

# **Opencast Workshop**

## **Hands on Matterhorn**

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virtUOS -  
Center for Information Management and  
Virtual Teaching





## **3 Guiding Principles**

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**1. Lower Costs**

**2. Scale Up**

**3. Increase Impact**

# Matterhorn Demo

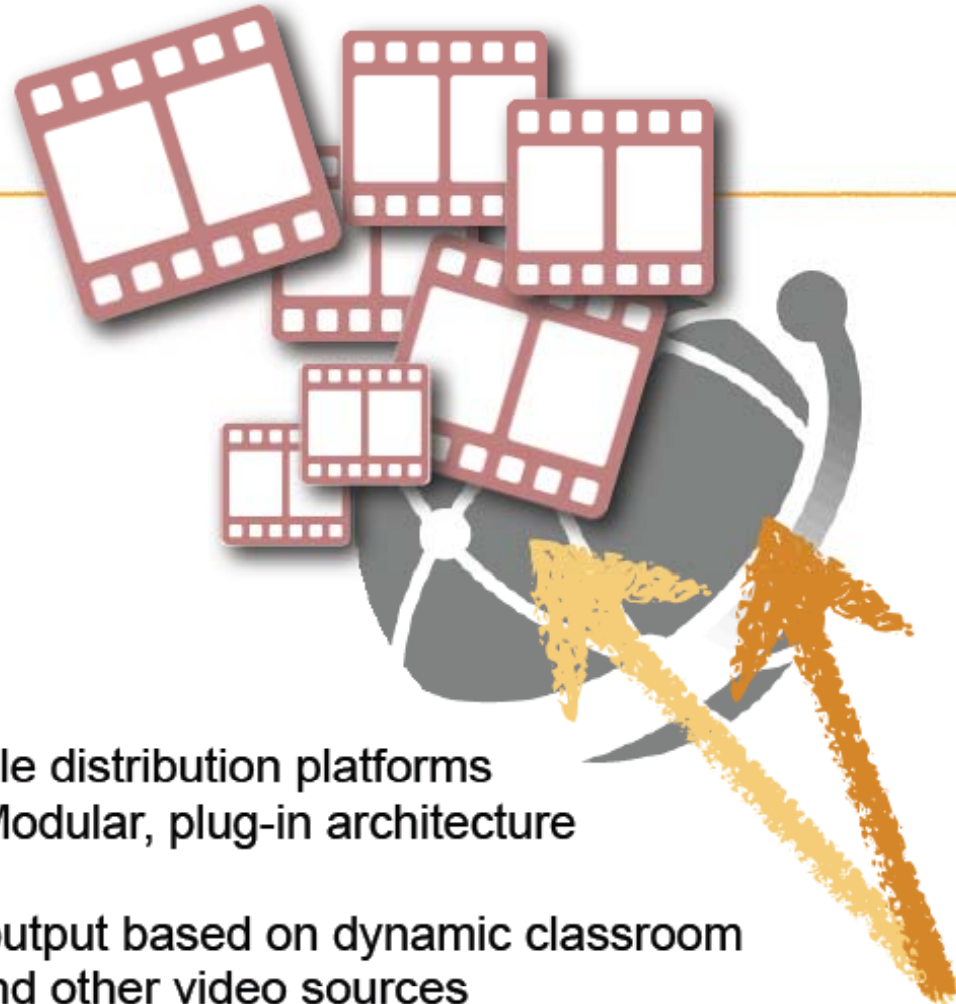
- [Demo website](#)
- Scheduling
  - No actions from lecturer need to start the recording
- Uploading
- Player



*Principle One*  
**Lower Costs**

- Affordable capture & integrate with existing infrastructure
- Easy to manage participation & scheduling
- Automate, creating flexible workflows & encoding
- Incorporate captioning and indexing into workflow
- Integrate information from enterprise systems
- Establish development & community of practice





*Principle Two*

# **Scale Up**

- Support delivery to multiple distribution platforms
- Use what you choose = Modular, plug-in architecture
- Distributed architecture
- Multiple video input and output based on dynamic classroom technology configuration and other video sources





*Principle Three*

## ***Increase Impact***

- Rich media platform for educational research, both technological and pedagogical
- Reach more students, in more ways
- Improve the student experience through increased student engagement
- Plug-in to the right learning context (LMS/VRE)
- Support learning strategies
- Universal Access
- Improve discoverability of rich media
- Freedom to customize based on institutional or learner needs



# Orgsonas

- A variation of Personas, an archetype for organisations that matterhorn is build for.
- The Cobbler
  - Small university that just starts with lecture recording
- The Sophisticated
  - Large university that already has a podcasting programm
- More Orgsonas needed?

