Extending *vic* for DV/HDV in the AccessGrid

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Today ...

“Collaboration without shared applications is just videoconferencing”

Therefore main interest is shared apps for AG e.g.

- SharedGRASS
- Shared SRB
- Remote Thermo

but today ...

Today ...

... just video

- high quality
- vic
- networks
- current status, future work
- demo

“high quality”

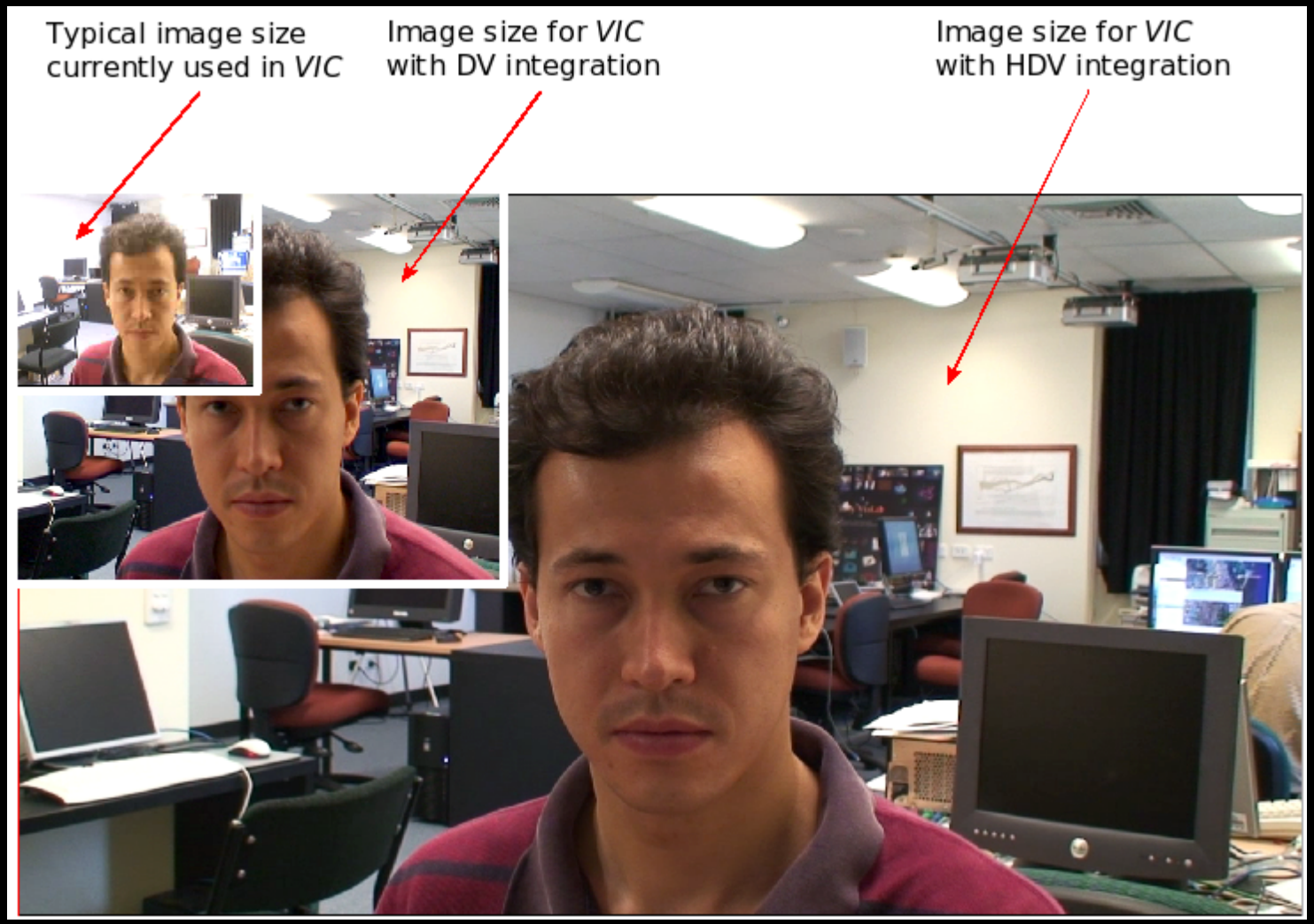
What is high quality?

- better than H261
- better or equal to PAL/NTSC

This project:

- DV (firewire)
  - 4:2:0 encoded PAL size
  - 4:1:1 encoded NTSC size
- HDV (firewire)
  - built in MPEG2 compressed
- H263
- MPEG4 ?

