Opencast's Low Hanging Fruit

Unsexy Crowdfunding Goals and Why You Should Fund Them

Greg Logan
gregorydlogan@gmail.com

April 8, 2021

Crowdfunding

- What has been funded is important

Crowdfunding

- What has been funded is important
- I'm not even disagreeing with what was funded

Crowdfunding

- What has been funded is important
- I'm not even disagreeing with what was funded
- But...

Crowdfunding

- What has been funded is important
- I'm not even disagreeing with what was funded
- But...
- Unsexy things are still very, very important

Crowdfunding

- What has been funded is important
- I'm not even disagreeing with what was funded
- But...
- Unsexy things are still very, very important
- I'm going to talk about a subset, but they're all important

Crowdfunding: The List

- Bug Bash

Crowdfunding: The List

- Bug Bash
- Less insane default workflows

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish
- Workflow Visualizer

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish
- Workflow Visualizer
- Improve Admin UI Build

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish
- Workflow Visualizer
- Improve Admin UI Build
- Index Improvements

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish
- Workflow Visualizer
- Improve Admin UI Build
- Index Improvements
- Remove Internal Publication

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish
- Workflow Visualizer
- Improve Admin UI Build
- Index Improvements
- Remove Internal Publication
- Replace Service Registry

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish
- Workflow Visualizer
- Improve Admin UI Build
- Index Improvements
- Remove Internal Publication
- Replace Service Registry
- Remove Workflow Solr Index

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish
- Workflow Visualizer
- Improve Admin UI Build
- Index Improvements
- Remove Internal Publication
- Replace Service Registry
- Remove Workflow Solr Index
- Store Publications in the DB

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish
- Workflow Visualizer
- Improve Admin UI Build
- Index Improvements
- Remove Internal Publication
- Replace Service Registry
- Remove Workflow Solr Index
- Store Publications in the DB
- Store ACLs in the DB

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish
- Workflow Visualizer
- Improve Admin UI Build
- Index Improvements
- Remove Internal Publication
- Replace Service Registry
- Remove Workflow Solr Index
- Store Publications in the DB
- Store ACLs in the DB
- Add Capture Agent Monitoring

Crowdfunding: The List

- Bug Bash
- Less insane default workflows
- Spring Boot
- Module Updates
- Moodle/Plug-in-UI
- User Management UI
- Stand-Alone Editor
- Security Issues
- Metadata
- Accessibility
- Java 11 and newer
- Capture Agent API
- Auto-Republish
- Workflow Visualizer
- Improve Admin UI Build
- Index Improvements
- Remove Internal Publication
- Replace Service Registry
- Remove Workflow Solr Index
- Store Publications in the DB
- Store ACLs in the DB
- Add Capture Agent Monitoring
- Agentless Capture

Projects: The List

Funded/Finished

- Security Issues - $2.5K->$10K
- Metadata - $5K
- Java 11 and newer - $9K
- Stand-Alone Editor - $40K->$Lots
- Agentless Capture* - $50K+
- Workflow Visualizer/Editor - $Free/Thesis Student

In Progress

- Index Improvements
- Remove Workflow Solr Index
- Improve Admin UI Build

This Talk

- Module Updates
- Module/Plugin UI
- Replace Service Registry
- Automated Testing

Topic: Module Updates

Remember the talk about Opencast, Maven, and OSGi?

- I gave a talk about this a few years ago

Topic: Module Updates

Remember the talk about Opencast, Maven, and OSGi?

- I gave a talk about this a few years ago
- Rebuilding an Opencast module...
  - Replaces at least one bundle
  - Replaces at least one component
  - Replaces at least one **service**

Topic: Module Updates

Remember the talk about Opencast, Maven, and OSGi?

- I gave a talk about this a few years ago
- Rebuilding an Opencast module...
  - Replaces at least one bundle
  - Replaces at least one component
  - Replaces at least one **service**
- In theory OSGi handles this

Topic: Module Updates

Remember the talk about Opencast, Maven, and OSGi?

- I gave a talk about this a few years ago
- Rebuilding an Opencast module...
  - Replaces at least one bundle
  - Replaces at least one component
  - Replaces at least one **service**
- In theory OSGi handles this
- Opencast, sometimes, does not handle it well

Topic: Module Updates

Why is this important

- Hot reloading is a prerequisite to high availability

Topic: Module Updates

Why is this important

- Hot reloading is a prerequisite to high availability
  - At least in the application layer

Topic: Module Updates

Why is this important

- Hot reloading is a prerequisite to high availability
  - At least in the application layer
- Hot reloading forces us to have good code hygene

Topic: Module Updates

Why is this important

- Hot reloading is a prerequisite to high availability
  - At least in the application layer
- Hot reloading forces us to have good code hygene
- Hot reloading means you can change your node profiles

Topic: Module Updates

Why is this important

- Hot reloading is a prerequisite to high availability
  - At least in the application layer
- Hot reloading forces us to have good code hygene
- Hot reloading means you can change your node profiles
- **Hot reloading means Opencast will be more stable**

