Privacy in E-Learning

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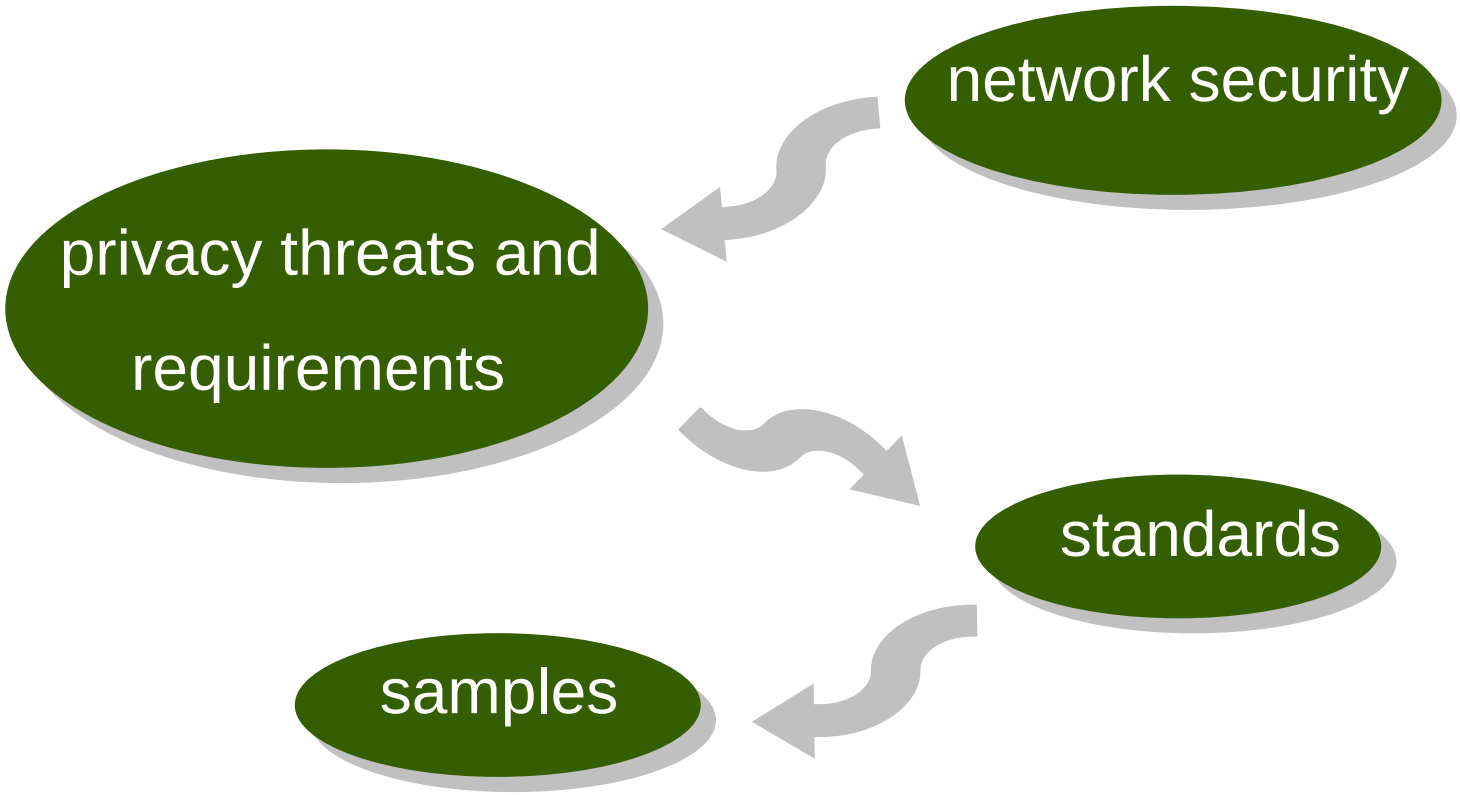
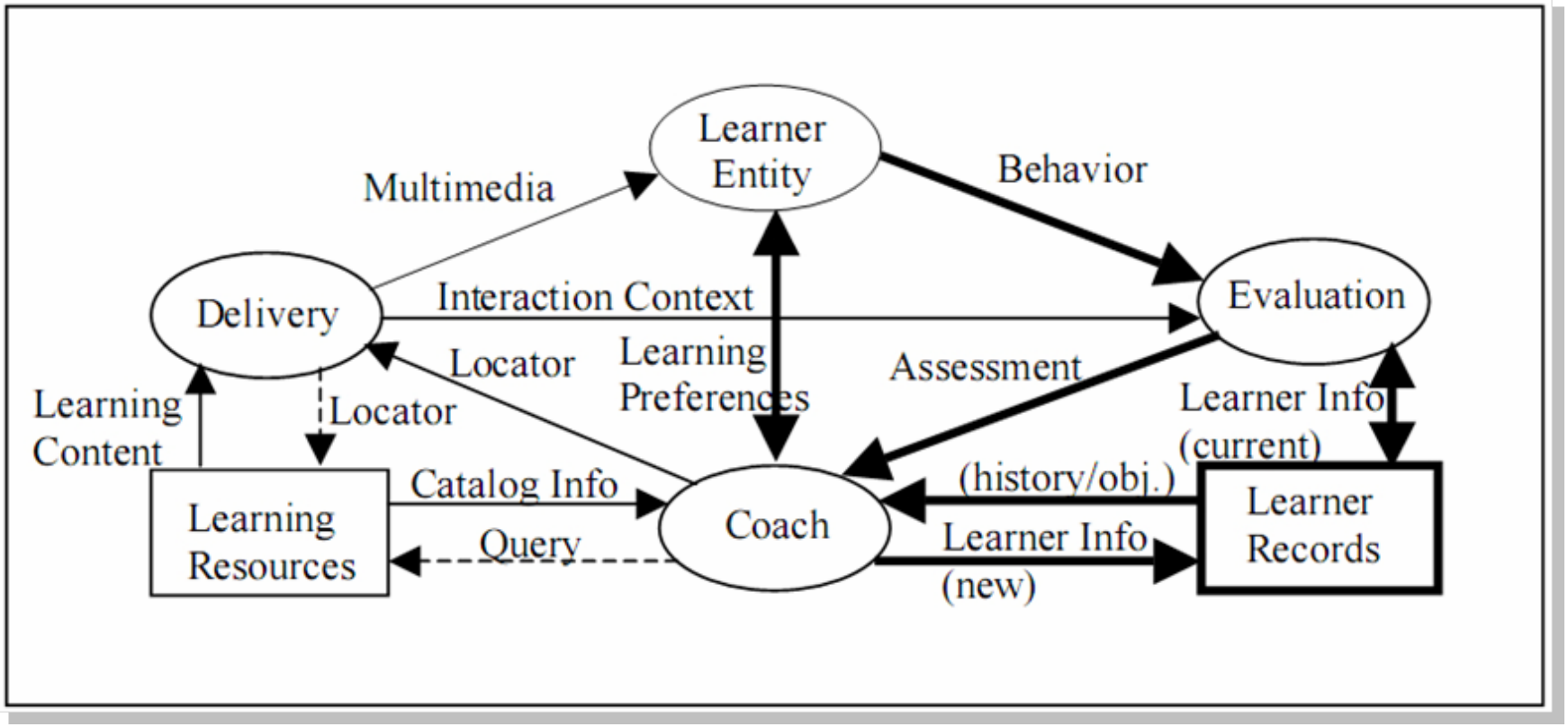
overview


