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THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Seminar

On the Economic Effects of Sharing Femtocell

by

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The Chinese University of Hong Kong

Abstract

The femtocell is a promising technology to handle exponentially increasing wireless data traffic. Despite extensive attentions paid to resource control mechanisms, e.g., power control and load balancing in femtocell networks, the success largely depends on whether operators and users accept this technology or not. In this paper, we study the economic aspects of femtocell services for the cases of monopoly and duopoly, and aim at answering questions regarding operator's revenue, user surplus, and social welfare by considering practical service types and pricing strategies. We consider three user subscription services: users can access only macro BSs (mobile-only), open, or exclusively use their femto BS (open or closed-femto), and two pricing strategies: flat pricing and partial volume pricing. The main messages include the followings: 1) open-femto service is beneficial to both users and providers; 2) the impact of allowing or blocking the access of mobile-only users to open femto BS on the providers' revenue is minor; 3) compared to partial volume pricing, flat pricing is advantageous to the operator when users are sensitive to price; 4) the provider who first starts the femto service occupies most of the market share.

Biography

Jeonghoon Mo received the BS degree from Seoul National University, Korea, and the MS and Ph.D. degrees from the University of California, Berkeley. He is a professor in the department of Information and Industrial Engineering at Yonsei University. Before joining Yonsei University, he was with AT&T Bell Laboratories, Middletown, New Jersey, and with start-ups in San Jose, California. He worked for voice-over-IP (VoIP) quality assessment and performance analysis of network processor. He is the author of " Performance Modeling of Communication Networks with Markov Chains". His research interests include network economics, optimization, performance analysis, transport/media access control (MAC) design of communication networks, WiMax, and Wi-Fi.

**** ALL ARE WELCOME ****

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