Application access to directories

opening Pandora's box

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Cork
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Uses of the directory

what is this good for

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Most common uses of enterprise directories

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Most common uses of enterprise directories

1. White pages

Uses of the directory
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Most common uses of enterprise directories

1. White pages
2. Credential repository for AuthN

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Most common uses of enterprise directories

1. White pages
2. Credential repository for AuthN
3. Object classification for AuthR

Uses of the directory
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Most common uses of enterprise directories

1. White pages
2. Credential repository for AuthN
3. Object classification for AuthR
4. Object information repository

AuthN

can the user prove his identity?

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There are three main ways for checking credentials

AuthN
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- Binding as the object with the credentials

AuthN
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There are three main ways for checking credentials

- Binding as the object with the credentials
- Retrieving the object and comparing the values

AuthN
can the user prove his identity?

There are three main ways for checking credentials

- Binding as the object with the credentials
- Retrieving the object and comparing the values
- Searching for an object with the proper values

AuthR

is the user allowed to use the application?

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The object must either

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The object must either

- possess a certain attribute with a given value
- belong to a certain category of objects

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This can be verified either by

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The object must either

- possess a certain attribute with a given value
- belong to a certain category of objects

This can be verified either by

- retrieving the object and checking the attribute for the value
- searching for an object that has the appropriate values

Attribute source

what does the app need to know about the user?

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The directory can store lots of information

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- Unstructured

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- bundled together on the object

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and all of it can be provided to the applications

Least privilege principle
or the parable of the significant other

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Main characters

Least privilege principle
or the parable of the significant other

Main characters

The user

Least privilege principle
or the parable of the significant other

Main characters

The directory

Least privilege principle
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Main characters

The application

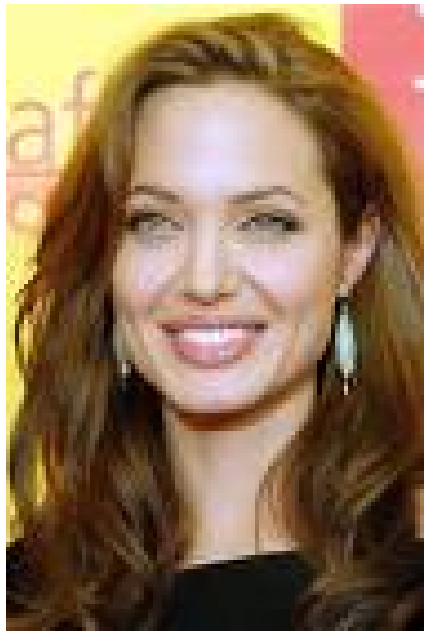
Least privilege principle
or the parable of the significant other

Least privilege principle
or the parable of the significant other

The plot

Least privilege principle
or the parable of the significant other

The plot



Least privilege principle
or the parable of the significant other

The plot

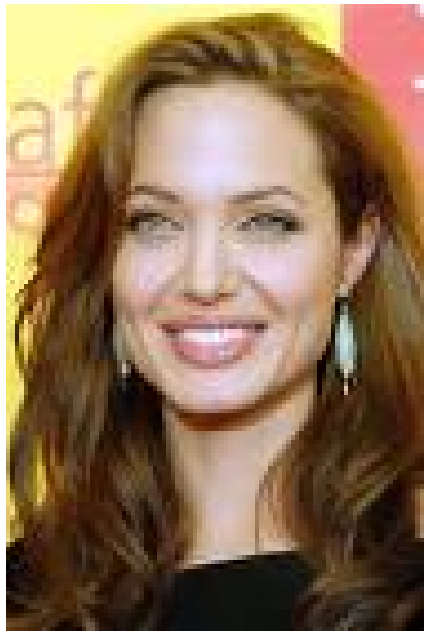
$\Rightarrow$

The user gives his credentials to the application

Least privilege principle
or the parable of the significant other

The plot





The application gives the user's credentials to the directory

Least privilege principle
or the parable of the significant other

The plot

$\Rightarrow$

$\Rightarrow$
$\Leftarrow$

The application gets user's access to the directory

Least privilege principle
or the parable of the significant other

The plot

$\Rightarrow$
$\Leftarrow$

$\Rightarrow$
$\Leftarrow$

The user gets access to the application

Least privilege principle
or the parable of the significant other

The plot

$\Rightarrow$
$\Leftarrow$

$\Rightarrow$
$\Leftarrow$

Everyone is happy

Least privilege principle
or the parable of the significant other

The plot

$\Rightarrow$
$\Leftarrow$

$\Rightarrow$
$\Leftarrow$

Everyone is happy, right?