network security
privacy threats and requirements
standards
samples

why network security?



El-Khatib, K., Korba, L., Xu, Y., Yee, G., 2003. Privacy and security in elearning. In: International Journal of Distance Education. Volume 1, Number 4. Idea Group Publishing.

network security is a fundamental privacy requirement

network security...

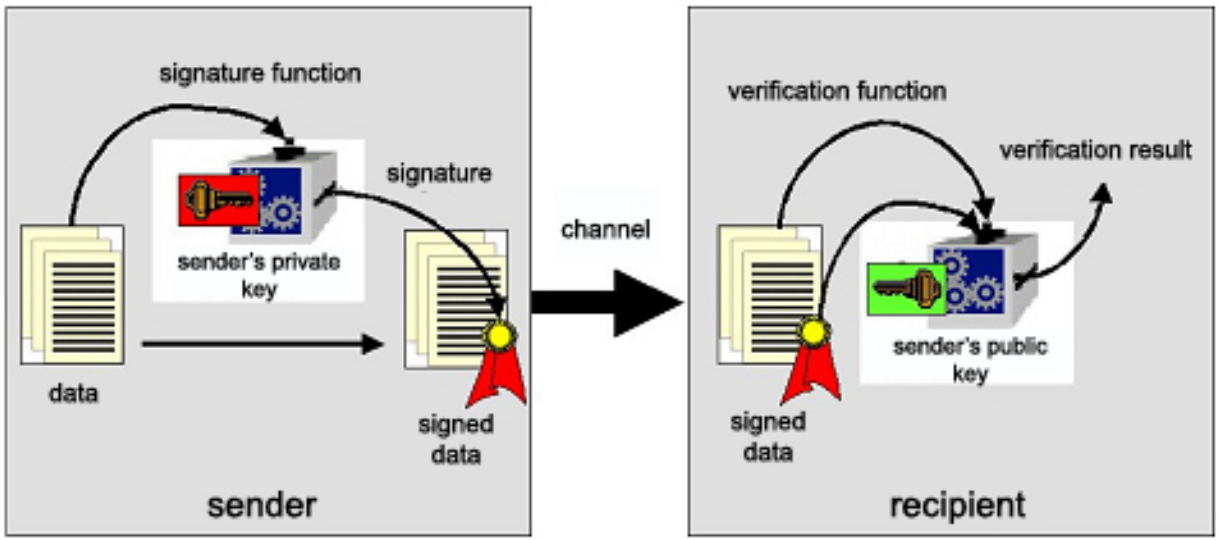
authentication

data integrity

network privacy

authentication

- “verification” of the users' identity
- several possible methods, like:
  - user name and password
  - digital signatures



Fischlin, Giessler, Nitschke, Ritter, 2005. Verschlüsselung und Signatur – Grundlagen und Anwendungsaspekte. In: E-Government Handbuch. Projektgruppe E-Government im Bundesamt für Sicherheit in der Informationstechnik (BSI).

data integrity

- proof of the senders' identity (cp. authentication)
- no data loss, damage or manual changes
- possible method: digital signatures
- but: Are there really the denoted persons sitting on their PCs?
- necessity to use conventional education concepts:
  - monitor students by camera?
  - monitor students by physically present human supervisor?

network privacy

- risk of private data being wiretapped
- use of ciphering algorithms
  - symmetric method:

    → one key for both encryption and decryption (Kerckhoffs' principle)
  - asymmetric method:

    → private and public key

    → need of certification authortities (CAs)

privacy threats and further requirements

privacy threats and requirements

- copyright protection

  → privacy not only for students but also for educators

- stored data

  → user tracking needed to enhance an applications usability?

