

WP6: Community Interaction among Pupils

Souheil Bcheri, Eurodocs AB

1st Reference Group Meeting

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Rüschlikon, Switzerland

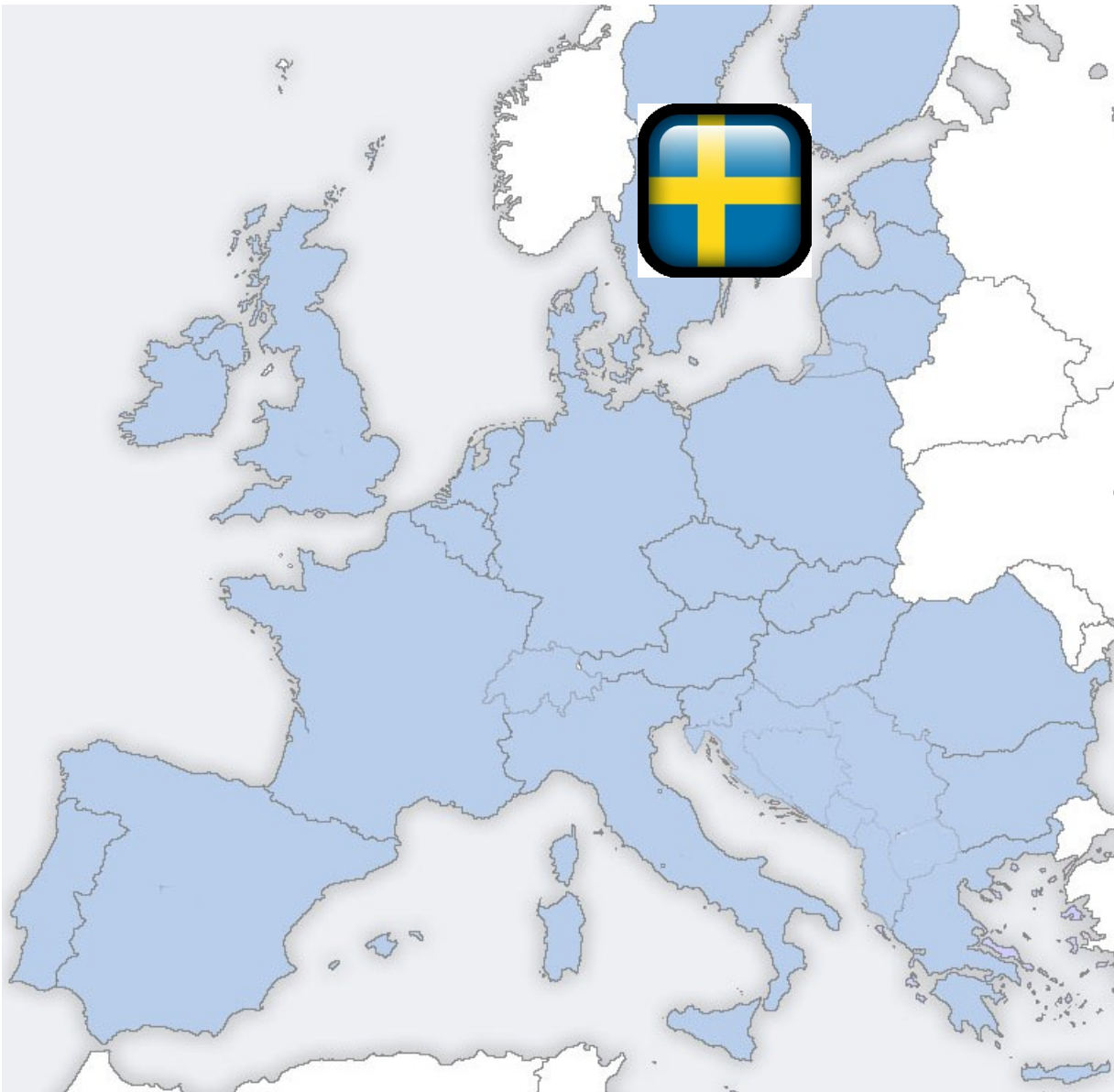


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- WP6 Swedish pilot
 - Background
 - Use cases
 - ABC-Roles
 - Restricted area
- Demonstration
- Open issues
 - Feedback from the Reference Group

