

Exploring Visualization Techniques to Enhance Privacy Control UX for User-Managed Access

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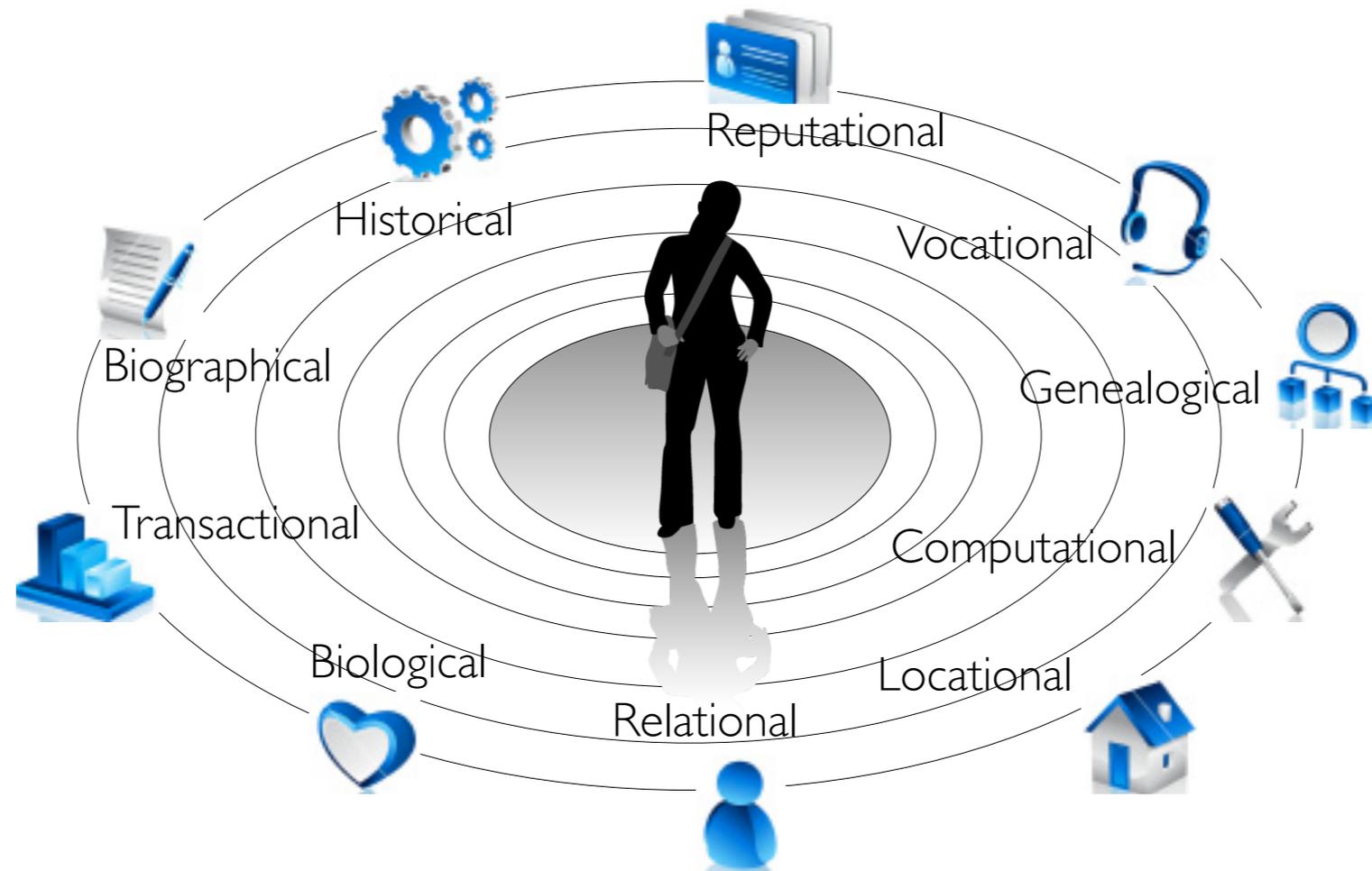