- credentials

  → prove not only users' identity but also educational credentials

- customizable privacy levels

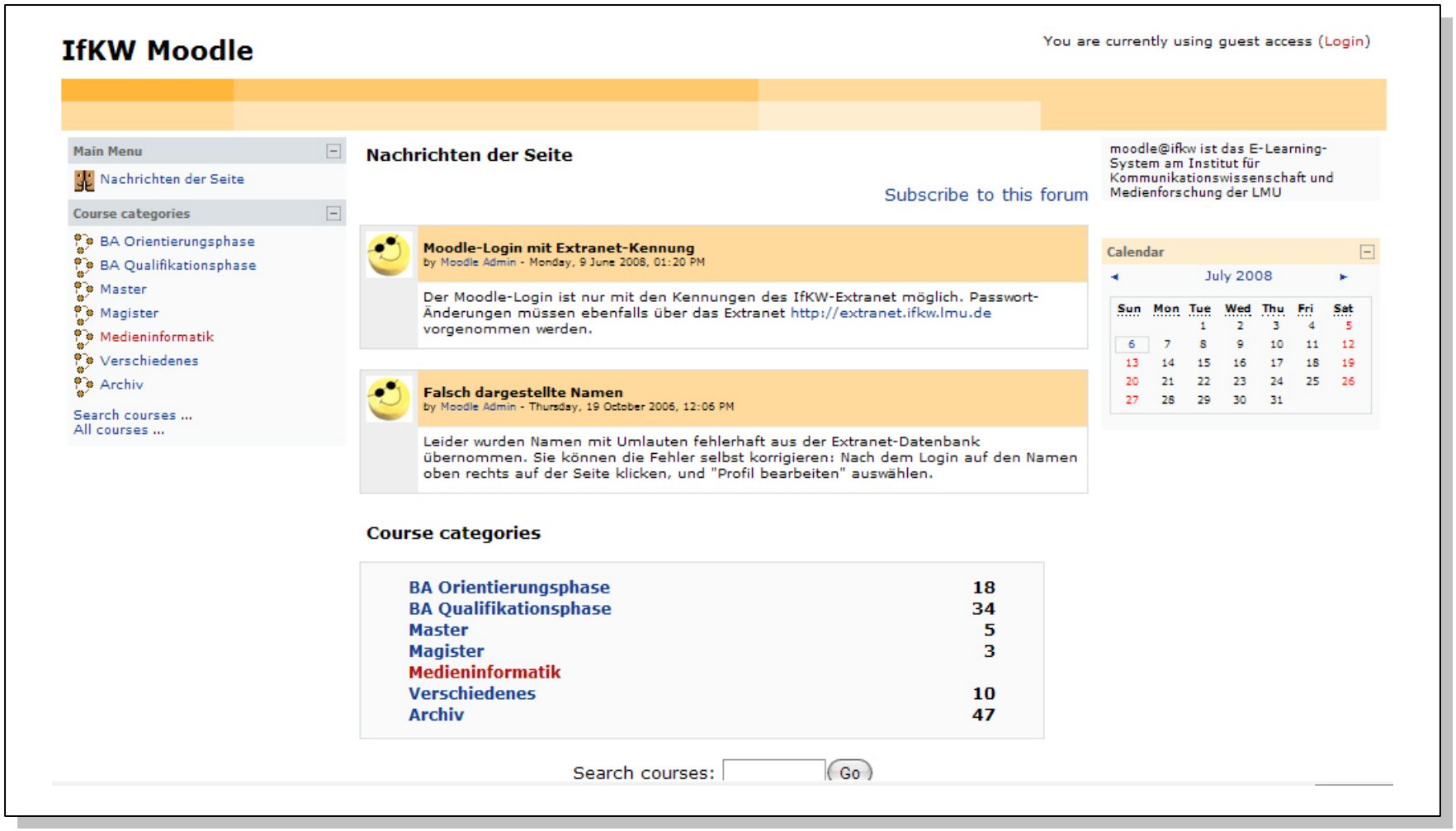
  → what is stored? what is tracked? what is visible?

