



UNIVERSITY OF UTAH

STUDENT COMPUTING LABS

Analog to Digital Migration

by Richard Glaser



Background

● The Good

- Aid in preserving & restricting analog materials
- Migrate analog audio/video collection to digital
- Supplement & replace functionality of A/V router
- VideoCommander MX-3200



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Background

● The Bad

- Limited Funding
 - Xserve Dual G5 w/Xserve RAID
- Staff
 - No addition staff for project
 - Limited existing staff time
 - NOT in our job description, but I volunteered ;-(

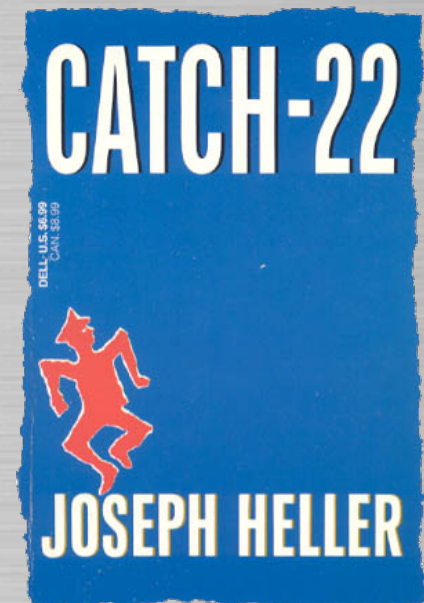
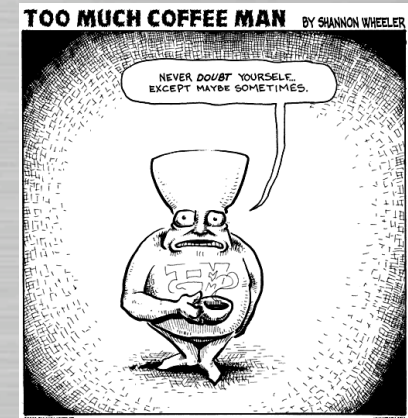


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Background

● The Ugly

- Doubtful Higher-Ups
 - Didn't believe it could be done
 - No addition staff or budget
 - Until we have finished product
- Very political on campus & dept.



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History

- Setup QTSS Server
- Setup Ingestion/Editing Station
 - Used old equipment
 - Analog devices - Umatic, VHS, Cassette, etc.
 - DV Deck for media conversion & A/V backup
- Standardized on MPEG-4 Part 2 Format
 - Lowest common denominator
 - Media Architectures & Players (QT, Real Media, Windows Media, VLC)
 - Preparing to support AVC (MPEG-4 Part 10)



History

- Choose QuickTime as Media Architecture

- Picked for support, quality and flexibility
- Used qtif image format for poster movie with embed tags.

```
<EMBED QTSRC="Actual.mov" HEIGHT="yyy" WIDTH="xxx"  
SRC="UNeedQT.qtif" TYPE="image/x-quicktime"  
PLUGINSPAGE="http://www.apple.com/quicktime/download/" >
```

- Prevents other players to hijack streams

History

● Media Access Restriction

- Originally, done using a Virtual Host with **allow** & **deny** directives.

