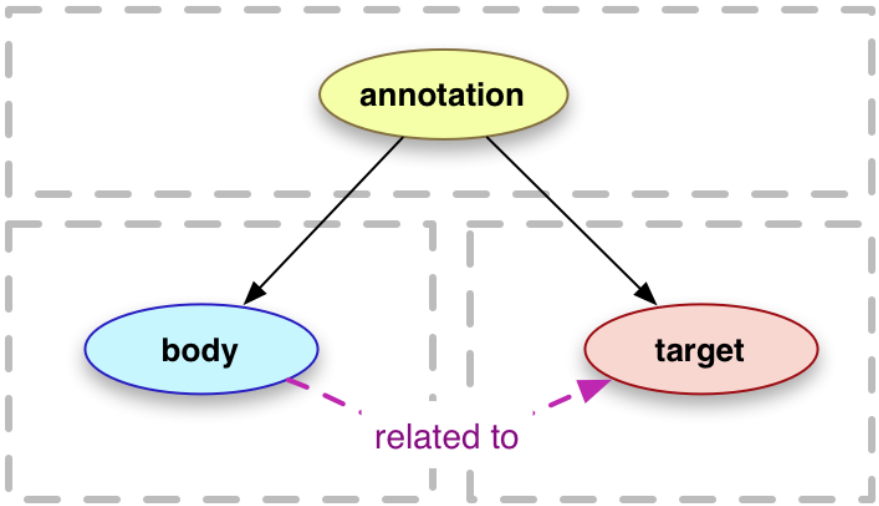
Broadcaster ➡ Data Provider

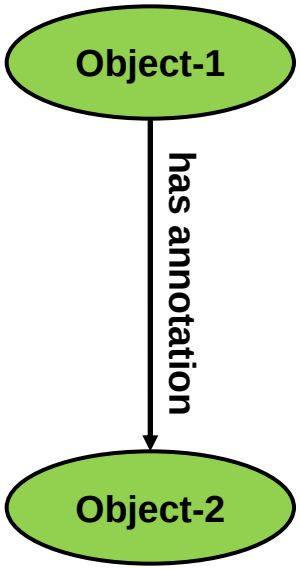
🔴 **Red Button Studio ➡ Documentation&Annotation Tool**

2.SIMPLIFICATION AND CHANGES

Open Annotation Data Model

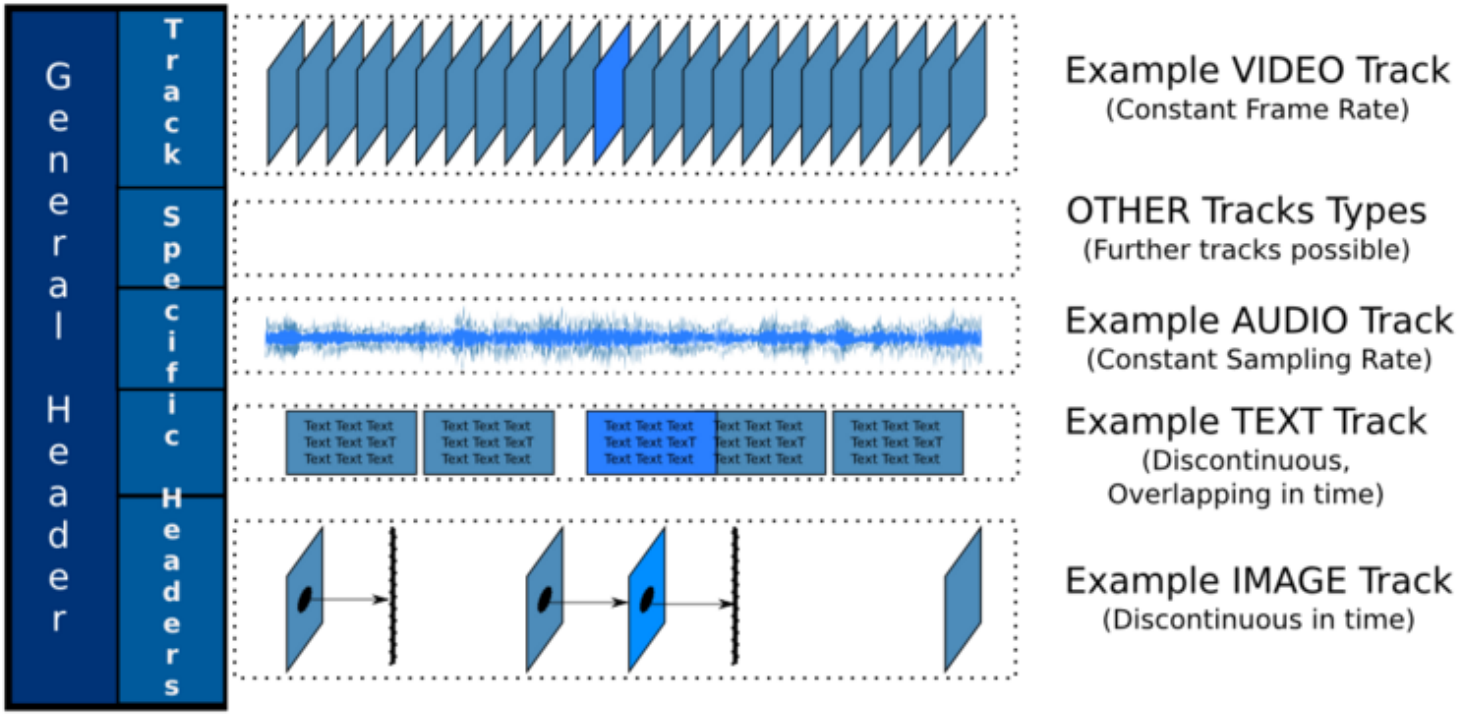
two independent Data Objects





3. SIMPLIFICATION

One Tool for all Track Types
(Use cases and requirements for Media Fragments)



FRAGMENTS

Requirement r01: **Temporal fragments** ➡ Video/audio

Requirement r02: **Spatial fragments** ➡ Image

Requirement r03: **Track fragments** ➡ Remix

Requirement r04: **Named fragments** ➡ (Meta) Data Object

EXAMPLE (VIDEO/AUDIO/IMAGE)

Application Area:

Education (Flipped Classroom)

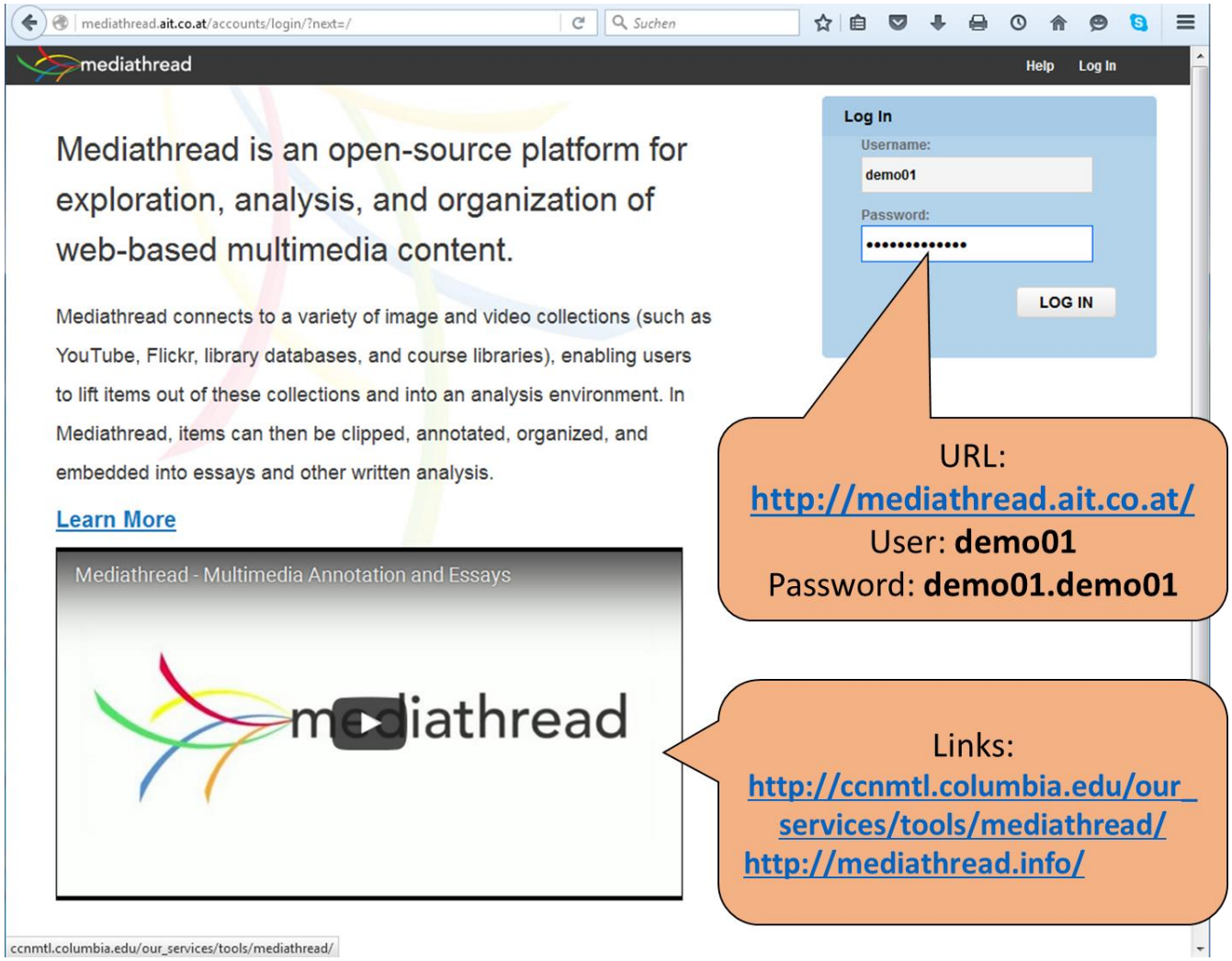
Tool:

Mediathread (http://ccnmtl.columbia.edu/our_services/tools/mediathread/):

Mediathread is an innovative new platform built by CCNMTL[1] that supports multimedia analysis within a communal environment. Users of Mediathread are able to lift **video**, **audio**, and **image** items from a range of digital collections and then work with them in a course-specific website.