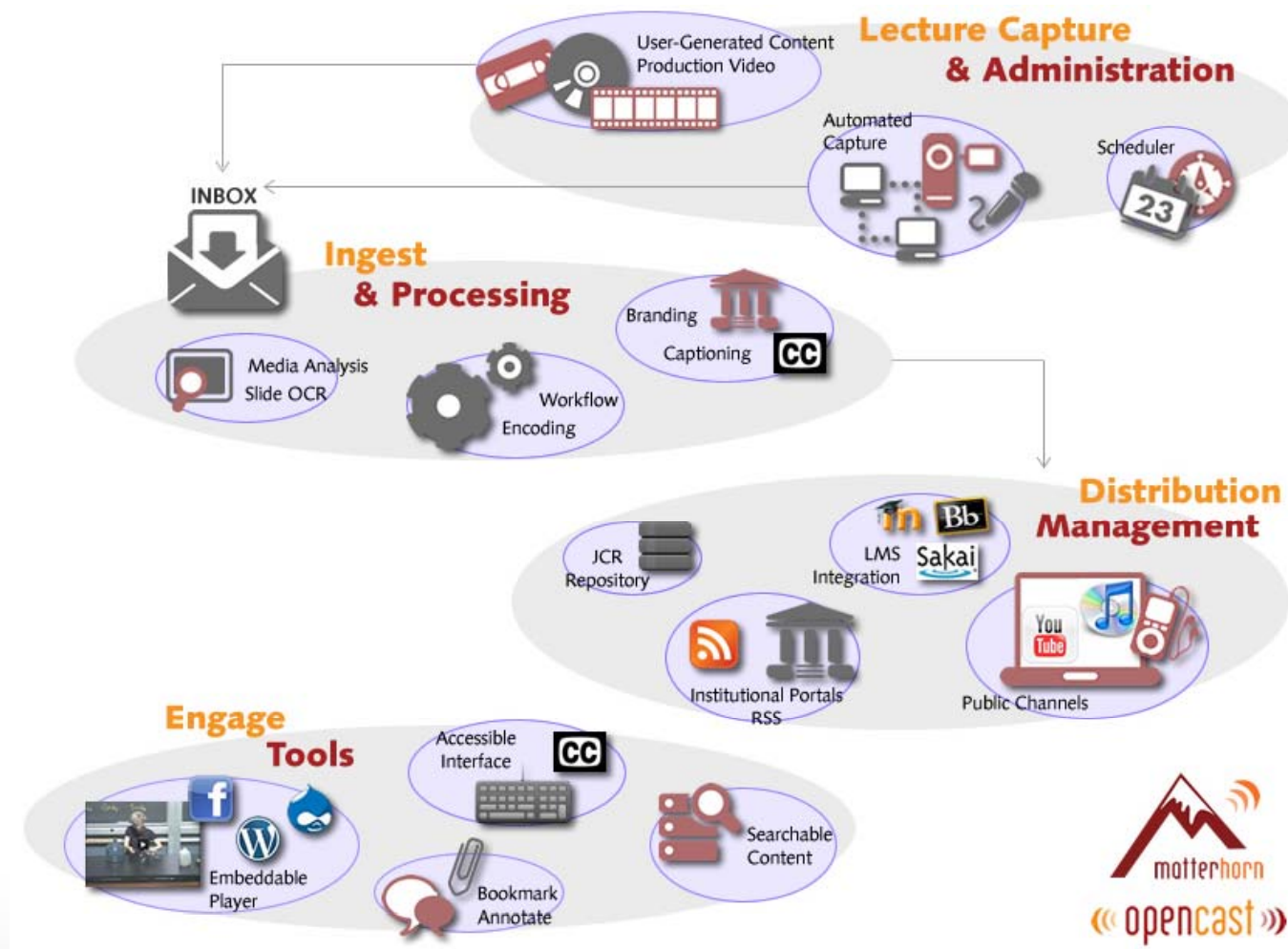
<http://opencast.jira.com/wiki/display/MH/Matterhorn+Orgsonas>