AllowOverride None

Allow from <subnet> <ip address>

Deny from all

Order deny, allow

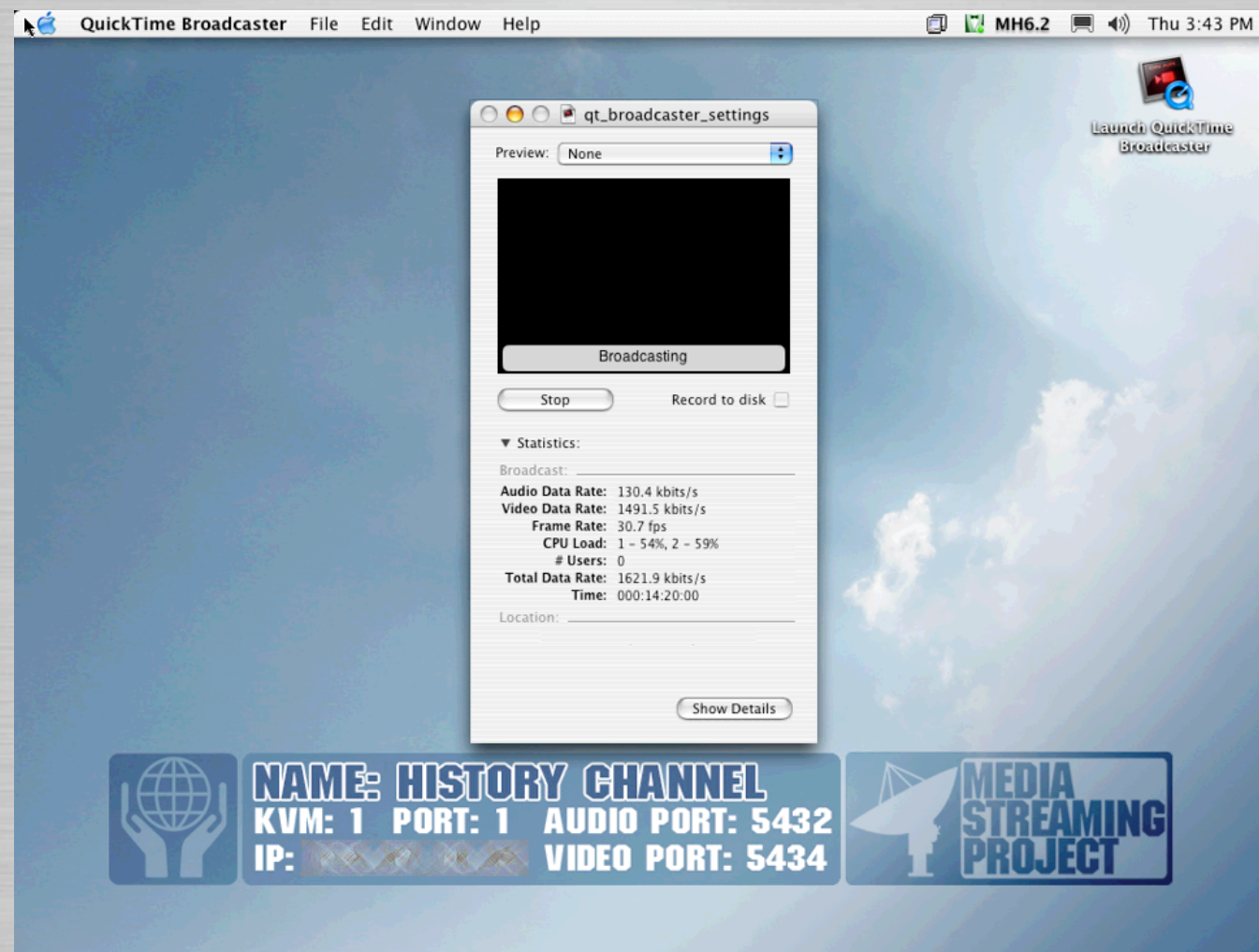
- Moved to home-brew Media Asset Database
 - More info later...



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History

- Added multiple streamed TV Channels



History

- Added streamed TV Channels
 - Used old hardware
 - CPU - Power Mac G4 Dual 1.25 GHz
 - Analog to DV - Pinnacle miroMOTION DC30
 - Driver - Xact (Open Source Driver)
<http://www.alfanet.it/squared5/dc30xact.html>
 - Broadcasting - QuickTime Broadcaster 1.0.1
 - Will move to QT 7.0.1 & QTB 1.5 after WWDC

History

● Xact example...



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History

- Startup QuickTime Broadcaster
- Use this AppleScript...

```
tell application "QuickTime Broadcaster"  
    delay 5  
    if (exists document 1) then  
        start document 1  
        return "broadcast"  
    end if  
end tell
```



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History

- Added Live A/V Source Streams

- Using sources from A/V Router

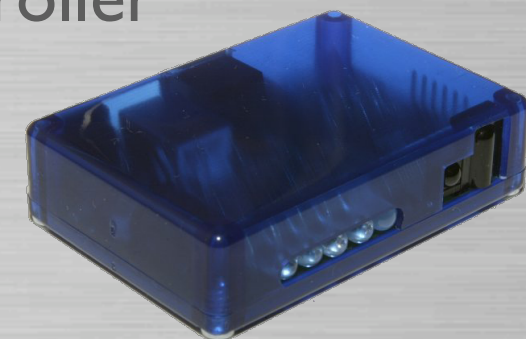
- Users have NO control, just watch or listen

- Direct analog sources (VHS & DVD)