standardized privacy and security concepts

Platform for Privacy Preferences

sample e-learning platforms

Moodle



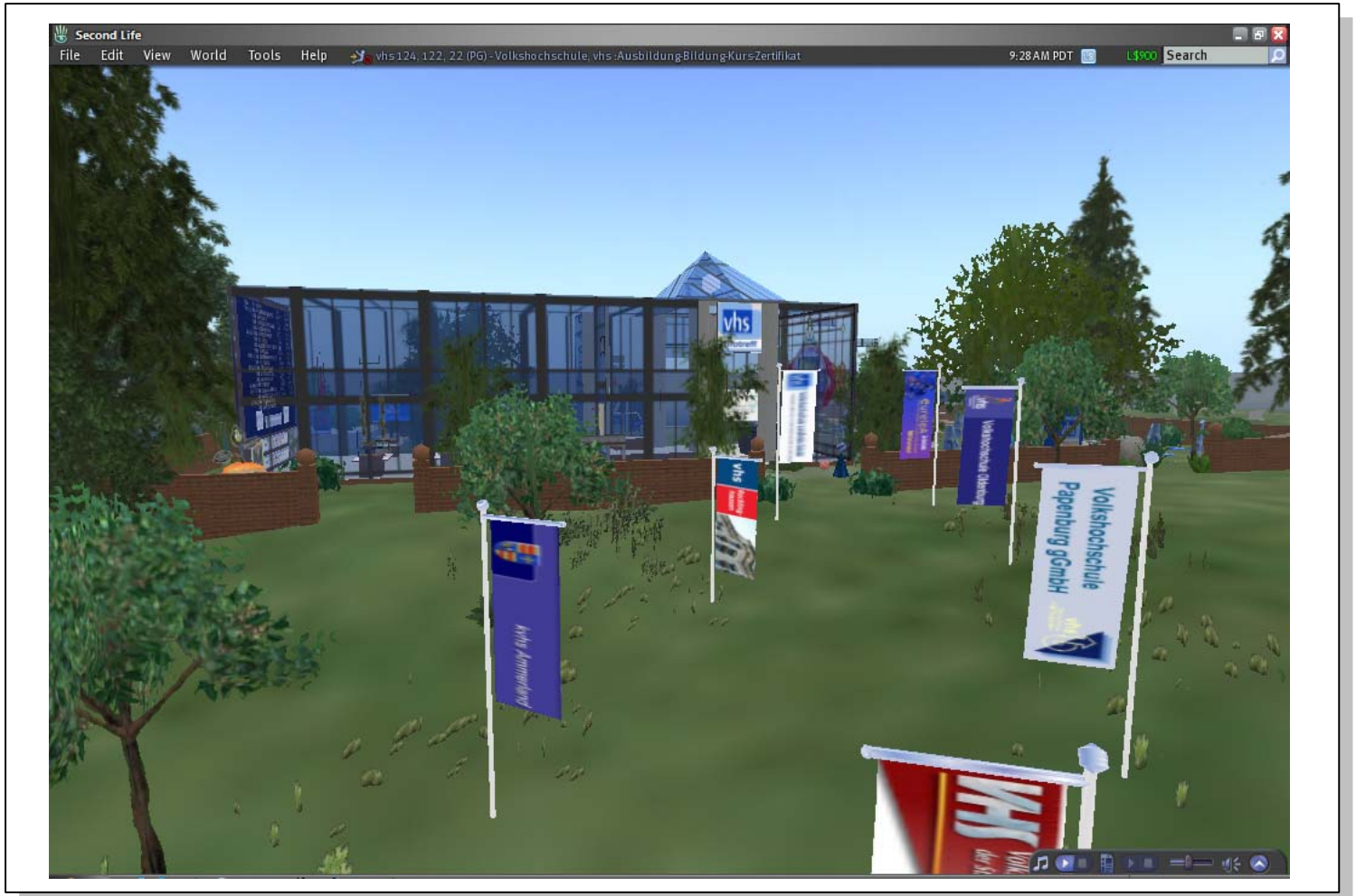
http://moodle.ifkw.lmu.de/index.php

Moodle

- adjustable security level (only adjustable by educators)
  - access for anybody
  - access with course enrollment key
  - access after manual enrollment
- tracking of registered users
- no possibility to change privacy level for students
- but: modular and extensible design

