

# Enabling Heterogeneous Mobility in Android Devices

Ricardo Silva, Paulo Carvalho\*, Pedro Sousa\*, Pedro Neves

PT INovação, S.A.  
Portugal Telecom Group  
P-3810-106 Aveiro, Portugal

\*Centro ALGORITMI  
Universidade do Minho  
Departamento de Informática  
P-4710-057 Braga, Portugal

Tel.: +351 253 604432  
Fax.: +351 253 604471  
E-mail: pmc at di.uminho.pt

---

## Abstract

The fast growing of mobile Internet users with the ability of using a wide diversity of access technologies such as Wi-Fi, WiMAX and UMTS/LTE, and the increasing proliferation of mobile devices with heterogeneous network interfaces, require versatile mobility mechanisms providing seamless roaming across those access technologies. Mobility agents such as Mobile IP and Fast MIPv6 are common, however, these solutions still have limitations when dealing with multiple link-layer technologies. In this context, the emerging standard IEEE 802.21 provides a framework which enables mobile agents and network operators to improve the handover process in heterogeneous networks. In this context, this paper presents and discusses the design and implementation of a mobility-aware solution for an Android device, using the IEEE 802.21 framework. A modified Android user terminal is proposed to improve the handover process, assuming a make-before-break approach. Resorting to an experimental testbed, the obtained results show that the proposed solution is an effective contribution to successfully accomplish seamless mobility of Android-based devices operating in 3G and Wi-Fi networks.

Keywords: Heterogeneous mobility; Android; IEEE 802.21

---

*Mobile Networks and Applications (MONET)*, Springer, 2011.  
[DOI](#)

© 2011 CCN | Last modified Sat, Aug 6th, 2011