- Users can remotely control devices

- Hardware - IRTrans - USB Infrared Controller

- Software - iRed



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History

● Added Media Asset Database



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History


- Added Media Asset Database
 - Supports ACL's
 - Multiple groups based on IP address, subnet or range
 - Dept A, Dept B, & Dept C...
 - Lab A, Lab B, & Lab C...
 - Campus & off-campus
 - Based on authentication (i.e. uNID)
 - Based on group defined in db, in future LDAP
 - Hidden or Visible





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History


Location →
Based on IP

 **Location:** MMC


 **Authentication**
User: Guest
uNID:
Password:


 **New Media**

- [Stream on Demand #3](#)
- [All Mqrs, May '05-UniPRINT](#)
- [All Mqrs, May '05-HR](#)
- [All Mqrs, May '05-Status](#)
- [Mac Mqrs, Apr '05-Xsan](#)

 **Popular Media**

- [CNN News Channel](#)
- [Discovery Channel](#)
- [All Mqrs, Apr '05-Status](#)
- [History Channel](#)
- [Mac Mqrs, May '05-New](#)

 **RSS Feeds**


 **Podcasts**





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STUDENT COMPUTING LABS

History


Authentication →
Based on Kerberos

 **Location:** MMC


 **Authentication**
User: Guest
uNID:
Password:


 **New Media**

- [Stream on Demand #3](#)
- [All Mqrs, May '05-UniPRINT](#)
- [All Mqrs, May '05-HR](#)
- [All Mqrs, May '05-Status](#)
- [Mac Mqrs, Apr '05-Xsan](#)

 **Popular Media**

- [CNN News Channel](#)
- [Discovery Channel](#)
- [All Mqrs, Apr '05-Status](#)
- [History Channel](#)
- [Mac Mqrs, May '05-New](#)

 **RSS Feeds**

 **Podcasts**



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History

- Added Media Asset Database

- Securing of stream direct URL

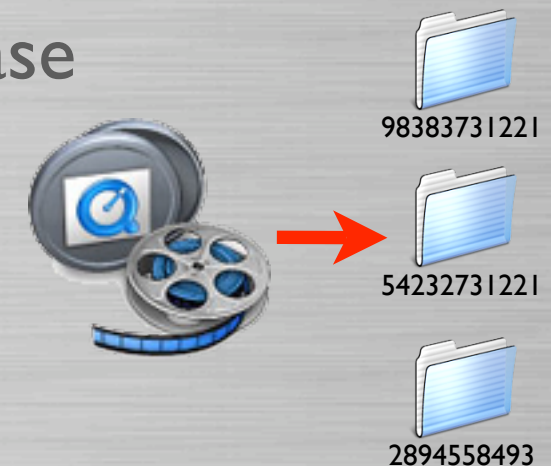
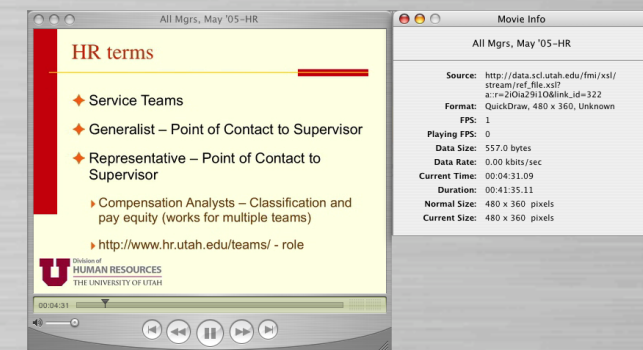
- Use random number for each ACL

- Different for each ACL (Location, Authentication, Group, hidden/visible)

- Changes daily on QTSS server & Database

- QTSS - Use cron to update symlinks

- Database - Updates with script



History

● Added Media Asset Database

- RSS & Podcasts

- Supports RSS feeds of new media
- Support multiple podcasts like campus meetings


- Statistics


- Tracks media utilization
- User info (IP, uNID, Ect.)
- Much more..