1) The Columbia Center for New Media Teaching and Learning (CCNMTL)

MEDIATHREAD - LOGIN



MEDIATHREAD - FUNCTIONALITY

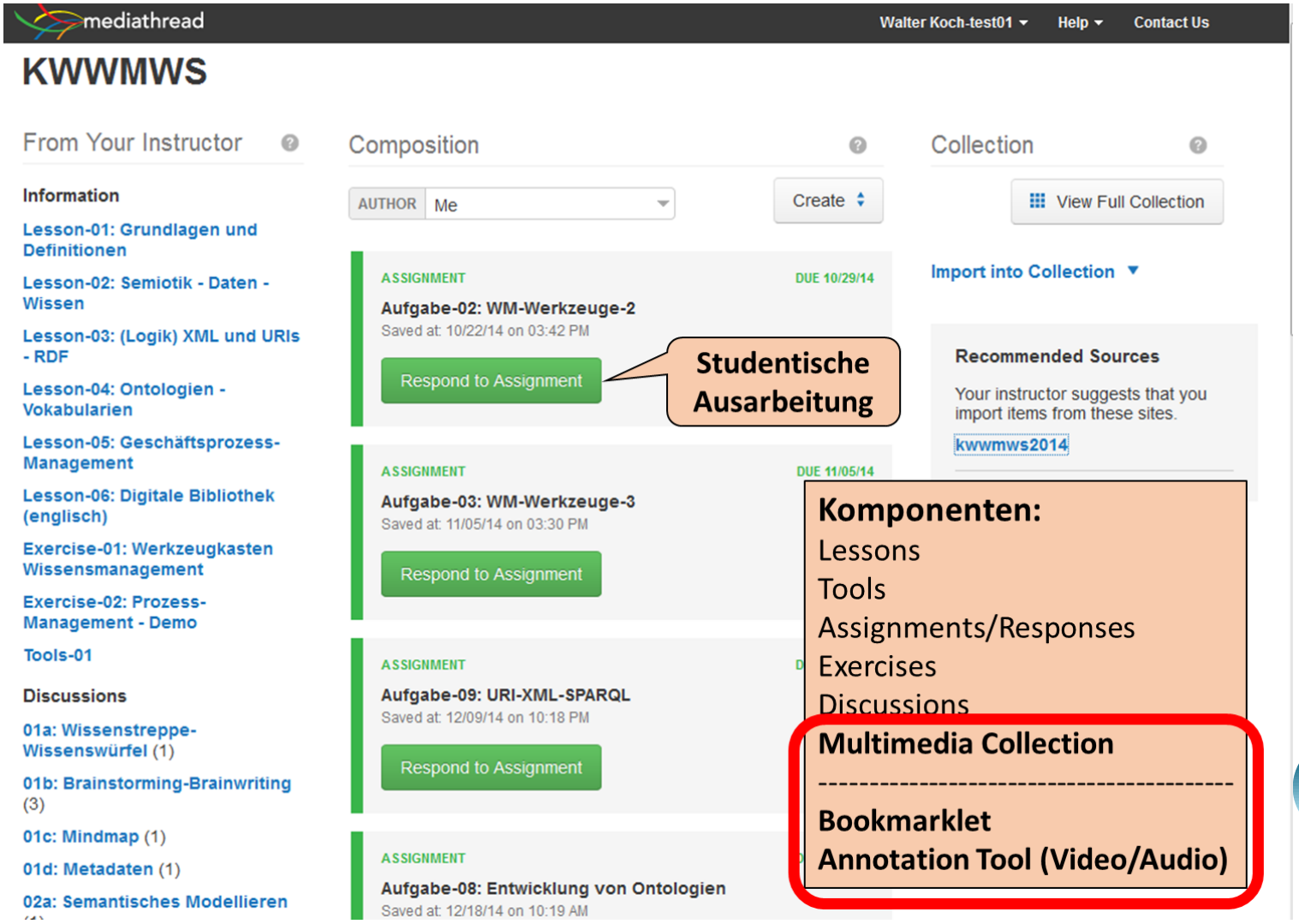
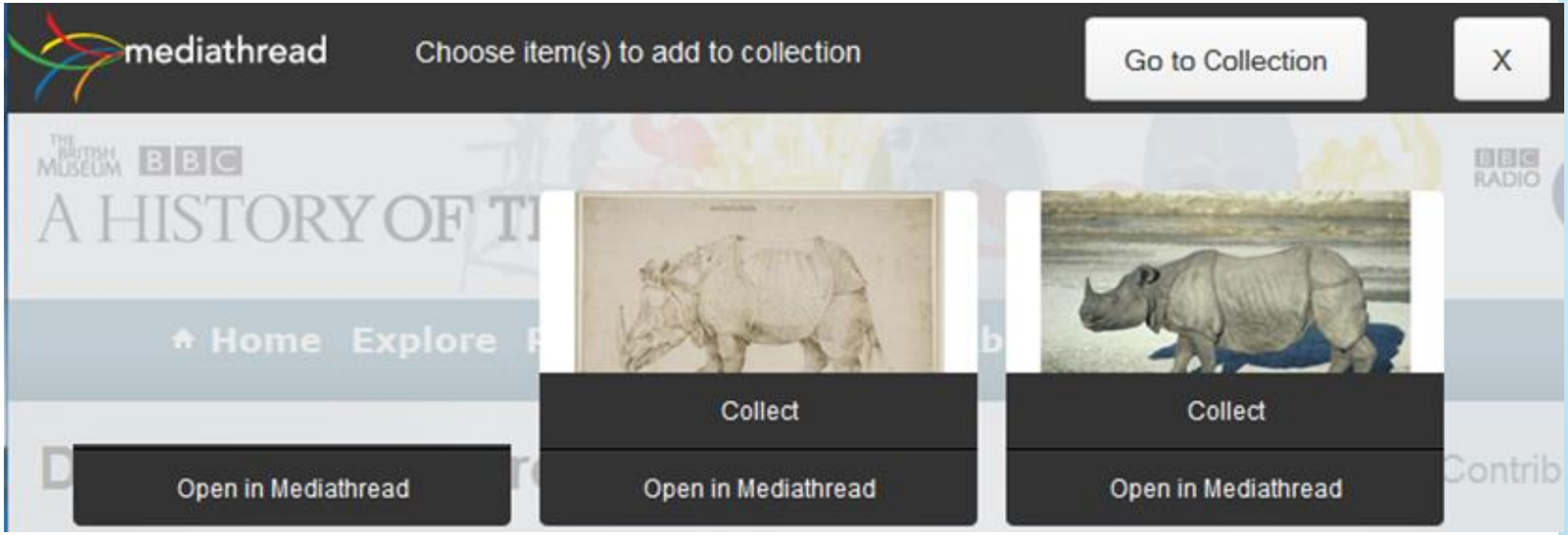


