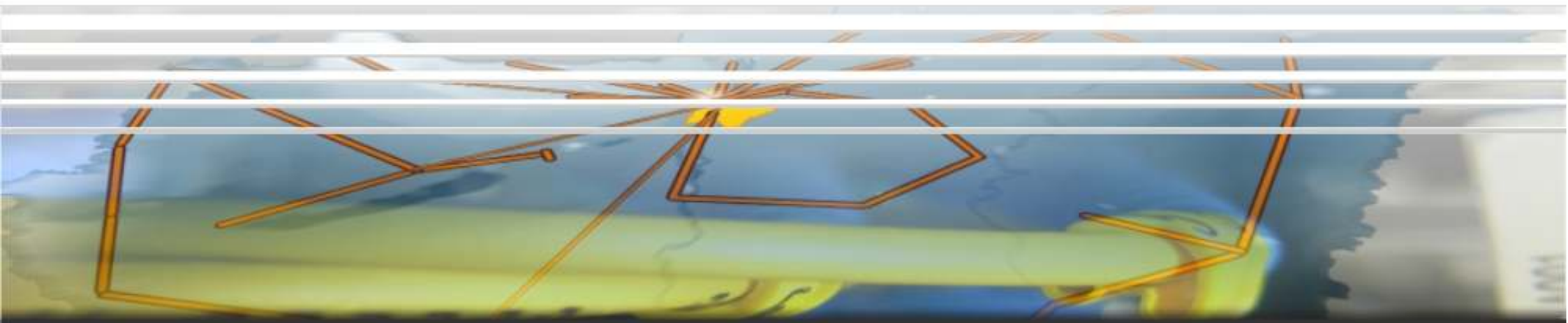


Videotorium: video sharing for research and education



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History: NIIF Video-on-Demand (2003-2010)

- VoD basics: <http://vod.niif.hu>
 - Original goal: simple repository of NIIF/HUNGARNET recorded events.
 - Conferences
 - Seminars
 - Scientific events, experiments, etc.
 - Open access materials (99%)
 - Audio/video and synchronized slides
- VoD in numbers:
 - Currently ~2,000 recordings (~1,000 hours!)
 - 30% in English, rest is HU
 - 3-4000 visitors/month, >1TB download
 - Lectures by Nobel-laureates, famous scientists, etc.
- Technology:
 - Basic/outdated website
 - No upload feature: slow growth of content
 - Very slow development (spare-time)
 - Minimal metadata features
 - Archive: Windows Media → Flash/VP6
 - Live: Windows Media

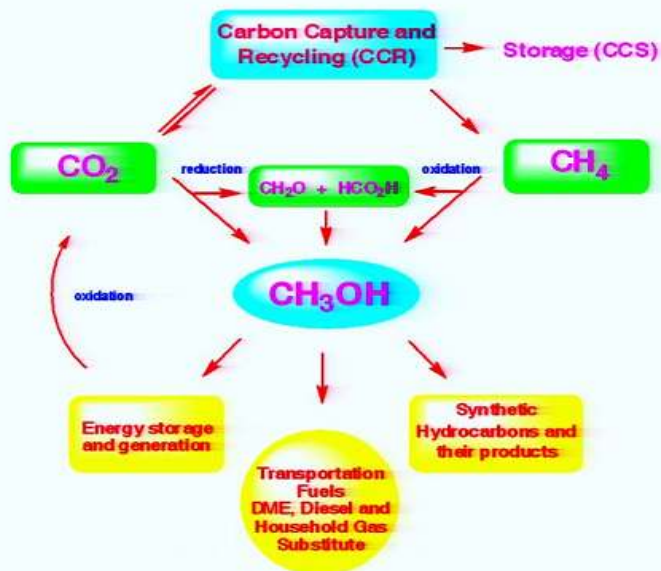
Video-on-Demand archive



MAGYAR TUDOMÁNYOS AKADÉMIA

English

Technological Carbon Cycle



Az előadás fóliái:



Új lehetőségek az energiapolitikában: a gazdaságpolitika és a metanolgazdaság szimbiózisa - Magyarországi lehetőségek

Oláh György (Kémiai Nobel-díj, 1994)

[Oláh György Nobel-díjas tudós az Akadémián: Új lehetőségek az energiapolitikában](#)

Új lehetőségek az energiapolitikában: a gazdaságpolitika és a metanolgazdaság szimbiózisa - Magyarországi lehetőségek

