Privacy matters in directories

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Outline

1. The problem
    - Definitions
    - Institutional mandate
    - Users' needs
    - Legal matters
    - Technical requirements

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   - Definitions
   - Institutional mandate
   - Users' needs
   - Legal matters
   - Technical requirements
2. The solution
   - A first approach
   - A better approach

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    - Definitions
    - Institutional mandate
    - Users' needs
    - Legal matters
    - Technical requirements
2. The solution
    - A first approach
    - A better approach
3. The implementation
    - User control
    - Policy enforcement

Defintions

¿Contradictions?. . .

According to D.R.A.E.

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Directory

5. m. Roster of people belonging to a group, with indication of diverse information about them, such as role, location data, phone numbers, etc.

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1. f. Part of private life that a person has the right to protect form any kind of intrusion.

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Directory

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Privacy

1. f. Part of private life that a person has the right to protect form any kind of intrusion.

Private

2. adj. Particular & personal of each individual.

3. adj. Something that is not a public or state property, but belongs to individuals.

Institutional mandate

that starts the problem

Institutional mandate

that starts the problem

Public institutions must serve the public so they need to. . .

Institutional mandate

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Public institutions must serve the public so they need to. . .

- Offer information about themselves

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- Offer information about themselves
- Offer information about their members

Institutional mandate

that starts the problem

Public institutions must serve the public so they need to. . .

- Offer information about themselves
- Offer information about their members
- Collaborate amongst them

Users' needs

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Users want

Users' needs

Users want

- To find others for communicating

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- To find others for communicating
- To be found by possible partners for projects

Users' needs

Users want

- To find others for communicating
- To be found by possible partners for projects

but they do not want

Users' needs

Users want

- To find others for communicating
- To be found by possible partners for projects

but they do not want

- their data exposed

Legal matters

in the problem

Legal matters
in the problem

- People's right to privacy

Legal matters
in the problem

- People's right to privacy
  Persons have the right to conceal their data

Legal matters
in the problem

- People's right to privacy
  Persons have the right to conceal their data
- Internet searchable directories may be international transfers of personal data

Technical requirements

that are part of the problem

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- The directory should be accessed directly

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- Enforce the policy regardless the access method.
- Different treatment for
  - Inside searches
  - Outside searches
- Reduce the administrative burden

Different approaches

for solving the problem

Different approaches

for solving the problem

- Lawyers approach

Different approaches

for solving the problem

- Lawyers approach

Ditch the directory

Different approaches
for solving the problem

- Lawyers approach
- Users approach

Ditch the directory

Different approaches
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Ditch the directory

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None

Different approaches
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None, they just want *it* to work

Different approaches

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Ditch the directory

- Users approach

None, they just want *it* to work

- Technicians approach

Different approaches

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Ditch the directory

- Users approach

None, they just want *it* to work

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Ditch the lawyers

Points to find a solution

without having to ditch anyone

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without having to ditch anyone

- Put control on the hands of the user

Points to find a solution

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- Put control on the hands of the user
- Policy is defined by the organization

Points to find a solution

without having to ditch anyone

- Put control on the hands of the user
- Policy is defined by the organization
- Abide by the law

Two sides of a coin

user side / server side

Two sides of a coin

user side / server side

- User side

Two sides of a coin

user side / server side

- User side
  The user must have control of her data

Two sides of a coin

user side / server side

- User side
  The user must have control of her data
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Two sides of a coin

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- User side

  The user must have control of her data
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  The solution must work whichever the interface

The user decides about his data

The user decides about his data

We need:

The user decides about his data

We need:

- An interface for setting user preferences

The user decides about his data

We need:

- An interface for setting user preferences
  We know what to do

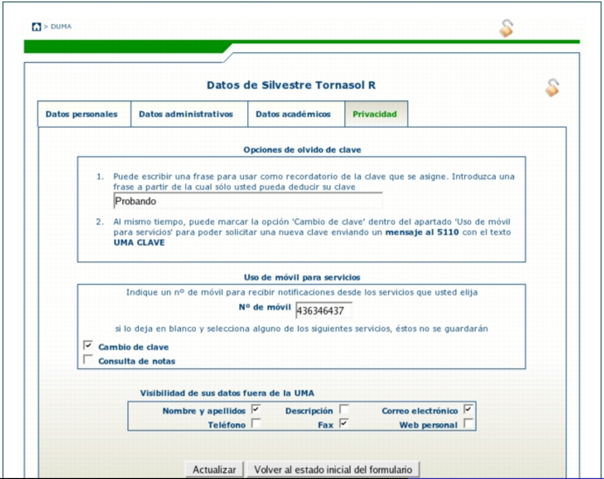
The user decides about his data

We need:

- An interface for setting user preferences
  We know what to do: design a nice web form