Agenda

- Data sharing and online privacy
- SmartAM Information Ecology
- Enhance privacy control
 - ▶ UMA Connection
 - ▶ UMA Control bridge
- Future works
- User Experience

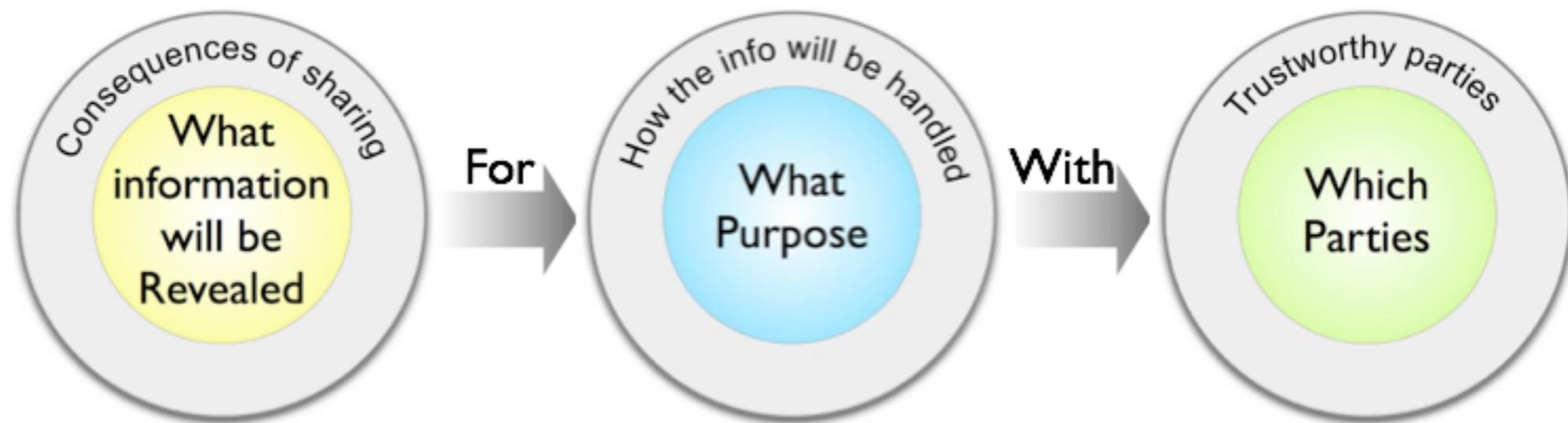
Data sharing

Online Privacy is about sharing

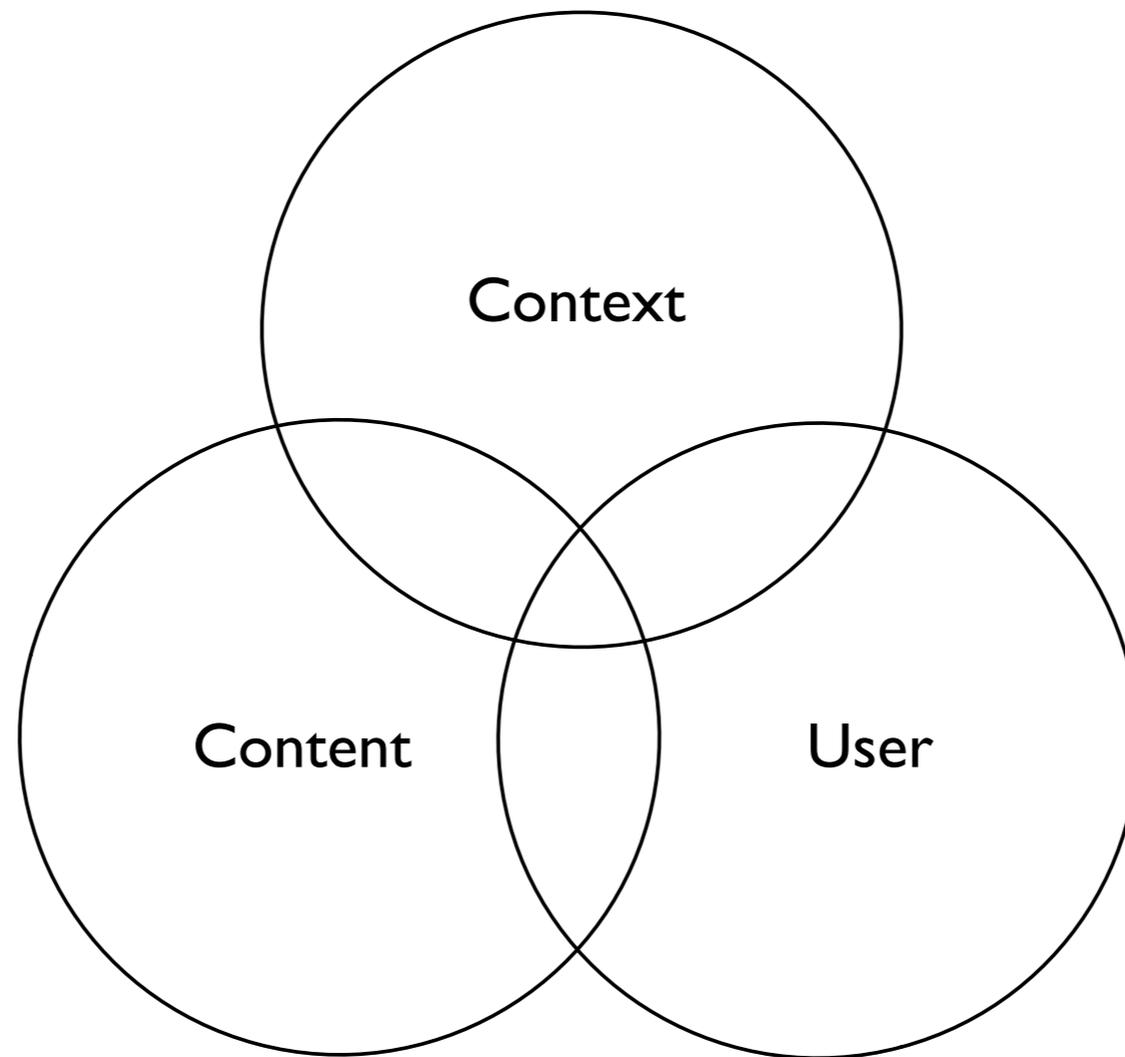


The Paradigm

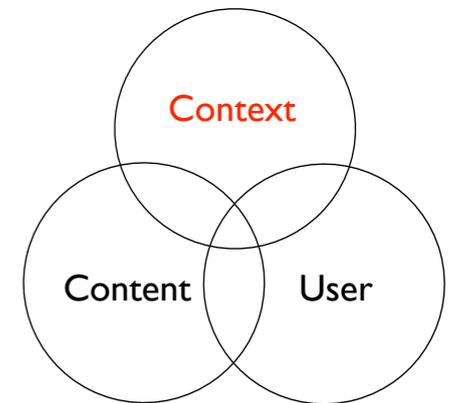
User Data sharing and online Privacy



SmartAM Information Ecology



SmartAM Information Ecology



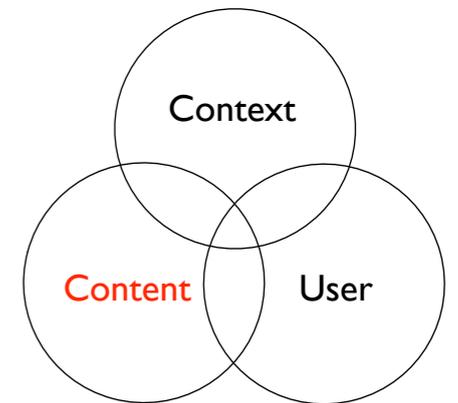
- **UMA/SmartAM Context**

- ▶ Provide an advance system to allow internet user to protect and share online information
- ▶ Prevent of lost of user privacy
- ▶ Adhere to the international privacy regulations
- ▶ Secure online information (access control)

