



<http://www.csuci.edu/ira/index.htm>

Application
Instructionally Related Activities Funds Request
2009-2010 Academic Year
DEADLINE: Fall and Academic Year 3/15/09
Spring 10/15/10

Applications must first be sent to the appropriate program chair. Chairs will then recommend and route them to the Dean's Office for review and authorization. The Dean's Office will then forward them to the IRA Committee for consideration.

Activity Title: Lecture Capture and Casting Pilot

Project Sponsor/Staff (Name/Phone): **Prof. AJ Bieszczad, x2773**

Activity/Event Date(s): **2009/2010**

Date Funding Needed By: **May 2009**

****Please Note that for Fall Requests the earliest that you will be notified of funding availability will be early June 2008 and for Spring Requests early January 2009.**

Please check if any of the following apply to your IRA:

x Equipment Purchase

☐ Event

x IT Requirements

☐ International Travel

☐ Space/OPC Requirements

☐ Infrastructure/Remodel

☐ Other Programming Contest

☐ Field Trip

☐ Participant data collection for public dissemination, i.e. interviews/surveys that result is a journal/poster session/newsletter

☐ Risk Management Consultation

☐ Late Submission (Passed Deadlines: **Fall 3/15, Spring 10/15**)

Previously Funded: ☐ YES **x NO** Yes, Request # _____

Does your proposal require IRB (Institutional Review Board) approval: ☐ Yes **x No**

Assessment submitted for previously Funded Activity: ☐ YES ☐ NO

Academic Program or Center Name and Budget Code: **770-COMPUTER SCIENCE**

Date of Submission: **MARCH 13th, 2009**

Amount Requested: **\$ 28,000.00**

(Should match item 2. E. on page 4)

Estimated Number of Students Participating: **3-4 active, 100+ passive**

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Conditions and Considerations

Equipment Purchase-If requesting large equipment, Project Sponsor must show proof of correspondence with OPC Administration. In addition, all other purchases must follow Procurement Guidelines

Events-Attach copy of Events and Facilities Use Request Form (Public Folders-Events & Facilities folder) Consider time frame for set-up and take down.

Participant Data Collection for Public Dissemination-If Project Sponsor proposes to conduct research with human participants then it may be subject to IRB (Institutional Review Board for the Protection of Human Subjects) review. It is the Project Sponsor's responsibility to inquire with the IRB **prior** to IRA application submission to determine if the project is exempt from IRB review so that funding is not delayed. Please indicate on the cover page if your project is exempt from IRB review.

Field Trip-If approved, Identified Risks of Participation and Release Agreement must be submitted for each student to the Program Office (Public Folders-HR Forms).

IT Requirements-Requires proof of correspondence and approval from IT Administration

International Travel-Requires International Travel application be submitted to Center for International Affairs.

Risk Management Consultation-Requires proof of correspondence with Risk Management.

Space/OPC Requirements, Infrastructure/Remodel-Requires proof of correspondence with OPC Administration .

Late Submission (Deadlines: Fall 3/14, Spring 10/15)-Requires explanation for emergency funding.

Fiscal Management: Project Sponsor's program will be responsible for all costs incurred over and above what is funded through the IRA award and will be responsible for seeing that any revenue that is intended to offset the amount of the IRA award is transferred accordingly.

2009-2010 Academic Year

Requirements and Signatures

Please provide the following in your application:

1. **Brief Activity Description.** Describe the activity and its relationship to the educational objectives of the students' program or major.

In this pilot activity, an infrastructure for lecture casting in Computer Science Mac Lab (BT2372) will be installed in collaboration between the Computer Science faculty, lab support, and Information Technology.

The trial will use a solution provided by Apple, Inc. The description of the solution is attached to this application. In a nutshell, lectures will be captured in real-time with minimal involvement of the faculty using Podcast Capture application, sent to the data center for transcoding to required format using Podcast Producer, and then posted for the students through iTunes University, Web site, and faculty blogs. Targets are configurable, so several ways of dissemination will be tested. Closed Captioning will be added as needed.