Pilot: Community Interaction



- School internal social network for communication among pupils, guardians and school personnel
- Provide trusted authentication while protecting anonymity
- Usability: make privacy technology understandable for non-technical users (e.g. pupils)

Background



- Swedish schools of today are mainly using the Internet (User name and password) for communication between teachers, pupils and parents/guardians.
- Swedish schools are according to laws and regulations obliged to inform the parents when a pupil/student is absent from a class.
- Schools are also obliged to create individual plans for each student. Individual plans contain private data and very sensitive information about a child's ability to read, ability to write and other important skills, wishes and goals for the future.

Participants in the pilot:

- 400 students and their parents
(7th-9th grade, 12-16 years)
- 80 school personnel



NORRTULLSKOLAN
SÖDERHAMN, SWEDEN

The Problem

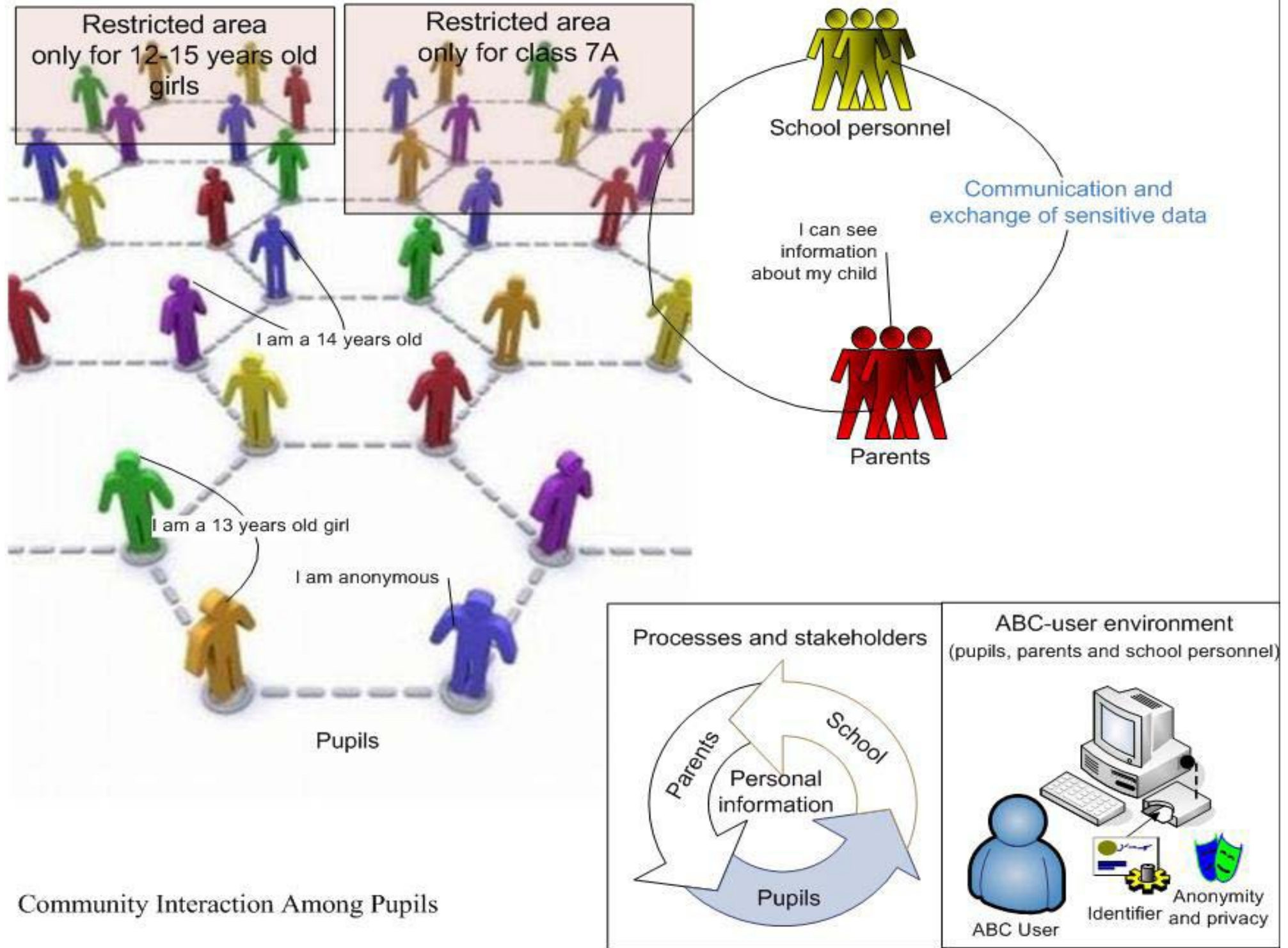


- A big threat against the privacy of the students are unauthorized access to sensitive personal information
- The Swedish National Agency for Education and the Swedish Data Inspection Board made a statement and requested that all communication involving students/children's sensitive personal information should be done using strong authentication such as Two-factor authentication

The Solution – ABC4Trust



- Using strong authentication (traditional PKI) will solve the problem of unauthorized access but will introduce new problems.
 - It threatens the anonymity and privacy of the users because the user's identity and other personal information (attributes) are always exposed for the service provider.
- The ABC4Trust technology takes into account the three aspects identity, anonymity and privacy and combines them into one single solution.



Objectives of the Pilot



- To demonstrate how ABC technology can successfully provide trusted identification while protecting anonymity and privacy of children in real life applications where this is desirable