IMAGE ANNOTATION

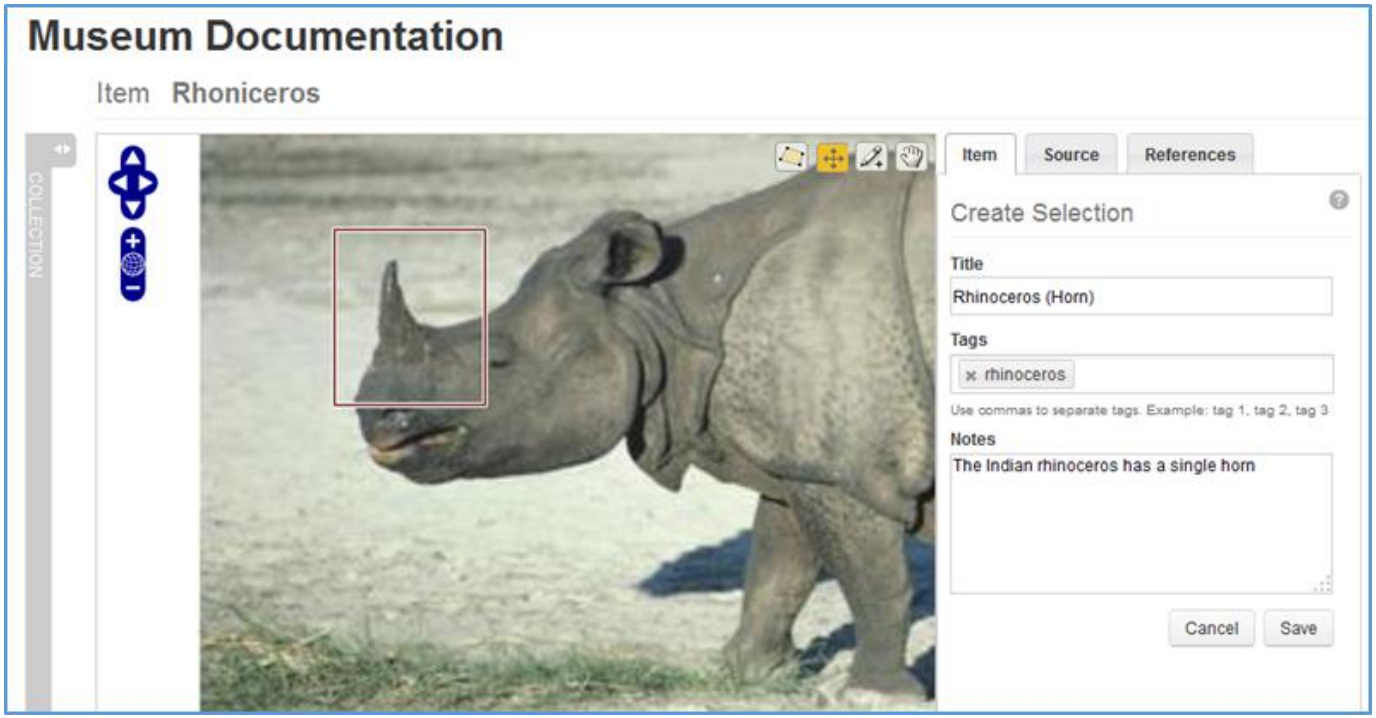
The **bookmarklet** identifies some **images on the web site** which can be used as training material for a lesson; **images are not copied** to the course collection **but only referenced**.

IMAGE ANNOTATION



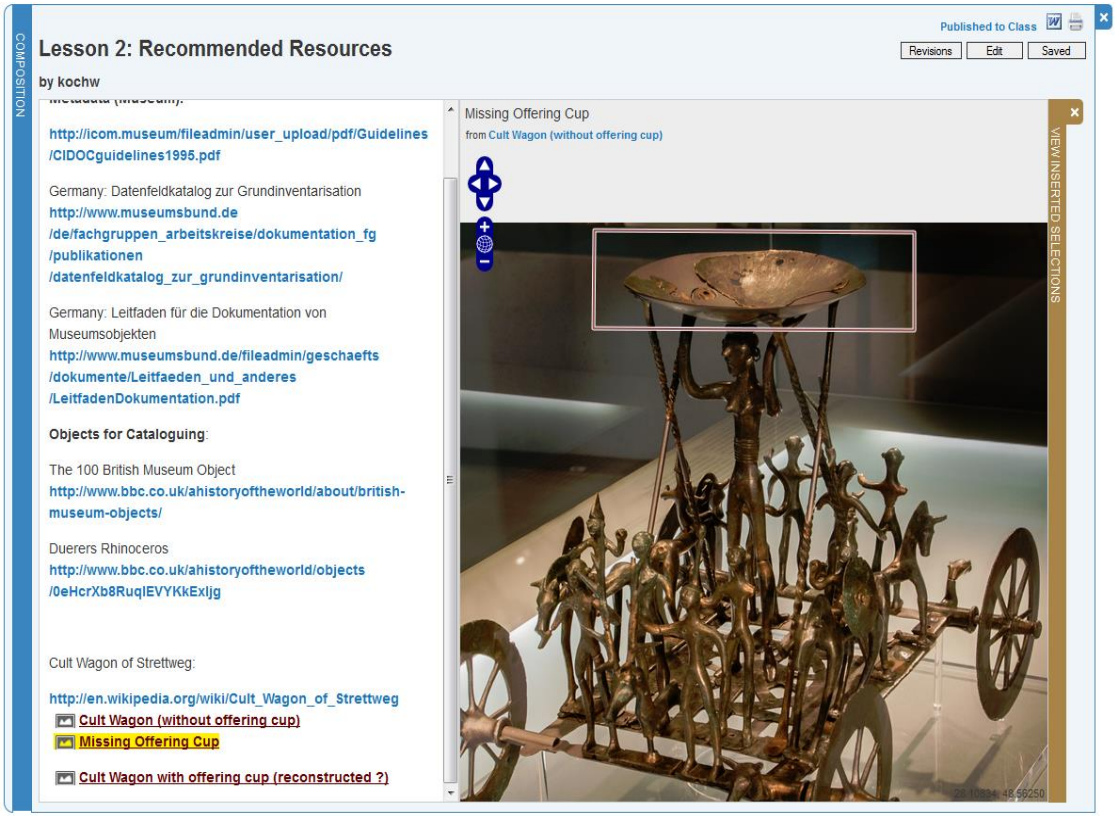
The selected images can be moved to the collection of the course or annotated before added to the collection.

IMAGE ANNOTATION



Special parts of an image can be highlighted and further discussed in a composition. Tags can be added to a “selection” as well as notes describing the highlighted part of the image

IMAGE ANNOTATION



A special part of a museum object which to be used for further discussion can be **highlighted and integrated into a composition**, e.g. as response to an assignments. Selections of video material for annotation purposes are based on the timeline

DEMO

URL: http://mediathread.ait.co.at/

User/Password:

demo01/demo01.demo01

demo02/demo02.demo02

demo03/demo03.demo03

demo04/demo04.demo04

…

demo10/demo10.demo10

EXAMPLE: REMIX (VIDEO ANNOTATION)

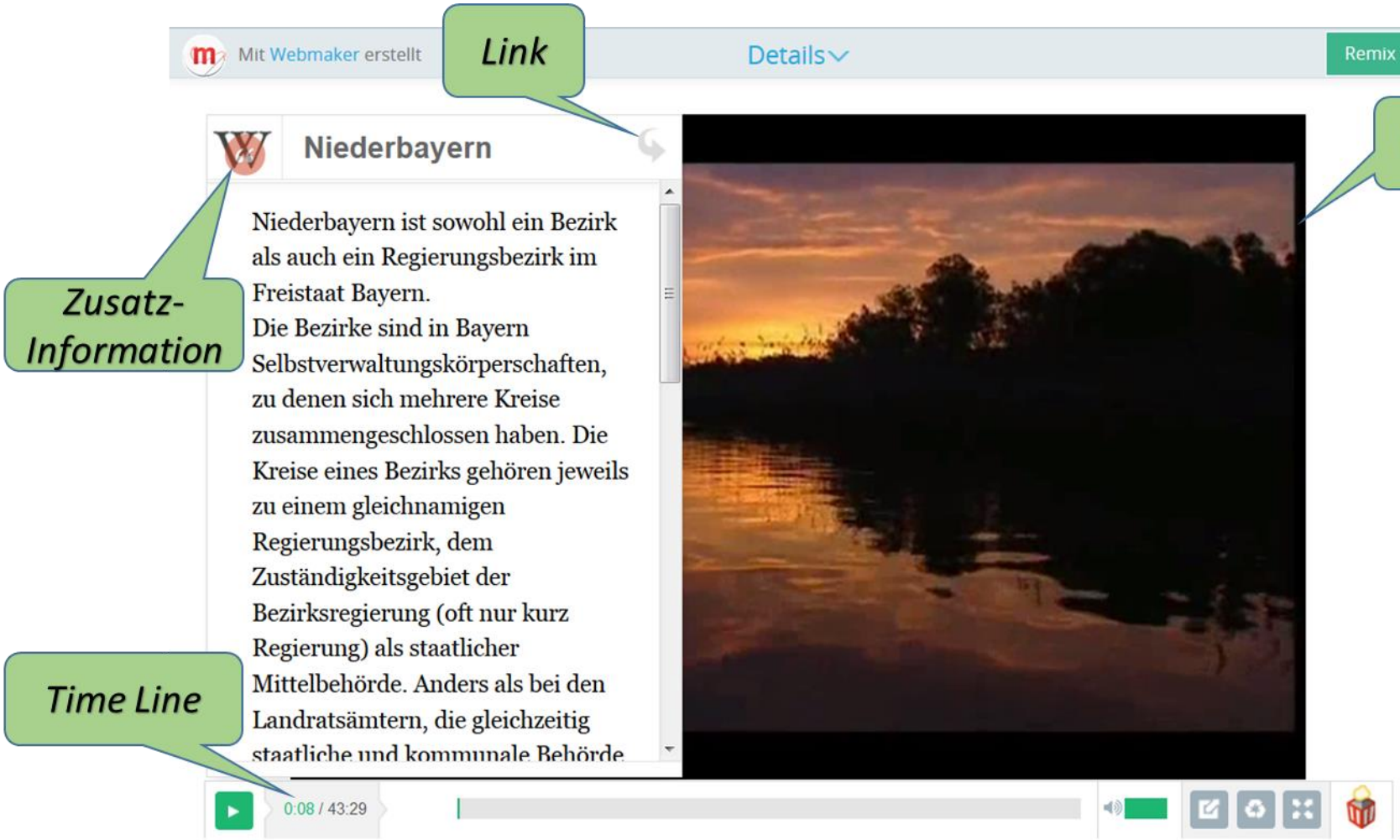
Tool: **Mozilla Popcorn Maker** allows you to **enrich a video with interactive maps, images,** and **webpages**. Your video could be different every time it's played, because it pulls in dynamic content and allows your "viewer" to interact with it. Here, we learn how to use it to enhance an archival video:

http://miriamposner.com/blog/using-mozilla-popcorn-maker-to-create-an-interactive-video/