Ultimately, the technology will be installed across the campus. Installing cameras in classrooms is actually the least expensive part of the infrastructure, so expanding the services is very cheap on the front side. The bulk of the cost is in the back room, since transcoding video, adding close caption, and so on is very computation-intensive and requires powerful servers. Although expensive, expanding the back end is not difficult either, since Apple applies the grid technology that allows to connect any number of servers in a collaborative pool that works on one task. The costs of the servers shapes the cost of the infrastructure, and one of the outcomes of this trial would be the determination of how many classrooms can be handled by an additional server.

2. **Relation to IRA to Course Offerings.** All IRAs must be integrally related to the formal instructional offerings of the University and must be associated with scheduled credit courses. Please list all classes that relate to the program proposed.

Lecture capture and relay casting is one of the most innovative tools that has been made available by the latest technology. While video production and live TV have been around for some time, automated video capturing in digital format, and then transcoding it for replay on a variety of devices (PCs, phones, iPods, Internet, etc.) is a new development in educational field. This and similar technology is one of the characteristics of the 21st Century University.

The students of any course that is captured will benefit in numerous ways:

- ⌘ refreshing the material from the lecture
- ⌘ clarifying the material
- ⌘ catching up with missing lectures
- ⌘ utilizing distance learning

Ultimately, all classrooms can have the capability.

In addition, the infrastructure enables other means of communication: screen

casting (very important for teaching computer-based tools), and video and audio casting of prepared (that is not real-time) material. That latter could include dissemination of lecture notes potentially with commentary and closed caption.

3. **Activity Assessment.** Describe the assessment process and measures that the program will use to determine if it has attained its educational goals. **Please note a report will be due at the end of the semester.**

The assessment will be done three-fold:

- student evaluation of the service,
- technical evaluation by the IT and by CS faculty, and
- faculty evaluation.

Each evaluation would be multifaceted.

4. **Activity Budget.** Please enclose a complete detailed budget of the entire Activity **bold** specific items of requested IRA funding. (Page 4)

The cost of this project is driven by the cost of the servers; they are rather expensive. Each transcoding requires a lot of CPU time, and that translates to several hours of work even on very fast computers.

As indicated in the Apple's documentation, several servers are needed for the infrastructure. In addition, we will look at the possibility of including all idling lab computers across the campus in the computing grid to gain as much processing power as possible.

We will start with a minimal configuration, but it will allow us to measure the efficiency of the system. With that, we will be able to extrapolate costs for the future expansion of the system to support more classrooms.

We are planning to use portable wireless cameras, so no installation charges should be necessary. If there are any needs in this respect, then the Computer Science department will cover the costs.

Several student assistants will help with configuration of the infrastructure and help with managing the capture content.

The trial requires considerable effort and focus from participating faculty, so three units of assigned time are also included. After the system is installed and tested, operation is very easy -- just a press of the button.

5. **Sources of Activity Support.** Please list the other sources of funding, and additional support for the activity.

None.

7. **Acknowledgment.** Project Sponsor and Program Chair acknowledge that they have reviewed and accepted the Conditions and Considerations detailed on page 2.

Signatures and Dates

Project Sponsor AJ BIESZCZAK
Nicki Duml Date 3/13/09

Program Chair/Director [Signature] Date 3/16/09

Dean A-h Vanden 3/17/09

Application
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ACTIVITY BUDGET FOR 2009-2010

I. Operating Expense Budget

A. Supplies \$ 500.00 (outsourced closed captioning)

B. Vendor Printing _____

C. InState Travel _____

D. OutofState Travel _____

E. Equipment Rental _____

F. Equipment Purchase \$ 20,000.00 (3 x servers, 2 x cameras, accessories)

G. Contracts/Independent Contractors \$ 1500.00 (student assistants)

H. Honorarium _____

I. OPC Chargeback _____

J. Copier Chargeback _____

K. Other (Please Specify) ~~\$ 6,000.00 (assigned time)~~

TOTAL Expenses \$ 28000.00

~~\$ 6,000.00~~
\$ 22,000

2. Revenue

A. Course Fees

B. Ticket Sales

C. Out of Pocket Student Fees
(exclusive of course fees)

D. Additional Sources of
funding
(Please specify
And indicate source)

**E. Requested Allocation
from IRA**

Total Revenue

From: "Swanson, Judy" <Judy.Swanson@csuci.edu>
Subject: **RE: camera and IRA grant**
Date: March 13, 2009 11:46:17 AM PDT
To: "Bieszczad, A.J." <aj.bieszczad@csuci.edu>

AJ,

My understanding is that every IRA grant has space for IT impact. Also, you should add in some captioning costs.