Least privilege principle
or the parable of the significant other

Least privilege principle
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A better plot

Least privilege principle
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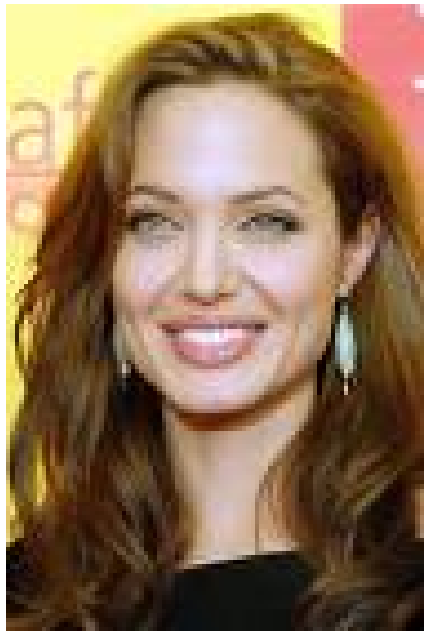
A better plot



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A better plot

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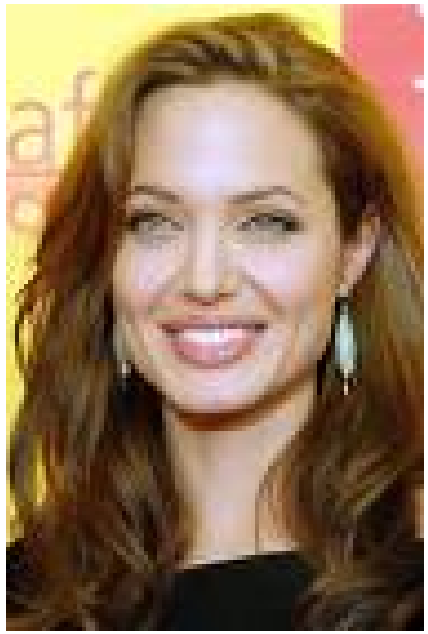

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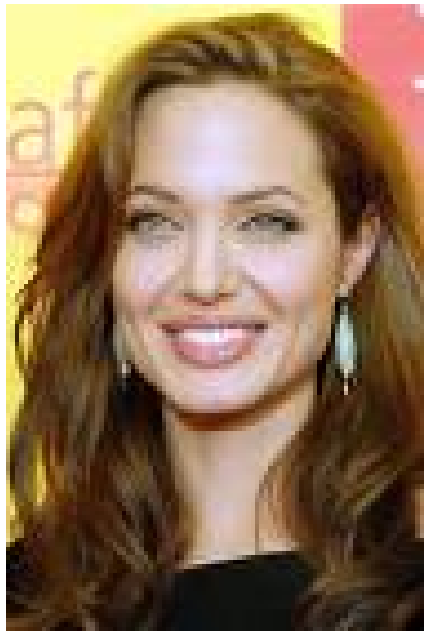

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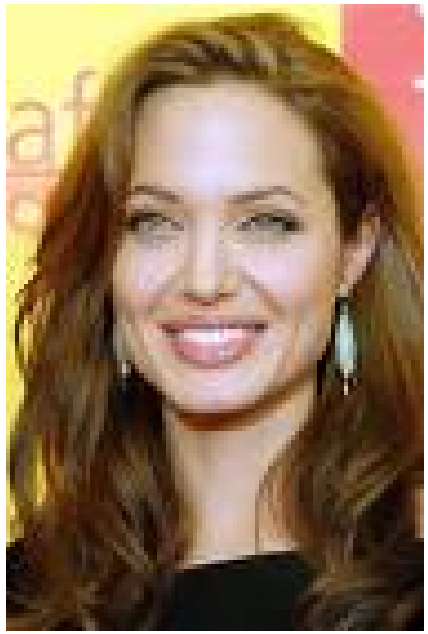

The application gets application's access to the directory

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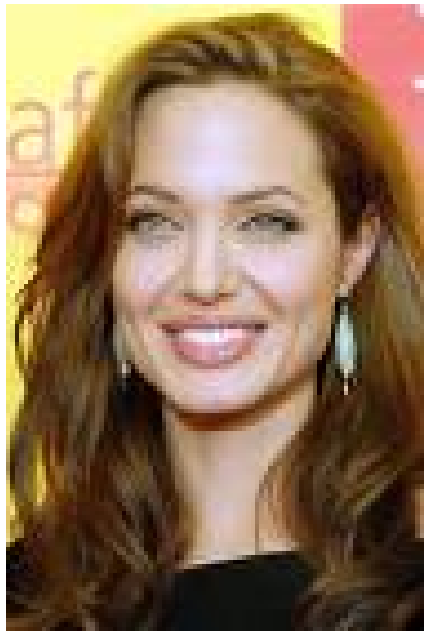