PDF: http://mediathread.ait.co.at/emax2015/kochw/Using-Mozilla-Popcorn-Maker-to-Create-an-Interactive-Video_ait_v01.pdf

EXAMPLE: „DER INN IN NIEDERBAYERN“

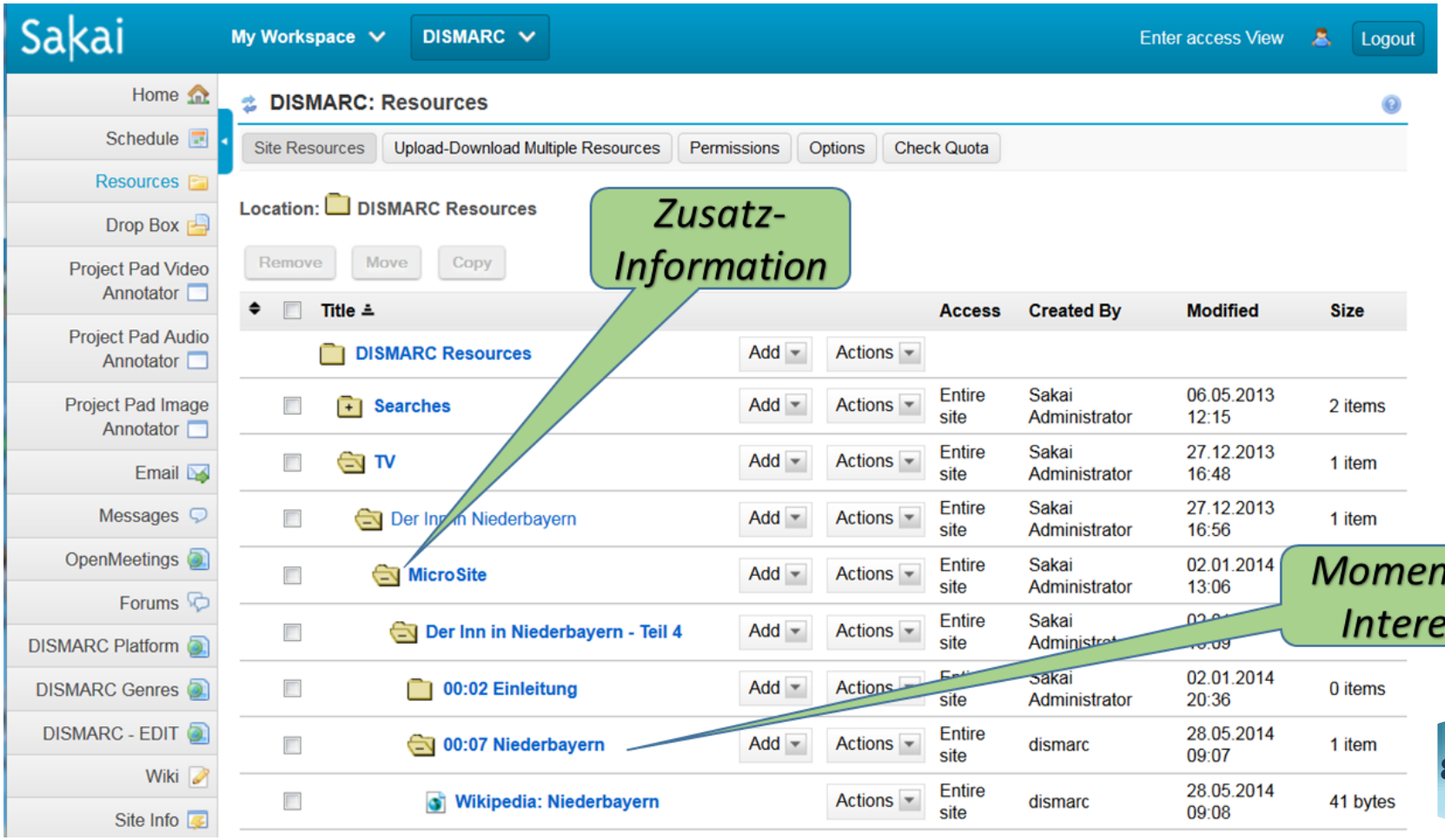
HTTPS://HOELLERA.MAKES.ORG/POPCORN/22C5



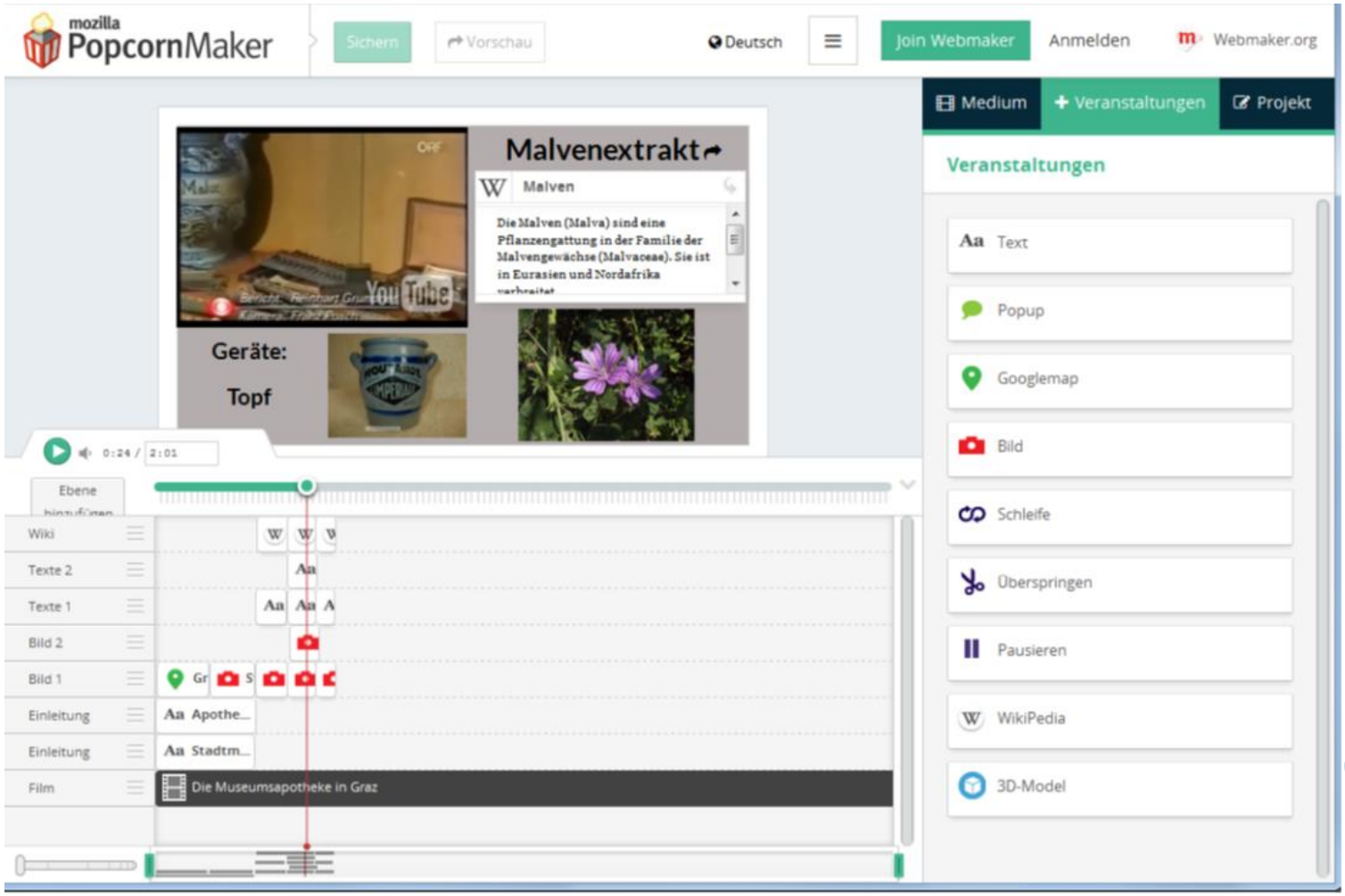
Red Button Studio

EXAMPLE: „DER INN IN NIEDERBAYERN“

HTTP://TEST112.AIT.CO.AT:8080/PORTAL/SITE/DISMARC



POPCORN - EDITOR



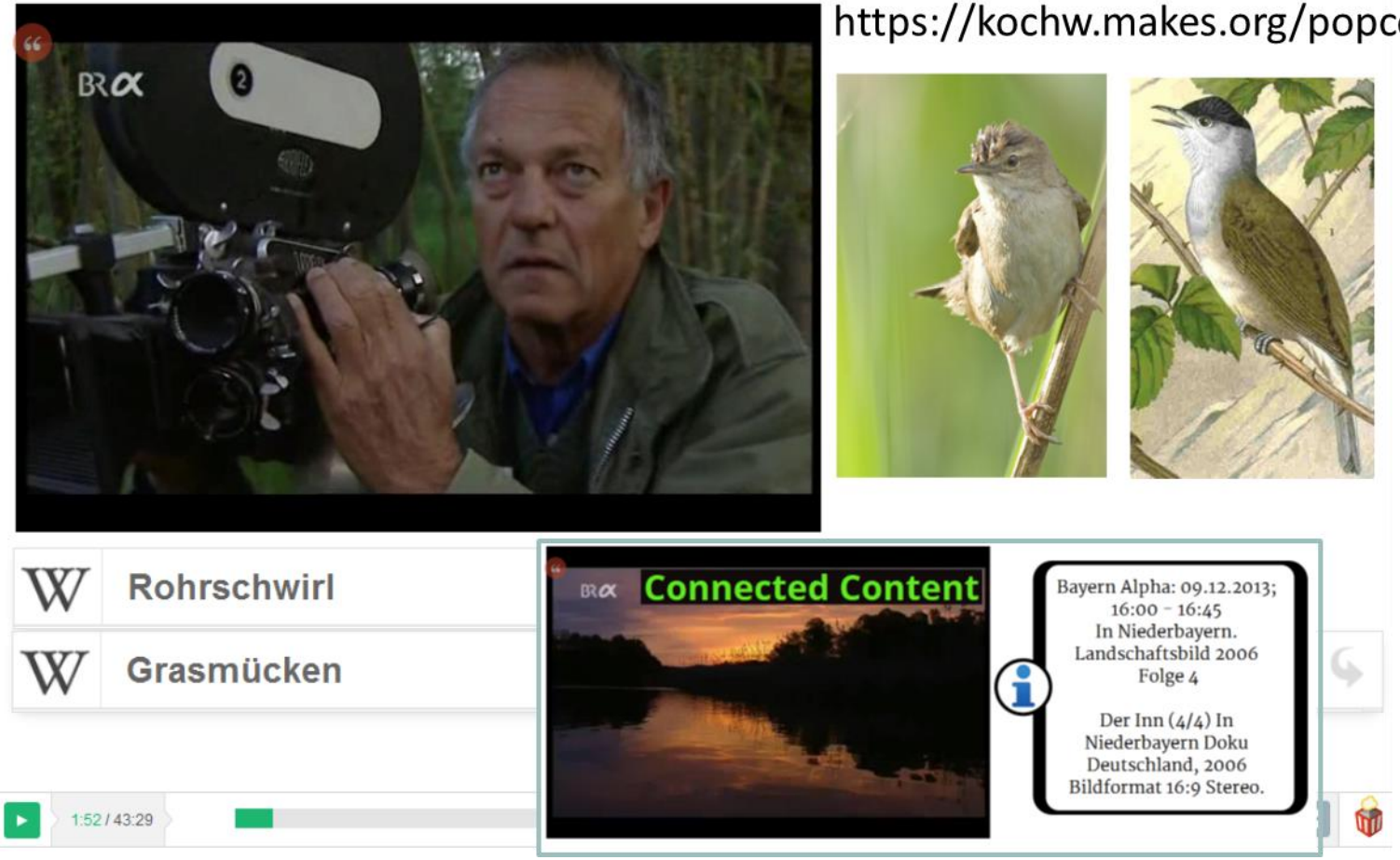
PRODUCTS

- Virtuelle Ausstellung
- Web-Seite
- Biografiebuch
- Interaktives Video

INTERACTIVE VIDEO

Beispiel: **Das Apothekenmuseum in Graz**

EXAMPLE: BIODIVERSITY



EXAMPLES:

Apothekenmuseum: http://kochw.webmaker.ait.co.at/popcorn/d