Comparison of H261, DV, HDV sizes



vic

why?
- familiarity
- cross platform compatibility
- ease of integration into AG toolkit
- multiple streams
- first test (H263) worked

why not DVTS (GIST's Ext.VideoSvc)?
- RFC but few implementations
- not really cross platform
- not really multiple streams

vic

Based on ANL codebase
Additional functionality via
- ffmpeg (codecs)
- imlib2 (non-accelerated display)

networks

DV: 25Mb/s + ctl & audio = ~30Mb/s
+ fec = ~36Mb/s

HDV: 25Mb/s fixed by in-camera MPEG2 encoder

networks

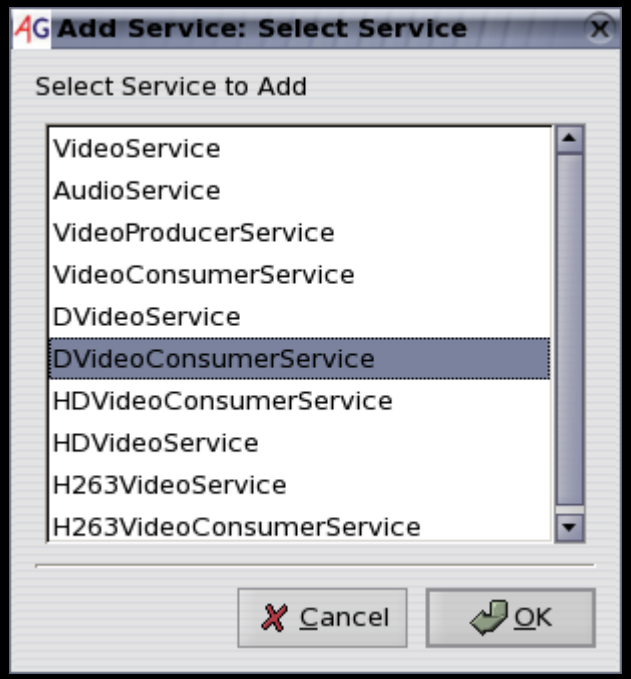
Tuning required
- network (NDT, iperf)
- connection to network (network buffer sizes)
- how vic/linux uses network
    - tc: tbf (traffic control: token bucket filter)
    - pspacer (precise software pacer)

