

Privacy-Respecting Access Control (PRAC) in Collaborative Workspaces



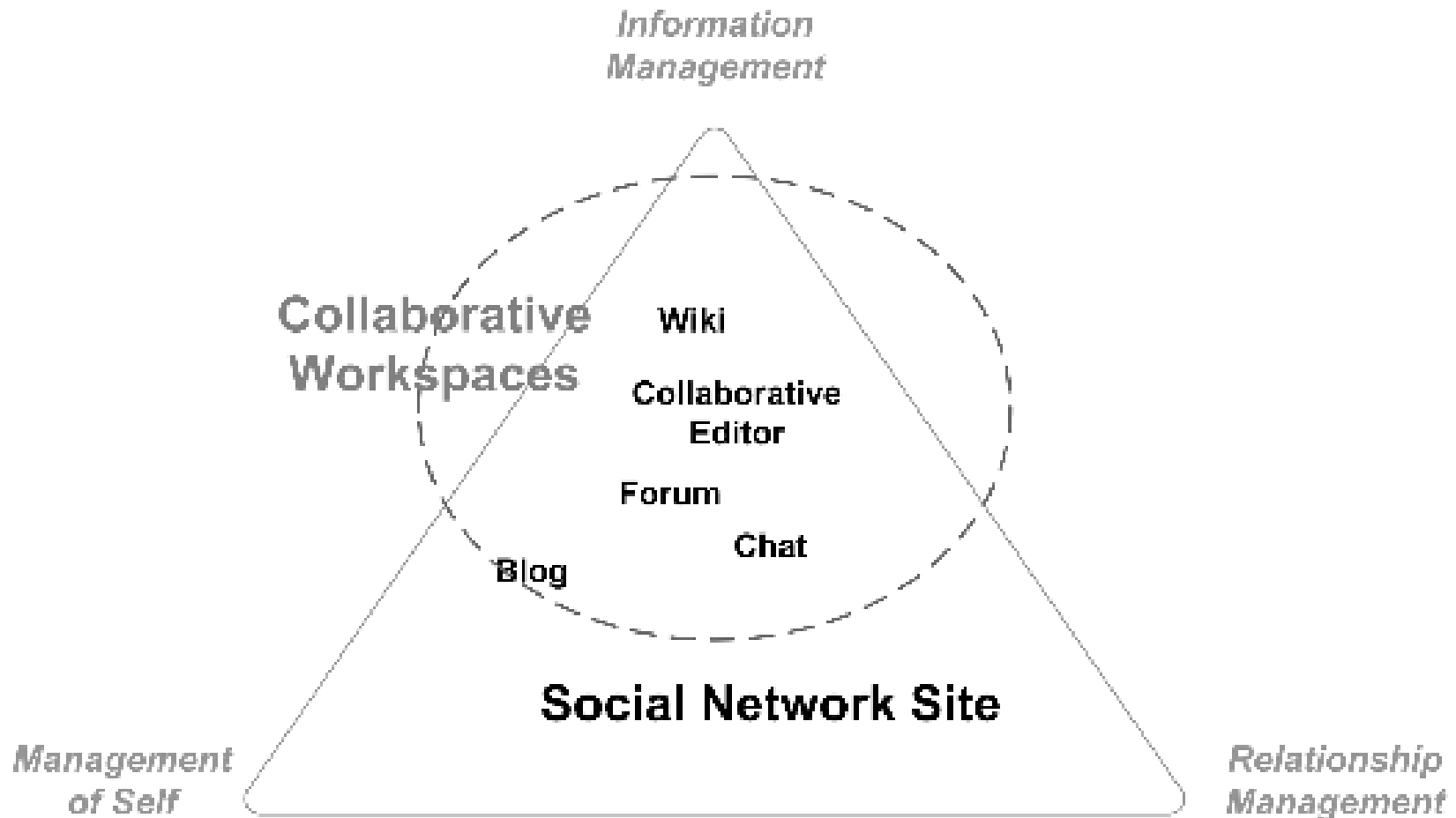
A research project funded by the European Commission's 7th Framework Programme

Roadmap of Talk

- The “Privacy vs. Sociability” Dilemma
- Status Quo of Access Control Approaches to (Personal) Data
- Concept of Privacy-Respecting Access Control (PRAC) for Collaborative Workspaces (CWs)
- Example demonstration



The “Privacy vs. Sociability” Dilemma 1 | 2



Functional Triangle of **Social software** [PP09] based on [RK07]



The “Privacy vs. Sociability” Dilemma 2 | 2

- Sharing of (personal) information
 - advancing social lives of users
 - putting their privacy at risk
- Solution required that combines benefits from socializing Internet and privacy control
- Collaborative Workspaces (CWs):
 - Infrastructures enabling people to work together
 - Content is the focal point



Status Quo of Access Control Approaches

- Access control matrix, role-based access control, team/group-based access control
- Problems:
 - Administrative parties specifying access control rules
→ no user control
 - Identity-based definition of access control
→ knowledge of particular users necessary
→ no user-controlled protection of the user's privacy possible