Judy

-----Original Message-----

From: Bieszczad, A.J.
Sent: Friday, March 13, 2009 10:10 AM
To: Swanson, Judy
Subject: Re: camera and IRA grant

On Mar 13, 2009, at 9:53 AM, Swanson, Judy wrote:

You mentioned your applying for an IRA grant for lecture capture. This is a good idea. If you would like IT to collaborate with you on this project, I ask that you include us in writing up the grant so that we can be sure that we can provide you with the services you require. Tom Emens would be happy to work with you on this project.

Judy,

Yes, I want to work on the project with IT of course, but unfortunately the deadline for IRA applications is 3/15, so there is no time to collaborate on that. I am going to write something up later today, have Bill to sign it, and off to the IRA committee. Since I have several meetings today, and I have two other projects for which I am asking money, I am not sure if I manage to actually submit the applications.

For the "podcasting" project, I am going to ask for 3 Xserve machines for the backend, a Mac Pro with two wireless cameras for the test room (that is Mac Lab), money for a student assistant, and for OPC expenditures. I will see if I can squish some "time release" funds for me, since I am unfortunately running out of my spare time with all my projects. I am planning to append one of the high-level documents that Apple created (I sent them to you at some point). I will try to get the money ASAP, so we could do something during the vacations.













I was going to indicate that I will collaborate with you and Tom (or "IT" if you prefer such a phrase), but I am not sure if throwing IT in the mix will help, since this is "instruction-related activity", and the IRA committee may think that IT should fund such stuff. Perhaps a better way to go is to target one of my courses specifically (or "generating tutorials for the myriad of Computer Science tools"), with a note that if successful the technology can be transplanted to other courses/activities/programs.

Let me know what you think.

Thanks,
AJ

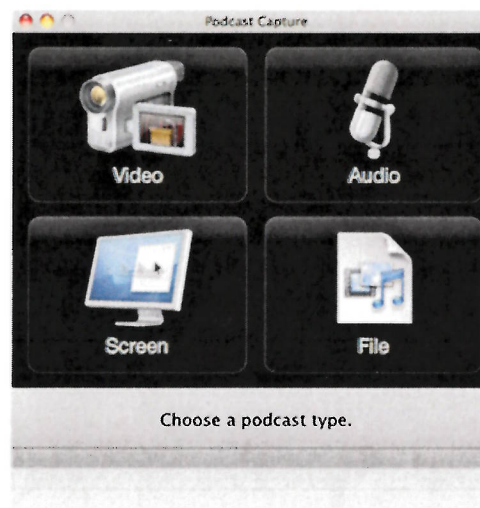
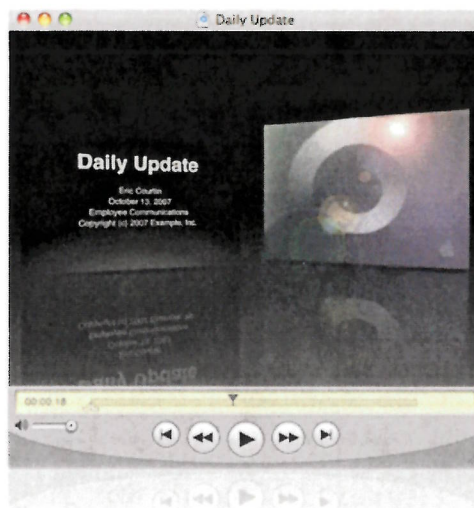
[Overview](#)[Features](#)[Technology](#)[Resources](#)[Tech Specs](#)