History


New Media →

 **Location:** MMC


 **Authentication**
User: Guest
uNID:
Password:


 **New Media**

- [Stream on Demand #3](#)
- [All Mqrs, May '05-UniPRINT](#)
- [All Mqrs, May '05-HR](#)
- [All Mqrs, May '05-Status](#)
- [Mac Mqrs, Apr '05-Xsan](#)

 **Popular Media**

- [CNN News Channel](#)
- [Discovery Channel](#)
- [All Mqrs, Apr '05-Status](#)
- [History Channel](#)
- [Mac Mqrs, May '05-New](#)


 **RSS Feeds**


 **Podcasts**




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History

 **Location:** MMC


 **Authentication**
User: Guest
uNID:
Password:


 **New Media**

- [Stream on Demand #3](#)
- [All Mqrs, May '05-UniPRINT](#)
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 **Popular Media**

- [CNN News Channel](#)
- [Discovery Channel](#)
- [All Mqrs, Apr '05-Status](#)
- [History Channel](#)
- [Mac Mqrs, May '05-New](#)

 **RSS Feeds**


 **Podcasts**


Popular →





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History




 **Location:** MMC



 **Authentication**
User: Guest
uNID:
Password:

 **New Media**

- [Stream on Demand #3](#)
- [All Mqrs, May '05-UniPRINT](#)
- [All Mqrs, May '05-HR](#)
- [All Mqrs, May '05-Status](#)
- [Mac Mqrs, Apr '05-Xsan](#)

 **Popular Media**

- [CNN News Channel](#)
- [Discovery Channel](#)
- [All Mqrs, Apr '05-Status](#)
- [History Channel](#)
- [Mac Mqrs, May '05-New](#)

 **RSS Feeds**
 **Podcasts**

RSS & Podcasts →




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History

- Added Media Workflow Interface
 - Manager
 - Allows manager assign/control source
 - Assign ACLs, etc.
 - Editor/Encoder
 - Gives step-by-step instruction
 - Hopefully, will allow to do our “real” job
 - No more ingestion, editing, encoding, etc.



History



Media Streaming Pipeline

FIND JOBS HELP

Welcome to the Media Streaming Pipeline!

These are the six sections in the workflow process.

01. Locate Media Source Assignment
02. Capture Media from Source
03. Correct and Edit Media
04. Export and Encode Media
05. Upload Media to Streaming Server
06. Verify Uploaded Media Online

Click the 'Next' button to get started.

CLASSROOM
Archived Presentations
[All Managers](#), [Mac](#)

TELEVISION
Live Television
[CNN](#), [Discovery](#), [a](#)

AUDIO
Music, Spoken

VIDEO
Cinema, Music,
[Media Stream on](#)