Előadás Dátum: 2009-10-13

Szervező: Magyar Tudományos Akadémia

Közvetítés: [NIIF/HUNGARNET](#)

© 2008 NIIF Minden jog fenntartva

Video-on-Demand archive example

The screenshot shows a web browser window with the URL `http://vod.niif.hu/player/index.php?q=1573/1M`. The page features a red header with the text "TUDOMÁNY ÜNNEPE" and a logo. Below the header, there are two main content areas. On the left, a presentation slide titled "A víz globális körforgása" (The global water cycle) is displayed. The slide contains a 3D diagram of the water cycle with labels: "csapadék" (precipitation), "lefolyás" (runoff), "talajvíz" (groundwater), "párolgás" (evaporation), "páratranszport" (moisture transport), "kondenzáció" (condensation), and "csapadék" (precipitation). Below the diagram, it says "Vital Water Graphics (2000) után". At the bottom of the slide, there is a navigation bar with five thumbnails labeled "4. Fólia", "5. Fólia", "6. Fólia", "7. Fólia", and "8. Fólia". On the right, a video player shows a man in a suit sitting at a desk with a laptop. The video player has a progress bar showing "01:56/52:54". Below the video player, the title "A tudomány az élhető Földért" (Science for a livable Earth) is displayed, followed by the speaker's name "Somlyódy László (az MTA rendes tagja)" and the text "A víz a változó világban - néha a sok is kevés" and "A Magyar Tudomány Ünnepe". The date "Előadás Dátum: 2008-11-04" and the organizer "Szervező: Magyar Tudományos Akadémia" are also listed. The browser's taskbar at the bottom shows several open windows, including "NIIF Video on Demand P..." and "A tudomány az élhető F...".

Motivation...

- Institutions/organizations:
 - Streaming/recording (conferences, lectures, etc.)
 - No local repository:
 - Recorded material „must” be published
 - Expertise is not available
 - Scalable repository is a demanding service/development
 - Small institutions?
 - Many manual addition to VoD (tiring)
 - YouTube:
 - A tendency to use YouTube to share R&E recordings
 - Synchronizing slides is not possible
 - Metadata features are limited → search?
 - Know-how
- Others:
 - Keep valuable asset of 1,000 hours of old recordings
 - Professional web based presentation
 - Meet scientific retrieval requirements
 - R&E multimedia metadata aggregator in Hungary!

