

NoTube: Making Television More Personal

The NoTube project consortium¹

Abstract. The NoTube European project looks at creating the future of TV, in which the TV user will be placed back in the driver's seat by having a personalized TV experience with rich interaction possibilities. For this, new technologies like Linked Data, Semantic Web and Social Web data analysis are applied to the TV domain.

The ultimate goal of the EU project NoTube is to develop an adaptive end-to-end architecture, based on semantic technologies, for personalized creation, distribution and consumption of TV content. The project takes a user-centric approach to investigate fundamental aspects of consumers' content-customization needs, interaction requirements and entertainment wishes, which will shape the future of the "TV" in all its new forms. To achieve all that NoTube is working on the following challenges:

- *Integration of TV & Web with help of semantics:* Currently there are many practical software and hardware hurdles for users to handle such integration. NoTube is using semantics (e.g. linked open data) to open and interlink TV content in a Web fashion.
- *Putting the user back in the driving seat:* Personalized services are now common, but the user data is still under the control of separate applications, and the users are faced with multitude of distributed personal data, hidden in tons of inaccessible cookies
- *TV is not bound to one device:* We currently witness multiple device usage scenarios, e.g. use of computer as TV & vice versa and use of mobile device as remote control. In this context, NoTube architecture aims to support device independence.

The main challenges in the television domain are the scale of the content available and the need for filtering and personalization of the content. These challenges are explored from different content and user perspectives within three representative scenarios for future television enabled by semantic technology:

¹ <http://www.notube.tv/project/partners>



Figure 1. RAI demonstrator for personalized news

- *Personalised News* [1]. This demonstrator (Figure 1), using archival content from RAI, shows how news programs can be enriched with concepts (people, places, themes) that allow easy browsing to additional information. The screenshot shows (above) an alert, which allows the user to be informed when a important news story enters in his home ambient.



Figure 2. Stoneroos demonstrator of a personalized TV guide.

- *iFanzys² Personalised TV Guide*. The iFanzys demonstrator (Figure 2), developed by Stoneroos, enables the user to build in a simple fashion a profile which can be used to generate different types of recommendations for personal EPG. This screen shot (above) shows iFanzys in action with Dutch programs and Dutch EPG data.

² <http://www.ifanzys.nl>

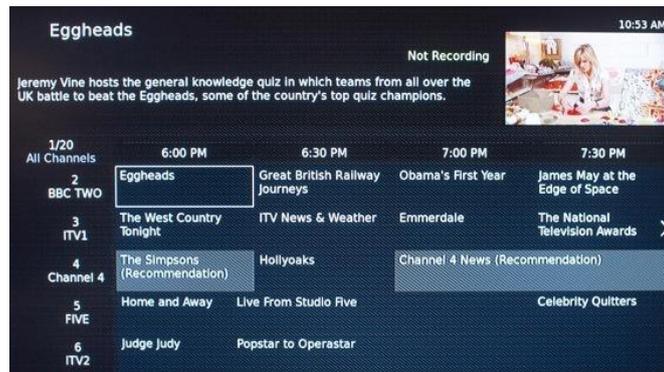


Figure 3. BBC demonstrator of TV programme recommendations

- *TV and the Social Web [2]*. This demonstrator (Figure 3), driven by BBC use cases and content, shows how TV watching can be personalised using Social Web data and facilitating a personalised TV experience without an intrusive user profiling process. It illustrates how TV can be linked to your own or your friend's social-web data, such as bookmarks and Facebook profiles. The screen shot shows a recommendation based on such data using a MythTV³ front end.

To enable this vision, sets of services are developed for users, metadata and TV content, which are described semantically and mediated by a broker. Specific applications are also developed to make use of those services to provide the desired functionalities, e.g. user activity capture, content recommendation. This open TV and Web infrastructure is illustrated in Figure 4. Major features in the NoTube service architecture are:

- User, Metadata and Content oriented services: the complete content selection, adaptation and delivery process from content provider to home ambient is supported.
- Service brokering: Automated configuration of services based on explicit semantic descriptions of the services, which are gathered in the repository.
- Multiple devices: Functionality of NoTube should not be limited to single devices. The demonstrators run on a TV with a setup box, on computers and on mobile devices, as well as one combinations of these (e.g. mobile device as remote control showing recommendations).

³ <http://www.mythtv.org/>

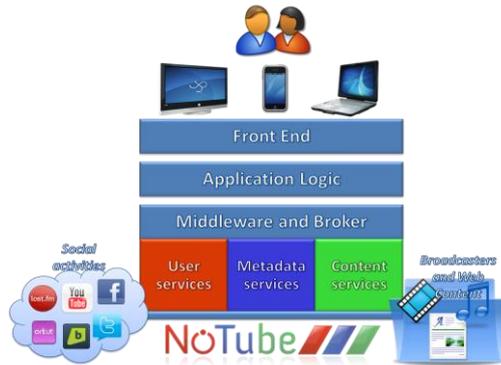


Figure 4. NoTube high level architecture.

For more information about the future of television, please refer to the project Website <http://www.notube.tv> and follow the project blog <http://blog.notu.be>

References

- [1] "Personalised Semantic News: combining Semantics and Television", Robert Borgotallo, Roberto del Pero, Alberto Messina, Fulvio Negro, Luca Vignaroli, Lora Aroyo, Chris van Aart and Alex Conconi at the 1st International ICST Conference on User-centric Media - UCMedia 2009. Dec 2009.
- [2] "Linking TV And Web Using Semantics, A NoTube Application", Balthasar Schopman, Davide Palmisano, Ronald Siebes, Chris van Aart, Véronique Malaise, Michele Minno and Lora Aroyo. In 1st NoTube workshop on Future Television, in the Adjunct Proc. EuroITV 2010. Jun 2010.