An Access Control Model for Video Database Systems

As a joint work of:
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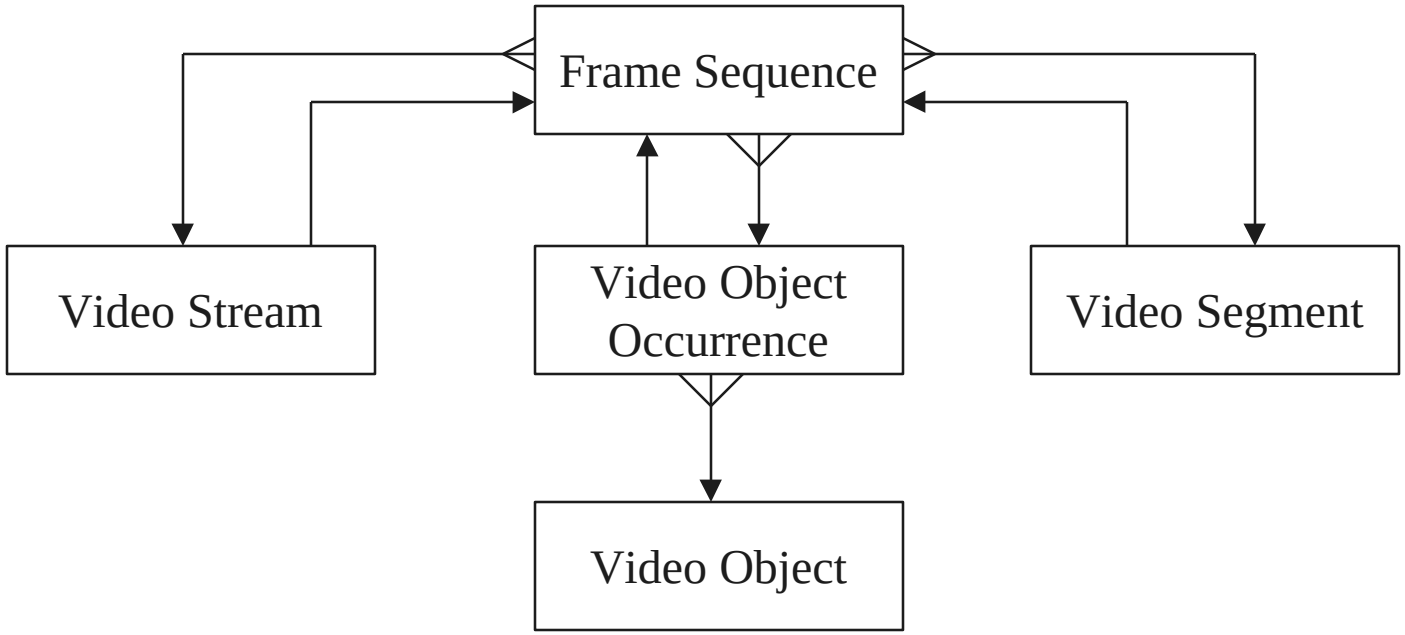
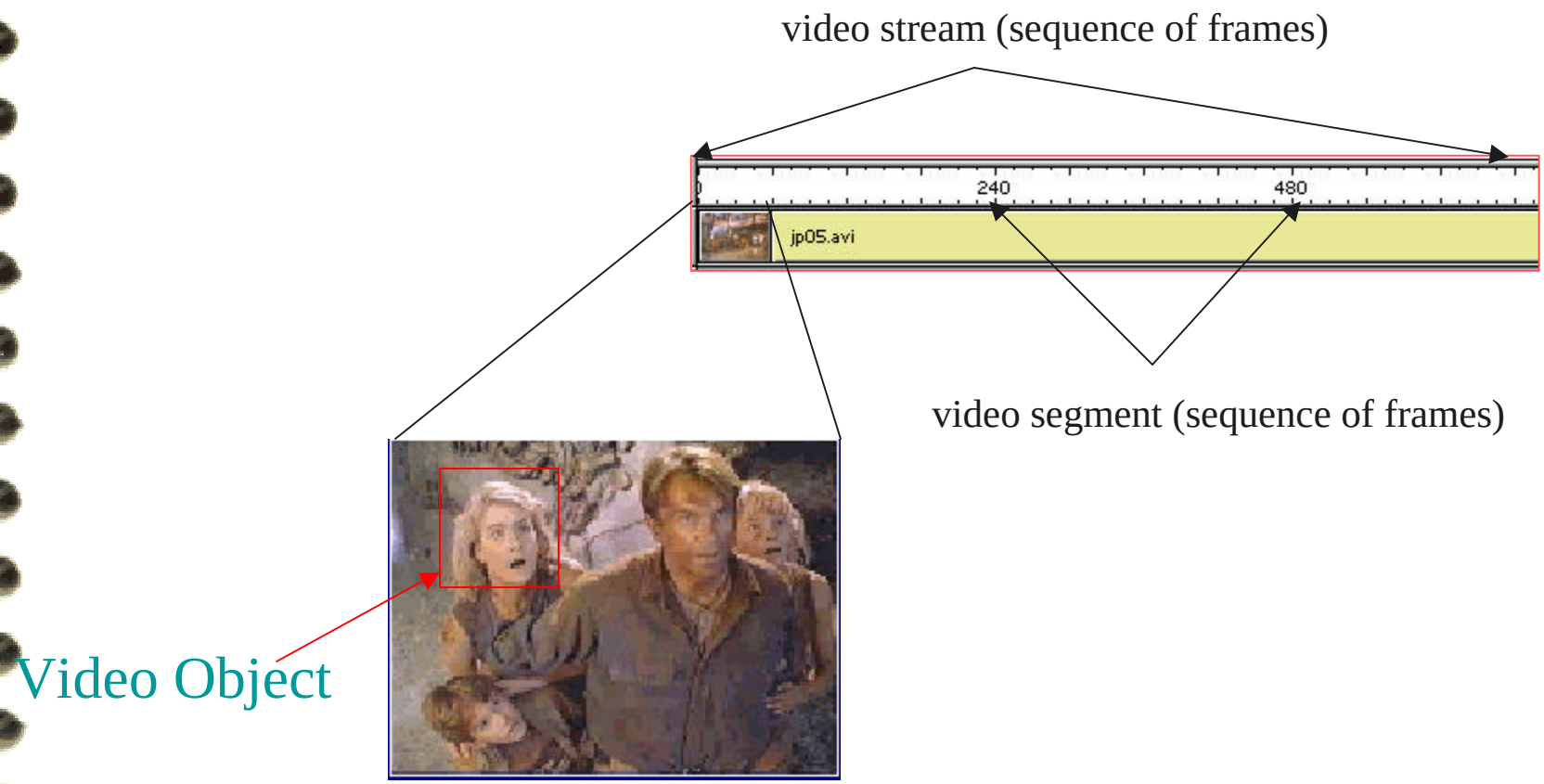
Video Data Model