The project

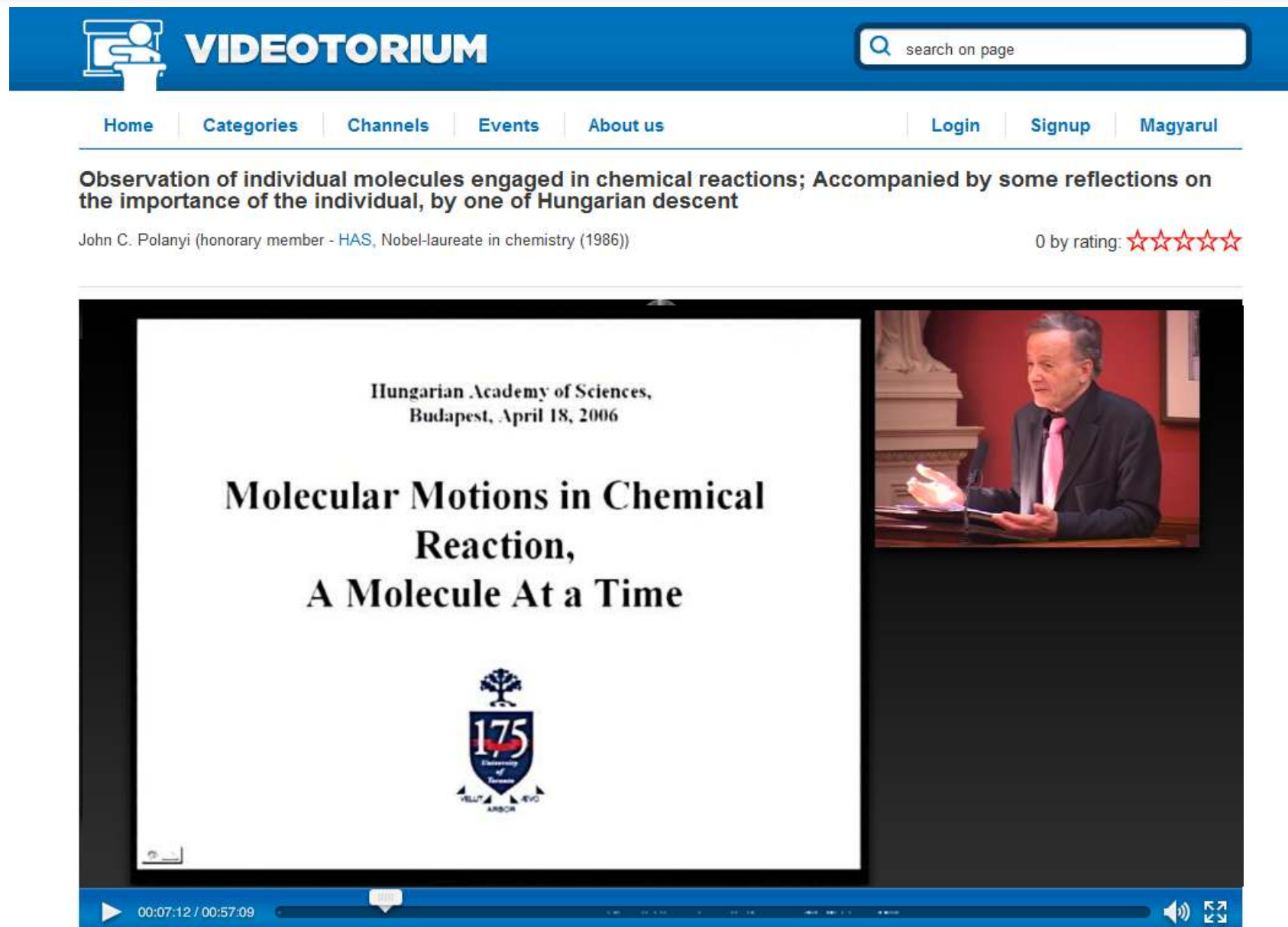
- Videotorium: <http://www.videotorium.hu/>
- Supported by some EU funds through a local application:
 - As (a small) part of TÁMOP 4.1.3
- Portal:
 - Launched: June 2010
 - VoD material is being converted
 - Upload feature: in 1-2 weeks
- Pilot phase: May-August 2010
 - Feedback from organizations
 - Functional revision, new features
- Project finishes: October 2010
 - Stable service
 - Vision for future developments
 - Metadata aggregation



Videotorium overview

- Supported media:
 - Audio only, audio/video (including HD)
 - Synchronized slides
 - Attached documents (doc, pdf, xls, etc.)
- Special player:
 - Combining audio/video and slides
 - Dynamic resize and fullscreen view
 - Embed to external webpages (whole/part)
 - Handle chapters, list of slides, etc.
- Other features:
 - Recommended content (popular, related, etc.)
 - Search, advanced search
 - Comments, rating and sharing
 - Feedback on content (abuse, technical problems, etc.)
 - Multi language (site + media)
- Implementation: Linux, PHP, Flash, JavaScript
 - Open software + standards where possible
 - 100% multiplatform, multibrowser (FF, Opera, IE, Safari, Chrome, etc.)

Videotorium player



VIDEOTORIUM search on page


[Home](#) | [Categories](#) | [Channels](#) | [Events](#) | [About us](#) | [Login](#) | [Signup](#) | [Magyarul](#)

Observation of individual molecules engaged in chemical reactions; Accompanied by some reflections on the importance of the individual, by one of Hungarian descent

John C. Polanyi (honorary member - HAS, Nobel-laureate in chemistry (1986)) 0 by rating: ☆☆☆☆☆