# Open Source Licence

- Educational Community License, Version 2.0
  - Commercial friendly licence
  - Similar to Apache Licence
- Just download and use it:
  - <http://www.opencastproject.org/download>
- Not compatible with GPL
  - We cannot create a Distribution where we add GPL components
  - You can use it together with GPL software as you like
- Open patent-free standards
  - MP3 and H.264 don't come out of the box, but can be added later on

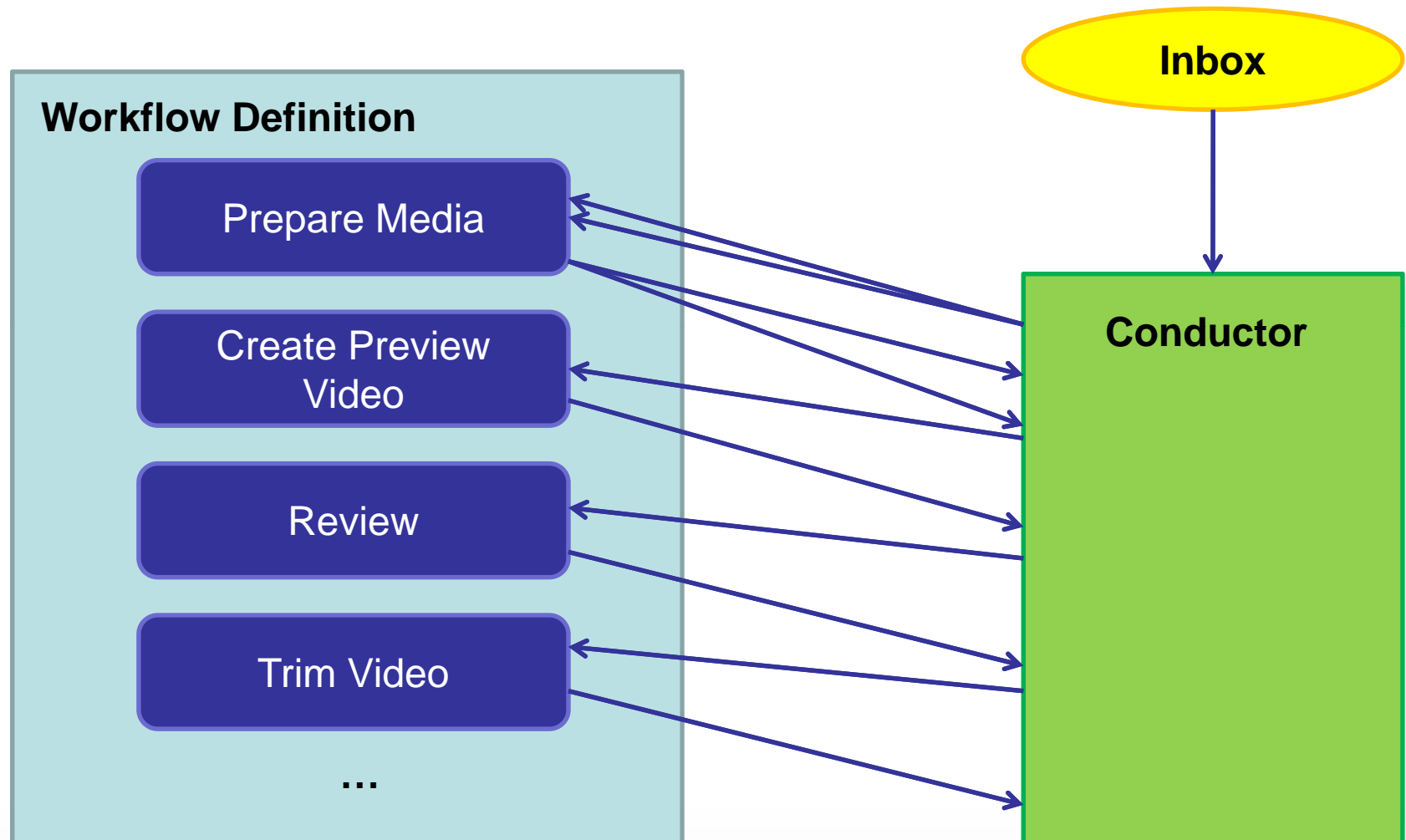
# Matterhorn



# Techniques

- Core components in Java
  - Apache Maven as build tool
- Player in HTML, Javascript and Flash
  - HTML5 only not mature enough
- Capture Agent uses Gstreamer
- Service Oriented Architecture (SOA)
  - OSGI (Apache Felix server)
- [Spring Security for Authentication](#)
- REST APIs

