Centralized Channel Allocation Scheme in Densely Deployed 802.11 Wireless LANs

Tae Hun Lim*, Wha Sook Jeon*, Dong Geun Jeong**

*Department of Computer Science and Engineering, Seoul National University, Korea

**Department of Electronics Engineering, Hankuk University of Foreign Studies, Korea

thlim@mccl.snu.ac.kr, wsjeon@snu.ac.kr, dgjeong@hufs.ac.kr

Abstract— **In densely deployed WLAN environment, the WLAN can experience severe inter-cell interference which may cause a considerable performance degradation. In order to mitigate this issue, we propose a centralized channel allocation scheme considering the uncontrolled neighboring access points. The proposed scheme estimates the channel utilization based on the received beacon signals without any help from clients. The performance of the proposed scheme is evaluated by the experiment. Despite the simplicity of the proposed scheme, it shows the best performance within compared schemes.**

Keyword— **Centralized, channel allocation, channel assignment, channelization, 802.11.**

Tae Hun Lim received the B.S. degrees in computer engineering from Sejong University, Korea in 2009. He is currently pursuing M.S. degree in the Department of Computer Science and Engineering, Seoul National University, Korea. From 2009-2014, he was with Telecommunication Business of Samsung Electronics Co., Ltd., Korea. His research interests include communication protocols, wireless local area networks, and wireless personal area networks.

Wha Sook Jeon (M'90–SM'01) received the B.S., M.S., and Ph.D. degrees in computer engineering from Seoul National University, Seoul, Korea, in 1983, 1985, and 1989, respectively. From 1989 to 1999, she was with the Department of Computer Engineering, Hansung University, Korea. In 1999, she joined the faculty at Seoul National University, Korea, where she is currently a Professor in the Department of Computer Science and Engineering. Her research interests include resource management for wireless and mobile networks, mobile communications systems, high-speed networks, communication protocols, and network performance evaluation. Dr. Jeon currently serves on the Editorial Board of the Journal of Communications and Networks (JCN). She is a senior member of the IEEE.

Dong Geun Jeong (S'90–M'93–SM'99) received the B.S., M.S., and Ph.D. degrees from Seoul National University, Seoul, Korea, in 1983, 1985 and 1993, respectively. From 1986 to 1990, he was a researcher with the R&D Center of DACOM, Korea. In 1994–1997, he was with the R&D Center of Shinsegi Telecomm Inc., Korea, where he conducted and led research on advanced cellular mobile networks. In 1997, he joined the faculty at Hankuk University of Foreign Studies, Korea, where he is currently a Professor in the Department of Electronics Engineering. His research interests include resource management for wireless and mobile networks, mobile communications systems, communication protocols, and network performance evaluation. From 2002 to 2007, Dr. Jeong served on the Editorial Board of the Journal of Communications and Networks (JCN). He is a senior member of the IEEE.