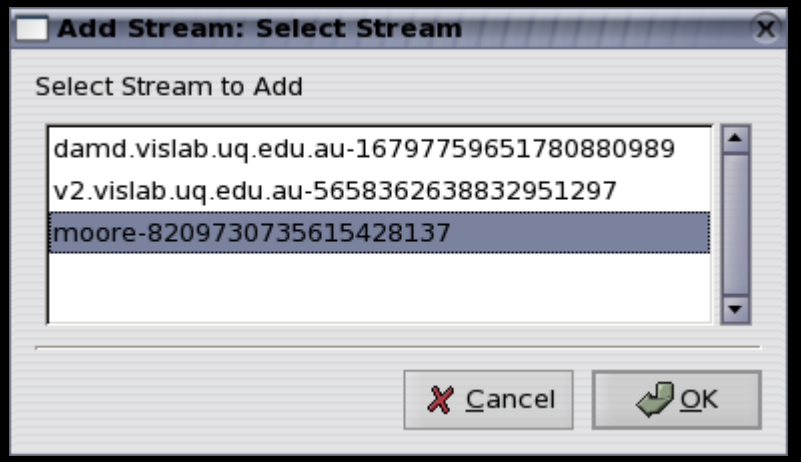
networks

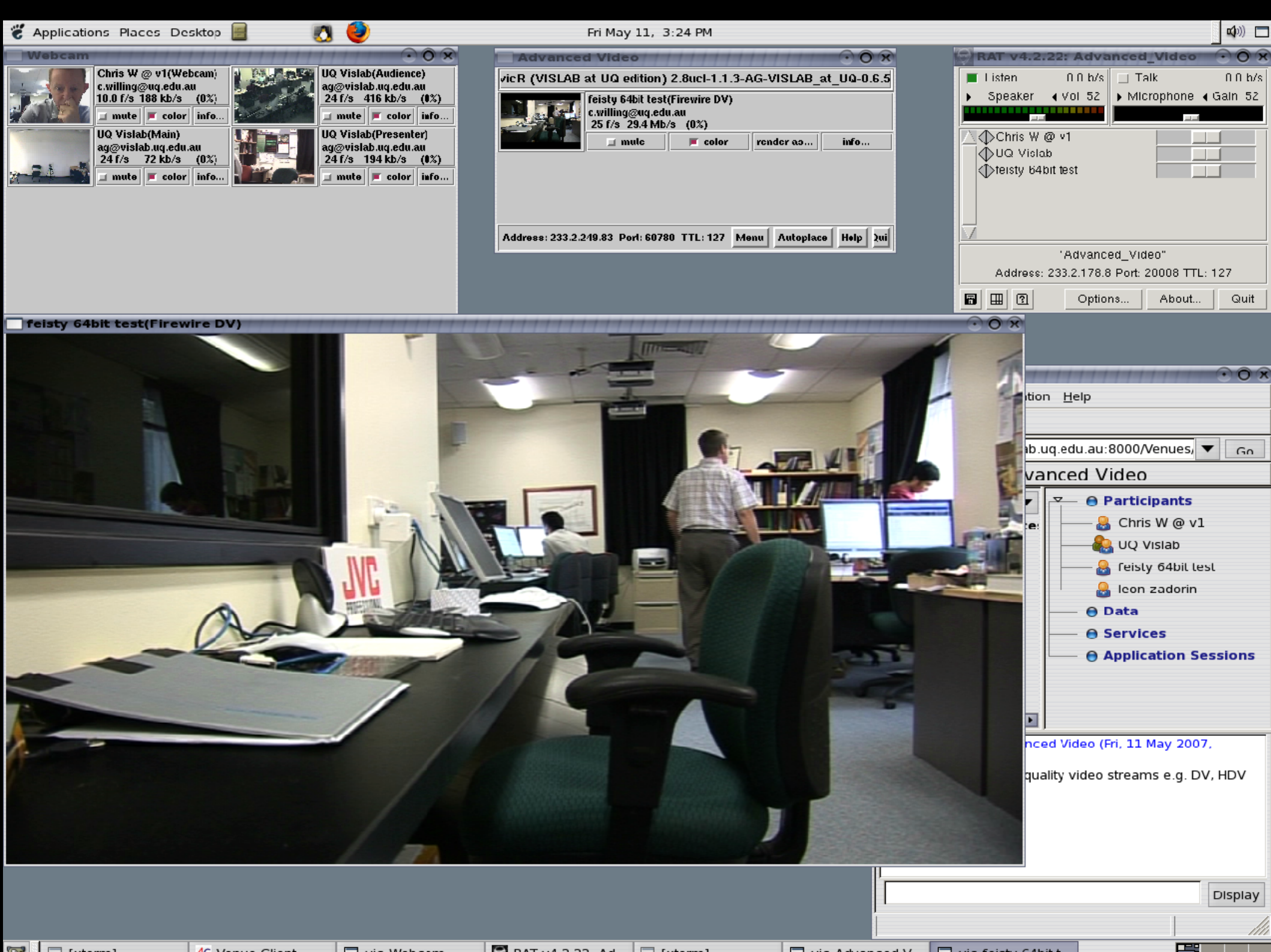
How to protect low bandwidth sites?
- new services allowing stream selection (need AG3.1)

How to still include low bandwidth sites?
- send duplicate H261 stream

New DVideoConsumerService






Applications Places Desktop
Fri May 11, 3:24 PM
Webcam
Chris W @ v1(Webcam)
c.willing@uq.edu.au
10.0 f/s 188 kb/s (0%)
mute color info...
UQ Vislab(Audience)
ag@vislab.uq.edu.au
24 f/s 416 kb/s (0%)
mute color info...
UQ Vislab(Main)
ag@vislab.uq.edu.au
24 f/s 72 kb/s (0%)
mute color info...
UQ Vislab(Presenter)
ag@vislab.uq.edu.au
24 f/s 194 kb/s (0%)
mute color info...
Advanced Video
vicR (VISLAB at UQ edition) 2.8ucl-1.1.3-AG-VISLAB_at_UQ-0.6.5
feisty 64bit test(Firewire DV)
c.willing@uq.edu.au
25 f/s 29.4 Mb/s (0%)
mute color render as... info...
Address: 233.2.249.83 Port: 60780 TTL: 127 Menu Autoplace Help Qui
RAT v4.2.22: Advanced_Video
Listen 0 0 b/s
Speaker Vol 52
Talk 0 0 b/s
Microphone Gain 52
Chris W @ v1
UQ Vislab
feisty 64bit test
'Advanced_Video"
Address: 233.2.178.8 Port: 20008 TTL: 127
Options... About... Quit
feisty 64bit test(Firewire DV)
JVC
tion Help
ab.uq.edu.au:8000/Venues/
Go
vanced Video
Participants
Chris W @ v1
UQ Vislab
feisty 64bit test
Icon zadorin
Data
Services
Application Sessions
nced Video (Fri, 11 May 2007,
quality video streams e.g. DV, HDV
Display

Current status

Linux
- capture + rendering

WindowsXP
- rendering only

OSX
- collaboration with RIT

Current status

Requirements:

1. DV camera (firewire)
   or
   composite video with converter
   (canopus ADVC-55, ADVC-110)

2. Hardware accelerated graphics card with xvideo blitter capability (NVidia)

Future work

Complete WindowsXP, OSX ports
Integrate into UCL code base
HD without latency:
- YUV signal via HDMI
- Blackmagic “Intensity” IO board (USD250)
- MPEG4 compression (ffmpeg library)
- DXT compression?

demo

but first:

http://www.vislab.uq.edu.au
-> Software downloads
-> Advanced Video (DV/HDV)

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