Features

-  [Setup and Admin](#)
-  [iCal Server](#)
-  [Wiki Server](#)
-  **[Podcast Producer](#)**
-  [Spotlight Server](#)
-  [iChat Server](#)
-  [File Sharing](#)
-  [Mail Services](#)
-  [Web Hosting](#)
-  [Directory](#)
-  [Client Management](#)
-  [Networking and VPN](#)

Resources

- [Podcast Producer Tech Brief](#)
- [Xgrid Tech Brief](#)
- [QuickTime Streaming Tech Brief](#)
- [Podcast Producer: Anatomy of a Workflow](#)
- [Podcast Producer: Writing Actions](#)
- [Podcast Producer: Publishing to YouTube](#)
- [Podcast Producer: Scheduling Podcasts](#)



Podcast Producer. Less work, more play.

Podcast Producer is a complete, end-to-end solution for encoding, publishing, and distributing high-quality podcasts. Ideal for employee training, university lectures, presentations — or whatever audio or video podcasts your organization requires — Podcast Producer simplifies the process of recording content, encoding, and publishing podcasts for playback in iTunes and on iPod, iPhone, and Apple TV.



Start and stop.

A podcast starts with the new Podcast Capture application in Leopard. This innovative tool makes it easy for users to capture high-quality audio and video from local and remote cameras, record screen captures, and upload existing content into

Podcast Producer for encoding and distribution. Podcast Capture records audio and video from a wide range of devices, including digital video cameras connected via FireWire, USB microphones, and iSight cameras.

Recording a podcast is a snap. Simply launch Podcast Capture, log in, and select the type of podcast you would like to record — then click Start. When finished recording, click Stop. Give your podcast a title, add a description, and pick the appropriate workflow. It's that simple.



It's automatic.

Once recording is completed, the file is automatically uploaded to Podcast Producer for processing. Podcast Producer leverages the power of QuickTime to encode content into standard formats such as H.264 and MPEG-4. And with Episode Podcast from Telestream, Podcast Producer can accept and re-encode media from other popular formats including Windows Media, Flash 8, VC-1, and more.



Podcast Producer includes a dozen built-in workflows to automate publishing of podcasts to blogs, iTunes, iTunes U, or even multimedia-enabled cell phones over high-speed wireless networks using QuickTime Streaming Server. Workflows include the ability to archive recordings, apply custom Quartz Composer compositions with titles and watermarks, add opening and closing videos, notify the iTunes Podcast Directory of the new episode, and send out an announcement email.

Podcast Producer uses Xgrid distributed processing technology for large-scale podcast productions — encoding tasks are automatically distributed to other servers. All that is required is another server running Podcast Producer and a shared file system such as Xsan or NFS.

[Wiki Server](#)[Spotlight Server](#)

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Overview of Podcast Producer

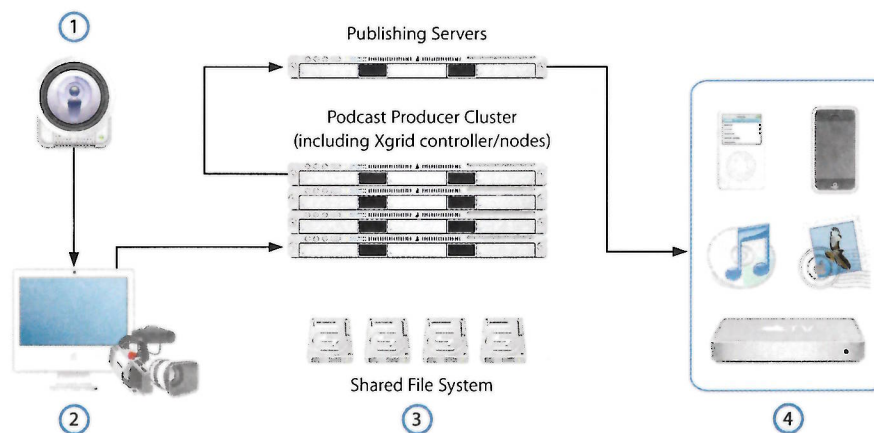
1

This chapter introduces Podcast Producer and describes the architecture of the Podcast Producer system.