Video Data Model (Cont.)

(A Scene from Jurassic Park II):



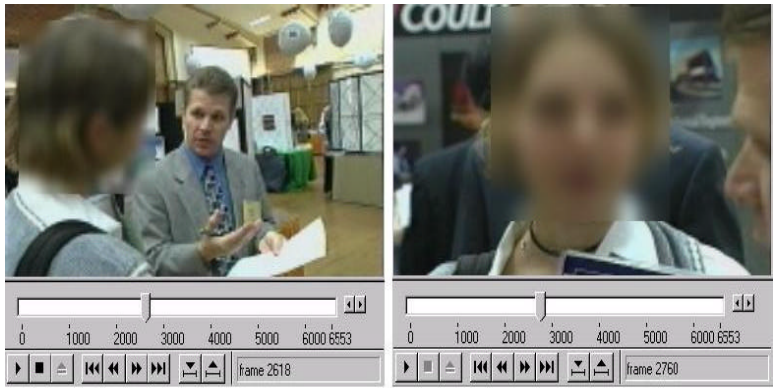
Authorization Model for Video Databases

- Consists of:
  - Authorization rules,
    - *who* is allowed to access *what* in the database.
  - control procedures,
    - enforcing the rules while transactions proceed.
- Authorization rule specification entails:
  - Subject (who), object (what), and mode (of access) specification.

Authorization Model (Cont..)