Hungarian Academy of Sciences,
Budapest, April 18, 2006

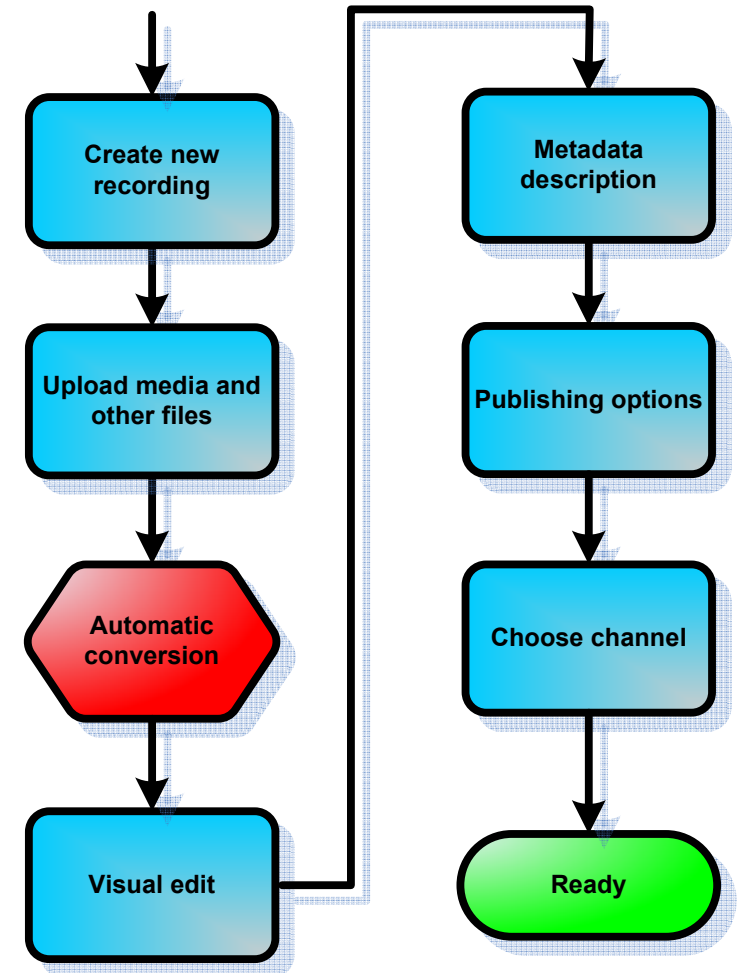
**Molecular Motions in Chemical
Reaction,
A Molecule At a Time**



00:07:12 / 00:57:09

Upload/share

- Uploaders: requires registration
 - Lecturers, researchers, public collection users
 - Students (carefully!)
 - Other non-profit application
 - Preference for AAI authentication
- Steps of sharing:
 1. Upload media, presentation and attached files
 2. Automatic conversion
 3. Visual editing:
 - Virtual begin/end mark
 - Slide synchronization
 4. Metadata description:
 - Titles, contributors, etc.
 5. Publishing options:
 - Rights
 - Drop into a channel (event)



Automatic conversion

- Multi-language support: language variants (original/english)
 - E.g. with translator's audio track
- After conversion:
 - Audio-only version:
 - Off-line listening (e.g. mp3 player)
 - Narrowband internet connection, blind people, etc.
 - Flash audio/video versions: H.264
 - Normal quality (fit to 640x360 16:9 bounding box)
 - High quality (fit to 1024x576 16:9 BB)
 - Visualization 720p in web browser is problematic (too big, performance issues)
 - Slides: converted to still pics, full text indexed (search!)
 - Video thumbnails: speaker key images, recording & channel thumb
 - Attached documents: full text indexation (later)
- Supported input formats:
 - Media: avi, mpeg-1/2/4, flv, f4v, m4v, mp3, wma/wmv, etc.
 - Slides: ppt, odp/sxi, pdf
 - Tools used: ffmpeg, mplayer, ghostscript, pdftotext, OpenOffice, etc.

Visual editor

- Special flash application:
 - Pre-publication visual check
 - Synchronize converted slides to video
 - Slides on timeline
 - Add/edit slide titles and chapters
 - Virtual cut (begin/end markers)

The screenshot displays a video editing application interface. On the left, a video player shows a man in a suit speaking. The video title is 'Tartalom' and the content is a list of bullet points related to IKT (Information and Communication Technology) competencies and development plans. The video player includes a progress bar, play/pause buttons, and volume controls. On the right, there is a 'Unsorted slides' panel showing a grid of slide thumbnails. The thumbnails contain various text and diagrams. A 'Insert next slide' button is visible at the bottom right of the slide sorter.