- To meet the requirements of local (in this case Swedish) authorities.
 - The Swedish National Agency for Education
 - The Swedish Data Inspection Board
- The pilot will be declared successful if it can demonstrate usability and acceptance of ABC technology

Approach



- Pupils will be identified by smart cards that they will receive from the school administration. The school will decide what information needs to be verified through the use of the smart cards (e.g. name, address, email, phone number, mobile number, school, class, date of birth, gender, nationality, etc.).
- Pupils will use their smart cards to sign in to the school applications. Some applications requiring restricted access at the same time as anonymity will offer pupils the ability to leave out their identity as well as any other attribute they may find too personal.

Benefits!



- Students are in charge and can choose to ...
 - Remain completely anonymous
 - Be uniquely Identified
 - “Claudia Hugosson”
 - Be partially identified
 - “Girl”, “Age 9-12” or “A girl, age 10-11”
- This can be done at any time and can be different from time to time.
- Students can choose what attributes they want to prove and to whom.

The school application prototype provides

- Chat communication
- Political discussions (anonymous)
- Counseling with health personnel (counselors, social workers, nurses, coaches)
- Document sharing and access to absence reports, individual plans, grades, exam results

Chat Communication

- A user(s) wants to chat with another user(s) (individual or group chats authenticated with specific attributes or identified by name)



- For some people the ability to express a political opinion anonymously is essential to discuss sensitive subjects.
 - Pupils prove that they belong to the school but can still remain anonymous



- Get help and advice from school personnel
 - Pupils will discuss, get help or get advice from authorized professionals regarding psychological, physical and other problems
 - The pupil proves to belong to the school but can still remain anonymous