Graz: http://sen00.webmaker.ait.co.at/popcorn/u

Inn (TV-Remix):

Inn (Pflanzen/Tiere): https://hoellera.makes.org/popcorn/22c5

Inn (Test): https://kochw.makes.org/popcorn/270p

Inn: **M**oments **o**f **I**nterest (Sakai-dismarc): http://test112.ait.co.at:8080/portal/site/dismarc/

Popcorn-Video: http://demo00.webmaker.ait.co.at/popcorn/10

Youtube-Editor: http://demo00.webmaker.ait.co.at/popcorn/11

DEMO

URL-Projects: http://webmaker.ait.co.at/de/me

URL-Editor: http://popcorn.webmaker.ait.co.at/en/

User/Password:

demo01/demo01.demo01

demo02/demo02.demo02

demo03/demo03.demo03

demo04/demo04.demo04

…

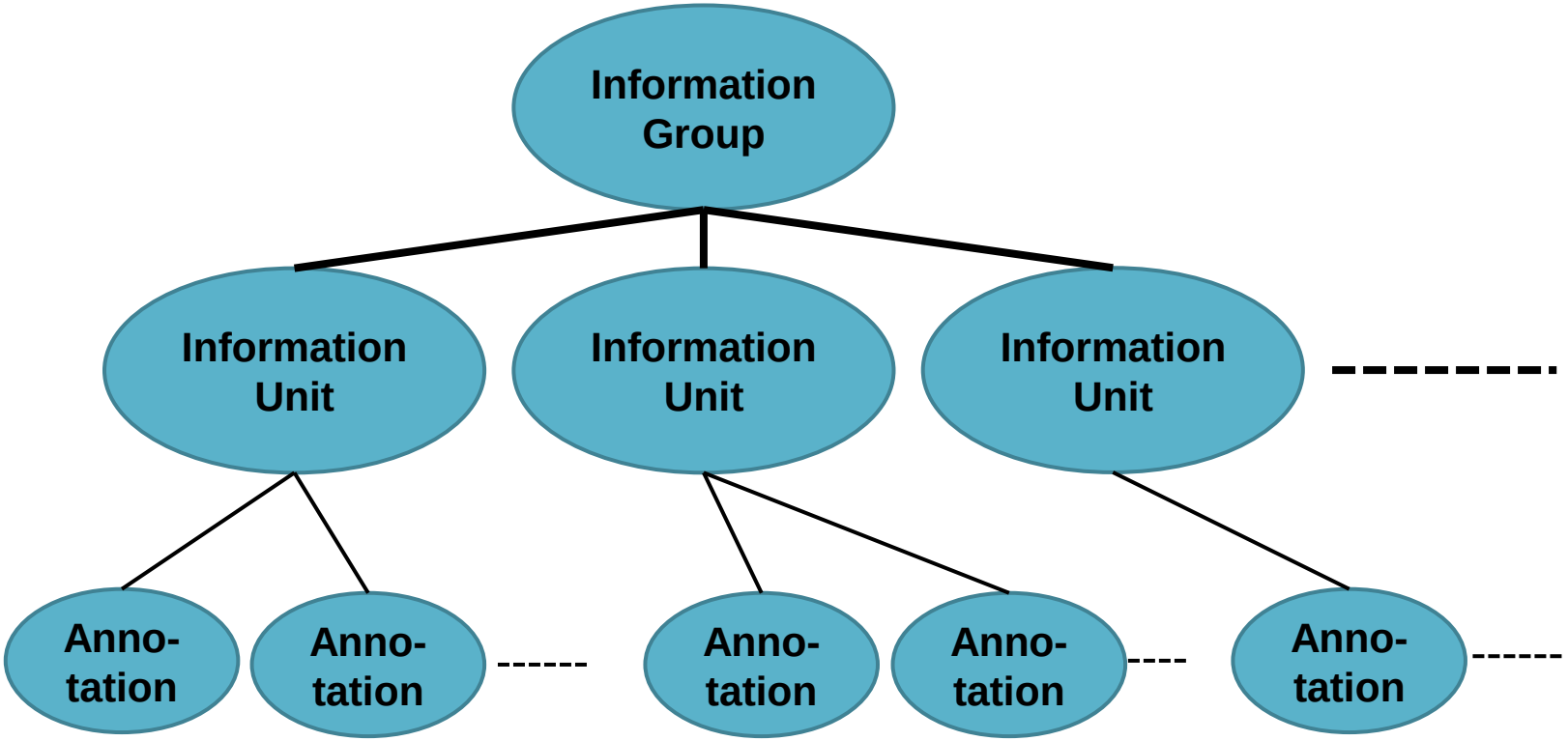
demo10/demo10.demo10

DISMARC DOCUMENTATION AND ANNOTATION PLATFORM (DAP)