Metadata

- Target audience: diverse needs
 - User: accurate search
 - Uploader: no expertise in metadata
- Goal:
 - Avoid too much details ↔ accurate search?
 - Understandable metadata elements and clean user interfaces (!)
 - Clear, well-defined search interface
- Multi language: essential
 - Original language (anything)
 - Optional English description
- Metaadat basics: „description of data”
 - Bibliographical: descriptive records (e.g. recordings)
 - Authority records (e.g. authors)
 - Rights of publication
 - Technical (e.g. format, size)

Metaadat modell: levels of description

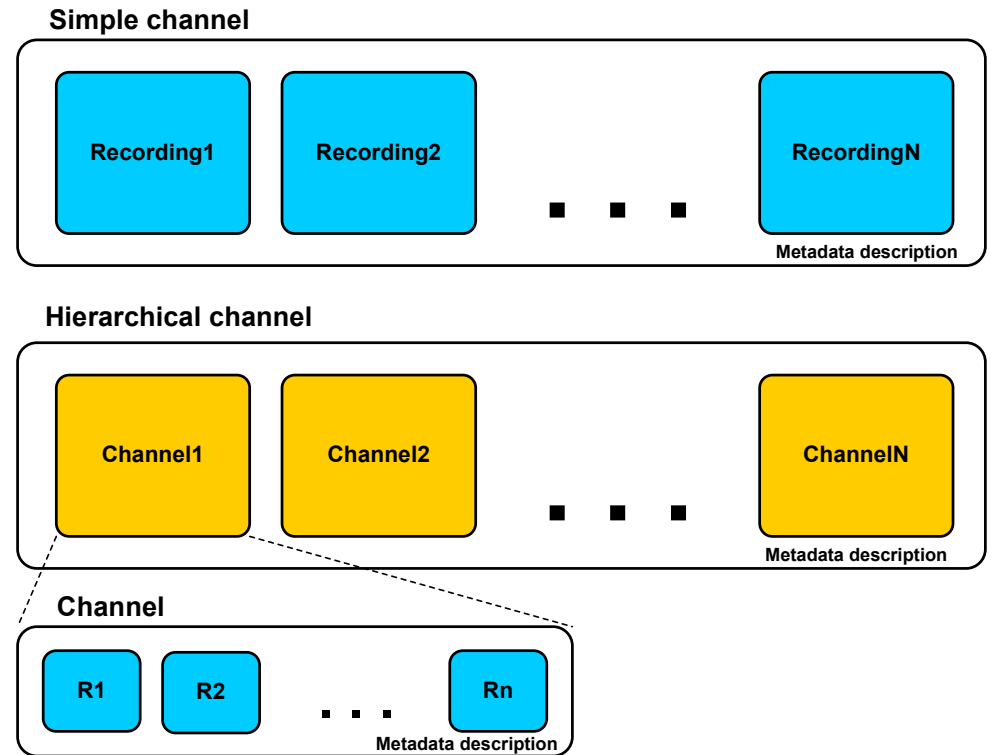
- **Basic metadata: partly mandatory**
 - Base: Europeana Semantic Element DC
 - Entities: persons, events, organizations/bodies, recordings
- **Science field classification: mandatory**
 - Ortelius thesaurus (2 languages: en/hu)
 - EU: research project classification (11 languages)
 - Local use: classify national projects
 - Developed and maintained in hu/en
 - Hierarchic: 2500 items (!), upper levels used
- **Content description: optional**
 - Library of Congress Subject Heading (LCSH) thesaurus
 - Almost a standard with specified relations
 - Adapted to hu: University of Debrecen Univ. & National Library
 - 2 language solution
- **Free descriptors: labels/tags**

Metaadat modell: levels of description

- Persons:
 - Name, key picture (identification)
 - Science field, profession
 - Jobs, organizations, scientific awards, etc.
- Events:
 - Title, description
 - Location
 - Contributors: organizer(s), broadcaster(s), etc.
- Organizations/bodies:
 - Name, URL
 - Location
- Recordings:
 - Title, subtitle, description
 - Language
 - List of contributors/creators, uploader/owner
 - Location, date of recording
 - Genre/type
 - Subject: science field classification, LCSH labels, tags
 - Event (channel)
 - Document length
 - Technical metadata
- Others: qualifiers and code lists help on user interface