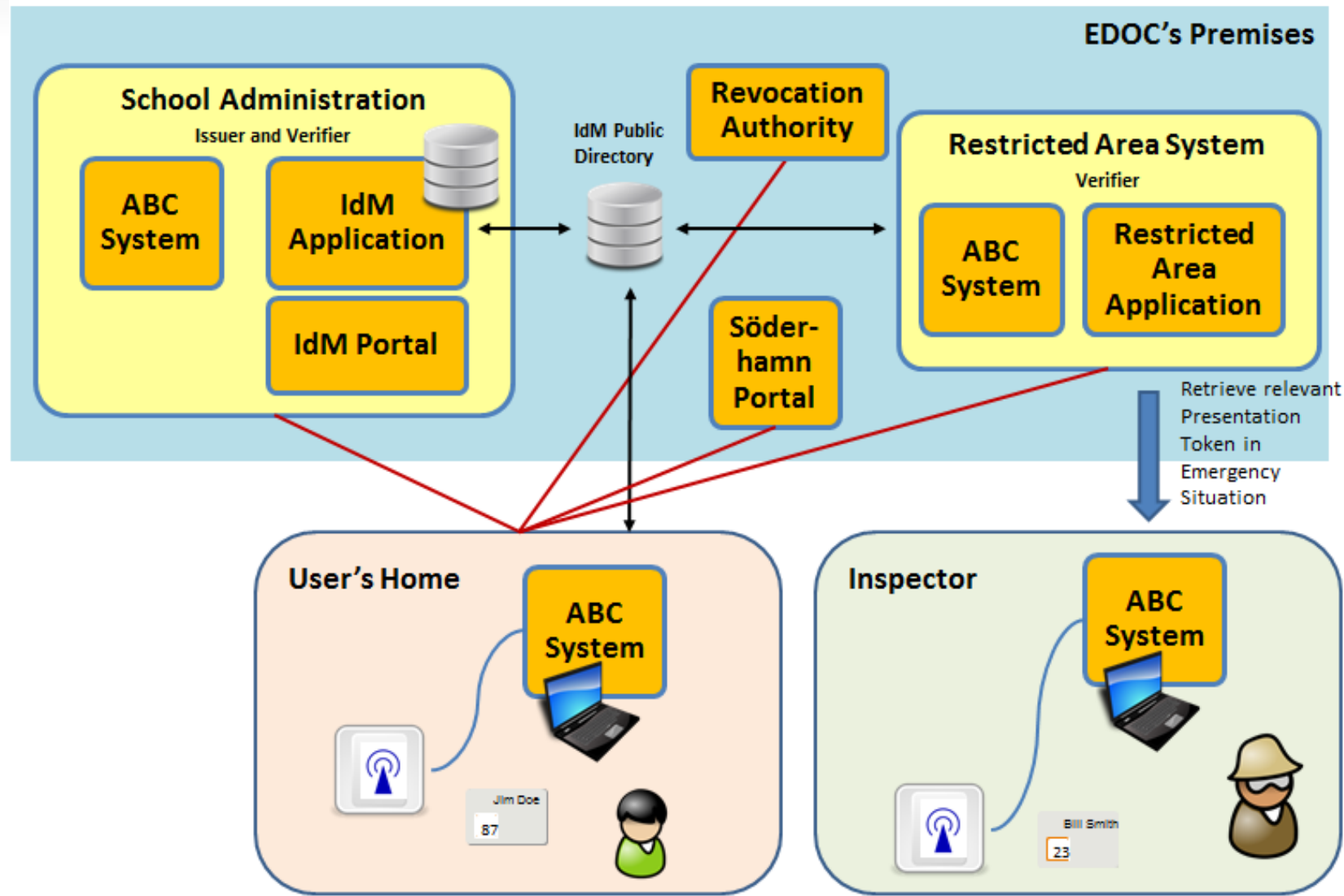


Sharing Documents

- The school is producing many important documents (exam results, grades, individual development plans etc.) that need to be shared with and distributed to the pupils and their parents.



