The Clipper Project: Technical Architecture

Developing innovative tools for working with online video and audio.

http://blog.clippertube.com

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Clipper — Editor

JSON-LD

MongoDB   Web Dir.

JSON-LD
HTML
CSS

Custom APIs:
Integrations

Social Media APIs

Clipper — Service Viewer

A/V Collections

Technical Architecture Summary

- ✧ Clipper is a web app that enable users to interact with online audio and video collections
- ✧ It is written using the modern Angular2 framework
- ✧ User generated (meta)data is encoded in a data model with reference to these standards:
  - ➢ W3C Web Annotation Data Model (https://www.w3.org/TR/annotation-model/)
  - ➢ IIIF Data Model (International Image Interoperability Framework http://iiif.io/)
- ✧ The data is stored and transferred in the JSON-LD format (semantic web)
- ✧ Clipper uses both a database and web directories to store the user generated data:
  - ➢ The MongoDB database stores data to drive the Editor component of Clipper
  - ➢ Each Cliplist, Clip and Annotation is stored in a JSON-LD document in a web directory – so that each item can have a unique web address (a cool URI)
- ✧ The Clipper app uses the open source media player Video.js
- ✧ The server side of the app uses the Node.js server platform
- ✧ Phase 3 of development uses the Microsoft Azure cloud infrastructure, but can be installed locally

Benefits

- ✧ Make a/v collections more (re)usable and shareable
- ✧ New collaboration and authoring opportunities
- ✧ Respects copyright and data protection requirements
- ✧ Create 'enhanced' OER / Learning materials
- ✧ A platform for user innovation

Clipper Roadmap

- ✧ Phase 1 Market Research
  - ✓ Proof of Concept (complete)
- ✧ Phase 2 Co-Design
  - ✓ Working prototype (complete)
- ✧ Phase 3 Co-Develop (March – August 2016)
  - ✧ Product Development and pilots
- ✧ Future Plans
  - ✧ Community adoption
  - ✧ New features (e.g. rich media annotations, forums, comments, co-authoring tools, offline etc.)

How it Works

General: Clipper leverages the time-based nature of the media itself, together with recent advances in web standards and technologies, to deliver a powerful and extensible toolkit for working and collaborating with online video and audio.

Clips: Each virtual clip contains; a reference to the source file, a start and end time, title, description and keywords etc., together with any textual annotations. So, users can create their own coding and classification systems. No media file is copied or altered in this process – a key advantage for meeting copyright and data protection requirements. Clipper files are mostly composed of user generated metadata and are therefore very small.

Annotations: Are pinned to the timeline of the clip – these can be of any length from short notes to essays

Sharing: Fine granular control over sharing. Each clip, cliplist and annotation can be shared using a simple web address (URI)

The Solution

Clipper makes it easy to 'quote', analyse and reference online video and audio, just like it is for text. It does this by enabling users to create 'virtual' clips that they can then annotate, by 'pinning' textual annotations to the timeline of each clip. Virtual clips from the same or different source files, together with their annotations, can be combined into clip playlists (Cliplists).

The Problem

Video & audio files are difficult for users to manage, analyse and share compared to traditional static online resources like text – partly due to the nature of the media itself (large 'lumpy' data) and the changing time-based nature of the content.