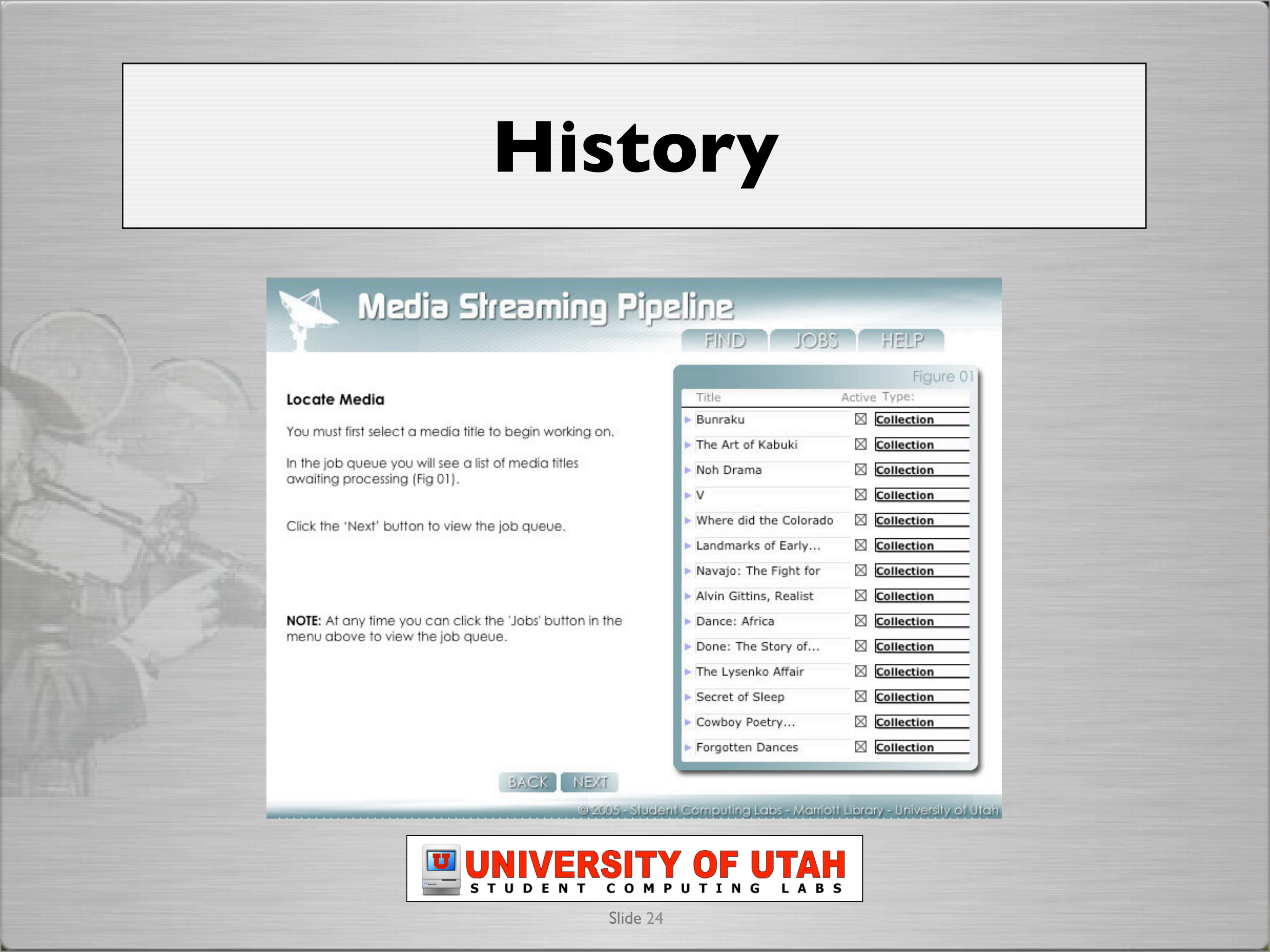
NEXT

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History



Media Streaming Pipeline

FIND JOBS HELP

Locate Media

You must first select a media title to begin working on.

In the job queue you will see a list of media titles awaiting processing (Fig 01).

Click the 'Next' button to view the job queue.

NOTE: At any time you can click the 'Jobs' button in the menu above to view the job queue.

BACK NEXT


Figure 01

Title	Active	Type:
▶ Bunraku	<input checked="" type="checkbox"/>	Collection
▶ The Art of Kabuki	<input checked="" type="checkbox"/>	Collection
▶ Noh Drama	<input checked="" type="checkbox"/>	Collection
▶ V	<input checked="" type="checkbox"/>	Collection
▶ Where did the Colorado	<input checked="" type="checkbox"/>	Collection
▶ Landmarks of Early...	<input checked="" type="checkbox"/>	Collection
▶ Navajo: The Fight for	<input checked="" type="checkbox"/>	Collection
▶ Alvin Gittins, Realist	<input checked="" type="checkbox"/>	Collection
▶ Dance: Africa	<input checked="" type="checkbox"/>	Collection
▶ Done: The Story of...	<input checked="" type="checkbox"/>	Collection
▶ The Lysenko Affair	<input checked="" type="checkbox"/>	Collection
▶ Secret of Sleep	<input checked="" type="checkbox"/>	Collection
▶ Cowboy Poetry...	<input checked="" type="checkbox"/>	Collection
▶ Forgotten Dances	<input checked="" type="checkbox"/>	Collection

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History



Media Streaming Pipeline

FIND JOBS HELP

Capture Media

You have chosen to work on the project titled 'a'.

If this is incorrect please press the 'Back' button.

Next, create a new folder (Cmnd+Shift+N) for your project in the STREAM_PROJECTS folder on the hard drive named MEDIA_DRIVE connected to your mac.

Make sure to title the new project folder exactly the same as the media title.

Click the 'Next' button to continue.

BACK NEXT


Figure 01

Name
▼ __STREAM_PROJECTS
▼ Dance Africa
▶ Audio Render Files
▶ Capture Scratch
▶ Dance Africa
▶ Media
▶ QT DV Streams
▶ Render Files
▶ Done
▶ Navajo The Fight For Survival
▶ Secrets of Sleep
▶ The Lysenko Affair
▶ _RESOURCE
▶ _STREAM_ARCHIVE_B
▶ -NOTES
▶ DV Projects RMI

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History



Media Streaming Pipeline

FINDJOBSHELP

Capture Media

Launch Final Cut Pro (Fig 01).

DOCK: General>Final Cut Pro HD

In FCP set the path of the scratch disk to the Project folder that you created in the previous step (Fig 02).

MENU: Final Cut Pro HD>System Settings...

Click the 'Next' button to continue.

BACKNEXT

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Figure 01




Figure 02