High Level Architecture / Söderhamn Pilot



Participants in the Pilot

- Pupils 
- Parents/Guardians 
- School personnel 
 - Teachers
 - Welfare officers
 - Coaches
 - Student counselors
 - Nurses
 - Administrators
 - Principals

Mapping of ABC Roles



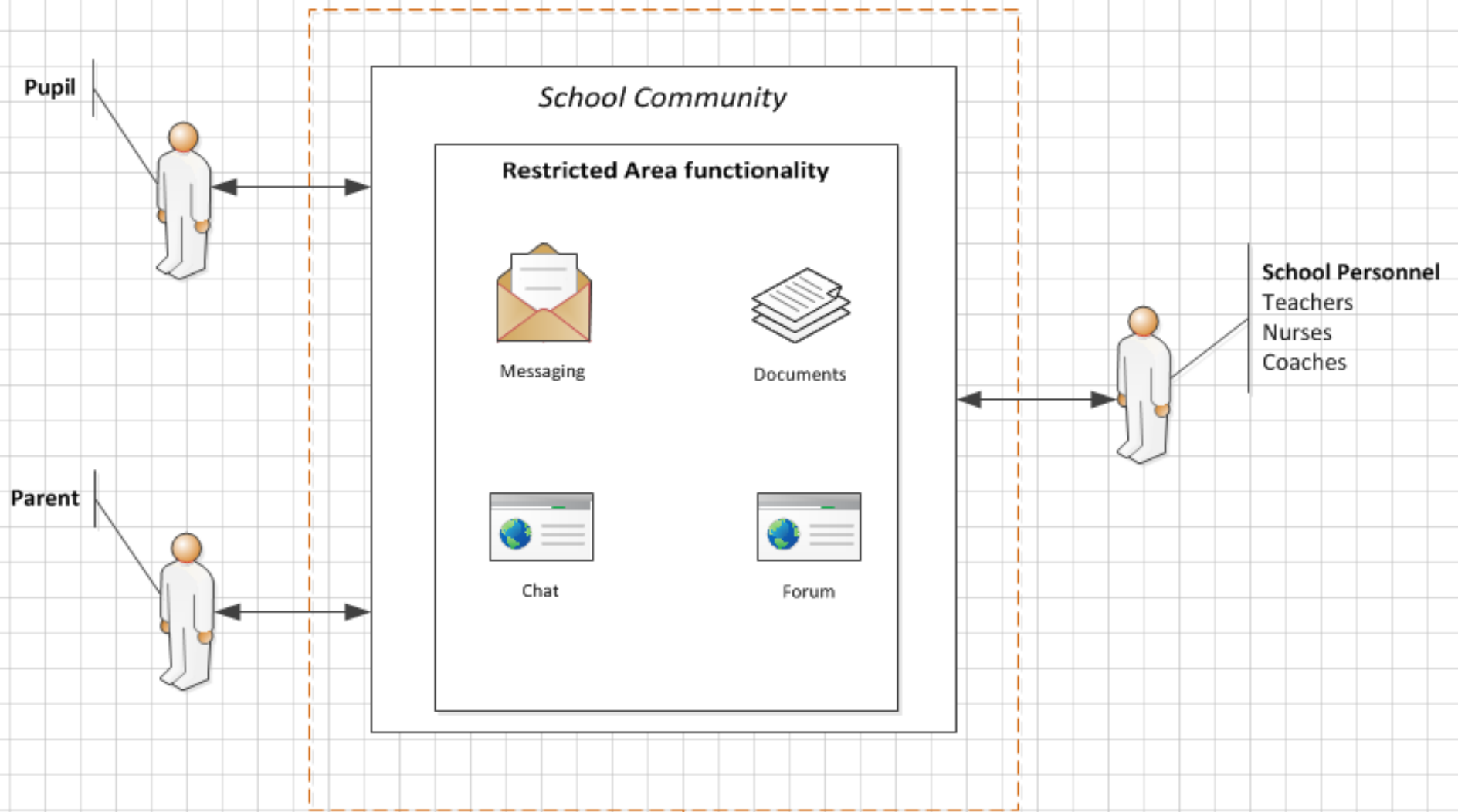
Entity	ABC Role
School Administration Office	Issuer
School personnel, guardians, pupils	Revocation Requestor
School Administration Office	Revocation Authority
Restricted area system	Verifier
School personnel, guardians, pupils	User
Client software	User Agent
School Inspection Board	Inspector
School personnel, guardians, pupils, law enforcement authorities	Inspection Requestor
School Inspection Board, law enforcement	Inspection Receiver

The Swedish Pilot Requirements



- Allow users to communicate (synchronously or asynchronously) and to exchange sensitive and non-sensitive information in different formats between different parties with defined different access policies
 - Depending on the use case, users can choose to be identified, partially identified or to remain anonymous

Restricted Area (RA)



Demo



Open Issues

- Aliases
- Dashboard and notification
- Access to old data
 - Changed user attributes
 - Changed RA access policy
- Inspection
- Limits and assumptions
 - Protect the user from whom
 - Other threats
- Exchange of attributes
- Are we missing anything?