Topic: Module/Plugin UI

Opencast is a collection of modules

- Admin, Worker, Presentation modules

Topic: Module/Plugin UI

Opencast is a collection of modules

- Admin, Worker, Presentation modules
- User Provider(s)

Topic: Module/Plugin UI

Opencast is a collection of modules

- Admin, Worker, Presentation modules
- User Provider(s)
- Upcoming tools

Topic: Module/Plugin UI

Opencast is a collection of modules

- Admin, Worker, Presentation modules
- User Provider(s)
- Upcoming tools
  - Studio

Topic: Module/Plugin UI

Opencast is a collection of modules

- Admin, Worker, Presentation modules
- User Provider(s)
- Upcoming tools
  - Studio
  - Annotation Tool

Topic: Module/Plugin UI

Opencast is a collection of modules

- Admin, Worker, Presentation modules
- User Provider(s)
- Upcoming tools
  - Studio
  - Annotation Tool
  - Media harvesting tools (Zoom, etc)

Topic: Module/Plugin UI

Opencast is a collection of modules

- Admin, Worker, Presentation modules
- User Provider(s)
- Upcoming tools
  - Studio
  - Annotation Tool
  - Media harvesting tools (Zoom, etc)
- What if we break down what a 'worker' is?

Topic: Module/Plugin UI

Why is this important

- You pick what you want on a node

Topic: Module/Plugin UI

Why is this important

- You pick what you want on a node
- Enable specialization of nodes

Topic: Module/Plugin UI

Why is this important

- You pick what you want on a node
- Enable specialization of nodes
  - A worker which only encodes

Topic: Module/Plugin UI

Why is this important

- You pick what you want on a node
- Enable specialization of nodes
  - A worker which only encodes
  - A host for Studio which also function as a worker

Topic: Module/Plugin UI

Why is this important

- You pick what you want on a node
- Enable specialization of nodes
  - A worker which only encodes
  - A host for Studio which also function as a worker
- Hey, this kind sounds like a real microservice setup!

Topic: Replace Service Registry

Ever had your admin node go down?

- Without the Service Registry nothing runs

Topic: Replace Service Registry

Ever had your admin node go down?

- Without the Service Registry nothing runs
- The Service Registry (usually) runs on your admin node
  - The admin node is the largest single point of failure currently

Topic: Replace Service Registry

Ever had your admin node go down?

- Without the Service Registry nothing runs
- The Service Registry (usually) runs on your admin node
  - The admin node is the largest single point of failure currently
- The codebase is very old

Topic: Replace Service Registry

Ever had your admin node go down?

- Without the Service Registry nothing runs
- The Service Registry (usually) runs on your admin node
  - The admin node is the largest single point of failure currently
- The codebase is very old
  - Developers, who is afraid to poke at the internals?

Topic: Replace Service Registry

Ever had your admin node go down?

- Without the Service Registry nothing runs
- The Service Registry (usually) runs on your admin node
  - The admin node is the largest single point of failure currently
- The codebase is very old
  - Developers, who is afraid to poke at the internals?
- Makes unfortunate assumptions

Topic: Replace Service Registry

Ever had your admin node go down?

- Without the Service Registry nothing runs
- The Service Registry (usually) runs on your admin node
  - The admin node is the largest single point of failure currently
- The codebase is very old
  - Developers, who is afraid to poke at the internals?
- Makes unfortunate assumptions
  - All nodes must be reachable by all other nodes

Topic: Replace Service Registry

Ever had your admin node go down?

- Without the Service Registry nothing runs
- The Service Registry (usually) runs on your admin node
  - The admin node is the largest single point of failure currently
- The codebase is very old
  - Developers, who is afraid to poke at the internals?
- Makes unfortunate assumptions
  - All nodes must be reachable by all other nodes
  - 1:1 relationship between DNS name and IP

Topic: Replace Service Registry

Ever had your admin node go down?

- Without the Service Registry nothing runs
- The Service Registry (usually) runs on your admin node
  - The admin node is the largest single point of failure currently
- The codebase is very old
  - Developers, who is afraid to poke at the internals?
- Makes unfortunate assumptions
  - All nodes must be reachable by all other nodes
  - 1:1 relationship between DNS name and IP
  - No relationship between org and worker

Topic: Replace Service Registry

Why is this important?

- Maintainability

Topic: Replace Service Registry

Why is this important?

- Maintainability
- Remove a single point of failure

Topic: Replace Service Registry

Why is this important?

- Maintainability
- Remove a single point of failure
  - On the critical path to a high availability system

Topic: Replace Service Registry

Why is this important?

- Maintainability
- Remove a single point of failure
  - On the critical path to a high availability system
- Support of new features

Topic: Replace Service Registry

Why is this important?

- Maintainability
- Remove a single point of failure
  - On the critical path to a high availability system
- Support of new features
  - Job priorities

Topic: Replace Service Registry

Why is this important?

- Maintainability
- Remove a single point of failure
  - On the critical path to a high availability system
- Support of new features
  - Job priorities
  - Node restrictions based on job

Topic: Replace Service Registry

Why is this important?