SmartAM Information Ecology

- **UMA/SmartAM Content**

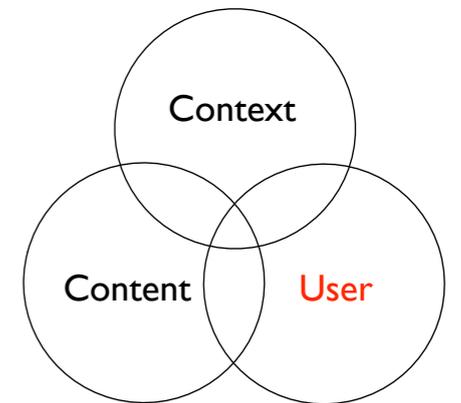
- ▶ Authorizing User information
- ▶ Authorizing User's Web resource info
- ▶ Authorization Policies
- ▶ Requesting Parties Information
- ▶ Analytics information (who, when, what)



SmartAM Information Ecology

- **UMA/SmartAM User**

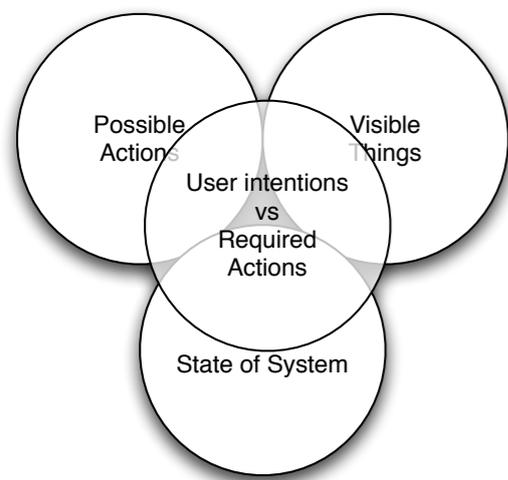
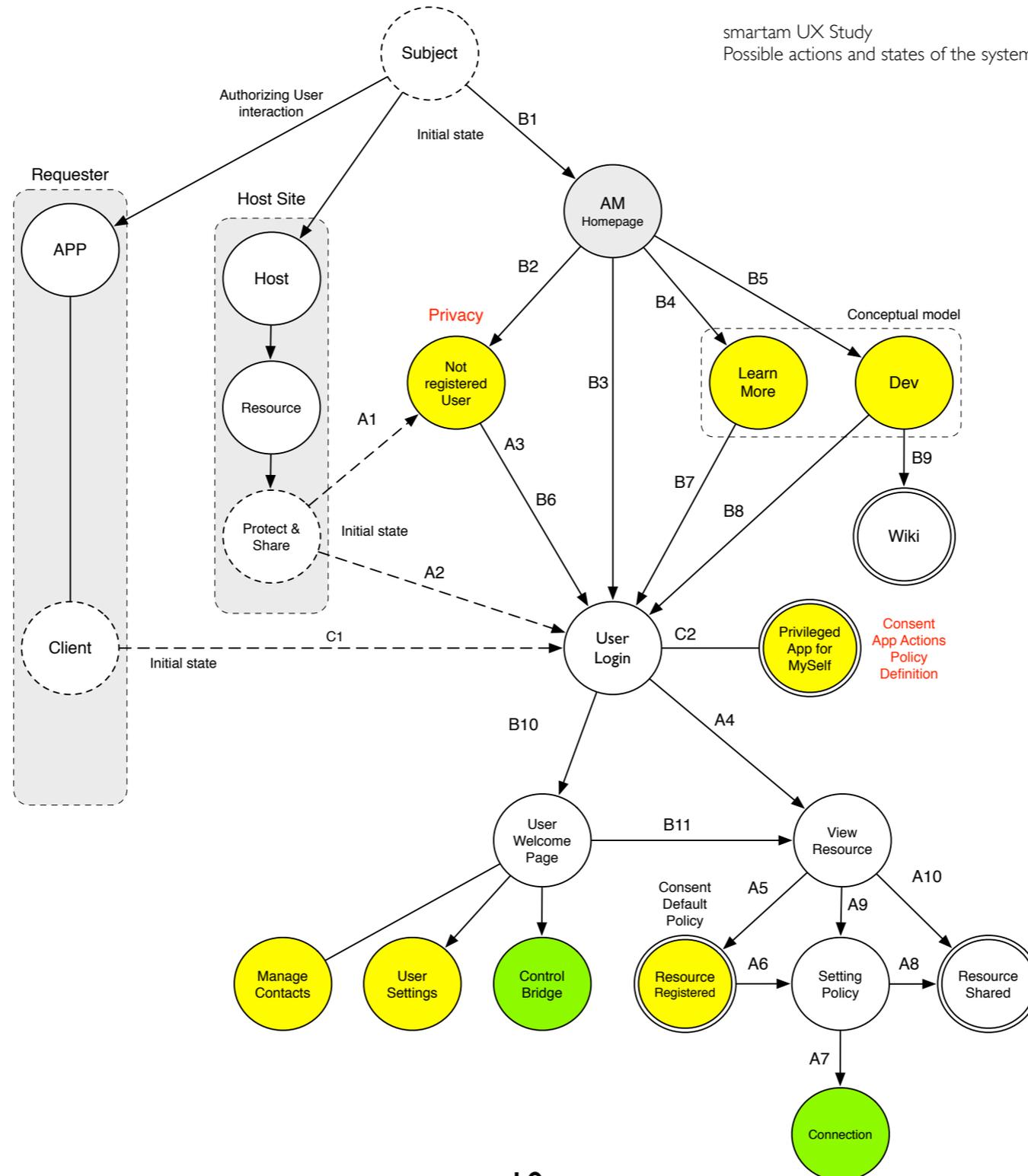
- ▶ Internet User/Social networking user
- ▶ Company
- ▶ Developer
- ▶ Government
- ▶ Curios!!



SmartAM UX

SmartAM states system

smartam UX Study
Possible actions and states of the system



Understand the nature of data sharing policy in distributed environment

- UMA model centralizes the authorization policies for all the Authorizing User's distributed web resource (protected resource).
- The externalization of the policies introduces a new level of complexity because the user must (mentally) map the authorization structure for each resource, in more sophisticated one.
- This new layer must be able to abstracting the existent, although it must be able to enhance the control on the information that will be shared.
- Increasing of Protected resources and requesting parties could be mentally difficult for the user to maintain control in practice on the information.