The user decides about his data

via a nice web form



Datos de Silvestre Tornasol R

Opciones de olvido de clave

1. Puede escribir una frase para usar como recordatorio de la clave que se asigne. Introduzca una frase a partir de la cual sólo usted pueda deducir su clave
   Probando
2. Al mismo tiempo, puede marcar la opción 'Cambio de clave' dentro del apartado 'Uso de móvil para servicios' para poder solicitar una nueva clave enviando un **mensaje al 5110** con el texto **UMA CLAVE**

Uso de móvil para servicios

Indique un nº de móvil para recibir notificaciones desde los servicios que usted elija

Nº de móvil 436346437

si lo deja en blanco y selecciona alguno de los siguientes servicios, éstos no se guardarán

☑ **Cambio de clave**
☐ **Consulta de notas**

Visibilidad de sus datos fuera de la UMA

Nombre y apellidos	☑	**Descripción**	☐	**Correo electrónico**	☑
Teléfono	☐	**Fax**	☑	**Web personal**	☐

The user decides about his data

We need:

- An interface for setting user preferences
  We know what to do: design a nice web form
- Directory attribute for holding the preferences

The user decides about his data

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irisUserPrivateAttribute

The user decides about his data

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schacUserPrivateAttribute

The user decides about his data

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schacUserPrivateAttribute

because Europe likes the idea

The institution sets the policy

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- Policy enforcement whichever the interface

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- Policy enforcement whichever the interface
  Application level control is discarded

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- Policy enforcement at server level

The institution sets the policy

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  using OpenLDAP ACLs

Summary

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- The user has control of her personal data

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WORKS

and we will be pleased to show it to anyone willing to

OpenLDAP ACLs I

Privacy policy for students

irisUserPrivateAttribute may have a value of *all* or may be empty, denying or allowing access to ALL optional attributes, defined in *attrs*. Actually, our present policy for student personal data, denies access to the whole entry.

Deny access to all attributes

```
access to dn.subtree="idnc=usr,dc=uma,dc=es"
         filter="(&(eduPersonAffiliation=student)
                   (irisUserPrivateAttribute=all))"
         attrs=entry
         by * none
```

OpenLDAP ACLs II

Privacy policy for students

If a student clears her irisUserPrivateAttribute, then the system allows access to the entry and, then, to the policy permitted attributes, so they may be shown.

Allow access to permited attributes

```
access to dn.subtree="idnc=usr,dc=uma,dc=es"
         filter="(eduPersonAffiliation=student)"
         attrs=entry,displayName,mail,telephoneNumber
         by * read
```

OpenLDAP ACLs III

Privacy policy for non students

The organization may decide that an entry should not appear in searches. Then irisUserPrivateAttribute receives the value *entry*.

Blocking all access

```
access to dn.subtree="idnc=usr,dc=uma,dc=es"
          filter="(irisUserPrivateAttribute=entry)"
          by * none
```

OpenLDAP ACLs IV

Privacy policy for non students

The user may decide which attributes should be hidden to anonymous searches, from a set defined by the organization's policy. irisUserPrivateAttribute holds the names of such attributes. In case the search is done by a bound user, the attribute is shown.

Blocking access to the phone number

```
access to dn.subtree="idnc=usr,dc=uma,dc=es"
         filter="(irisUserPrivateAttribute=telephoneNumber)"
         attrs=telephoneNumber
         by users read
         by * none
```

OpenLDAP ACLs V

Privacy policy for non students

The user may decide to hide all attributes in the set defined by the organization’s policy. In such case, irisUserPrivateAttribute holds a value of *all*. If the search is done by a bound user, the attributes are shown.

Blocking access to all attributes

```
access to dn.subtree="idnc=usr,dc=uma,dc=es"
         filter="(irisUserPrivateAttribute=all)"
         attrs=mail,telephoneNumber,facsimileTelephoneNumber
         by users read
         by * none
```

Definitions

LDAP, *Lightweigth Directory Access Protocol*

Source: Wikipedia.org

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- Often an LDAP directory maps political, geographical and organizational divisions.
- The present version is LDAPv3, defined in RFC 3377

Source: Wikipedia.org

Definitions

OpenLDAP

Source: Wikipedia.org

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- Free Open Source implementation of LDAP protocol.

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OpenLDAP

- Free Open Source implementation of LDAP protocol.
- The software is developed by the OpenLDAP Project and is distributed under its own license: *OpenLDAP Public License*.

Source: Wikipedia.org

Definitions

ACL, Access Control List

Source: Wikipedia.org

Definitions

ACL, Access Control List

+ Computer security concept used to enforce privilege separation.

Source: Wikipedia.org

Definitions

ACL, Access Control List

- Computer security concept used to enforce privilege separation.
- It's a means of determining access rights to a certain object depending on certain characteristics of the process that makes the request, mainly the identity of the process user.

Source: Wikipedia.org