- Maintainability
- Remove a single point of failure
  - On the critical path to a high availability system
- Support of new features
  - Job priorities
  - Node restrictions based on job
  - Node restrictions based on org

Topic: Replace Service Registry

Why is this important?

- Maintainability
- Remove a single point of failure
  - On the critical path to a high availability system
- Support of new features
  - Job priorities
  - Node restrictions based on job
  - Node restrictions based on org
- **Required for true HA, enables a bunch of requested features**

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit
  - We had these, they broke and we got rid of them

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit
  - We had these, they broke and we got rid of them
- UI unit tests are done

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit
  - We had these, they broke and we got rid of them
- UI unit tests are done
- UI integration tests are missing

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit
  - We had these, they broke and we got rid of them
- UI unit tests are done
- UI integration tests are missing
  - Manual testing takes a long time and can be hard

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit
  - We had these, they broke and we got rid of them
- UI unit tests are done
- UI integration tests are missing
  - Manual testing takes a long time and can be hard
    - Doing the tests is mind numbing

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit
  - We had these, they broke and we got rid of them
- UI unit tests are done
- UI integration tests are missing
  - Manual testing takes a long time and can be hard
    - Doing the tests is mind numbing
    - Writing the tests is almost as bad

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit
  - We had these, they broke and we got rid of them
- UI unit tests are done
- UI integration tests are missing
  - Manual testing takes a long time and can be hard
    - Doing the tests is mind numbing
    - Writing the tests is almost as bad
    - Finding the person-hours to perform the tests?

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit
  - We had these, they broke and we got rid of them
- UI unit tests are done
- UI integration tests are missing
  - Manual testing takes a long time and can be hard
    - Doing the tests is mind numbing
    - Writing the tests is almost as bad
    - Finding the person-hours to perform the tests?
  - A small change to a service can cause unexpected breakage

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit
  - We had these, they broke and we got rid of them
- UI unit tests are done
- UI integration tests are missing
  - Manual testing takes a long time and can be hard
    - Doing the tests is mind numbing
    - Writing the tests is almost as bad
    - Finding the person-hours to perform the tests?
  - A small change to a service can cause unexpected breakage
  - Change a rest endpoint, break a service!

Topic: Automated Testing

When a change is made to Opencast we should **know** it works

- Unit tests are great, but only test one module
- Integration tests are still needed
  - These test functionality *across* modules
  - These catch changes in behaviour as larger unit
  - We had these, they broke and we got rid of them
- UI unit tests are done
- UI integration tests are missing
  - Manual testing takes a long time and can be hard
    - Doing the tests is mind numbing
    - Writing the tests is almost as bad
    - Finding the person-hours to perform the tests?
  - A small change to a service can cause unexpected breakage
  - Change a rest endpoint, break a service!
- Needed: A collection of Selenium/Cucumber and shell script tests

Topic: Automated Testing

Why is this important?

- Speed of development

Topic: Automated Testing

Why is this important?

- Speed of development
- Maintainability

Topic: Automated Testing

Why is this important?

- Speed of development
- Maintainability
- Makes your institutional changes easier to maintain

Topic: Automated Testing

Why is this important?

- Speed of development
- Maintainability
- Makes your institutional changes easier to maintain
- Want to have a say in how Opencast is developed?

Topic: Automated Testing

Why is this important?

- Speed of development
- Maintainability
- Makes your institutional changes easier to maintain
- Want to have a say in how Opencast is developed?
  - This is a great way to get a committer

Are you sensing a theme yet?

In case you missed it: **Maintainability** and **Availability**

- Overall Opencast is in good shape

Are you sensing a theme yet?

In case you missed it: **Maintainability** and **Availability**

- Overall Opencast is in good shape
- We need more tests (as always)

Are you sensing a theme yet?

In case you missed it: **Maintainability** and **Availability**

- Overall Opencast is in good shape
- We need more tests (as always)
- There are a few items blocking high availability

Are you sensing a theme yet?

In case you missed it: **Maintainability** and **Availability**

- Overall Opencast is in good shape
- We need more tests (as always)
- There are a few items blocking high availability
- There are a few items needing large scale maintenance

Are you sensing a theme yet?

In case you missed it: **Maintainability** and **Availability**

- Overall Opencast is in good shape
- We need more tests (as always)
- There are a few items blocking high availability
- There are a few items needing large scale maintenance
- Some of this can/will be addressed by me this year

Are you sensing a theme yet?

In case you missed it: **Maintainability** and **Availability**

- Overall Opencast is in good shape
- We need more tests (as always)
- There are a few items blocking high availability
- There are a few items needing large scale maintenance
- Some of this can/will be addressed by me this year
- Others are being addressed by other institutions

Are you sensing a theme yet?

In case you missed it: **Maintainability** and **Availability**

- Overall Opencast is in good shape
- We need more tests (as always)
- There are a few items blocking high availability
- There are a few items needing large scale maintenance
- Some of this can/will be addressed by me this year
- Others are being addressed by other institutions
- Crowdfunding is working, thank you all, keep it up!