- DISMARC [1)] offers a kit of technical modules for audio archiving purposes that can be assembled into individual applications as necessary.
- The DISMARC sandbox lists the modules and allows for short tests of the technical components.
- There are no restrictions for testing the applications but if you wish to access the design tools please send us an email.
- For further information see: http://dmdap.ait.co.at

1) DISMARC: http://www.dismarc.org

DISMARC-DAP – DATA MODEL (SPECTRUM COMPLIANT)



DISMARC-DAP – DATA BASE API

GET byid

Load a record from a collection.
If {coll} is '*' the id will be searched in all collections. /byid/

GET **byid**/{coll}/{oid}/{ig}/{uid}

REQUEST:

http://dmdap.ait.co.at/wp-content/plugins/linb/db/db.php/byid/SHOWCASE/624060830324/dmOAP/1013

PARAMETER:

coll: Collection Identifier (ex.: SHOWCASE)

oid: Object Identifier (ex.: 624060830324)

ig: Information Group aka. Data Schema (ex. dmOAP)

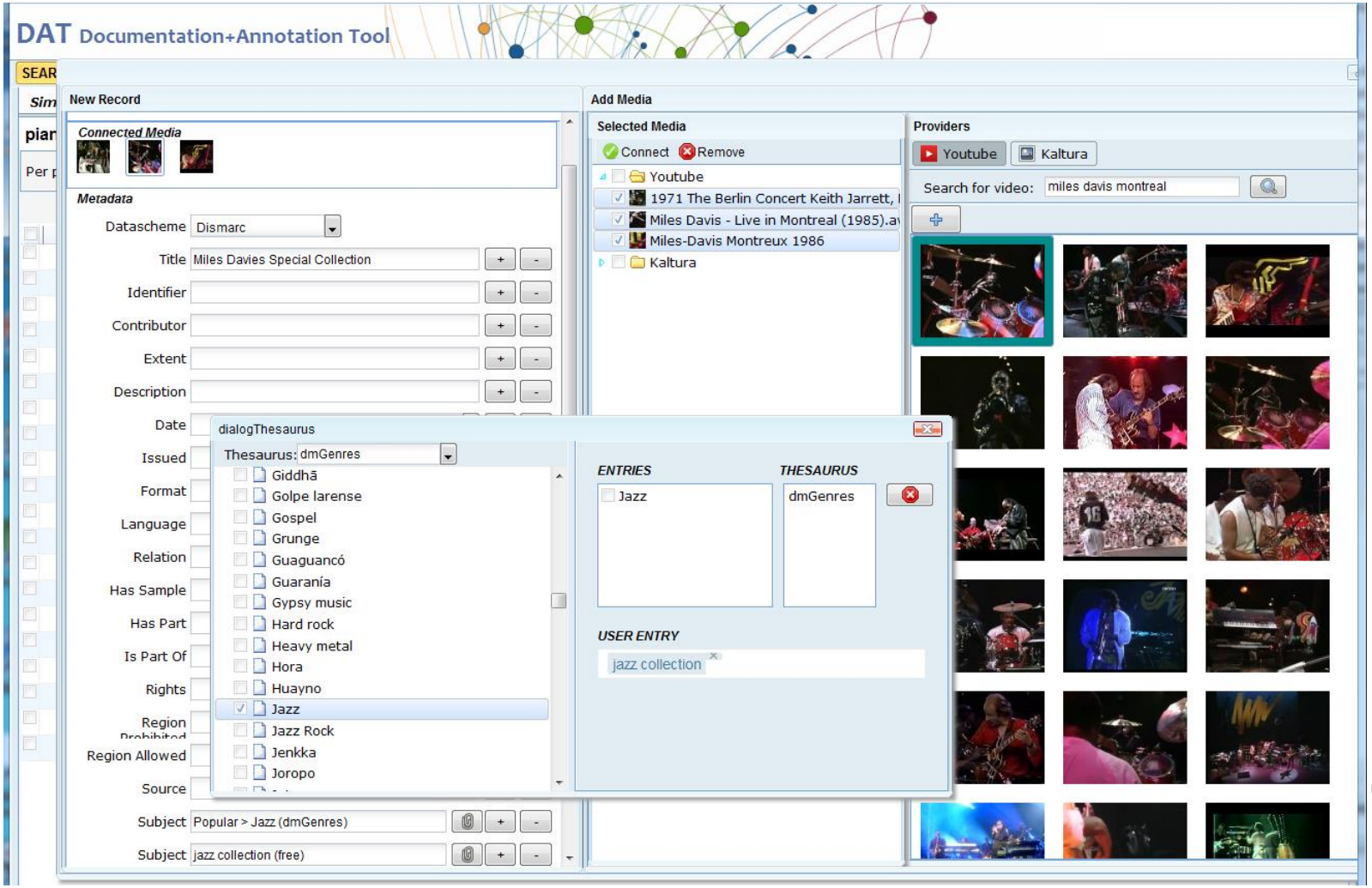
uid: Unit Identifier (ex.: 1013)

RESULT:

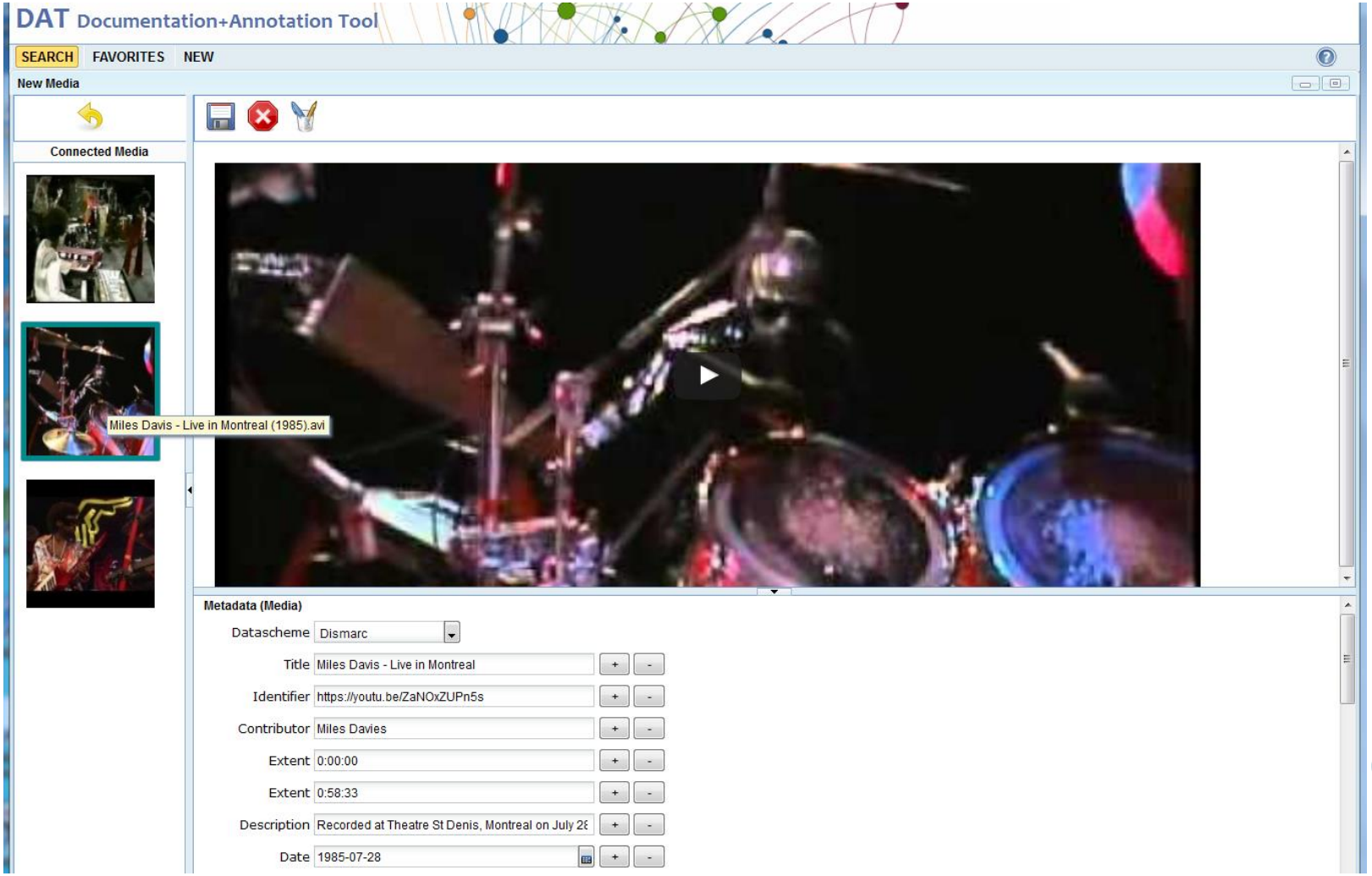
Record identified by: {coll}/{oid}/{ig}/{uid}

addfavorite POST
all GET
av GET
byid DELETE
byid GET
collection DELETE
collection GET
collectionlist GET
collectionlistbox GET
collectiontree GET
collection POST
collection PUT
database GET
databaselist GET
databases GET
databases POST
echo POST
europeana GET
europeanaform GET
exportall GET
facet GET
facetlist GET
favorite DELETE
favorite GET
favoritelist GET
favorite PUT
fields GET
find GET
findfields GET
findindexes GET
findindexeslist GET
findfavoritefor GET