# Conductor & Workflows



# Media Package

Zip File: media.zip

lecturer.mpg

vga.mpg

audio.mp2

episode.xml

manifest.xml

series.xml

# Capture Agent

- [Hardware recommendations](#)
- [Install](#)
- [Configuration](#)

# Inbox

1. Upload files with the web-interface (< 2GB)
2. Upload files or Media Packages into inbox folder
  - Use whatever protocol you want
  - Mediapackages are processed automatically
  - Metadata can be added to videos with the web-interface
3. Use the REST endpoint to add media

# Outbox

1. Use the various RSS-feeds to integrate recordings in your websites
2. Use the search service to integrate the content in a more sophisticated way
3. Creates a workflow that distributes the files you need and where you need them

# Workflow Definition

- [Example](#)
- Several small independent workflows can be combined
- XML that can be changed by an admin
- New adapted workflows can be easily created
- Can be changed at runtime
- Will be found in `$FELIX_HOME/conf/`

# Encoding Properties

- [Example](#)
- Simple Java properties files to add/change encoding options for FFmpeg
- Can be added at runtime

# FFMPEG

- Matterhorn installs an FFMPEG version with some restrictions
  - No GPL
  - Low patent restrictions
- For more Codecs (H.264, MP3, ...) the system just needs a different FFMPEG version
  - Use APT
  - [Compile it yourself](#)

# Using the RESTdocs

- Documentation of REST endpoints
- Can also be used to test new workflows and integration
- [Starting Point](#)

# Matterhorn - Servers

- Minimal
  - 1 Server
  - 1 Capture Agent (optional)
- Optimal
  - 1 „Admin“ server for uploading and managing the media
  - Several „worker“ servers for encoding and analysis
  - 1 Engage for distribution and player
  - 1 Red5 Streaming server
  - 1 File server for shared disc-space

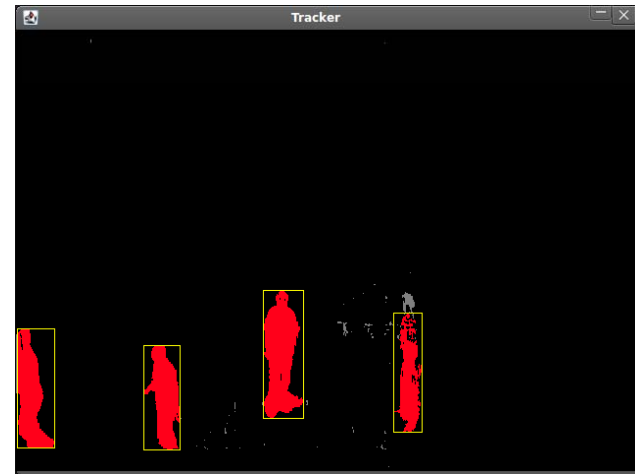
# Matterhorn Gear Shop

- Portal to find software that is connected with Matterhorn
- Licence of this software is recommendet to be compatible with ECL
- Upcomming Projects
  - OpenCaps, a webapp to create subtitles
  - OpenTrack, automated lecture tracking in the lecture hall

# Opentrack

Automated real-time lecturer tracking

- Identify the lecturer and control pan-tilt cameras that follow him



- Techniques:
  - OSGI: to work in the same environment as Matterhorn
  - OpenCL: to work in the same box as the capture agent

# Opencast Adoption

## Basecamps

**Become a Master Climber:**

**Novice – Intermediate – Advanced – Master Climber**

**Info Project wiki:**

<https://wiki.opencastproject.org/confluence/display/open/Adoption+Strategy>

# Matterhorn Support

- Support on mailinglist through community
  - On problems with matterhorn
  - Hardware recommendations
  - Hints on how to update lecture rooms for lecture recordings
- Wiki
  - Manuals
  - FAQ
  - Additional workflows that are not provided out of the box

# Additional Information

## WWW

<http://www.opencastproject.org/>

<https://opencast.jira.com/wiki/>

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## Lists

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[matterhorn-users@opencastproject.org](mailto:matterhorn-users@opencastproject.org)

## Communication

<http://opencast.jira.com/wiki/display/MH/Communication>