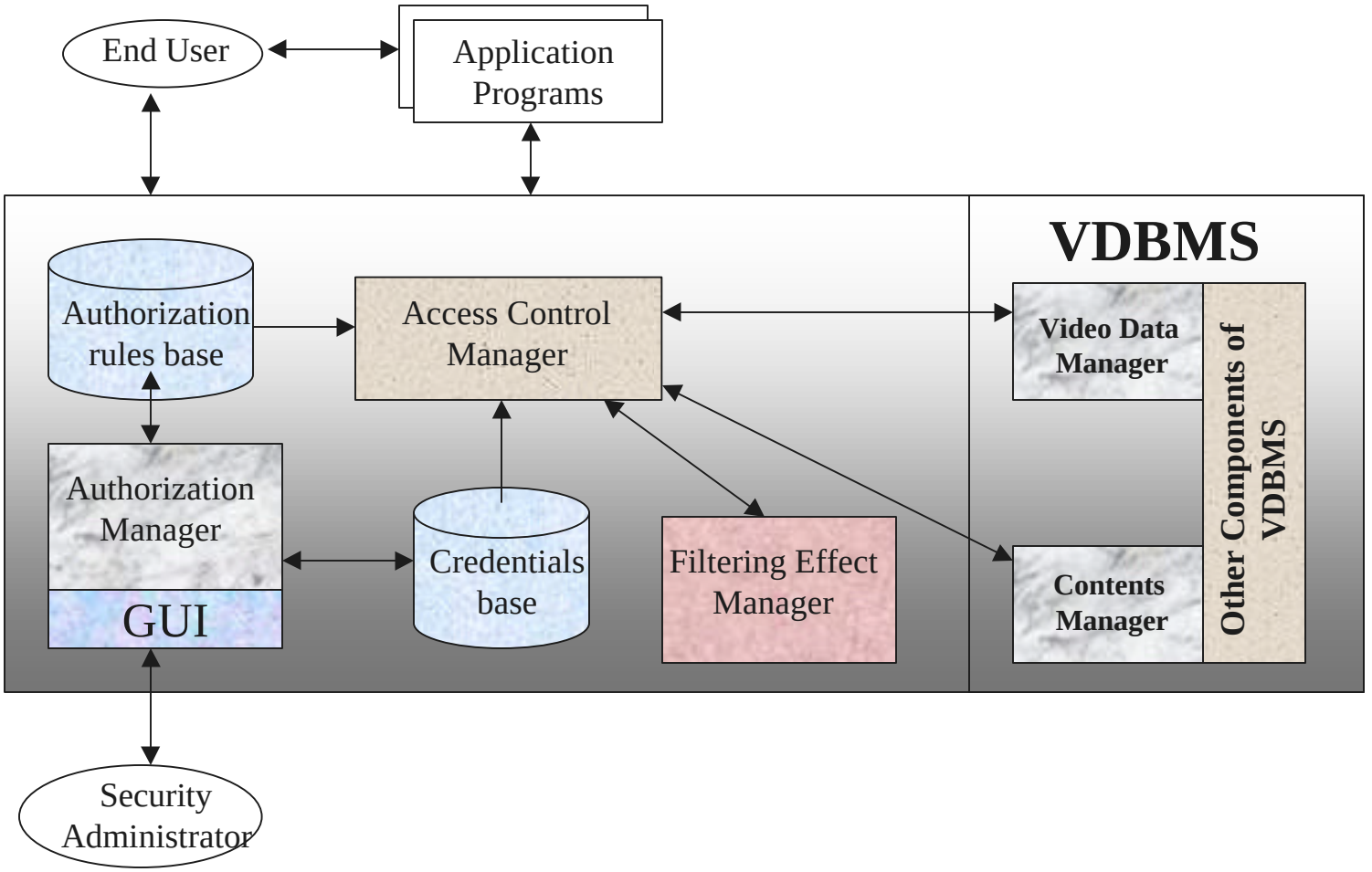
- **Subjects are specified using credentials.**
  - *Example:* (Name: John, Age: 8, Job: student,……).
  - *Credential type*, *credential*, and *credential expression.*
  - E.g (Viewer(x) ^ (x.age > 18))

- **Object are specified by using their contents and following the previous video model.**
  - video content (e.g. the annotation associated with the video)
  - Object expression
    - E.g. (x.annot contain 'Charles De Gaulle') DURING (y.annot contain 'World War II')
  - Protected and restricted objects



- **Mode represents the operation on video:**
  - view(annotation),
  - play (period, quality),
  - edit (annotation, video)

System Architecture



Conclusion and future work

- ✓ Provide access control based on video semantic not only physical features.
- ✓ Support for different video granularity access control.
- ✓ Provide categories of video privileges.
- ✓ Use of credentials instead of just identifiers.
- ✓ The model can be adapted to video models that provide content description mechanisms (MPEG-7).
- ✓ We consider the following as future work:
  - Distributed implementation.
  - Interaction with blocking standards (PICS - *Platform for Internet Content Selection*).