Restricted areas

[Create](#)

 Search for

Name	Created by	Created	Expires
Boys only	System	1/13/2012	Edit
Girls only	System	1/13/2012	Edit
Boys 12 years	System	1/13/2012	Edit
Boys aged 12+ years	System	1/13/2012	Edit
Boys 12 years and Girls 12-15 years	System	1/13/2012	Edit
Claudia	System	1/13/2012	Edit
Claudia and guardians	System	1/13/2012	Edit
Claudias guardians - Not Claudia	System	1/13/2012	Edit
All pupils	System	1/13/2012	Edit
All guardians	System	1/13/2012	Edit
All school personnel	System	1/13/2012	Edit
Coaches and Pupils	System	1/13/2012	Edit
Class 9A-2011	System	1/13/2012	Edit
Class 9A studying Spanish or Italian	System	1/13/2012	Edit

Access Policy Administration 1/2



Policies

Add predefined policy, Add new policy and condition, Test policies (Security check)

Girls 12-15 years			Detach
gender	=	female	
age	>=	12	
age	<=	15	
69efaabc-d2bc-4a4f-8666-1bdc187ad629			Add condition Delete
gender	=	male	Delete
age	=	12	Delete

Save

Delete

- Attribute-based credentials are a well suited solution for the school's requirements to regulate access control based on policies expressed with attributes

Boys 12 years and Girls 12-15 years

Created 1/13/2012
A restricted area for boys 12 years and for girls 12-15 years

There are (0) users online

[Wall](#) [Chat](#)
[Documents](#)

Boys 12 years

Created 1/13/2012
A restricted area for boys aged 12 years

There are (0) users online

[Wall](#) [Chat](#)
[Documents](#)

Filter:

[Latest](#)

[Favorites](#)

[All](#)

All pupils

Created 1/13/2012
A restricted area for all pupils

There are (0) users online

[Wall](#) [Chat](#)
[Documents](#)

All guardians

Created 1/13/2012
A restricted area for all guardians

There are (0) users online

- **credSchool**
 - First name
 - Last name
 - Civic Registration Number (age can be extracted from this attribute)
 - Gender
 - School
 - Revocation handle

- **credSubject**

- Subject (Math, history, English, French, Spanish, etc.)
 - Subject = Math
 - Subject = History
 - Subject = English
- Revocation handle

- **credClass**
 - **Class**
 - Class = 7A-2011
 - **Revocation handle**

- **credRole**
 - **Role**
 - Role=Pupil
 - Role=Guardian
 - Role=All school personnel
 - Role=Teacher
 - Role=Welfare officers
 - Role=Nurses
 - Role=Coaches
 - Role=Administrators
 - Role=Principal
 - Role=Pupil counselor
 - **Revocation handle**

- **credGuardian**

- Guardians (e.g. Parents)

- Guardian=Civic Registration Number of guardian1
 - Guardian=Civic Registration Number of guardian2
 - Guardian=Civic Registration Number of guardian3

- Revocation handle

- **credChild**

- Child

- Child=Civic Registration Number of child1
 - Child=Civic Registration Number of child2
 - Child=Civic Registration Number of child3

- Revocation handle

WP6 Planned Work



- Feb. 2012 First version of application
- Apr. 2012 Demonstration for end user
- Jun. 2012 Integration of ABC components
- Sep. 2012 On-site testing
- Oct. 2012 Personalization of smart cards
- Dec. 2012 Distribution of smart cards
- Jan. 2013 Pilot begins