Position paper of TELECOM ParisTech

Participant's Interest

TELECOM ParisTech is a French "Grande Ecole" in Paris, i.e. a small university dedicated to Telecommunications and teaching at graduate and PhD levels. TELECOM ParisTech laboratories are part of INSTITUT TELECOM Recherche. TELECOM ParisTech today has a faculty of about 150 full-time staff (full professors, associate and assistant professors), over 200 part-time lecturers and a student body of about 1000 students.

The Multimedia group of the Signal and Image Processing Department is:
- involved in HbbTV development, testing and promotion, through its participation in a French project called openHbb.
- involved with/implementer of W3C widgets, and extensions for widget communication within the home network (MPEG-U: interface with discovery, communication and agent-like mobility across devices).
- involved with/implementer of MPEG DASH.
- involved with/implementer of SVGT1.2 and other presentation standards in the open source platform GPAC.
- involved with W3C and other standards for the past 15 years.

Initially focused on multimedia scene representation, the team expanded its interest to a more general "service" perspective, with service as seen by the user, i.e. a coherent set of functionality for the user.

Point of View

Today, any service to the user is either implemented as a (native) software application, running on a particular device and OS, or if implemented as a Web application, then as one document (view/session) at a time and coming from the Internet (online).

The home environment is constituted of more and more devices with extremely varying characteristics. It is heterogeneous, whatever the point of view: devices have a screen or not, large or small, have input capabilities or not, are personal and public, have computing power or not... Such an environment is, in a sense, multi-centralized. Specific features of a device implicitly make this device a server for these specific features. Any service requiring these features must connect to that device or to a service exported by that device. Parts of the service may be executed on a choice of devices, and as such, may need to be adapted. A service, on the other hand, should be easy to use. Detailed management of its mapping onto devices should be transparent to the user. More: if the availability of devices changes, then the service should be transparently reconfigured, without loss of execution context.

We want to create a new model of service, which is a collaboration of multiple applications running on multiple devices, including discovered devices, each application not tied to one device and able to move to another device without losing state, and coming from Internet or broadcast or the local network.

And yet, because native software applications will stay as an important component of the home architecture, the new service model should allow the seamless integration of native and Web components, and the seamless switching between native and Web components.

The challenge is to allow the convergence of Internet, the mobile world, the home media (TV, set top boxes, gaming consoles, etc.) world within the home network by providing this new service model, lowering the cost of designing and using these services for all actors.

We are working on the above subject in collaboration with Fraunhofer FOKUS and the webinos project, of which Telecom ParisTech is now an affiliate member.

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