Podcast Producer is a video capture, processing, and publishing system. It is an elegant solution that automates the process of creating and publishing podcasts of lectures, training, or other audio and video projects.

How Podcast Producer Works

Podcast Producer does to the production of podcasts what the assembly line did to automobile production. It automates and streamlines the production of podcasts, as illustrated in the following figure.



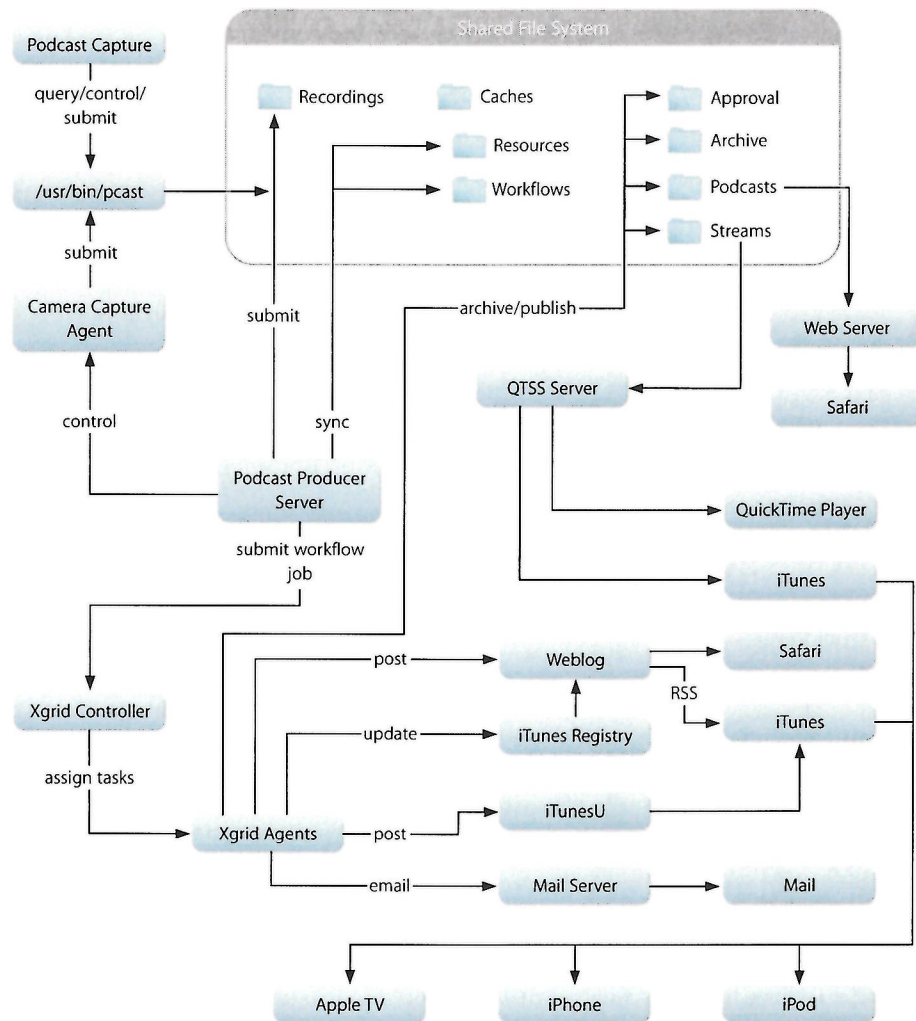
Here's how the process works:

- 1** The user uses Podcast Capture to remotely record audio or video.
The user can also record audio and video locally, record screen activity, or directly submit a QuickTime movie to the Podcast Producer server.
- 2** If remotely recording audio or video, the recording system submits the recording to the Podcast Producer server.

- 3 The Podcast Producer server takes the submission and sends it to an Xgrid cluster to be processed according to the workflow selected in Podcast Capture. When finished, the Xgrid cluster publishes the resulting podcasts. The Xgrid cluster also sends mail notifications to users with instructions on how to access the podcasts.
- 4 Users use iTunes and Safari to access the podcasts and download them to their iPhone, iPod, or Apple TV devices.