  → possibility to implement privacy preserving plug-ins

Second Life

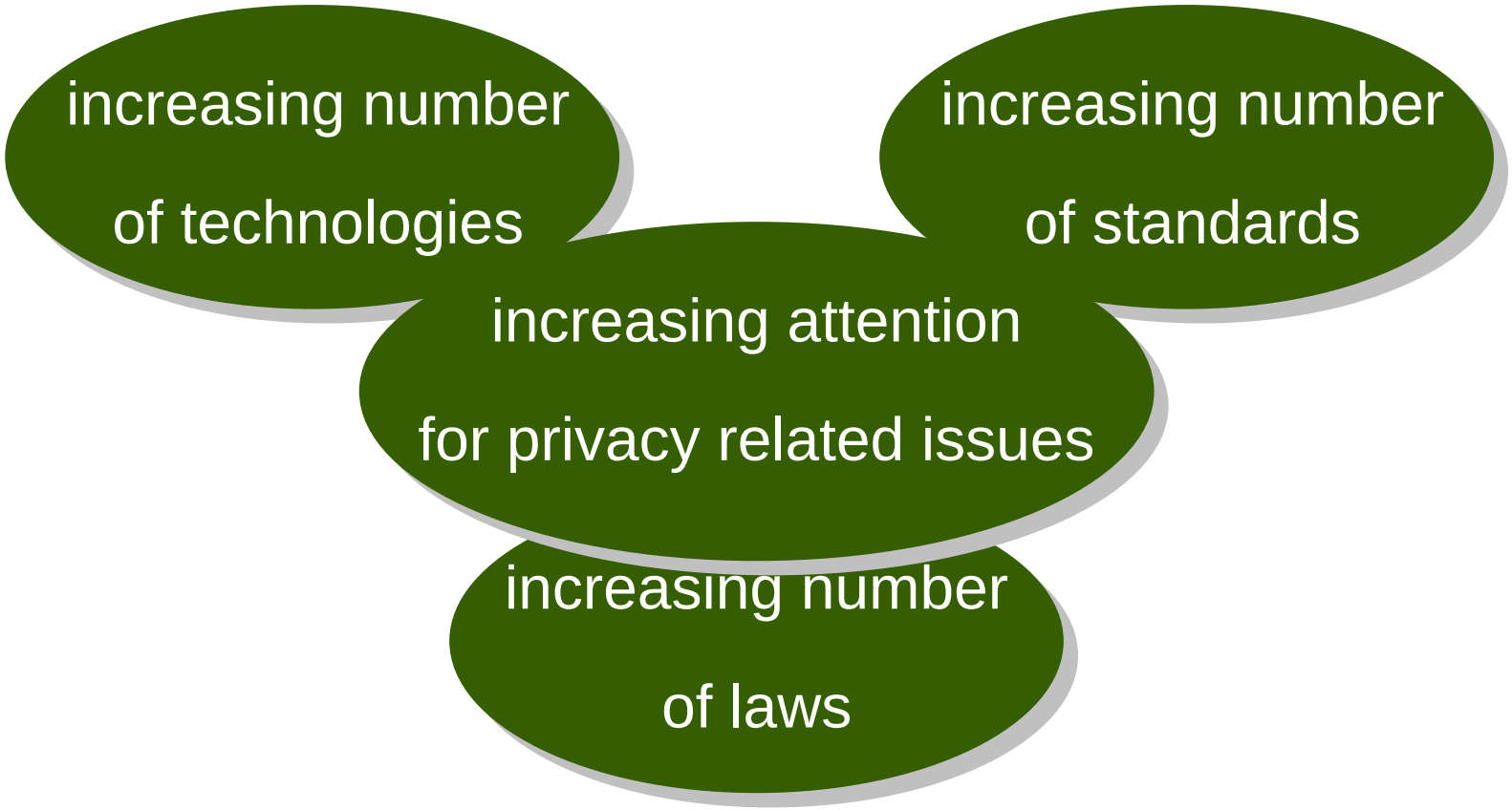


http://slurl.com/secondlife/vhs/128/149/24/

Second Life

- hidden user identity
- in-world rights management
- copyright protection (?)
- proprietary platform
- not (yet?) ready to allocate complete e-learning functionality

conclusion


increasing number
of technologies
increasing number
of standards
increasing attention
for privacy related issues
increasing number
of laws