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Final report on AROMA algorithms and simulation results

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Abstract:

This deliverable provides the description and complete evaluation of the developed algorithms within AROMA WP3. For the sake of consistency, this deliverable includes, in addition to the reporting of the progress achieved since the delivery of D12, a summarised description of the most relevant results of the project in its whole lifecycle.

Keyword list:

End-to-end QoS, Heterogeneous networks, Beyond 3G systems, Radio Resource Management (RRM), Common Radio Resource Management (CRRM), Coordinated Access Resource Management (CARM), Automated Tuning, UTRAN, GERAN, WLAN, High Speed Packet Access (HSPA), Transport Network, Radio Access Network, Implementation.

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Table of Contents

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EXECUTIVE SUMMARY

This deliverable reports, on the one hand, the technical progress achived in AROMA-WP3 in the period April-October 2007 and, on the other hand, as a final report, it provides a comprehensive and consolidated view for the resource management problem in a heterogeneous beyond 3G scenario as a result of the whole AROMA project development. In order to meet both objectives and come up with a consistent and easy-reading document, the report has been developed providing in the main body a compiled view assessed along AROMA-WP3 life-cycle, including the necessary references to aspects already reported in deliverables D09 and D12. In turn, the detailed technical reporting of the results achieved in the period April-October 2007 has been collected in Annexes in order to enforce the holistic view of the AROMA results.

From a technical perspective, this document starts with the overview of the main QoS related concepts in mobile heterogeneous networks in order to establish the overall end-to-end QoS framework in the AROMA project. Then, a global framework for coordinating the resource usage in both the radio and the transport network parts is presented, referred to as Coordinated Access Resource Management. In accordance with this framework, specific strategies for the radio part dealing with common radio resource management strategies and intrinsic radio resource management mechanisms for some specific technologies are also presented, together with mechanisms for the transport network part. Furthermore, a particular radio resource management level, intended to perform an automated optimization of different radio parameters impacting on network performance is also addressed. Finally, different algorithm implementation aspects are covered.