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# Video-streaming for the Pragmatic Bioscientist

How to *get started* with media streaming.

## *a pragmatic guide.*

The essentials for starting with video streaming on the web *for Biologists, not programmers.*

- An overview of the process using a typical setup
- A short demonstration
- Where to get further information
- A discussion on how we might best progress.
  - Do we work alone?
  - Mechanisms for collaboration?
  - Maintenance issues?
- Source credit: Click & Go video.



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# What is streaming media?

- Streaming – an alternative to downloading video.
- Media is played and delivered continuously
- Suitable for some interactive control
- Protected at source option
  - Digital Rights Management
- Multiple quality - intelligently delivered



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# Why is Streaming Media becoming so popular ?

- PC performance
  - Moore's law continues despite predictions
  - Disk capacity increases
    - IBM's '[Pixie Dust](#)' technology
- Video on demand<sup>2</sup>
  - Broadband cable, previous experience
- Inexpensive software
  - Some free solutions
  - Some inexpensive solutions
  - Even the best is affordable



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## Is it worth the effort?

- Expanding class sizes
- Best use of resources
- Interaction supported
- Re-use of material
- Click & Go: Visualisation, Validation, Illustration, Explanation and Motivation



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## Process

- Encoding
  - Hardware and software
- Distributing
  - Hardware and software
- Playing
  - Hardware and software
- Ref
  - <http://khalibar.mcc.ac.uk:8080/ramgen/click&go/alt/jimstrom/jimstrom.smi>

# Network requirements

- Bandwidth demands
  - Number of projected users at one time
  - Location of source server
    - Per site or per discipline?
- Management of server
  - **Have mercy on your system administrators!**
  - Preparation of a protocol and procedure for new users.
  - MLE base for future developments ?

# Acquiring video source

- Use existing stock (method later)
  - Old teaching videos unused in the Library?
  - Image sets awaiting an audio soundtrack or accompanying text
  - Collaboration: advertise your stock.
- Create new
  - AV requirements
    - Camera specification
    - Audio requirements
    - Lighting requirements



# Options for media streaming.

- Apple vs Real vs Microsoft
  - The three main contenders in the field.
  - Similar principles but different hooks
    - Discovering the dependencies
    - Is compatibility desirable ?
    - Identify your support requirements



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# Demostration

- Capturing Video
- Directly
  - MS Encoder tool
- From tape
  - Digital tape
  - Analogue tape



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# Microsoft

- Windows media
  - Server requirements
    - All 'for free' with Win2k
  - Client requirements
    - Media Players – privacy issues.
  - Getting the software

URL: <http://www.microsoft.com/media>



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# Apple solution

- Apple QuickTime
  - Server requirements
  - Client requirements
  - Getting the software



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# Real networks

- Real media
  - Server requirements
  - Client requirements
  - Getting the software

# Examples of use

- [Clickandgvideo.ac.uk](http://Clickandgvideo.ac.uk)
  - Lots of examples
    - Lectures – the new ‘shovelware’?
    - Appropriate use essential
  - Case studies
  - Pedagogical issues discussed



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# Converting old videos to media streams

- Process to convert your tapes
- Advantages
- Disadvantages



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# Creating new media streams.

- Hardware requirements
  - Capture cards
- Software requirements
  - Adobe premiere
  - Capture card software
  - Freebies.
- Labour requirements
  - A role for a specialist?
  - Next time you watch TV, watch it.





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## Example media streams

- News: [BBC](#), [ABC](#)
- Education: [Boxmind](#), [QITS](#)
- Others: Too many to mention.
  
- Criticisms ?



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# Combining your media stream with text and slides.

- [Boxmind](#) toolkit
- [Real](#) and SMIL
- Microsoft's new standard
- DIY JavaScript



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# What could go wrong?

- Organisational politics
- Coordinating effort
  - Within institutions
    - Use your media and IT services
  - Between Institutions
    - Use a project or LTSN



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## Current project examples for Biosciences

- Streaming media projects in the UK
  - [Lifesign](#)
    - Willing to host and distribute.
  - [BUFVC](#)
- JISC / DNER Streaming media project
  - <http://www.clickandgvideo.ac.uk/>



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## Further information

- Windows media
  - <http://www.microsoft.com/windows/windowsmedia/en/default.asp>
- Real networks
  - <http://www.real.com/>
- Apple QuickTime
  - <http://www.apple.com/quicktime>

# Where do we go from here?

- A discussion on how we might best progress together.
  - Do we work alone?
  - Mechanisms for collaboration?
  - Maintenance issues?



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# Pilot projects? - case studies?

- Would you like to volunteer a pilot project?
  - Help available
  - Possible deliverables
    - Report
    - Example
    - Case study
    - Access to materials.
- Pinnacle Studio DV plus capture card for review.
  - Apply to [Itsnbioscience@leeds.ac.uk](mailto:Itsnbioscience@leeds.ac.uk)