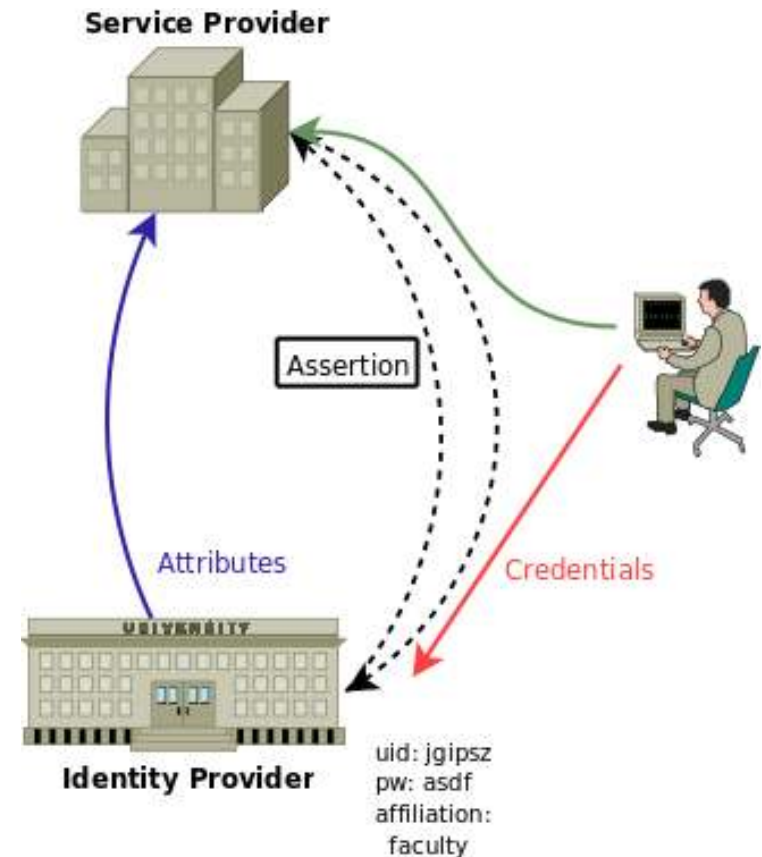
Rights + channels

- Type of publication:
 - Public
 - Requires registration
 - Group of users/institutions
 - Limited to a timeframe
- Additional settings:
 - Embeddable on external pages?
 - Downloadable?
- Choosing a channel:
 - Channel: event, recordings, view
 - Hierarchical
- Other settings:
 - Video: left/right



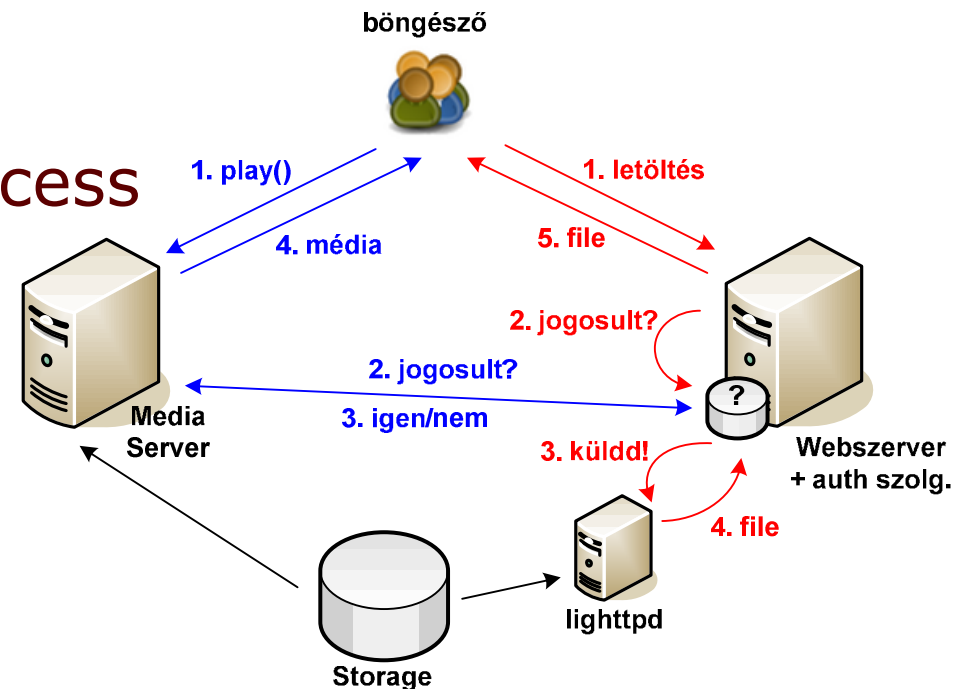
Authentication

- Technology:
 - eduID (=Shibboleth) → preferred!
 - Or: username/pass
- User statuses:
 - Registered user
 - Institutional uploader
 - Institutional editor (later)
- eduID identification:
 1. Web service provider (SP)
 2. Home institution authenticates (IdP)
 3. Back to web service provider
 - User logged in for session
- eduID advantages:
 - Home institution authenticates
 - Institution decide what personal data is provided
 - Privacy OK
 - Groups (staff, student, ...) → instant uploader
 - Later: authorization by institutions (URN based)