Privacy Issues related to CWs

- Limited awareness of privacy issues
- Limited possibilities to determine access rules
- Social engineering attacks (false identity)
- Surveillance of users



Prerequisites of PRAC

- No administrative party specifying access rules
- Potential interaction partners are not necessarily known by the contributor
- Other user may protect their privacy as well
- Access control has to be applicable to also fine-grained content structures

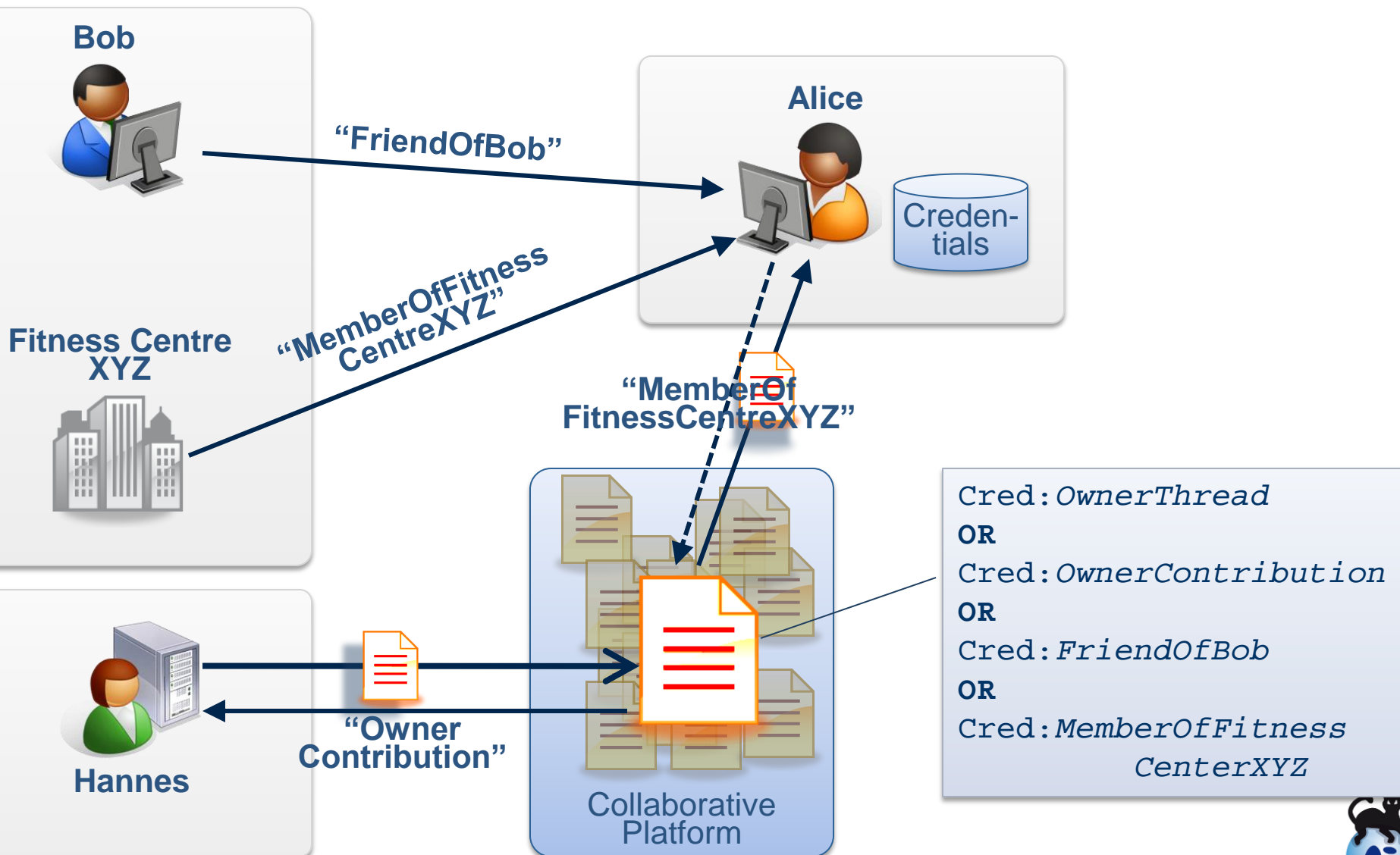


Idea of PRAC

- Unbinding the access control process from identities →
 - *Access Control Policies* specified by the user herself
 - *Certified Attributes*
 - Anonymous and unlinkable presentation
- Based on PRIME technologies
- ◎ Adaptation for collaborative scenarios



Example Scenario



Research Questions to be Addressed

- Selective Access Control
 - Technical feasibility of offering both approaches
 - Compromise between privacy and (social) interaction
 - Different user groups: e.g., concern, expertise etc.
 - AC based on certified properties vs. identities
- Privacy Awareness
 - Influence of provision of privacy awareness information on
 - kind of communication
 - kind of access control settings by the users



Realisation of a Demonstrator

Your internet address is 141.76.41.146.
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Fit For Summer

[POSTREPLY](#)

1 post • Page 1 of 1

Fit For Summer

by **Bob** » Wed Aug 19, 2009 9:57 am

Hey guys,

let's talk about our sports activities here.

