Towards a better multi-device notification system

Duration   : 4-6 months
Level   : Master
Team   : Loki (Inria Lille – Nord Europe & CRIStAL)
Supervisor   : Sylvain Malacria (sylvain.malacria@inria.fr)

This project in Human-Computer Interaction (HCI) consists in designing, implementing and evaluating novel solutions to propagate notifications across a multi-device environments in a way that is more adapted to users needs.

Context

Our digital ecosystem consists in various connected devices. It becomes common to own several of these devices (laptop computer, smartphone, smartwatch) and to articulate our activities around them. The interaction becomes more "mobile" and less attached to a single device. Handling phone calls is a typical example: when the user receives a phone call, all her connected device notify her so she can answer on the device she prefers to use in this specific situation.

Several problems are associated with this relatively naive approach that does not exploit the rich information that is user activity in order to notify her in a "smarter" way. Indeed, notifications are often accidentaly delayed depending on the device, requiring the user to answer on a device she was not interacting with at this time. Moreover, if all the devices are co-located (i.e., in the same room), they will all notify the user at the same time, which may create additional frustration. This project consists in designing, implementing and evaluating novel solutions to propagate notifications across a multi-device environments in a way that is more adapted to users needs and preferences.

Objectives

The objectives of this project are :
- Implement simple activity monitors for desktop computers, smartwatches, smartphones, etc.
- Implement a server (Web or local) that receives data from the activity monitors running on the devices and can distribute notifications to these devices
- Design and implement interaction techniques, user interfaces and smart algorithms that will help user to configure multi-device notifications propagation in more elaborated and advanced ways.
- Run qualitative and quantitative user evaluations to investigate the benefits of the proposed solutions

The candidate will explore Human-Computer Interaction (HCI) research questions in this project. It is also an opportunity to discover/improve mobile programming skills (smartphones, smartwatches) through a particularly timely project. Depending on the progress of the project, these results may be submitted as a research paper.

Candidate

A successful candidate must be MSc student in computer science or equivalent, and show a great interest in performing high quality research in Human-Computer Interaction. He or she must demonstrate experience or strong interest in software development and object oriented programming. Creativity, independence, team working and communication skills are valuable advantages.

It is not required to speak French. A good level of technical and scientific English is also a plus.

If interested in this project, simply e-mail Sylvain Malacria (sylvain.malacria@inria.fr).