Risks

- Lost of Privacy
- Exploit of online personal Information
- Security breach

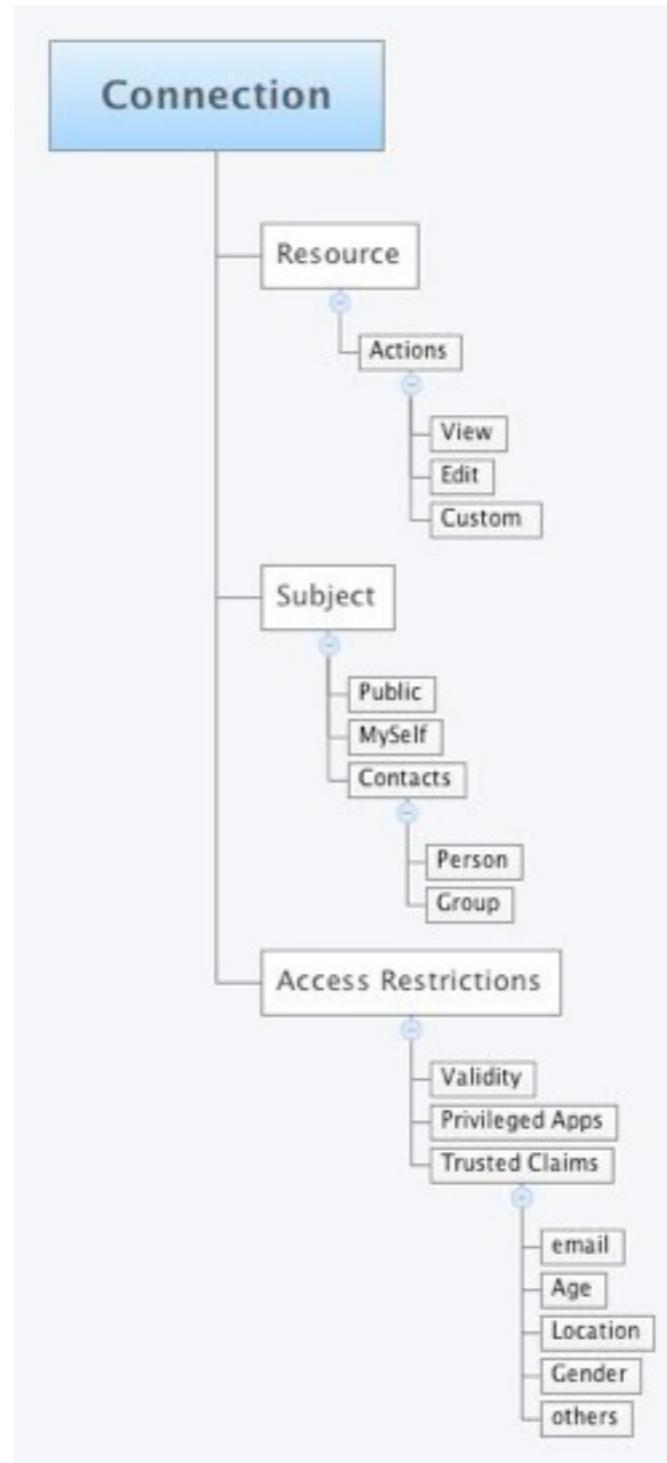
Enhance Privacy Control through visualization

- As result a context authorization policy and a governor system is definitely desirable.
- We introduce two new design concepts:
 - ▶  UMA Connection
 - ▶  UMA Control_{bridge}TM
- A visualization tool is necessary to facilitate the creation of the sharing policy and the control of the privacy.