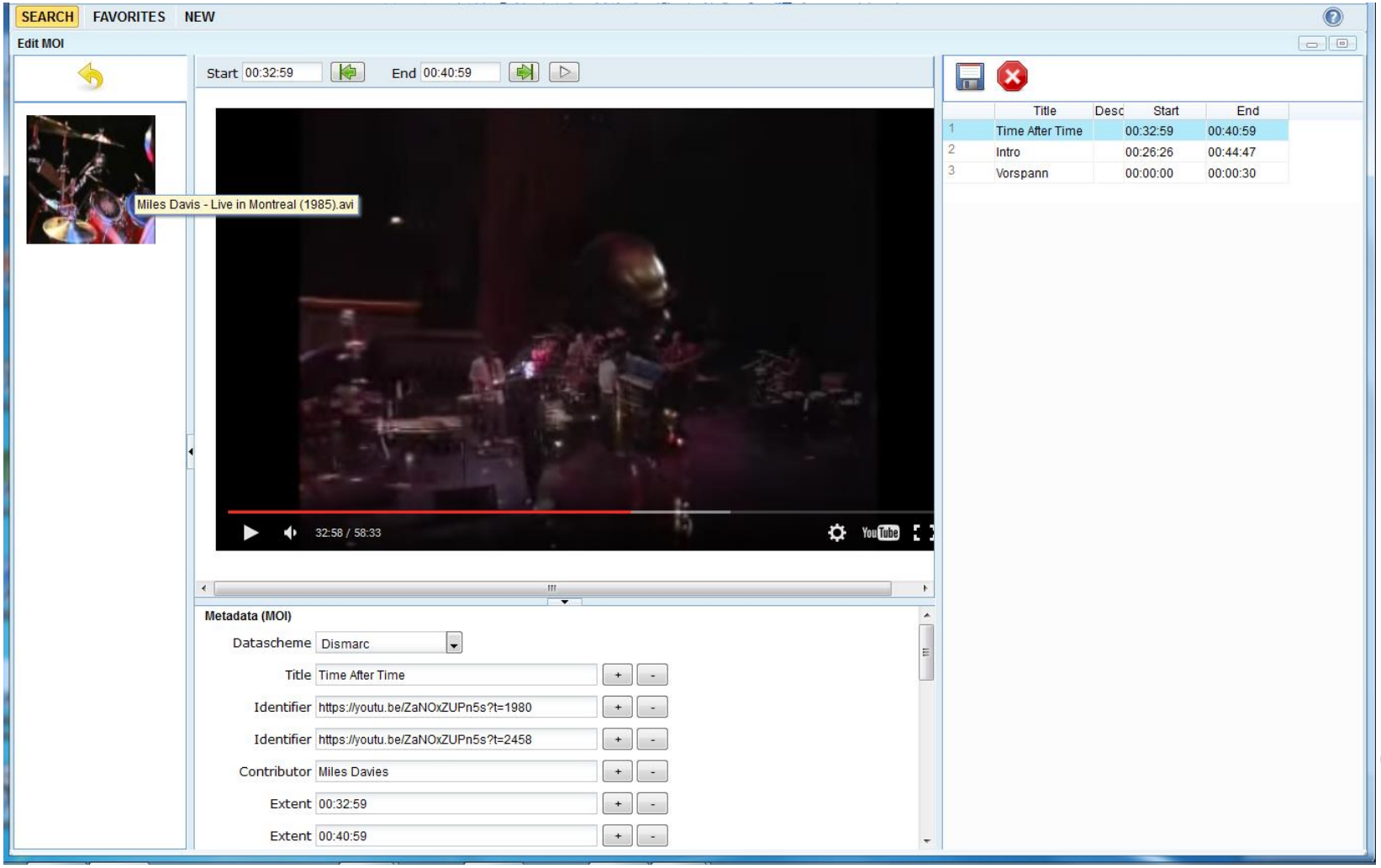
DISMARC-DAP (VIDEO) – INFORMATION GROUP



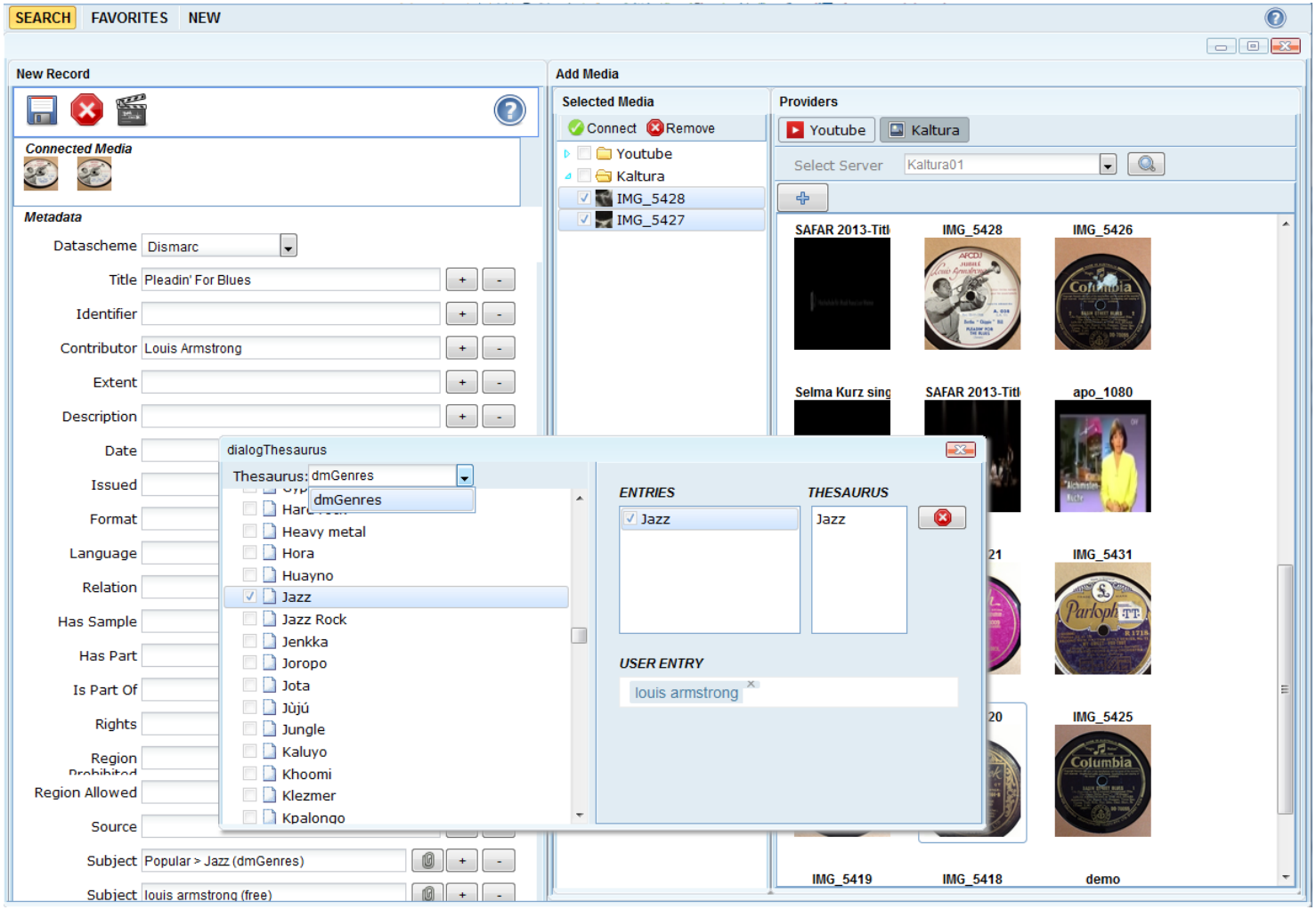
DISMARC-DAP (VIDEO) – INFORMATION UNITS



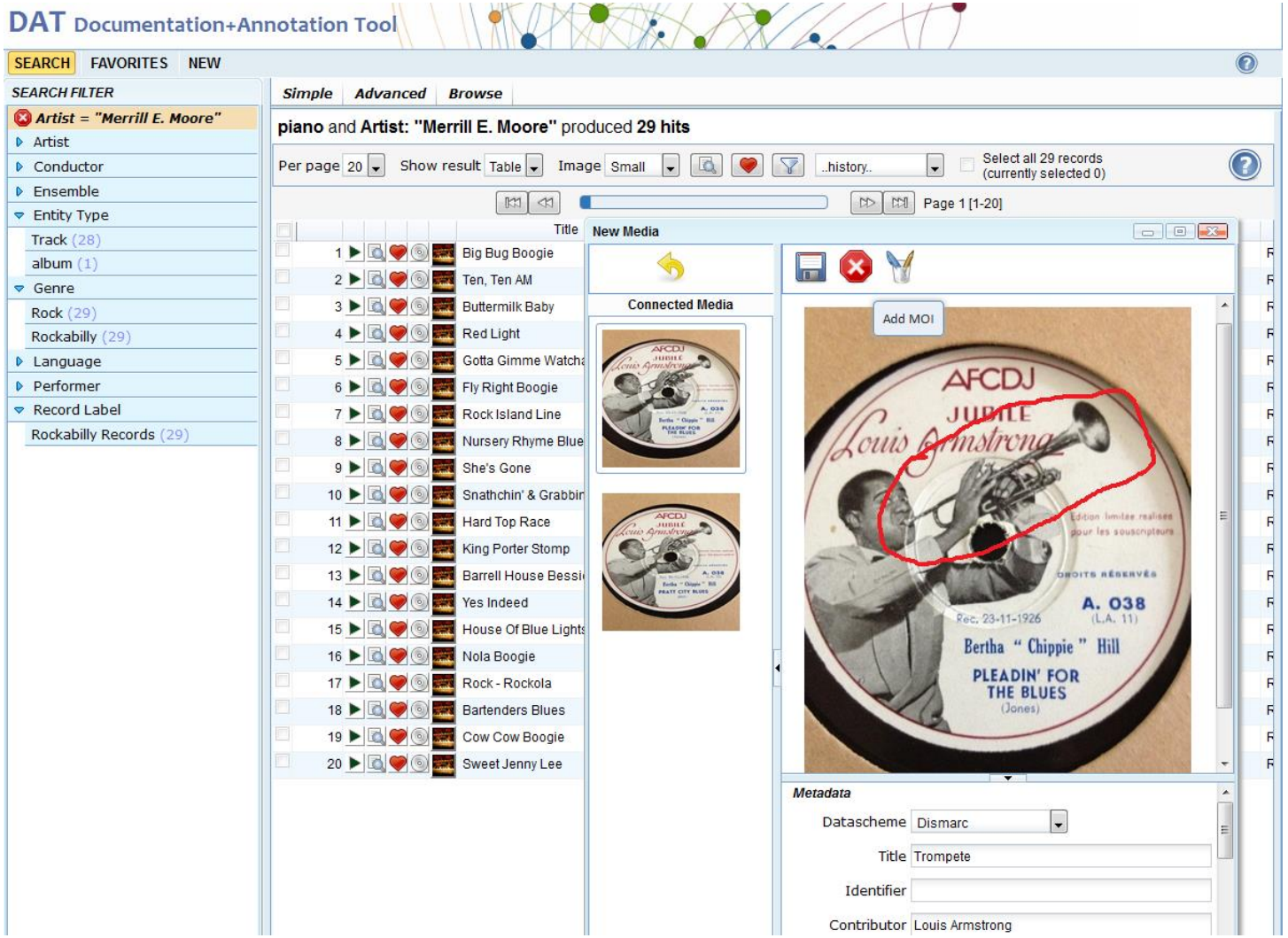
DISMARC-DAP (VIDEO) – ANNOTATIONS



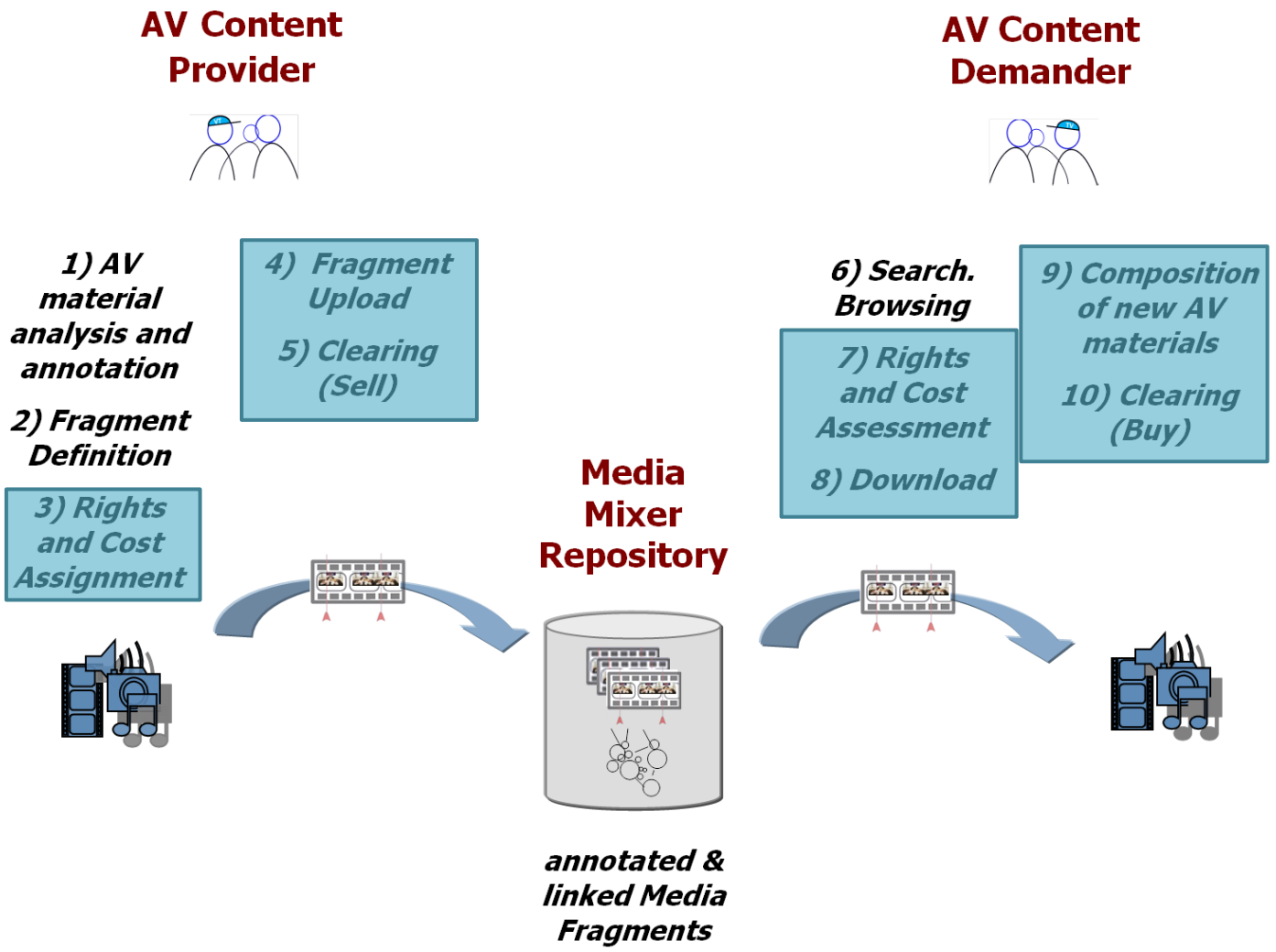
DISMARC-DAP (IMAGE) – INFORMATION GROUP



DISMARC-DAP (IMAGE) – ANNOTATIONS (DRAFT)



THE MEDIAMIXER HUB (DISMARC-DAP)



DEMO

Search and Navigation:
http://dmdap.ait.co.at/index.php/showcase/
Handbook:
http://mediathread.ait.co.at/emax2015/kochw/DAT-Search_20151120.pdf

Documentation and Annotation:
http://dmdap.ait.co.at/wp-content/plugins/linb/deployed/editDmOrcDev/

REFERENZLISTE 1

- Cloud Computing - http://www.nist.gov/customcf/get_pdf.cfm?pub_id=909616
- ISO 25964 – the international standard for thesauri and interoperability with other vocabularies - http://www.niso.org/schemas/iso25964/
- SKOS - http://www.w3.org/TR/skos-reference/
- TEI - http://www.tei-c.org/index.xml
- W3C Working Groups:
  - Web Annotation Working Group https://www.w3.org/annotation/
  - Media Fragments URI 1.0
  - https://www.w3.org/2008/WebVideo/Fragments/
  - W3C Open Annotation https://www.w3.org/community/openannotation/
  - Digital Publishing Interest Group https://www.w3.org/dpub/IG/wiki/Main_Page

REFERENZLISTE 2

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CONTACT

Gerda Koch: kochg@ait.co.at (www.ait.co.at)

Walter Koch: walter.koch@stw.de (www.imchi.org)

Skype: kochggraz kochwgraz

Klosterwiesgasse 32/1

A-8010 Graz/Austria