

## Enabling Privacy-assured Mobile Advertisement Targeting and Dissemination

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### ABSTRACT

With the fast growing market of mobile applications, mobile advertising attracts wide attention from both business and research communities in recent years. Targeted mobile advertising aims to analyze user profile and explore user interests so as to deliver ads to potentially interested users and maximize revenue. However, collecting user personal information raises severe privacy concerns. In this paper, we propose a practical targeted mobile advertising service framework while preserving user privacy and enabling accurate targeting. In particular, this framework enables accurate and private user targeting through a privacy-preserving matrix factorization protocol via homomorphic operations. To achieve private ads dissemination, it further adopts the latest advancement of private information retrieval (PIR) to allow the users to obtain accurate ratings and retrieve the most relevant ads without revealing their profiles and accessed encrypted ads. Security and cost analysis are conducted to show that our design achieves strong security guarantees with practical performance.

This paper was presented at the International Workshop on Security in Cloud Computing (ASIACCS-SCC) 2017, April 2-6, Abu Dhabi, UAE.

Supervisor: Dr WANG Cong

Research interests: Cloud Computing Security; Secure Computation; Mobile Security and Privacy

**All are welcome!**



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