Adding Security to a Real-time Collaborative Telehealth System

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functionality

• **browse**  ...existing multimedia **repositories** with web front end

• **view**  ...various formats of videos, images, 3d objects, web documents, etc.

• **compare**  ...by viewing/playing multiple media files/documents simultaneously

• **annotate**  ...by highlighting regions and attaching notes, links, local files, etc.

• **search**  ...the private, group or public annotation data to retrieve or analyse content

• **secure**  ...and share personal notes through **XACML** policies within **Shibboleth**

• **collaborate**  ...in real-time through the integrated **Jabber** messaging architecture

• **record**  ... event logs and audio/video from conferencing tools (Vic/Rat, Google Talk)

• **play**  ...back previously recorded, collaborative discussion sessions
system architecture

- browse
- view
- compare
- annotate
- search
- secure
- collaborate
- record
- play
system architecture
advantages

...over application sharing (e.g. VNC):

- video quality much higher
- collaboration more flexible
- access control applied to each user and content individually
- session recordings and annotations are content independent - storing only references
- high-quality content can be pre-loaded supporting low bandwidths
user interface - demo
shibboleth

- Federated Identity Management
- authentication and authorization infrastructure
- trust (public key cryptography)
- virtual organisations
- Single Sign On (SSO)
- OASIS SAML implementation
- preserves user privacy
shibboleth
XACML

- eXtensible Access Control Markup Language
- OASIS standard
- expressive way to describe: **who** (subject) can **do what** (action) with **which resource**?

- **Problem**: for this to work within medical domain, we need a standardised (ldap) schema to describe actors and roles: medMid, AAMC, “medPerson” (http://middleware.internet2.edu/medmid)
shibboleth + xacml
applications

- remote teaching of new surgical procedures
- remote diagnosis
- remote consultation
- sharing of opinions between a team of clinicians within clinical trials
evaluation

• **ACRRM** (Australian College of Rural and Remote Medicine)
  – media enriched remote teaching/tutoring/discussions

• **Tele-Derm**
  – de-identified cases in form of images and videos are uploaded for assessment by a dermatologist and discussion with other GPs

• **Cancer Grid (UK eScience)**
  – collaborative infrastructure for cancer clinical trials
more information


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annotatea

- W3C – part of Semantic Web Initiative
- builds on HTTP, RDF and XPointer
annotation and policy creation