Privacy-By-Design in Federated Social Web Applications

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What’s wrong with microblogging platforms?
- Close-world architecture
- Lack of machine-readable metadata
- Lack of semantics in microblog posts
- Information overload

Ontologies for microblogging
SMOB relies on and extends popular ontologies, providing an ontology stack for microblogging, and more widely for any Social Semantic Web application. It also focuses on integrating microblog posts into the Linking Open Data cloud.

Decentralized real-time architecture
SMOB hubs are spread on the Web, owned and managed by users. Hubs publish messages and/or subscribe to other hub feeds using PubSubHubBub (PuSH), an open server-to-server (publish/subscribe) pub/sub protocol.

Microblog posts are modelled with this stack, and made available in RDFa for further reuse by Semantic Web enabled software agents.

In addition, SMOB can also run on mobile or laptops thanks to Web Sockets.

Semantic broadcasting
The SPARQL 1.1 Update queries are encoded in the RSS feeds

The WebID protocol and the Privacy Preference Ontology (PPO) allow authentication and access control.

Publishers can decide which subscribers are allowed to access the posts.

The Privacy Challenge
We are currently working on privacy-aware SMOB + PuSH architecture. Our aim is to integrate WebID in PuSH and to implement a privacy preference system within the hubbub that forwards messages to relevant subscribers.

The publisher uses the light weight vocabulary PPO to define his/her privacy preferences.

The following example shows how a publisher, using PPO, can restrict a microblog post to users that are interested in the same concept used to tag the post.

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