Simulator for PROSIMOS (PRiority communications for critical SItuations on MOBILE networkS) Service

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Abstract. Public Mobile Networks (PMN) are at the very heart of nowadays communications. They are not only used by individuals, but also by a large number of Agencies committed to Security and Safety. This will be even more common in near future, when cities become crowded with real time sensors scattered in every corner of our lives. The ability from this data (and others from First Responders teams) to reach its assigned Command and Control Centers in time can be determinant in a large number of incidents. PROSIMOS project aims at researching on business cases for the implementation of a priority communications system on public mobile networks (PMN). The objective of this system is to enable critical users to communicate during emergency situations, in a time when PMN services may be restricted due to damage, congestion or faults. The scope of the project is to identify the best business case to be adopted to cope with this requirement, guaranteeing its short term implementation in Europe. In order to accomplish this goal a Business Model Simulator has been designed including both economical and network performance features. In this paper we present the Simulator that has been designed in order to identify the most suitable business model and technology to be adopted for the implementation of PROSIMOS service. When taking into consideration enabler technologies for EMSOA PROSIMOS is a not to be missed one.

Keywords: EMSOA Enabler Technology, Priority Communications, Wireless Emergency Communications, Business Models.

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1 Introduction

Private Mobile Radios (PMR) like TETRA, TETRAPOL and many other constitute the backbone of nowadays First Responders’ Communications. This realization under the shape of different private networks entails, however, several inconveniences: high deployment and maintenance costs and interoperability problems are the most notorious ones.

On the other hand, Public Mobile Networks (PMN) have a penetration ratio superior to 99% of EU territory, interoperability always guaranteed. Nevertheless its public conception has, so far, discouraged its usage during emergencies, since day-to-day experience has shown how, after a catastrophe, increase in service demand brings PMN to default due to the dramatic increase in service demand.

Some countries have been working on how to make available to First Responders Priority Services in their PMN. It is in United States where most serious advances have been made with the implementation of WPS: Wireless Priority Service, introduced in 2002, for public mobile networks. But, other countries such as UK, Peru, Canada, and Sweden have also taken steps in this direction.

In the use case of Spain analyzed in PROSIMOS, priority communications through PMNs are neither available nor planned in the short-term. Communications for safety issues are handled through a plethora of PMR, deployed at national, regional or local scope, with the aforesaid problems of cost and interoperability.

![PMR maze in Spain](image)

Fig. 1. PMR maze in Spain

The idea of implementing priority services in public mobile networks for First Responders may overcome some of these problems. Even more, now with the hot controversy going on about net neutrality, PROSIMOS concept is to be born in mind. But in order to become a reality, a deep analysis of user requirements, cost and associated business models is erstwhile needed.