Bob

[*EDIT](#) [*](#) [!](#) [?](#) ["QUOTE"](#)

Bob

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Jump to:

Quick mod tools:



Backup: Example (Awareness @ forum) 1 | 4

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Jump to:

Quick mod tools:



Backup: Example (Edit Policy)

2 | 4

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Jump to:

Quick mod tools:



Backup: Example (Attribute Credential) 3 | 4

PRIME - Send Personal Data

Gender no disclosure Fetch credential

OR

Administrative role no disclosure Fetch credential

OR

Administrative role no disclosure Fetch credential

Do not send Send



Backup: Example (Access Denied)

4 | 4

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Bob

by **Bob** » Wed Aug 19, 2009 11:23 am

Hey guys,

let's talk about our sports activities here.

Bob

[Edit policy](#)

by - » -

[access denied](#)

Display posts from previous: Sort by

[POSTREPLY](#)

2 posts • Page 1 of 1



Privacy Issues related to CWs -Solved?

- Limited awareness of privacy issues
 - Comprehensive tools communicating awareness information
- Limited possibilities to determine access rules
 - In full user control → however: more user support necessary
- Social engineering attacks (false identity)
 - As long as we do not have any secured proof of identity → problem is not solved
- Surveillance of users
 - Improvement in terms of privacy



Thank you for your attention!



Backup: Content hierarchy of demonstrator

1_Forum

phpBB playground
creating communities playground @ turkian

Forum index

FAQ Members Register Login

Edit policy

It is currently Mon Jul 20, 2009 1:07 pm

TOPIC	THREADS	POSTS	LAST POST
topic	5	31	by Nick N. Tue Jul 07, 2009 10:58 am
closed	0	0	No posts

2_Topic

phpBB playground
creating communities playground @ turkian

Forum index > topic

FAQ Members Register Login

Edit policy

[Moderator Control Panel]

topic

NEWHEAD: Search this topic... Search

Mark threads read • 5 threads • Page 1 of 1

THREADS	REPLIES	VIEWS	LAST POST
holiday by stef • Tue Jul 07, 2009 10:55 am	2	1	by Nick N. Tue Jul 07, 2009 10:58 am
alles neu by ICH • Thu May 28, 2009 1:04 pm	7	44	by _m_ Mon Jul 06, 2009 4:12 pm

3_Thread

phpBB playground
creating communities playground @ turkian

Forum index > topic

FAQ Members Register Login

Edit policy

[Moderator Control Panel]

holiday

POSTREPLY: Search this thread... Search

First unread post • 3 posts • Page 1 of 1

holiday
by stef • Tue Jul 07, 2009 10:55 am

Hi, many greetings from my summer holidays....

Re: holiday
by Nina23 • Tue Jul 07, 2009 10:57 am

I am currently in Spain and enjoy the sun.

4_Post



Backup: Example of ACP

1. **Forum:** [(cred:Admin-Forum) **OR** (everybody[default])] **AND**
2. **Topic:** [(cred:Moderator-SportsAndCars) **OR** (everybody[default])] **AND**
3. **Thread:** [(cred:Moderator-SportsAndCars) **OR** (cred:Owner-FitForSummer) **OR** (cred:male)] **AND**
4. **Post:** [(cred:Moderator-SportsAndCars) **OR** (cred:Owner-PostFromHannes) **OR** (cred:memberOfFitnessCentreXYZ)]



Backup: Attributes

- How to specify credentials to be used within ACPs?
 1. Globally defined set of credentials
 - Efforts comparable with knowing all user names
 - However: improvement in terms of privacy
 2. Generally accepted standard for defining credentials
 - More complex approach
 - However: more flexibility for definitions of credentials and for specifying ACPs

→ Interesting research question



Backup : Collaborative Workspaces

- Platforms for collaborative and cooperative working

- Sharing information
- Jointly creating content
- Developing ideas

→ Content

- In comparison: Social Network Sites

- Provision of means to establish user profiles and connections between people

→ Identity



Backup: Access Control Matrix

	file 1	file 2	file 3
user 1	r/w/x	r/w	r
user 2	r	r/w/x	-
user 3	-	-	r/w/x

legend:



Capability List (CL)



Access Control List (ACL)



Backup: References

- [PP09] Martin Pekárek and Stefanie Pöttsch. A comparison of privacy issues in collaborative workspaces and social networks. Identity in the Information Society, 2009. Special Issue on Social Web and Identity
- [RK07] Alexander Richter and Michael Koch. Social Software – Status quo und Zukunft. Technical Report 2007-01, Universität der Bundeswehr München, Fakultät Informatik, Neubiberg, Februar 2007.