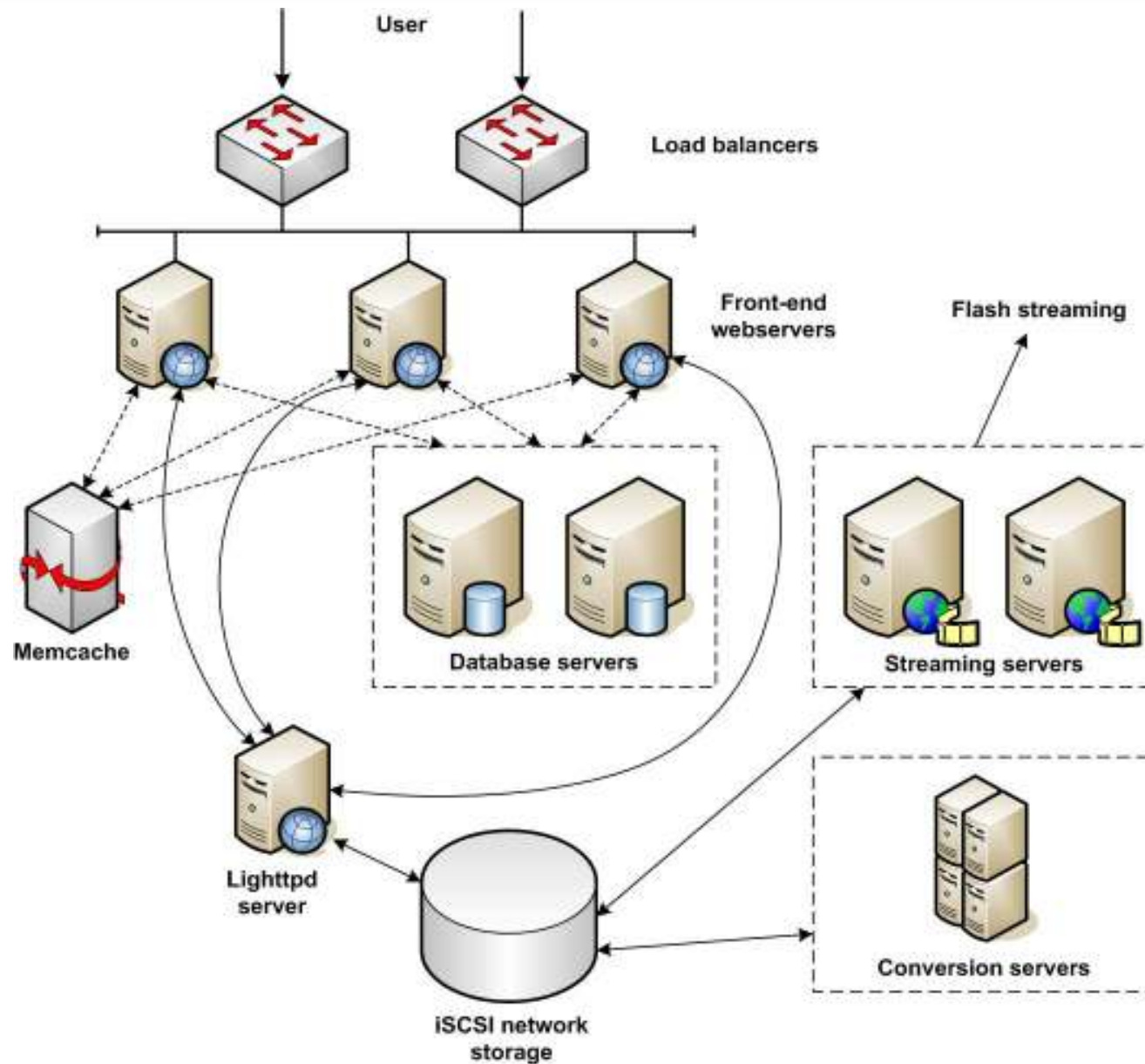


Authentication II.