The application checks user's credentials with the directory

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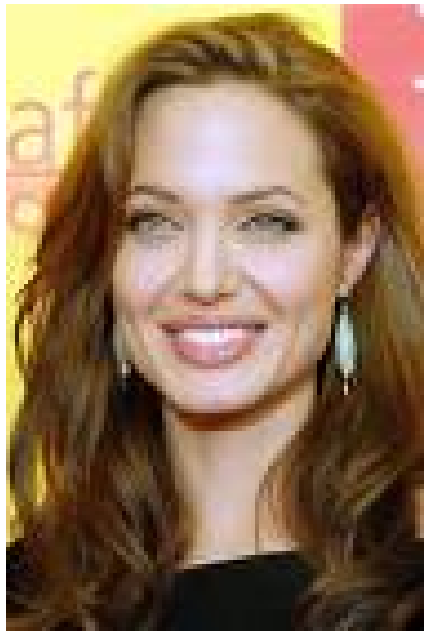

The user gets access to the application

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A better plot

$\Rightarrow$
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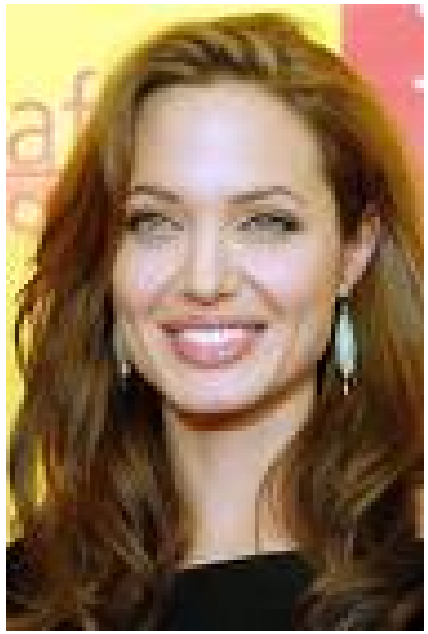

Everyone is happy

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$\Rightarrow$
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Everyone is happy, or not

Filtering values

who can see what

Filtering values
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Every attribute and value is not for everyone to see

Filtering values
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- User's privacy

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- Application data is not for user consumption

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- Applications should not see data for other applications

Filtering values
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Every attribute and value is not for everyone to see

- User's privacy
- Application data is not for user consumption
- Applications should not see data for other applications
- Different consumers for different values of an attribute

Controlling access to attributes

applying the least privilege principle

Controlling access to attributes
applying the least privilege principle

This has to be approached from two sides

Controlling access to attributes
applying the least privilege principle

This has to be approached from two sides

The application side An object for each application to bind to the directory

Controlling access to attributes
applying the least privilege principle

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The application side An object for each application to bind to the directory

The server side ACIs for controlling access to objects, their attributes and their values

Controlling access to attributes
applying the least privilege principle

This has to be approached from two sides

The application side An object for each application to bind to the directory

The server side ACIs for controlling access to objects, their attributes and their values

but...

Controlling access to attributes
applying the least privilege principle

This has to be approached from two sides

The application side An object for each application to bind to the directory

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but...

Can we trust our applications?

Controlling access to attributes
applying the least privilege principle

This has to be approached from two sides

The application side An object for each application to bind to the directory

The server side ACIs for controlling access to objects, their attributes and their values

but...

Can we trust our applications? All of them?

The problem is not solved

it has just been mitigated

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- Applications are not guaranteed to behave as expected

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in all

- Applications should not be trusted

and, remember, ACIs are a nightmare to manage,
we want few of them

Solution
Single Sign On and IAM technologies

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Applications can be forced into behaving

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Applications can be forced into behaving

- Blocking access to user credentials

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- Blocking access to user credentials $\Rightarrow$ SSO

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Applications can be forced into behaving

- Blocking access to user credentials $\Rightarrow$ SSO
- Giving them just the information they need

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Single Sign On and IAM technologies

Applications can be forced into behaving

- Blocking access to user credentials $\Rightarrow$ SSO
- Giving them just the information they need $\Rightarrow$ IAM

but that is what the rest of this EuroCAMP is about

The End
time for some discussion

Questions?

The End

time for some discussion

Questions?

you might even get answers