

# Comparing Apples and Oranges with Chalk and Cheese

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# The problem

- How to compare

- a range of technologies

- Desktop, tute-room, theatre, mobile-phone, ...
    - AccessGrid, H323/SIP, iChat, click2meet, ekiga, breeze, wimba, webinars, ConfXP, MessengerXP, jabber, IRC, email, streaming servers, ...

- Covering a spectrum of features

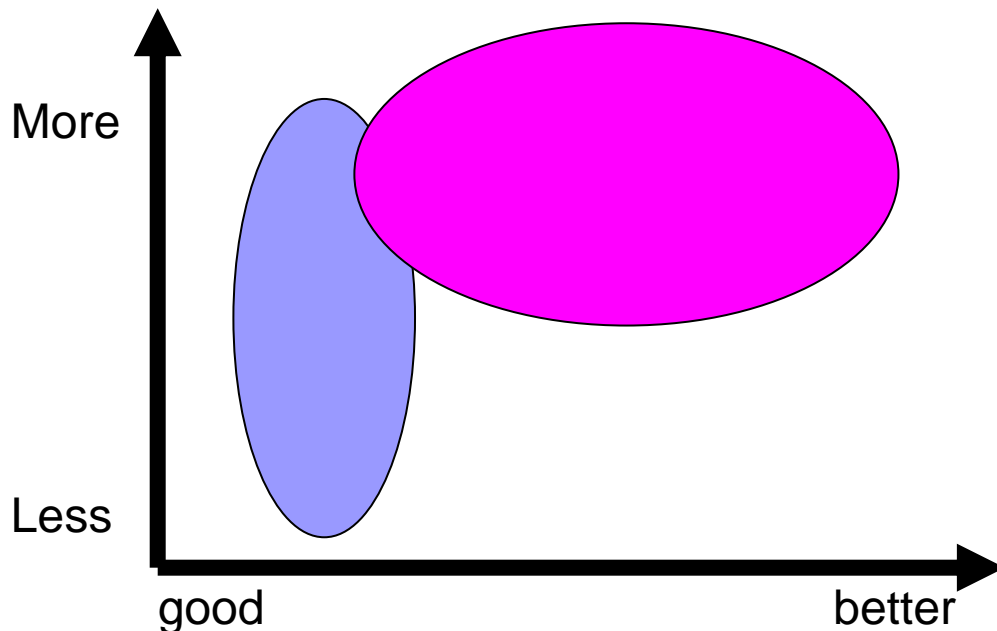
- And misfeatures

- And how they might help/hinder

- Teaching and learning
    - Research
    - Collaboration

# The answer? Measure it!

- Need a set of metrics (measurements along a line) that span a space.



# So what are (some of) the metrics?

## ■ “Timeliness”

- Real-time versus Asynchronous
- “Live” versus “on-demand”
- How much delay turns “real-time” off?
  - 100ms? 1s? 30s? 5minutes?
  - When does interactivity become awkward?
    - If I’m talking and you can’t affect me, why do it “live”?
    - Music tutes are very different to droning lectures.
    - Australia-Europe over cables is ~500ms
    - Brisbane-Toowoomba over satellite is several seconds
- Clients often buffer to hide network “jitter”
  - And some buffers can be huge... (many seconds)
- Network issues, client issues, design issues, ...

# Metrics - 2

- “Distribution”
  - One-to-one?
  - One-to-many?
  - Many-to-many?
  - In one direction or both?
  
- Most packages
  - Can do many-to-many in both directions,
  - if “many” means less than 3, or 5, or 10 or ...
  - and you put something in the “middle”
  - Some can scale very well – H323/SIP and AccessGrid can scale to hundreds of sites!

# Metrics - 3

## ■ Media-types

- Text (chat)

- Audio

- Video

- Complex media

- Application “sharing” – one way or interactive

- Powerpoint slides, word processors, spreadsheets, browsers, chemistry visualisation tools

- Some “standards” (in H323, AG, vnc and RDP)

- Multiple proprietary approaches

- Especially cross-platform is difficult

# Metrics - 4

- “Quality”, “Flexibility”, “Extensibility”
- How good is the video, audio, ...?
  - Colour, resolution, frame-rate, frequency, dynamic range, ...
  - Even more important: Can I choose?
    - Most packages – no (can tune codec...); AccessGrid – Absolutely!
- How much of it is there?
  - H323 can do one or two of each; most others just one
  - AG can do an unbounded number; leads to richer “presence”
- Can I add functionality?
  - Most packages don’t care if something runs alongside
    - Pick best-of-breed in each space; A+V, another for text, another for PPT
  - AG has a framework for extensibility
    - Which requires effort
- Can I use it on my mobile phone, PDA, laptop, desktop and theatre?
  - Mostly have to pick one or two
  - H323/SIP and AG can scale all the way up and down.
- Standards, standards, standards...!

# Metrics - 5

- “Appropriateness”
  - What I can deliver
    - to the desktop on campus
    - is not what I can deliver to the laptop in the field,
    - or the student at home, or ...
  
  - Constraints:
    - Bandwidth
    - Client device (beefy desktop computer, dodgy laptop, PDA)
    - End-user skills, and permissions
  
  - Some standards (e.g. H323) support “bridging”
    - Central service delivers an appropriate stream to each client
    - Most, including AG, are “all-you-can-eat/send-no-choice”
      - Though the AG now has a more flexible “bridge” model

# Metrics - 6

## ■ “Archivability”

- Can I capture a session for later playback?
- And convert it to a different format?
- The richer the environment, the less likely
  - H323/SIP *tend* to be recorded via analog
  - AG can be recorded, and played back in an AG
    - Working on DVD (imagine 50 video streams and a PPT)
  - Some of the more proprietary packages have their own approaches
    - And require the same tool to play back
- Flexibility and re-usability probably demand this

# Metrics - 7

## ■ Robustness and User-friendliness

- It has to be reliable,
  - or provide somebody watching over it
- It has to be user-friendly
  - or provide somebody helping you use it
  
- The more functionality and flexibility and power ...
  - the less likely you'll have something robust and user-friendly
    - Commercial products are (generally) better than open-source
    - But of course, cost accordingly, and don't lead the way

# Ok, so it's not easy

- But at least you can start to compare...
  - And it's up to you to work out which part of the space is crucial