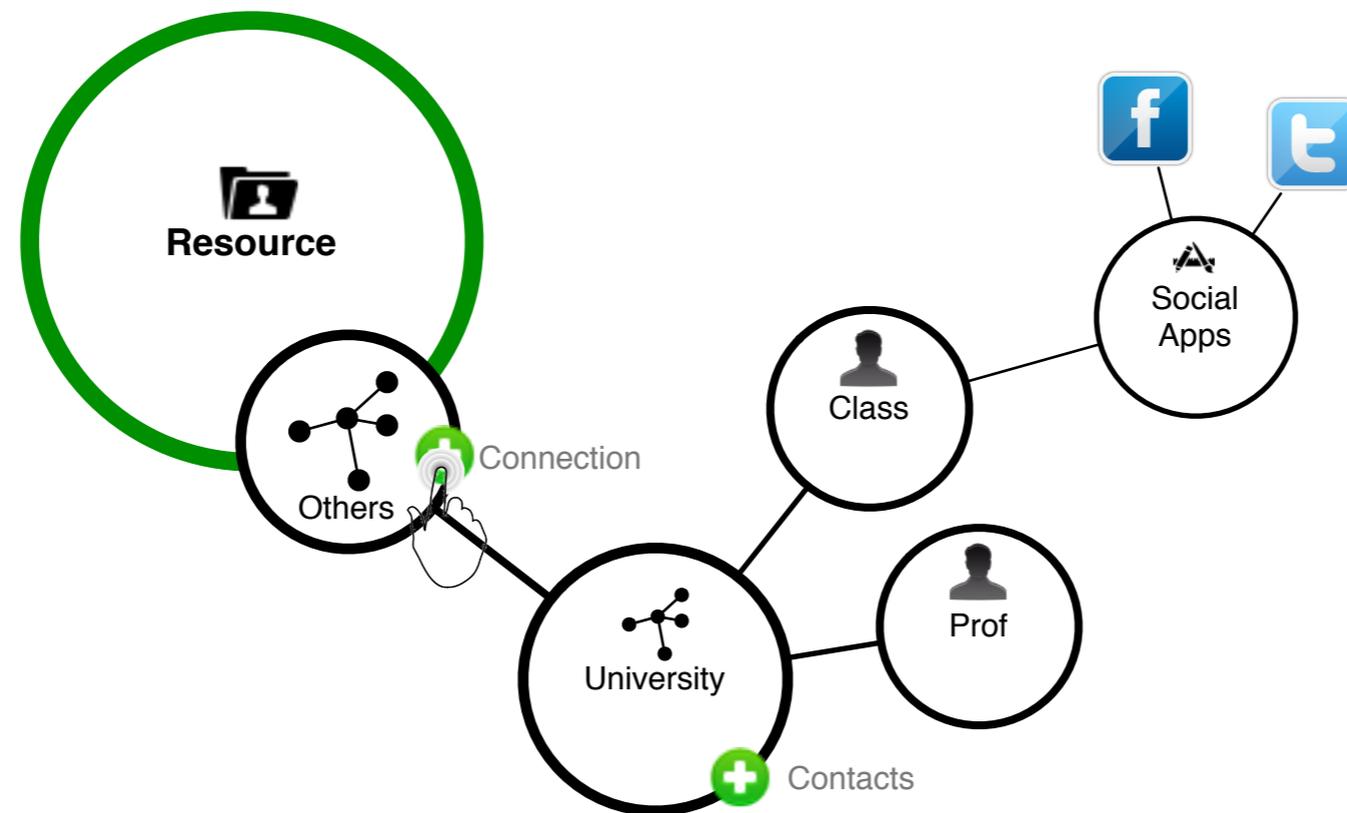
UMA Connection

- An UMA Connection defines a context of the data sharing policy.
 - ▶ It's a set of objects, including Contacts, authorized Apps and allowed actions on a specific resource.
 - ▶ It can include access restrictions (i.e. period validity) and/or Trusted Claims request to restrict access based on subject's information.
- An UMA Connection is fundamental to enhance user control for what purpose the information will be revealed.
- UMA Connection uses a visualization approach which helps user to define an appropriate context.
- An Authorizing User can create a Connection for him-self or for others.
- A Connection doesn't incapsulate other connections.