- Problem: HTTP and media server distinct entities
- Videotorium solution:
 - Wowza Media Server + auth plugin
 - Apache + auth. service (AS)
 - Media server ask AS whether to play/download
 - AS authorize all requests
 - Files are serviced by lighttpd
 - Apache: no direct storage access

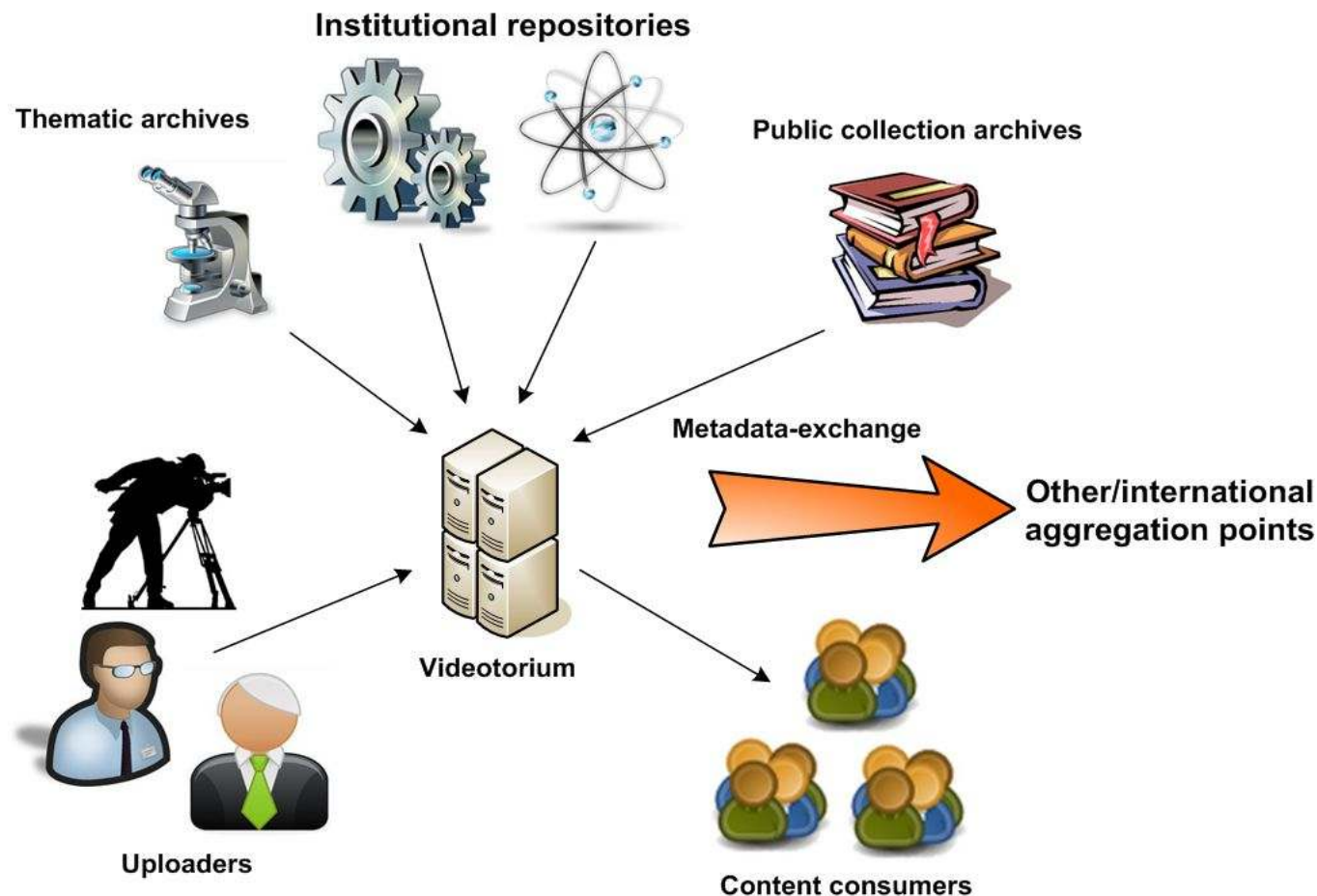


System architecture



Metadata aggregation

- OAI-PMH metaadat harvest
- Aggregation point for institutional repositories
- Feed metadata to international aggr. points:
 - Pl. Europeana, EUscreen, etc.



Thank you!



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<http://www.videotorium.hu/>