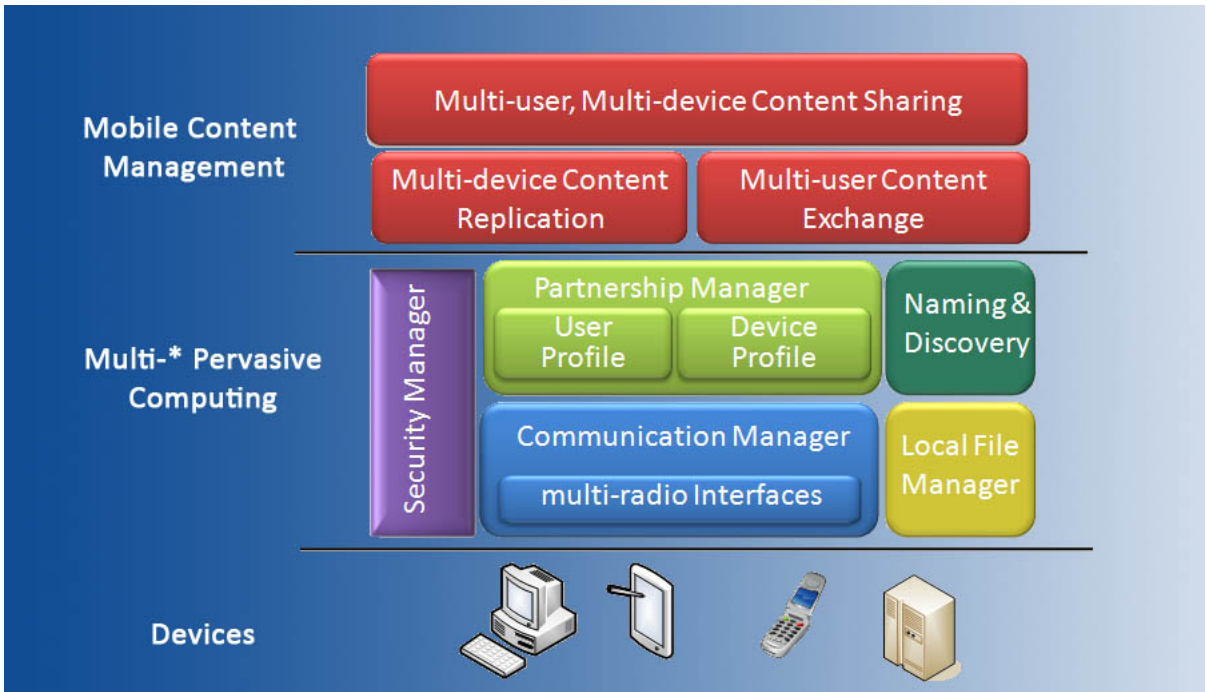
Motivation

Nowadays, users rely on various sets of connected devices and services to interact with each other: home gateways, laptops, smartphones, UMPC, enterprise servers, Web/cloud computing services, etc. While for a long time, interactions have been mostly Web-centric, users now routinely engage in user centric interactions such as content sharing and social networking through mobile devices. Still, while mobile devices have become very capable of communicating with other devices, accessing or exchanging content is far from being easy: communication costs are still high, communication protocols are not uniformly supported, communication links are not always reliable, etc. Another problem lies in the role usually assigned to mobile devices.

Although mobile devices are the primary terminals for interaction, they have essentially focused on (i) acting as clients accessing services in the infrastructure (e.g., enablers in the IMS infrastructure for Telecoms networks, or Web services in the Internet), or (ii) manipulating content stored locally (e.g., multimedia content playback). So far, there has been little success in truly integrating these mobile devices in the pervasive computing environment (i.e., acting also as resource or service providers). Furthermore, the use of multiple devices, having large storage capabilities, has resulted in the scattering of content on a set of devices, which, ironically, is making access to all the content that one possesses a big challenge (Where is this file? Is it the latest version?). This problem becomes acute when it comes to impromptu collaboration (e.g., in business meetings, conferences, or on the road). Such collaborations often require exchange of content, and have to wait till the user gets physical access to the device over which the required content (or the correct/latest version) is currently stored. Delay in accessing the content often cause frustration and missed opportunities.

Research

To answer the above challenges, and better support interactions between mobile users, we are developing the iBICOOP middleware. Our middleware addresses these challenges by targeting both fixed and mobile devices, leveraging their characteristics (e.g., always on and unlimited storage for home/enterprise servers, ad hoc communication link between mobile devices), and by leveraging the capabilities of all available networks (e.g., ad hoc networks, Internet, Telecoms infrastructure networks). It also relies on Web and Telecoms standards to promote interoperability.



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Technology Transfer

- AMBIENTIC : Ambient intelligence for nomadic communities

Presentations (registered users only)

Publications

Titre The iBICOOP middleware: Enablers and Services for Emerging Pervasive Computing Environments AuteursBennaceur Amel; Pushpendra Singh; Raverdy Pierre-Guillaume; Issarny Valérie DétailIn *PerWare 2009 IEEE Middleware Support for Pervasive Computing Workshop* (09/03/2009)

1-6 Accès au texte intégral