Structure of UMA Connection



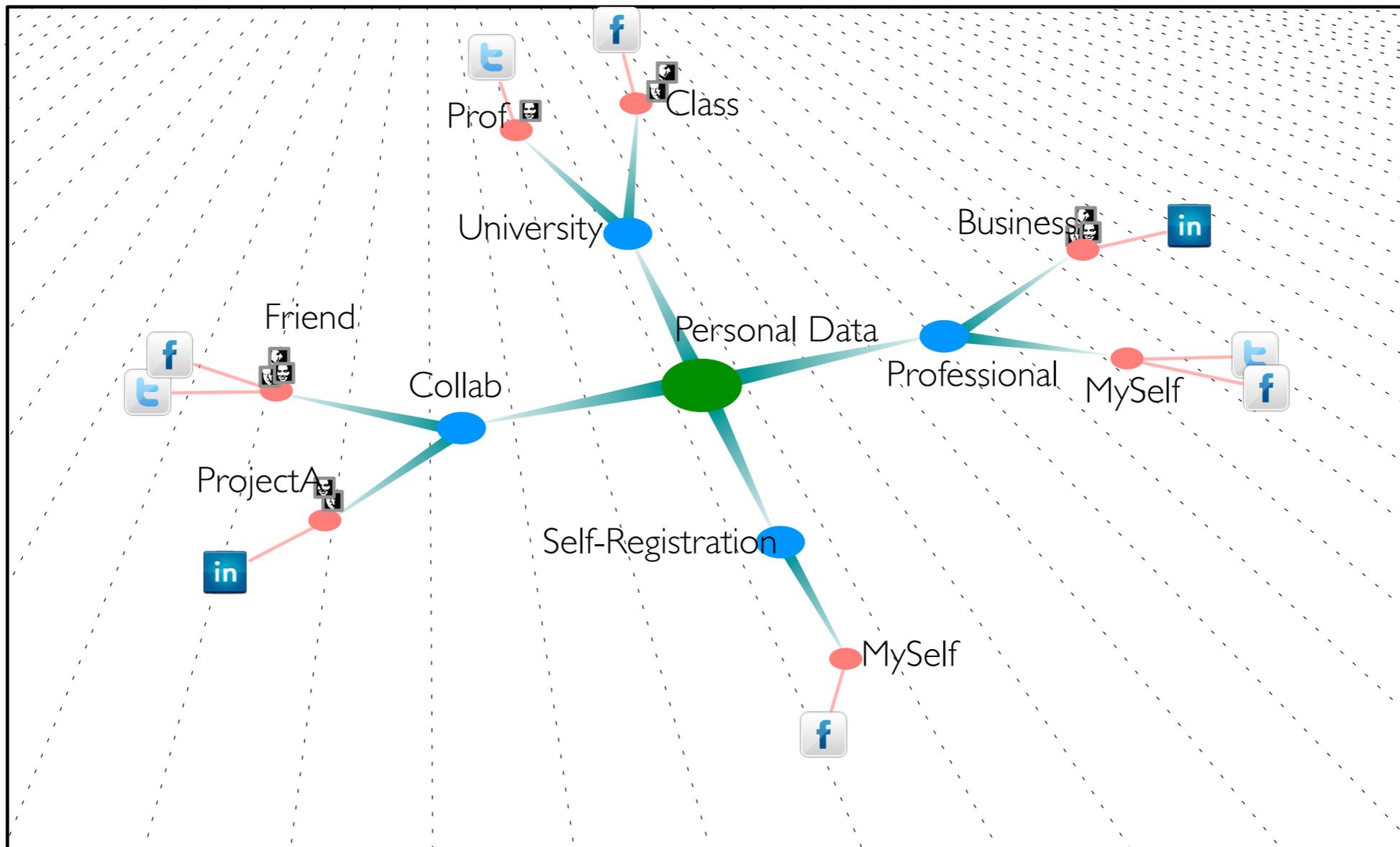
Visualizing UMA Connection



UMA Control bridge

- UMA Control bridge
 - ▶ Is designed to adhere to the user-centric identity paradigm.
 - ▶ Provides a primary user interface for control Resources, Connections, Apps and requesters.
 - ▶ Provides a dashboard with main statistic information about connection, shared data, etc.
 - ▶ Incorporates a single view of these main controls, including a notification bar for new access request.
 - ▶ Provides 3-steps actions to get access to specific view, excluding optional view.

Maintain control on Information that will be revealed



Future works

- Graph Algorithm
- Super Connection (Basket of Resources)
- Visualization techniques (HTML5)

User eXperience

UMA Connection (part 2)
UMA Control bridge (part 3)

Thanks