The Architecture of the Podcast Producer System

The following figures illustrates the architecture of the Podcast Producer system.



Deploying Scalable Podcast Producer Solutions

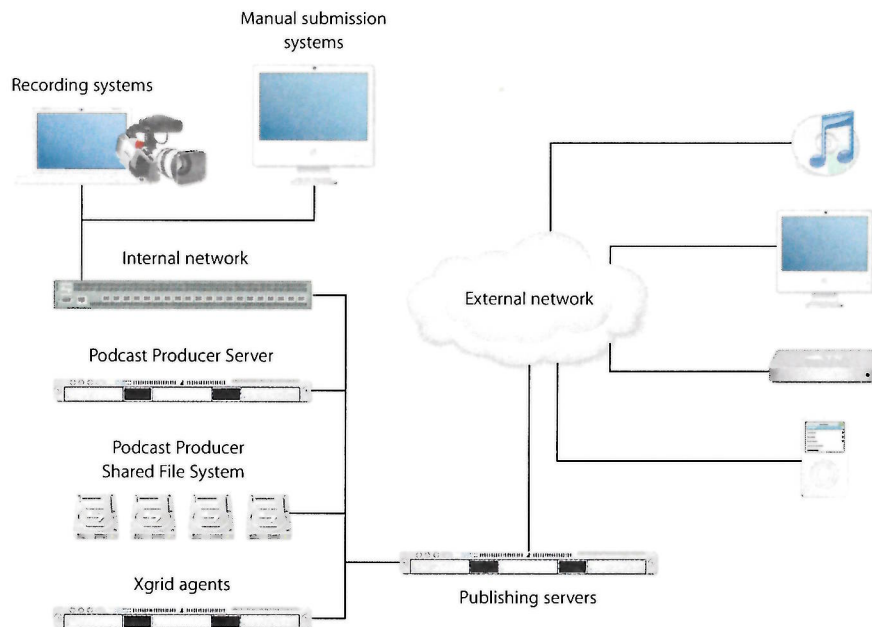
7

This chapter describes how to plan the deployment of Scalable Podcast Producer solutions.

Podcast Producer is designed for scalability. However, several factors determine how easy it is to scale your system and whether it is feasible. This chapter discusses the different scalability aspects and provides planning tips.

Resource Planning

Depending on your application, setting up Podcast Producer can require a serious investment in computing, storage, and network resources, as shown in the following illustration.



Manual Submission Systems

You use manual submission systems to upload QuickTime movies using Podcast Capture or the `podcast` command-line tool.

These systems do not need to be dedicated systems because Podcast Capture is available in Mac OS X v10.5. Users with systems running Mac OS X v10.5 can upload video content using their systems.

Any system capable of running Mac OS X v10.5 with enough hard disk space can be used for a manual submission system.

Video Recording Systems

Video recording systems are dedicated systems running Mac OS X v10.5 with a video camera connected to them. A typical video recording system is a headless Mac Mini with 40 to 60 GB of free hard disk space. These systems are remotely controlled by other systems using Podcast Capture or `podcast`.

For example, a professor could use Podcast Capture to start and stop recording on the video-recording Mac from the podium computer, which could be a MacBook. You can even write a small web application to non-Mac podium systems to control the video-recording Macs.

The number of video-recording systems depends on your needs. For example, a school might have a requirement that every classroom be equipped with a video-recording system.

Although deciding the number of systems might be a matter of policy, keep in mind the cost of acquiring and maintaining these systems. In addition, consider the impact on your network when all these systems start uploading recorded content.

Recording Quality

A very important factor to consider when planning a Podcast Producer deployment is the recording quality.

The recording quality you choose has an impact on the following:

- Storage requirements for the recording system
- Storage requirements for Podcast Producer's shared file system
- Network traffic
- Processing power

Although you can't use Server Admin or Podcast Capture to specify the recording quality, you can instead use the `podcast --presets` command. For more information about using `podcast` to specify recording quality, see the *Command-Line Administration* guide.