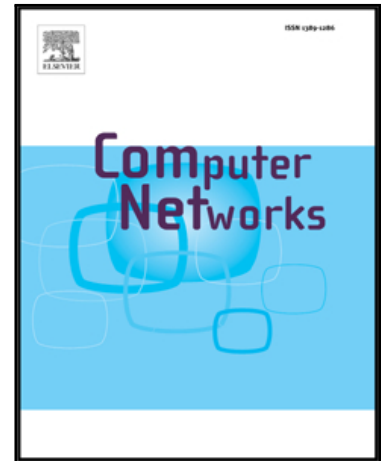


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Distributed Mobility Management solutions for next mobile network architectures

Luca Cominardi^{a,b,*}, Fabio Giust^c, Carlos J. Bernardos^b, Antonio De La Oliva^b

^a*IMDEA Networks Institute, Madrid, Spain*

^b*University Carlos III of Madrid, Spain*

^c*NEC Laboratories Europe, Heidelberg, Germany*

Abstract

The architecture of current operator infrastructures is being challenged by the non-stopping growing demand of data hungry services appearing every day. While currently deployed operator networks have been able to cope with traffic demands so far, the architectures for the 5th generation of mobile networks (5G) are expected to support unprecedented traffic loads while decreasing costs associated to the network deployment and operations. Distributed Mobility Management (DMM) helps going into this direction, by flattening the network, hence improving its scalability, and enabling local access to the Internet and other communication services, like mobile-edge clouds. Initial proposals have been based on extending existing IP mobility protocols, such as Mobile IPv6 and Proxy Mobile IPv6, but these need to further evolve to comply with the requirements of future networks, which include, among others, higher flexibility. Software Defined Networking (SDN) appears as a powerful tool for operators looking forward to increased flexibility and reduced costs. In this article, we first propose a Proxy Mobile IPv6 based DMM solution which serves as a baseline for exploring the evolution of DMM towards SDN, including the identification of DMM design principles and challenges. Based on this investigation, we pro-

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*Corresponding author

Email address: luca.cominardi@imdea.org (Luca Cominardi)

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